

Vision-based path coordination for multiple mobile robots with four steering wheels using an overhead camera

In this paper, we extend our previous work to introduce a vision-based path coordination method for multiple mobile robots with four steering wheels to avoid mutual collisions, so that the generated paths are always in the visibility range of the overhead camera. The proposed algorithm generates the synchronized trajectories for all wheels belonging to each mobile robot, with respect to its inertial-frame, relying on only one calibrated camera. These synchronized trajectories reduce the complexity of the robot kinematic model to plan maximum allowable bounded driving and steering velocities for each mobile robot. The main contribution of the proposed method is coordinating the trajectories for multiple mobile robots to avoid intersection boundaries that are obtained by generated geometrical traces in real world coordinates. Our experimental results are presented to illustrate the efficiency of the proposed method for the path coordination of multiple mobile robots with four steering wheels to avoid mutual collision.

General information

Publication status: Published

MoE publication type: A4 Article in a conference publication

Organisations: Department of Intelligent Hydraulics and Automation, Research group: Mobile manipulation

Contributors: Ziaei, Z., Oftadeh, R., Mattila, J.

Number of pages: 8

Pages: 261-268

Publication date: 1 Jul 2015

Host publication information

Title of host publication: IEEE International Conference on Advanced Intelligent Mechatronics (AIM), 2015

ISBN (Print): 978-1-4673-9107-8

Keywords: cameras, collision avoidance, mobile robots, robot kinematics, robot vision, steering systems, trajectory control , calibrated camera, multiple mobile robots, overhead camera, robot kinematic model, steering wheels, synchronized trajectories, vision-based path coordination, Cameras, Collision avoidance, Mobile robots, Robot kinematics, Trajectory, Wheels, Four steering wheels, Intersection region, Multiple mobile robots, Nonholonomic mobile robots, Path coordination , Steering and driving velocity, Vision-based method

DOIs:

10.1109/AIM.2015.7222542

Source: Bibtex

Source ID: urn:a1ad44c17a4d88dc0b2e6fb580e7e7f2

Research output: Chapter in Book/Report/Conference proceeding > Conference contribution > Scientific > peer-review

Fabrication and characterization of broadband superluminescent diodes for 2 μm wavelength

Single-mode superluminescent diodes operating at 2 μm wavelength are reported. The structures are based on GaSb material systems and were fabricated by molecular beam epitaxy. Several waveguide designs have been implemented. A continuous-wave output power higher than 35 mW is demonstrated for a spectrum centered at around 1.92 μm . We show that the maximum output power of the devices is strongly linked to spectrum width. Device having low output power exhibit a wide spectrum with a full-width half-maximum (FWHM) as large as 209 nm, while devices with highest output power exhibit a narrower spectrum with about 61 nm FWHM.

General information

Publication status: Published

MoE publication type: A4 Article in a conference publication

Organisations: Optoelectronics Research Centre, Research group: Semiconductor Technology and Applications

Contributors: Zia, N., Viheriälä, J., Koskinen, R., Koskinen, M., Suomalainen, S., Guina, M.

Publication date: 2016

Host publication information

Title of host publication: Light-Emitting Diodes: Materials, Devices, and Applications for Solid State Lighting XX

Publisher: SPIE

Article number: 97680Q

ISBN (Electronic): 9781510600034

Publication series

Name: Proceedings of SPIE

Volume: 9768

ISSN (Print): 0277-786X

ISSN (Electronic): 1996-756X

ASJC Scopus subject areas: Applied Mathematics, Computer Science Applications, Electrical and Electronic Engineering, Electronic, Optical and Magnetic Materials, Condensed Matter Physics

Keywords: Gallium antimonide, SLD design, Superluminescent diodes, Tilt waveguide

Electronic versions:

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DOIs:

10.1117/12.2209720

URLs:

<http://urn.fi/URN:NBN:fi:tty-201706201608>

Bibliographical note

INT=orc,"Koskinen, Mervi"

Source: Scopus

Source ID: 84978727362

Research output: Chapter in Book/Report/Conference proceeding > Conference contribution > Scientific > peer-review

High performance GaSb superluminescent diodes for tunable light source at 2 μm and 2.55 μm

We report on GaSb-based superluminescent diodes emitting an output power of 70 mW at 2 μm and the first demonstration of 2.55 μm SLD with mW-level output power at room temperature for compact gas sensors.

General information

Publication status: Published

MoE publication type: A4 Article in a conference publication

Organisations: Photonics, Research group: ORC

Contributors: Zia, N., Viheriälä, J., Koivusalo, E., Aho, A., Suomalainen, S., Guina, M.

Publication date: 2018

Host publication information

Title of host publication: CLEO : Applications and Technology, CLEO_AT 2018

Publisher: OSA - The Optical Society

ISBN (Electronic): 9781557528209

ASJC Scopus subject areas: Electronic, Optical and Magnetic Materials, Mechanics of Materials

DOIs:

10.1364/CLEO_AT.2018.JTu2A.28

Source: Scopus

Source ID: 85049139256

Research output: Chapter in Book/Report/Conference proceeding > Conference contribution > Scientific > peer-review

Sub-100 fs pulse generation from a Tm,Ho: CALYO laser mode-locked by a GaSb-based SESAM at ~2043 nm

We report on the first sub-100-fs mode-locked Ho³⁺-laser in the 2- μm spectral range. The disordered co-doped Tm,Ho:CaYAlO₄ (Tm,Ho:CALYO) crystal produced pulses as short as 87 fs with 27-mW average output power at 80.45-MHz repetition rate.

General information

Publication status: Published

MoE publication type: A4 Article in a conference publication

Organisations: Photonics, Max Born Institute, Jiangsu Normal University, Universitat Rovira i Virgili, China Academy of Engineering Physics, ITMO University, Tongji University

Contributors: Zhao, Y., Wang, Y., Zhang, X., Mateos, X., Pan, Z., Loiko, P., Zhou, W., Xu, X., Xu, J., Shen, D., Suomalainen, S., Härkönen, A., Guina, M., Griebner, U., Petrov, V.

Publication date: 1 Jan 2018

Host publication information

Title of host publication: CLEO : Science and Innovations, CLEO_SI 2018

Publisher: OSA - The Optical Society

ISBN (Electronic): 9781557528209

ASJC Scopus subject areas: Electronic, Optical and Magnetic Materials, Mechanics of Materials

DOIs:

10.1364/CLEO_SI.2018.SF2N.1

Source: Scopus

Source ID: 85048984709

Research output: Chapter in Book/Report/Conference proceeding > Conference contribution > Scientific > peer-review

Samsung and Volkswagen crisis communication in Facebook and Twitter: A comparative study

Since September 2015 at least two major crises have emerged where major industrial companies producing consumer products have been involved. In September 2015 diesel cars manufactured by Volkswagen turned out to be equipped with cheating software that caused NO₂ and other emission values to be reduced to acceptable levels while tested from the real, unacceptable values in normal use. In August 2016 reports began to appear that the battery of a new smart phone produced by Samsung, Galaxy Note7, could begin to burn, or even explode, while the device was on. In Nov. 2016 also

34 washing machine models were reported to have caused damages due to disintegration. In all cases, the companies have experienced substantial financial losses, their shares have lost value, and their reputation has suffered among consumers and other stakeholders. In this paper, we study the commonalities and differences in the crisis management strategies of the companies, mostly concentrating on the crisis communication aspects. We draw on Situational Crisis Communication Theory (SCCT). The communication behaviour of the companies and various stakeholders during crisis is performed by investigating the official web sites of the companies and communication in Twitter and Facebook on their own accounts. We also collected streaming data from Twitter where Samsung and the troubled smart phone or washing machines were mentioned. For VW we also collected streaming data where the emission scandal or its ramifications were mentioned and performed several analyses, including sentiment analysis.

General information

Publication status: Published

MoE publication type: A4 Article in a conference publication

Organisations: Industrial and Information Management, Jyväskylän yliopisto, Laboratory of Industrial and Information Management

Contributors: Zhang, B., Veijalainen, J., Kotkov, D.

Number of pages: 12

Pages: 312-323

Publication date: 2017

Host publication information

Title of host publication: WEBIST 2017 - Proceedings of the 13th International Conference on Web Information Systems and Technologies

Publisher: SCITEPRESS

ISBN (Electronic): 9789897582462

ASJC Scopus subject areas: Computer Networks and Communications, Information Systems

Keywords: Crisis communication strategies, Facebook, Samsung Galaxy Note 7 crisis, Samsung washing machine crisis, SCCT, Sentiment analysis, Twitter, Volkswagen emission crisis

DOIs:

10.5220/0006301403120323

Source: Scopus

Source ID: 85024488684

Research output: Chapter in Book/Report/Conference proceeding > Conference contribution > Scientific > peer-review

HEVC-compliant viewport-adaptive streaming of stereoscopic panoramic video

Virtual reality (VR) provides unprecedented immersive experience using high-resolution spherical stereoscopic panoramic video. Such an experience is achieved by using head-mounted display (HMD) which has very strict latency bounds in order to respond promptly to user movements. Conventional streaming of VR video requires large bandwidth because the entire captured panorama is transmitted. However, only a limited field-of-view (FOV) is displayed by an HMD, resulting in wastage of bandwidth. To alleviate the problem, this paper proposes a High Efficiency Video Coding (HEVC) compliant approach for efficient coding and streaming of stereoscopic VR content. The proposed method is based on partitioning video pictures into tiles, where only the required tiles corresponding to the primary viewport are transmitted in high resolution, while the remaining parts are transmitted in low resolution. Furthermore, this method enables coding stereoscopic video contents using a conventional HEVC codec, while still achieving significant compression gain by means of adopting inter-view prediction only in intra random access point (IRAP) pictures. Using this method, the predicted view can be decoded independently of the main view, hence allowing simultaneous decoding instances. Experimental results demonstrate that the proposed approach is able to substantially improve compression efficiency and streaming bitrate performance.

General information

Publication status: Published

MoE publication type: A4 Article in a conference publication

Organisations: Signal Processing, Research group: Multimedia Research Group - MRG, Nokia

Contributors: Zare, A., Sreedhar, K. K., Vadakital, V. K. M., Aminlou, A., Hannuksela, M. M., Gabbouj, M.

Publication date: 19 Apr 2017

Host publication information

Title of host publication: 2016 Picture Coding Symposium, PCS 2016

Publisher: IEEE

ISBN (Electronic): 9781509059669

ASJC Scopus subject areas: Media Technology, Signal Processing

DOIs:

10.1109/PCS.2016.7906401

Bibliographical note

EXT="Vadakital, Vinod Kumar Malamal"

Source: Scopus

Source ID: 85019449939

Research output: Chapter in Book/Report/Conference proceeding > Conference contribution > Scientific > peer-review

Automatic Classification of Z-ring Formation Stages at the Single Cell Level in Escherichia Coli by Machine Learning

In *E. coli*, Z-ring formation precedes the assembly of the membrane that partitions a cell into two daughter cells. Initially, as FtsZ proteins are expressed, they preferentially locate at the poles. After, they form a ring at midcell, in between the nucleoids, 'marking' where a constriction will form. Finally, the ring becomes a circle, where the septum separating the daughter cells forms. Being the temporal-spatial organization of FtsZ noisy, differing between cells in timing and location, its study requires observing many cells by time-lapse microscopy. To assist, image and signal processing methods are needed to extract information unbiasedly from many cells. Also, one needs automatic identification of the ring formation stage in individual cells. Here we used three classification methods to identify the stage of ring formation from microscopy images: Decision Tree (DT), Support Vector Machine (SVM), and Regularized Multinomial Logistic regression (RMLR). We find that RMLR performs better (higher 10-fold cross-validated accuracy, ACC). Our study will assist future studies at the single cell level of the spatio-temporal dynamics of cell division in *E. coli*.

General information

Publication status: Published

MoE publication type: A4 Article in a conference publication

Organisations: Faculty of Biomedical Sciences and Engineering, Research group: Laboratory of Biosystem Dynamics-LBD , Signal Processing, BioMediTech, Universidade Nova de Lisboa, Aalto Univ, Aalto University, Dept Signal Proc & Acoust

Contributors: Zare, M., Neeli-Venkata, R., Martins, L., Peltonen, S., Ruotsalainen, U., Ribeiro, A. S.

Number of pages: 5

Pages: 72-76

Publication date: 2017

Host publication information

Title of host publication: Proceedings of the 10th International Joint Conference on Biomedical Engineering Systems and Technologies, Vol 2: Bioimaging

Publisher: SCITEPRESS

Editors: Silveira, M., Fred, A., Gamboa, H., Vaz, M.

ISBN (Electronic): 978-989-758-215-8

Keywords: Z-ring Formation, Stages, Time-lapse Microscopy, Classification Methods, DIVISION SITES, PROTEINS FTSZ , LOCALIZATION, SEGREGATION, DYNAMICS

Source: WOS

Source ID: 000413260200008

Research output: Chapter in Book/Report/Conference proceeding > Conference contribution > Scientific > peer-review

Benchmarking of several disparity estimation algorithms for light field processing

A number of high-quality depth imaged-based rendering (DIBR) pipelines have been developed to reconstruct a 3D scene from several images taken from known camera viewpoints. Due to the specific limitations of each technique, their output is prone to artifacts. Therefore, the quality cannot be ensured. To improve the quality of the most critical and challenging image areas, an exhaustive comparison is required. In this paper, we consider three questions of benchmarking the quality performance of eight DIBR techniques on light fields: First, how does the density of original input views affect the quality of the rendered novel views? Second, how does disparity range between adjacent input views impact the quality? Third, how does each technique behave for different object properties? We compared and evaluated the results visually as well as quantitatively (PSNR, SSIM, AD, and VDP2). The results show some techniques outperform others in different disparity ranges. The results also indicate using more views not necessarily results in visually higher quality for all critical image areas. Finally, we have shown a comparison for different scene's complexity such as non-Lambertian objects.

General information

Publication status: Published

MoE publication type: A4 Article in a conference publication

Organisations: Computing Sciences, Moving Picture Technologies

Contributors: Zakeri, F. S., Bätz, M., Jaschke, T., Keinert, J., Chuchvara, A.

Publication date: 2019

Host publication information

Title of host publication: Fourteenth International Conference on Quality Control by Artificial Vision

Publisher: SPIE, IEEE

Editors: Bazeille, S., Verrier, N., Cudel, C.

Article number: 111721C

ISBN (Electronic): 9781510630536

Publication series

Name: Proceedings of SPIE - The International Society for Optical Engineering

Volume: 11172

ISSN (Print): 0277-786X

ISSN (Electronic): 1996-756X

ASJC Scopus subject areas: Electronic, Optical and Magnetic Materials, Condensed Matter Physics, Computer Science Applications, Applied Mathematics, Electrical and Electronic Engineering

Keywords: Depth image-based rendering, Disparity estimation, Quality evaluation

DOIs:

10.1117/12.2521747

Bibliographical note

jufoid=71479

Source: Scopus

Source ID: 85070208910

Research output: Chapter in Book/Report/Conference proceeding › Conference contribution › Scientific › peer-review

Vibration analysis of the composite slim floor

Vibration design has been a significant challenge for Composite Slim Floors. An increase in demands for longer spans and uninterrupted floor areas has resulted in floor structures more sensitive to vibration problems caused by human excitation. This paper concentrates on vibration behavior of Composite Slim Floors consisting of pre-cast hollow core slabs and composite slim floor beams. Floor vibrations are studied numerically using finite element (FEM) analysis and Robot Structural Analysis software. An existing car park floor has been used as a case study and the calculated results have been compared with experimental measurements. Both simple and more advanced FEM models are used to investigate whether the Eigen modes are formed by the composite slim floor beams or pre-casted hollow core slabs. Calculated Eigen frequencies are used for evaluating Floor Response. The response is measured by either root-mean-square acceleration or Response Factor. From all of these results effects of vibration for Floor designing are evaluated. The resulted Eigen frequencies and Response Factor values are compared to limit values and guidelines given in design standards. The study gives valuable information about the floor performance and about the potential methods and details which lead to economical slim floor construction with acceptable vibration performance. The contribution of different floor and frame components to Eigen frequencies are also studied.

General information

Publication status: Published

MoE publication type: A4 Article in a conference publication

Organisations: University of Oulu, Peikko Group Oy

Contributors: Yrjölä, J., Peltonen, S., Malaska, M.

Number of pages: 6

Publication date: 2014

Host publication information

Title of host publication: EUROSTEEL 2014 : 7th European Conference on Steel and Composite Structures, 10.-12.9.2014, Naples, Italy

Place of publication: Belgium

Publisher: ECCS - European Convention for Constructional Steelwork

Editors: Landolfo, R., Mazzolani, F.

Article number: 33-494

ISBN (Electronic): 978-92-9147-121-8

Research output: Chapter in Book/Report/Conference proceeding › Conference contribution › Scientific › peer-review

Two models for hydraulic cylinder

General information

Publication status: Published

MoE publication type: D3 Professional conference proceedings

Organisations: Department of Mechanical Engineering and Industrial Systems, Research area: Applied Mechanics, Department of Civil Engineering, Research group: Structural Mechanics

Contributors: Ylinen, A., Kouhia, R., Mäkinen, J.

Number of pages: 2

Pages: 115-116

Publication date: 2015

Host publication information

Title of host publication: 2nd International Conference on Multi-Scale Computational Methods for Solids and Fluids : ECCOMAS MSF 2015

Place of publication: Sarajevo

Editors: Ibrahimbegović, A., Ademović, N., Ilić-Georgijević, E., Serdarević, A., Hrasnica, M., Dolarević, S.

Keywords: computational methods, Multi-Scale, Solid

URLs:

<http://www.gf.unsa.ba/eccomas-msf-2015/>

URLs:

<http://www.gf.unsa.ba/eccomas-msf-2015/proceedings.pdf>

Bibliographical note

Ei löydy isbn

ORG=mei,0.5

ORG=rak,0.5

Research output: Chapter in Book/Report/Conference proceeding › Conference contribution › Professional

Two models for hydraulic cylinders in flexible multibody simulations

In modelling hydraulic cylinders interaction between the structural response and the hydraulic system needs to be taken into account. In this chapter two approaches for modelling flexible multibody systems coupled with hydraulic actuators i.e. cylinders are presented and compared. These models are the truss-elementlike cylinder and bending flexible cylinder models. The bending flexible cylinder element is a super-element combining the geometrically exact Reissner-beam element, the C^1 -continuous slide-spring element needed for the telescopic movement and the hydraulic fluid field. Both models are embedded with a friction model based on a bristle approach. The models are implemented in a finite element environment. In time the coupled stiff differential equation system is integrated using the L-stable Rosenbrock method.

General information

Publication status: Published

MoE publication type: A3 Part of a book or another research book

Organisations: Department of Civil Engineering, Research group: Structural Mechanics, Department of Mechanical Engineering and Industrial Systems, Research area: Applied Mechanics, FS Dynamics Finland Oy Ab

Contributors: Ylinen, A., Mäkinen, J., Kouhia, R.

Number of pages: 31

Pages: 463-493

Publication date: 2016

Host publication information

Title of host publication: Computational Methods for Solids and Fluids : Multiscale Analysis, Probability Aspects and Model Reduction

Publisher: Springer

ISBN (Print): 978-3-319-27994-7

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Name: Computational Methods in Applied Sciences

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ISSN (Print): 1871-3033

ASJC Scopus subject areas: Computational Mathematics, Modelling and Simulation, Fluid Flow and Transfer Processes, Computer Science Applications, Civil and Structural Engineering, Electrical and Electronic Engineering, Biomedical Engineering

DOIs:

10.1007/978-3-319-27996-1_17

Bibliographical note

JUFID=79940

EXT="Ylinen, Antti"

Source: Scopus

Source ID: 84964233721

Research output: Chapter in Book/Report/Conference proceeding › Chapter › Scientific › peer-review

Multicarrier modulation for HF communications

High-frequency (HF) communications can be flexibly realized using multicarrier modulation techniques. This paper compares the performance of three widely utilized MCM techniques, namely, orthogonal frequency-division multiplexing (OFDM), filter bank multicarrier/offset-QAM (FBMC/OQAM), and filtered multitone (FMT) in HF communications. The performance of these systems is simulated using commonly adopted HF-channel models. It is shown that the simulated uncoded bit-error rate of OFDM is slightly better than that of FBMC/OQAM and FMT. However, with pilot based channel estimation FMT outperforms FBMC/OQAM and OFDM systems in achievable coded frame error rate in case of selective

channel models.

General information

Publication status: Published

MoE publication type: A4 Article in a conference publication

Organisations: Department of Electronics and Communications Engineering, Research group: Wireless Communications and Positioning, Kyynel Oy

Contributors: Yli-Kaakinen, J., Renfors, M., Tuomivaara, H.

Number of pages: 7

Publication date: 2016

Host publication information

Title of host publication: 2016 International Conference on Military Communications and Information Systems (ICMCIS)

Publisher: IEEE

ISBN (Print): 9781509017775

DOIs:

10.1109/ICMCIS.2016.7496542

Research output: Chapter in Book/Report/Conference proceeding > Conference contribution > Scientific > peer-review

Cancer research in the era of next-generation sequencing and big data calls for intelligent modeling

We examine the role of big data and machine learning in cancer research. We describe an example in cancer research where gene-level data from The Cancer Genome Atlas (TCGA) consortium is interpreted using a pathway-level model. As the complexity of computational models increases, their sample requirements grow exponentially. This growth stems from the fact that the number of combinations of variables grows exponentially as the number of variables increases. Thus, a large sample size is needed. The number of variables in a computational model can be reduced by incorporating biological knowledge. One particularly successful way of doing this is by using available gene regulatory, signaling, metabolic, or context-specific pathway information. We conclude that the incorporation of existing biological knowledge is essential for the progress in using big data for cancer research.

General information

Publication status: Published

MoE publication type: A1 Journal article-refereed

Organisations: Department of Signal Processing, Research group: Computational Systems Biology

Contributors: Yli-Hietanen, J., Ylipää, A., Yli-Harja, O.

Publication date: 11 Apr 2015

Peer-reviewed: Yes

Publication information

Journal: Chinese Journal of Cancer

Volume: 34

Issue number: 10

Article number: 12

ISSN (Print): 1944-446X

Ratings:

Scopus rating (2015): CiteScore 4.8 SJR 1.081

Original language: English

Keywords: Cancer research, Big data, Mathematical modeling, GASTRIC-CANCER, MODULES

DOIs:

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Source: WOS

Source ID: 000360225300001

Research output: Contribution to journal > Article > Scientific > peer-review

A dynamic paper machine simulator for testing of model predictive control applications

General information

Publication status: Published

MoE publication type: A4 Article in a conference publication

Organisations: Department of Automation Science and Engineering, Research area: Measurement Technology and Process Control

Contributors: Yli-Fossi, T., Kuusisto, R.

Number of pages: 6

Pages: 1-6

Publication date: 2015

Host publication information

Title of host publication: Proceedings of AutomaatioXXI seminaari
Publisher: Suomen Automaatioseura ry
ISBN (Print): 978-952-5183-46-7

Publication series

Name: SAS julkaisusarja
No.: 42
ISSN (Print): 1455-6502

Research output: Chapter in Book/Report/Conference proceeding › Conference contribution › Scientific › peer-review

Shared use of research laboratories Changing spatial concepts: A Case Study in a Finnish Biomedical Organization

General information

Publication status: Published
MoE publication type: A4 Article in a conference publication
Organisations: School of Architecture, Research group: Public Buildings, Department of Civil Engineering
Contributors: Yläoutinen, J., Peltoniemi, S., Nenonen, S.
Number of pages: 15
Pages: 183-197
Publication date: 2015

Host publication information

Title of host publication: Conference on Research on Health Care Architecture : ARCH 14 Conference Proceedings
November 19-21, 2014, Espoo, Finland
Place of publication: Helsinki
ISBN (Electronic): 978-952-60-6201-3

Publication series

Name: Aalto University publication series ART + DESIGN + ARCHITECTURE, 6/2015
Publisher: Aalto University
ISSN (Print): 1799-4861
ISSN (Electronic): 1799-4853
Keywords: healthcare architecture, hospital architecture, care facilities, hospital environments
URLs:
<http://urn.fi/URN:ISBN:978-952-60-6201-3>

Bibliographical note

ORG=ark,0.5
ORG=rak,0.5
Research output: Chapter in Book/Report/Conference proceeding › Conference contribution › Scientific › peer-review

Markov Chain Monte Carlo Estimation of Stochastic Volatility Models with Finite and Infinite Activity Lévy Jumps: Evidence for Efficient Models and Algorithms

A financial model plays a key role in the valuation and risk management of financial derivatives, and it serves as an important tool for investors to measure the risk exposure of their portfolios and make predictions and decisions. However, the popular affine stochastic volatility models without jumps, such as the Heston model, have been questioned in the finance literature in terms of their appropriateness for modelling stock prices and pricing derivatives. Many alternative model specifications have been proposed in recent decades, including the specification of non-affine variance dynamics and the inclusion of Lévy jumps. However, the complexity introduced by further model specifications leads to poor probabilistic properties, and hence most popular estimation methods are not applicable. The Bayesian estimation method is among the few that work. In this thesis, I discuss the role of new model specifications and investigate the performance of Bayesian estimation methods. First, I use an extensive empirical data set to study how the use of infinite-activity Lévy jumps in stock returns and variance improves model performance. The stock returns and variance are driven by diffusions and different Lévy jumps, including the finite-activity compound Poisson jump and infinite-activity Variance Gamma and Normal Inverse Gaussian (NIG) jumps. Moreover, the non-affine linear variance process is compared to the affine square-root stochastic process. With the conventional Markov Chain Monte Carlo (MCMC) algorithms, including the Gibbs sampler and Metropolis-Hastings (MH) methods, and the Damien-Wakefield-Walker method to cope with complicated posteriors, eighteen different model specifications are estimated using the joint information of the S&P 500 index and the VIX index for 1996 – 2009. There is clear evidence that in terms of the goodness of fit and option pricing performance, a relatively parsimonious model with infinite-activity NIG jumps in returns and non-affine variance dynamics is particularly competitive. In the second part of the thesis, I examine the performance of advanced MCMC algorithms. The efficiency of the MH algorithm has been questioned because of its slow mixing speed, especially in the presence of high dimensions and a strong dependence between model parameters and state variables. Generally, a class of algorithms seeks to improve the MH by constructing more effective proposals, and another combines the MCMC with the Sequential Monte Carlo algorithms. To investigate, I first conduct simulation studies to compare the estimation performance of seven

advanced Bayesian estimation methods against the MH. Specifically, I use the affine Heston model, the affine Bates model, and an affine model with NIG return jumps, and examine whether the different jump structures affect the estimation results. Second, I estimate the non-affine model with NIG return jumps using the joint information of the S&P 500 index and the VIX for 2002–2005 with selected algorithms that perform well in the simulation studies. The results of the simulation and empirical studies are mixed about the performance of the algorithms. The Fast Universal Self-tuned Sampler algorithms are particularly competitive in generating virtually independent samples and achieving the fastest mixing with a fixed number of MCMC runs, and their performance is stable regardless of the model specifications. However, they are computationally expensive. The computational costs of the Particle Markov Chain Monte Carlo (PMCMC) methods are much cheaper and also efficient in mixing, and they perform best when estimating the models without jumps/with NIG jumps in the simulation studies, as well as in the fit to the VIX in the empirical studies. However, the PMCMC methods are more vulnerable to model specifications than the other algorithms; in particular, the rare large compound Poisson jumps in the Bates model significantly reduce the acceptance rate and worsen the estimation performance of the PMCMC methods.

General information

Publication status: Published

MoE publication type: G4 Doctoral dissertation (monograph)

Organisations: Department of Industrial Management, Research group: Financial Engineering

Contributors: Yang, H.

Number of pages: 107

Publication date: 13 Nov 2015

Publication information

Publisher: Tampere University of Technology

ISBN (Print): 978-952-15-3597-0

ISBN (Electronic): 978-952-15-3617-5

Original language: English

Publication series

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Publisher: Tampere University of Technology

Volume: 1331

ISSN (Print): 1459-2045

Electronic versions:

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URLs:

<http://URN.fi/URN:ISBN:978-952-15-3617-5>

Bibliographical note

Awarding institution: Tampere University of Technology

Version: 16.12.2015

Research output: Book/Report > Doctoral thesis > Monograph

Visibility-Aware Part Coding for Vehicle Viewing Angle Estimation

A number of spatially-localised semantic parts of vehicles sensitive to pose changes are encoded their visible probabilities into a mid-level feature vector. Car pose estimation is then formulated into a regression on concatenated low- and mid-level features to continuously changing viewing angles. Each dimension of our visibility-Aware part codes separates all the training samples into two groups according to its visual existence in images, which provides additional part-specific range constraint of viewing angles. Moreover, the proposed codes can alleviate the suffering from sparse and imbalanced data distribution in the light of modelling latent dependency across angle targets. Experimental evaluation for car pose estimation on the EPFL Multi-View Car benchmark demonstrates significant improvement of our method over the state-of-the-art regression methods, especially when only sparse and imbalanced data is available.

General information

Publication status: Published

MoE publication type: A4 Article in a conference publication

Organisations: Computing Sciences, Research group: Vision, South China University of Technology

Contributors: Yang, D., Qian, Y., Cai, D., Yan, S., Kämäräinen, J., Chen, K.

Number of pages: 6

Pages: 65-70

Publication date: 1 Aug 2019

Host publication information

Title of host publication: 9th International Conference on Information Science and Technology, ICIST 2019

Publisher: IEEE

ISBN (Electronic): 9781728121062

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Keywords: Car pose estimation, Coding, Pose-sensitive parts, Regression forests, Visibility-Aware

DOIs:

10.1109/ICIST.2019.8836907

Bibliographical note

EXT="Chen, Ke"

jufoid=79229

Research output: Chapter in Book/Report/Conference proceeding › Conference contribution › Scientific › peer-review

Hierarchical deformable part models for heads and tails

Imbalanced long-tail distributions of visual class examples inhibit accurate visual detection, which is addressed by a novel Hierarchical Deformable Part Model (HDPM). HDPM constructs a sub-category hierarchy by alternating bootstrapping and Visual Similarity Network (VSN) based discovery of head and tail sub-categories. We experimentally evaluate HDPM and compare with other sub-category aware visual detection methods with a moderate size dataset (Pascal VOC 2007), and demonstrate its scalability to a large scale dataset (ILSVRC 2014 Detection Task). The proposed HDPM consistently achieves significant performance improvement in both experiments.

General information

Publication status: Published

MoE publication type: A4 Article in a conference publication

Organisations: Signal Processing, Research group: Vision

Contributors: Yancheshmeh, F. S., Chen, K., Kämäräinen, J.

Number of pages: 11

Pages: 45-55

Publication date: 2018

Host publication information

Title of host publication: VISIGRAPP 2018 - Proceedings of the 13th International Joint Conference on Computer Vision, Imaging and Computer Graphics Theory and Applications

Volume: 5

Publisher: SCITEPRESS

ISBN (Electronic): 9789897582905

ASJC Scopus subject areas: Computer Vision and Pattern Recognition, Computer Graphics and Computer-Aided Design, Artificial Intelligence

Keywords: Deformable part model, Imbalanced datasets, Localization, Long-tail distribution, Object detection, Sub-category discovery, Visual similarity network

DOIs:

10.5220/0006532700450055

Source: Scopus

Source ID: 85047826548

Research output: Chapter in Book/Report/Conference proceeding › Conference contribution › Scientific › peer-review

An anisotropic continuum damage model for concrete

In this paper, a thermodynamic formulation for modelling anisotropic damage of elastic brittle materials based on Ottosen's 4-parameter failure surface is proposed. The model is developed by using proper expressions for Gibb's free energy and the complementary form of the dissipation potential. The formulation predicts the basic characteristic behaviour of concrete well and results in a realistic shape for the damage surface.

General information

Publication status: Published

MoE publication type: B3 Non-refereed article in conference proceedings

Organisations: Department of Mechanical Engineering and Industrial Systems, Research area: Applied Mechanics, VTT Tech Res Ctr Finland, VTT Technical Research Center Finland, Aalto University

Contributors: Yaghoubi, S. T., Hartikainen, J., Kolari, K., Kouhia, R.

Number of pages: 56

Pages: 51

Publication date: 2015

Host publication information

Title of host publication: Proceedings of the XII Finnish Mechanics Days : Suomen XII mekaniikkapäivien esitelmät

Publisher: Rakenteiden Mekaniikan Seura ry

Editors: Kouhia, R., Mäkinen, J., Pajunen, S., Saksala, T.

ISBN (Print): 978-952-93-5608-9

ISBN (Electronic): 978-952-93-5609-6

URLs:

http://rmseura.tkk.fi/smp_proceedings/SMP12_Proceedings.pdf

Research output: Chapter in Book/Report/Conference proceeding > Conference contribution > Scientific

405-nm pumped Ce³⁺-doped silica fiber for broadband fluorescence from cyan to red

A pure Ce-doped silica fiber is fabricated using modified chemical vapor deposition (MCVD) technique. Fluorescence characteristics of a Ce-doped silica fiber are experimentally investigated with continuous wave pumping from 440 nm to 405 nm. Best pump absorption and broad fluorescence spectrum is observed for ~ 405 nm laser. Next, the detailed analysis of spectral response as a function of pump power and fiber length is performed. It is observed that a-10dB spectral width of ~ 280 nm can be easily achieved with different combinations of the fiber length and pump power. Lastly, we present, for the first time to the best of our knowledge, a broadband fluorescence spectrum with-10dB spectral width of 301 nm, spanning from ~ 517.36 nm to ~ 818 nm, from such fibers with non-UV pump lasers.

General information

Publication status: Published

MoE publication type: A4 Article in a conference publication

Organisations: Physics, Aston University, Fiber Optics Research Center of the Russian Academy of Sciences, Russian Academy of Sciences

Contributors: Yadav, A., Chichkov, N. B., Gumenyuk, R., Zherebtsov, E., Melkumov, M. A., Yashkov, M. V., Dianov, E. M., Rafailov, E. U.

Publication date: 2019

Host publication information

Title of host publication: Optical Components and Materials XVI

Publisher: SPIE, IEEE

Editors: Dignonnet, M. J. F., Jiang, S.

Article number: 1091406

ISBN (Electronic): 9781510624702

Publication series

Name: Proceedings of SPIE - The International Society for Optical Engineering

Volume: 10914

ISSN (Print): 0277-786X

ISSN (Electronic): 1996-756X

ASJC Scopus subject areas: Electronic, Optical and Magnetic Materials, Condensed Matter Physics, Computer Science Applications, Applied Mathematics, Electrical and Electronic Engineering

Keywords: Broadband spectrum, Ce-doped fiber, Ce-ion, Rare earth doped

DOIs:

10.1117/12.2509599

Bibliographical note

jufoid=71479

Source: Scopus

Source ID: 85066046508

Research output: Chapter in Book/Report/Conference proceeding > Conference contribution > Scientific > peer-review

Switchable unidirectional second-harmonic emission through GaAs nanoantennas

Switching the scattering direction of high-index dielectric nanoantennas between forward and backward, via Mie resonances in the linear regime, has been widely studied, recently. However, switching the harmonic emission of nanoantennas without applying any physical change to the antennas, such as geometry, or environment, is a challenging task that has not been demonstrated yet. Here, we investigate multipolar second-harmonic switch from GaAs nanoantennas. Based on the peculiar nonlinearities of zinc-blende semiconductors, we demonstrate both theoretically and experimentally unidirectional nonlinear emission routing and switching via pump polarization control. Our results offer exciting opportunities for nonlinear nanophotonics technologies, such as nanoscale light routing elements, nonlinear light sources, nonlinear imaging, multifunctional flat optical elements.

General information

Publication status: Published

MoE publication type: A4 Article in a conference publication

Organisations: Research group: Nonlinear Optics, Physics, School of Engineering and Information Technology, University of New South Wales (UNSW) Australia, HCI e 486.1, Australian National University, Institute of Applied Physics of the Russian Academy of Sciences

Contributors: Xu, L., Saerens, G., Timofeeva, M., Miroshnichenko, A. E., Camacho-Morales, R., Volkovskaya, I., Smirnova, D. A., Lysevych, M., Huang, L., Cai, M., Karouta, F., Hoe Tan, H., Kauranen, M., Jagadish, C., Grange, R., Neshev, D. N., Rahmani, M.

Publication date: 2019

Host publication information

Title of host publication: AOS Australian Conference on Optical Fibre Technology, ACOFT 2019 and Australian Conference on Optics, Lasers, and Spectroscopy, ACOLS 2019

Publisher: SPIE

Editors: Mitchell, A., Rubinsztein-Dunlop, H.

Article number: 112000J

ISBN (Electronic): 9781510631403

Publication series

Name: Proceedings of SPIE - The International Society for Optical Engineering

Volume: 11200

ISSN (Print): 0277-786X

ISSN (Electronic): 1996-756X

ASJC Scopus subject areas: Electronic, Optical and Magnetic Materials, Condensed Matter Physics, Computer Science Applications, Applied Mathematics, Electrical and Electronic Engineering

Keywords: Dielectric nanoresonators, Mie resonance, Second harmonic generation, Unidirectional emission

DOIs:

10.1117/12.2539887

Bibliographical note

jufoid=71479

Source: Scopus

Source ID: 85079683447

Research output: Chapter in Book/Report/Conference proceeding > Conference contribution > Scientific > peer-review

Teacher's Perceptions and Readiness to Teach Coding Skills: A Comparative Study Between Finland, Mainland China, Singapore, Taiwan, and South Korea

Many education systems have recognized the importance of computational thinking and coding skills and are implementing curricular changes to introduce coding into formal school education. A necessary and critical success factor involves the preparation of and support for teachers to teach coding. Thus, understanding the perceptions of teachers towards coding is most important, together with knowing the kinds of support they received, and their readiness and challenges to teach. The purpose of the current study is to compare teachers' attitudes towards the importance of information and communications technologies (ICT) skills and coding skills in Finland, Mainland China, Singapore, Taiwan, and South Korea. The findings indicate that teachers in Finland, Singapore, Taiwan, and South Korea believe that coding is useful even if students will not work in ICT jobs while Mainland Chinese teachers are undecided. Mainland China, Singapore, Taiwan, and South Korea have more positive views towards how to prepare for future-ready learners.

General information

Publication status: E-pub ahead of print

MoE publication type: A1 Journal article-refereed

Organisations: Computing Sciences, National Institute of Education, Satakunta University of Applied Sciences, Chuncheon National University of Education, Taiwan Normal University

Contributors: Wu, L., Looi, C. K., Multisilta, J., How, M. L., Choi, H., Hsu, T. C., Tuomi, P.

Number of pages: 14

Publication date: 30 Sep 2019

Peer-reviewed: Yes

Publication information

Journal: Asia-Pacific Education Researcher

ISSN (Print): 0119-5646

Ratings:

Scopus rating (2019): CiteScore 2.3 SJR 0.449 SNIP 1.017

Original language: English

ASJC Scopus subject areas: Education

Keywords: Attitudes, Coding skills, Comparative research, Computational thinking, Primary school, Twenty first century skills

DOIs:

10.1007/s40299-019-00485-x

Bibliographical note

EXT="Multisilta, Jari"

Source: Scopus

Source ID: 85074064375

Proceedings of the 25th International Conference on Information Modelling and Knowledge Bases (EJC 2015), 8-12 June, 2015, Maribor, Slovenia

General information

Publication status: Published

MoE publication type: C2 Edited books

Organisations: Pori Department, Research group: Software Engineering and Intelligent Systems, University of Maribor, Slovenia, Keio University, Japan, Christian-Albrechts-Universität zu Kiel

Contributors: Welzer, T. (ed.), Hölbl, M. (ed.), Kiyoki, Y. (ed.), Thalheim, B. (ed.), Jaakkola, H. (ed.)

Publication date: 2015

Publication information

Place of publication: Maribor, Slovenia

Publisher: University of Maribor, Faculty of Electrical Engineering and Computer Science

ISBN (Electronic): 978-961-248-486-6

Original language: English

Research output: Book/Report › Anthology › Scientific › peer-review

In-band-pumped mode-locked Ho:YAG ceramic laser at 2.1 μm

SESAM mode-locking of a Ho:YAG ceramic laser operating near 2.1 μm is reported achieving a pulse duration of 8 ps and output power as high as 258 mW at a repetition rate of ~83 MHz.

General information

Publication status: Published

MoE publication type: A4 Article in a conference publication

Organisations: Optoelectronics Research Centre, Research group: Semiconductor Technology and Applications

Contributors: Wang, Y., Lan, R., Mateos, X., Li, J., Pan, Y., Suomalainen, S., Härkönen, A., Guina, M., Griebner, U., Petrov, V.

Number of pages: 2

Pages: 1-2

Publication date: Jun 2016

Host publication information

Title of host publication: 2016 Conference on Lasers and Electro-Optics (CLEO)

Publisher: IEEE

ISBN (Electronic): 978-1-943580-11-8

Keywords: ceramics, holmium, laser beams, laser mirrors, laser mode locking, optical pumping, optical saturable absorption, solid lasers, yttrium compounds, SESAM mode-locking, YAG:Ho, in-band-pumped mode-locked Ho:YAG ceramic laser, output power, power 258 mW, pulse duration, time 8 ps, wavelength 2.1 μm , Ceramics, Gas lasers, Laser excitation, Laser mode locking, Power generation, Power lasers, Pump lasers

Source: Bibtex

Source ID: urn:487a5ec4dd0da809c9267dca5fd5b7f4

Research output: Chapter in Book/Report/Conference proceeding › Conference contribution › Scientific › peer-review

73-fs SESAM mode-locked Tm,Ho:CNGG laser at 2061 nm

Tm,Ho co-doped disordered calcium niobium gallium garnet (CNGG) crystals are investigated as a novel gain medium for mode-locked lasers near 2 μm . With a GaSb-based semiconductor saturable absorber mirror (SESAM) and chirped mirrors for dispersion compensation such a laser is mode-locked at a repetition rate of 89.3 MHz. For a 5% output coupler, a maximum average output power of 157 mW is obtained with a pulse duration of 170 fs (28-nm broad spectrum centered at 2.075 μm , leading to a time-bandwidth product of 0.331). With a 0.5% output coupler, 73-fs pulses are generated at 2.061 μm with a spectral width of 62 nm (time-bandwidth product of 0.320) and an average output power of 36 mW.

General information

Publication status: Published

MoE publication type: A4 Article in a conference publication

Organisations: Research group: ORC, Physics, Max Born Institute, Ruhr-Universität Bochum, Jiangsu Normal University, China Academy of Engineering Physics, Hefei Institutes of Physical Sciences Chinese Academy of Sciences, Université de Caen Normandie, Universitat Rovira i Virgili, Fujian Institute of Research on the Structure of Matter

Contributors: Wang, Y., Zhao, Y., Pan, Z., Suomalainen, S., Härkönen, A., Guina, M., Griebner, U., Wang, L., Loiko, P., Mateos, X., Chen, W., Petrov, V.

Publication date: 2020

Host publication information

Title of host publication: Solid State Lasers XXIX : Technology and Devices

Publisher: SPIE

Editors: Clarkson, W. A., Shori, R. K.

Article number: 1125929

ISBN (Print): 9781510632813

ISBN (Electronic): 9781510632820

Publication series

Name: Proceedings of SPIE - The International Society for Optical Engineering

Volume: 11259

ISSN (Print): 0277-786X

ISSN (Electronic): 1996-756X

ASJC Scopus subject areas: Electronic, Optical and Magnetic Materials, Condensed Matter Physics, Computer Science Applications, Applied Mathematics, Electrical and Electronic Engineering

Keywords: Disordered garnets, Femtosecond pulses, Holmium lasers, Mode-locked lasers, Semiconductor saturable absorber mirror (SESAM), Solid-state lasers, Thulium lasers

DOIs:

10.1117/12.2548180

Bibliographical note

jufoid=71479

Source: Scopus

Source ID: 85085246577

Research output: Chapter in Book/Report/Conference proceeding > Conference contribution > Scientific > peer-review

Improving project control by combining earned value analysis and automatic data collection

Efficient control is critical for project success. One of the most widely discussed project control methods is earned value analysis (EVM). The accuracy of EVM calculations can be improved by combining it with automatic data collection (ADC). This paper analyzes the possibilities of combining EVM and ADC, and the main benefits and challenges related to that. A literature review was conducted to answer these questions. The study demonstrates how the problems related to the evaluation of activity progress have received surprisingly little research focus, and how ADC could be utilized to improve this area of EVM. The benefits of ADC are also not limited to just EVM; despite the choice of a project control methodology, ADC can be utilized to evaluate project progress in a continuous and more accurate way. Finally, it is demonstrated how even the "ADC-enhanced EVM" doesn't provide an adequate image of project status alone; EVM has to be combined with other project control methodologies. Based on the literature review, several areas for further research are also proposed.

General information

Publication status: Published

MoE publication type: D3 Professional conference proceedings

Organisations: Department of Industrial Management, Research group: Center for Research on Operations Projects and Services

Contributors: Vuorinen, L., Sariola, R.

Number of pages: 17

Pages: 1

Publication date: 2015

Host publication information

Title of host publication: International Research Network in Organizing by Projects Conference 2015 : IRNOP

Place of publication: London, U.K.

URLs:

<https://www.bartlett.ucl.ac.uk/cpm/irnop-2015/about-irnop>

Bibliographical note

Sariola vastannut: ei isbn

Research output: Chapter in Book/Report/Conference proceeding > Conference contribution > Professional

Practice of project control under different levels of complexity in engineering projects

Different projects require different management practices. Project control has been identified as increasingly relevant as the scope and complexity of the project and project deliverable increases. Earlier research has identified several antecedents of control differences in different projects. However, one central contingency of a project, project complexity, has received little focus in project control discussion. In addition, earlier research has focused on project control particularly in the context of information systems (IS) projects. This study explores the different approaches to project control across projects with different degrees of complexity. A qualitative embedded case study is carried out in an engineering industry firm delivering customer-specific systems and solutions. The results on the three different delivery

project cases show, how the relative importance of social clan control and the intensity of control increases with the more complex projects. In addition, the importance of input control, collaborative and multi-directional control and control ambidexterity in complex projects are also highlighted. The study contributes by following a contingency approach to project management research and by obtaining results from a context seldom covered by the project control literature.

General information

Publication status: Published

MoE publication type: A4 Article in a conference publication

Organisations: Department of Industrial Management, Research group: Center for Research on Operations Projects and Services

Contributors: Vuorinen, L., Martinsuo, M.

Number of pages: 30

Publication date: 1 Jun 2016

Host publication information

Title of host publication: EURAM (European Academy of Management) conference 2016 : Manageable cooperation? June 1-4, 2016 Paris

Keywords: project complexity, project control, contingency theory

URLs:

<http://www.euram-online.org/annual-conference-2016.html>

Bibliographical note

JUFOID=71900

Research output: Chapter in Book/Report/Conference proceeding › Conference contribution › Scientific › peer-review

Managing different types of changes during the lifecycle of a complex delivery project

Delivery projects are a way for a project contractor to solve a customer's need by delivering a customer-specific tailored solution. The success of these delivery projects is focal for both the project contractor and the customer. One way for the project contractor to promote the success of a delivery project is to plan the project well and to follow a project management methodology. However, despite the planning efforts and project management methodologies, various changes typically take place throughout the project lifecycle. There can be changes both compared to the plans and to the project management methodology and this article focuses on both types of changes and change management in delivery projects. The findings of a case study research reveal, how changes take place throughout the lifecycle of a delivery project, how there are external and internal reasons behind the changes and how both change management activities and improvisational actions are taken by project personnel to manage the changes. The findings also highlight the customer's role as a source for changes and the different personnel's role in performing either the change management activities or the improvisational actions. The findings of the study are discussed in relation to the literature on changes and change management in projects and to the literature on improvisation in projects.

General information

Publication status: Published

MoE publication type: A4 Article in a conference publication

Organisations: Industrial and Information Management, Research group: Center for Research on Operations Projects and Services

Contributors: Vuorinen, L., Martinsuo, M.

Number of pages: 33

Publication date: Jun 2017

Host publication information

Title of host publication: The 2017 European Academy of Management (EURAM) Conference : Glasgow, Scotland, 21-24 June, 2017.

Publisher: EURAM

URLs:

<http://euramonline.org/annual-conference-2017-2.html>

<http://euramonline.org/annual-conference-2016/faq-conference-16.html>

Research output: Chapter in Book/Report/Conference proceeding › Conference contribution › Scientific › peer-review

Knowledge barriers in university-industry knowledge networks

General information

Publication status: Published

MoE publication type: A4 Article in a conference publication

Organisations: Department of Information Management and Logistics, Research group: Novi

Contributors: Vuori, V., Helander, N.
Number of pages: 8
Pages: 952-959
Publication date: 2 Sep 2016

Host publication information

Title of host publication: 17th European Conference on Knowledge Management, At Belfast, Northern Ireland, UK. : 1-2 Sep. 2016

Publisher: Academic Conferences and Publishing International Limited Reading

ISBN (Electronic): 978-1-911218-03-6

URLs:

<http://www.academic-conferences.org/conferences/eckm/future-past-conferences/>

Research output: Chapter in Book/Report/Conference proceeding > Conference contribution > Scientific > peer-review

Knowledge management practices to overcome network-level knowledge barriers: an artificial intelligence powered literature review

General information

Publication status: Published

MoE publication type: A4 Article in a conference publication

Organisations: Information and Knowledge Management, Research group: Knowledge and Learning Research Center

Contributors: Vuori, V., Helander, N.

Publication date: Jun 2019

Host publication information

Title of host publication: Proceedings of International Forum on Knowledge Asset Dynamics 2019 : 5-7 June 2019, Matera, Italy

ISBN (Electronic): 978-88-96687-12-3

Publication series

Name: IFKAD Proceedings eBooks

ISSN (Electronic): 2280-787X

Research output: Chapter in Book/Report/Conference proceeding > Conference contribution > Scientific > peer-review

Discovering collaborative and inclusive solutions to co-create multidimensional value in cross-sector collaboration

General information

Publication status: Published

MoE publication type: A4 Article in a conference publication

Organisations: Information and Knowledge Management, Research group: Knowledge and Learning Research Center, Hanken School of Economics

Contributors: Vuori, V., Bor, S., Polsa, P., Käpylä, J., Helander, N.

Number of pages: 6

Pages: 364-369

Publication date: Sep 2019

Host publication information

Title of host publication: Proceedings of the 11th International Joint Conference on Knowledge Discovery, Knowledge Engineering and Knowledge Management : 17-19 September, 2019, Vienna, Austria

Publisher: SCITEPRESS

ISBN (Print): 9789897583827

Publication series

Name: IC3K 2019 - Proceedings of the 11th International Joint Conference on Knowledge Discovery, Knowledge Engineering and Knowledge Management

Volume: 3

URLs:

<http://www.insticc.org/node/TechnicalProgram/ic3k/presentationDetails/83657>

Research output: Chapter in Book/Report/Conference proceeding > Conference contribution > Scientific > peer-review

Emotion measurement services for knowledge workers

In order to understand and manage how emotions affect knowledge work, organizations need proper tools to become aware of emotions. Measuring emotions is an approach to consider. In this paper, three different emotion measurement services are tested: daily experience survey, electrodermal activity ring and self-tracking of emotions. The paper provides new insights and user experiences of emotion measurement services and their applicability in daily knowledge work.

Managerial guidelines are drawn up for planning and executing emotion measurement services in an organization for two purposes – self-development and measuring company pulse.

General information

Publication status: Published

MoE publication type: B3 Non-refereed article in conference proceedings

Organisations: Department of Information Management and Logistics, Research group: Novi, Department of Information Management and Logistics, Intopalo Oy

Contributors: Vuolle, M., Salonius, H., Lintinen, J., Mäkinen, J.

Number of pages: 20

Publication date: 2015

Host publication information

Title of host publication: RESER2015 : 25th Annual RESER Conference, September 10-12, 2015 Copenhagen, Denmark

Place of publication: Copenhagen

Publisher: RESER European Association for Research on Services

ISBN (Electronic): 978-87-7349-921-4

Keywords: Knowledge work , Emotions, Measurement, self-management

URLs:

<https://ruconf.ruc.dk/index.php/RESER2015/RESER2015/index>

Bibliographical note

AUX=tlo,"Lintinen, Johanna"

Research output: Chapter in Book/Report/Conference proceeding › Conference contribution › Scientific

Performance management practices in construction business - a service recovery perspective

This paper studies how service recovery perspective can be utilized in order to improve performance management practices in construction industry in Finland. The purpose is to redesign service recovery encounters to better handle negative customer experiences when service failure or other problem has occurred. From performance management point of view, the key challenge is to manage negative customer experiences in order to avoid negative impacts on the performance of the company. The analysis focuses on how negative customer encounters can be used as a source of learning and thus, improving customer and employee satisfaction and the whole image of the industry.

Literature on service failure and recovery discusses various components of unsuccessful customer experience, their cognitive elements and ways of reacting to service failures. However, this discussion is separated from the business performance management literature. Theoretically the paper combines methods from service management and performance management and contributes with its holistic approach to the role of service quality in construction business. Empirical data was gathered first by interviewing 16 employees and customer engaging to customer service in 4 construction companies. The purpose was to identify the key pitfalls and practices of service recovery encounters in three main phases of the customer journey: 1) buying and planning a new home, 2) construction period, and 3) living in a new home). After interviews, two workshops in two companies were organized to reflect findings and to improve and create new service recovery encounter practices.

As a result, three performance management practices were identified: 1) guideline for customer recovery encounters, 2) developing systematic service recovery process and related quality metrics, and 3) developing the service oriented attitude and recovery of employees.

General information

Publication status: Published

MoE publication type: B3 Non-refereed article in conference proceedings

Organisations: Department of Information Management and Logistics, Research group: Novi

Contributors: Vuolle, M., Sillanpää, V.

Number of pages: 17

Publication date: 2015

Host publication information

Title of host publication: 8th Conference on Performance Measurement and Management Control

Publisher: The European Institute for Advanced Studies in Management, EIASM

Publication series

Name: Conference on Performance Measurement and Management Control

ISSN (Print): 2295-1660

URLs:

http://www.eiasm.org/frontoffice/event_announcement.asp?event_id=1035

Research output: Chapter in Book/Report/Conference proceeding › Conference contribution › Scientific

Action recognition using the 3D dense microblock difference

This paper describes a framework for action recognition which aims to recognize the goals and activities of one or more human from a series of observations. We propose an approach for the human action recognition based on the 3D dense micro-block difference. The proposed algorithm is a two-stage procedure: (a) image preprocessing using a 3D Gabor filter and (b) a descriptor calculation using 3D dense micro-block difference with SVM classifier. At the first step, an efficient spatial computational scheme designed for the convolution with a bank of 3D Gabor filters is present. This filter intensifies motion using a convolution for a set of 3D patches and arbitrarily-oriented anisotropic Gaussian. For preprocessed frames, we calculate the local features such as 3D dense micro-block difference (3D DMD), which capture the local structure from the image patches at high scales. This approach is processing the small 3D blocks with different scales from frames which capture the microstructure from it. The proposed image representation is combined with fisher vector method and linear SVM classifier. We evaluate the proposed approach on the UCF50, HMDB51 and UCF101 databases. Experimental results demonstrate the effectiveness of the proposed approach on video with a stochastic textures background with comparisons of the state-of-The-Art methods.

General information

Publication status: Published

MoE publication type: A4 Article in a conference publication

Organisations: Signal Processing, Don State Technical University, Moscow State University of Technology 'Stankin', Beijing Jiaotong University

Contributors: Voronin, V., Pismenskova, M., Zelensky, A., Cen, Y., Nadykto, A., Egiazarian, K.

Publication date: 2018

Host publication information

Title of host publication: Counterterrorism, Crime Fighting, Forensics, and Surveillance Technologies II

Publisher: SPIE

Article number: 1080200

ISBN (Electronic): 9781510621879

Publication series

Name: Proceedings of SPIE

Volume: 10802

ISSN (Electronic): 1996-756X

ASJC Scopus subject areas: Electronic, Optical and Magnetic Materials, Condensed Matter Physics, Computer Science

Applications, Applied Mathematics, Electrical and Electronic Engineering

Keywords: 3D Gabor filter., Action recognition, Micro-block difference, Texture

DOIs:

10.1117/12.2326801

Bibliographical note

jufoid=71479

Source: Scopus

Source ID: 85057423236

Research output: Chapter in Book/Report/Conference proceeding > Conference contribution > Scientific > peer-review

New tools to help in the recruitment process

General information

Publication status: Published

MoE publication type: A4 Article in a conference publication

Organisations: Department of Signal Processing, Research area: Information Technology for Biology and Health,

Research area: Intelligence in Machines, Research group: MMDM, Research area: Signal and Information Processing, Pori Department

Contributors: Visa, A., Einolander, J., Vanharanta, H.

Number of pages: 7

Pages: 653–659

Publication date: 2015

Host publication information

Title of host publication: 6th International Conference on Applied Human Factors and Ergonomics (AHFE 2015) and the Affiliated Conferences, AHFE 2015

Publisher: Elsevier

Publication series

Name: Procedia Manufacturing

Volume: 3

ISSN (Print): 2351-9789

DOIs:

10.1016/j.promfg.2015.07.297

Bibliographical note

ORG=sgn,0.5

ORG=pla,0.5

Research output: Chapter in Book/Report/Conference proceeding › Conference contribution › Scientific › peer-review

Proceedings of the Detection and Classification of Acoustic Scenes and Events 2016 Workshop (DCASE2016)

General information

Publication status: Published

MoE publication type: C2 Edited books

Organisations: Department of Signal Processing, Research group: Audio research group

Contributors: Virtanen, T. (ed.), Mesaros, A. (ed.), Heittola, T. (ed.), Plumbley, M. D. (ed.), Foster, P. (ed.), Benetos, E. (ed.), Lagrange, M. (ed.)

Number of pages: 119

Publication date: 2016

Publication information

Publisher: Tampere University of Technology. Department of Signal Processing

ISBN (Electronic): 978-952-15-3807-0

Original language: English

Electronic versions:

DCASE 2016 proceedings

URLs:

<http://urn.fi/URN:ISBN:978-952-15-3807-0>

Research output: Book/Report › Anthology › Scientific › peer-review

Simulation studies of DFB laser longitudinal structures for narrow linewidth emission

Simulation studies targeting high-power narrow-linewidth emission from DFB lasers are presented. The linewidth and output power calculations take into account the mirror losses, including the grating and the facets, as well as spontaneous emission noise, effective refractive index, power and carrier density variations inside the cavity. The longitudinal power and carrier density distributions have been evaluated and their effects on longitudinal spatial hole burning and possible side mode lasing are discussed.

General information

Publication status: Published

MoE publication type: A4 Article in a conference publication

Organisations: Optoelectronics Research Centre, Research group: Semiconductor Technology and Applications

Contributors: Virtanen, H., Uusitalo, T., Dumitrescu, M.

Number of pages: 2

Pages: 153-154

Publication date: 17 Aug 2016

Host publication information

Title of host publication: 16th International Conference on Numerical Simulation of Optoelectronic Devices, NUSOD 2016

Publisher: IEEE

ISBN (Electronic): 9781467386036

ASJC Scopus subject areas: Electrical and Electronic Engineering, Electronic, Optical and Magnetic Materials, Modelling and Simulation, Numerical Analysis

DOIs:

10.1109/NUSOD.2016.7547078

Source: Scopus

Source ID: 84987641768

Research output: Chapter in Book/Report/Conference proceeding › Conference contribution › Scientific › peer-review

New value chains to construction: advancing products and services

General information

Publication status: Published

MoE publication type: A4 Article in a conference publication

Organisations: Department of Civil Engineering, Research area: Construction Management and Economics, Research group: Digitalization in the real estate and construction sector, Research group: Capacity Development of Water and

Environmental Services CADWES, Research group: Real estate development

Contributors: Virtanen, J., Hyyppä, H., Stähle, P., Kalliokoski, S., Kähkönen, K. E., Ahlavo, M., Launonen, P., Hyyppä, J., Kukko, A., Julin, A.

Number of pages: 12

Pages: 954-965

Publication date: 2016

Host publication information

Title of host publication: Proceedings of the 20th CIB World Building Congress 2016 : Advancing products and services

Volume: V

Publisher: Tampere University of Technology. Department of Civil Engineering

Editor: Achour, N.

ISBN (Electronic): 978-952-15-3745-5

Keywords: value chain, additive manufacturing, 3D measuring, augmented reality, digitalization

URLs:

<http://urn.fi/URN:ISBN:978-952-15-3745-5>

Source: Bibtex

Source ID: urn:a71b2e8aff713ed96c4a2301f007eb7b

Research output: Chapter in Book/Report/Conference proceeding > Conference contribution > Scientific > peer-review

Kactus2: A graphical EDA tool built on the IP-XACT standard

General information

Publication status: Published

MoE publication type: A1 Journal article-refereed

Organisations: Pervasive Computing, Research area: Computer engineering, Research area: Computer engineering

Contributors: Virtanen, J., Kampi, A., Pekkarinen, E., Määttä, J., Järvinen, J., Matilainen, L. J., Teuvo, M., Hämäläinen, T.

Number of pages: 1

Pages: 1

Publication date: 2 May 2017

Peer-reviewed: Yes

Publication information

Journal: The Journal of Open Source Software

Volume: 2

Issue number: 13

ISSN (Print): 2475-9066

Original language: English

Keywords: IP-XACT, EDA, reuse, mp soc, design, system-on-chip, Hardware

Electronic versions:

10.21105/joss.00151

DOIs:

10.21105/joss.00151

URLs:

<http://urn.fi/URN:NBN:fi:ty-201801051028>

Bibliographical note

INT=tie,"Järvinen, Juho"

Research output: Contribution to journal > Article > Scientific > peer-review

Projektioppiminen yläkoulun matematiikassa

General information

Publication status: Published

MoE publication type: D1 Article in a trade journal

Organisations: Department of Mathematics

Contributors: Viro, E., Eriksson, S.

Number of pages: 5

Pages: 1005-1009

Publication date: 2015

Peer-reviewed: Unknown

Publication information

Journal: LUMAT: International Journal on Math, Science and Technology Education

Volume: 3
Issue number: 7
ISSN (Print): 2323-7112
Original language: Finnish
URLs:

<http://luma.fi/lumat/4273>

Research output: Contribution to journal › Article › Professional

Projektityöskentelyn kehittäminen yläkoulun matematiikan opetuksessa

Perusopetuksen opetussuunnitelman perusteiden 2014 aikana ovat ilmiölähtöinen oppiminen ja projektiluontoinen työskentely lisääntyneet peruskouluissa merkittävästi. Tässä tutkimuksessa tarkastellaan oppilaan ja opettajan näkökulmasta lähinnä yläkoulun matematiikan opetukseen liitetyn projektityöskentelyn kehittämiskohteita sekä niihin mahdollisia kehittämishankkeita. Tutkimusaineistoa on kerätty kyselylomakkeilla ja havainnoinnilla LUMA Suomen Projektioppiminen-kehittämishankkeesta, StarT-projektikilpailusta ja Teknoliateollisuuden My Tech -ohjelmasta. Tutkimukseen osallistui 365 oppilasta ja 19 opettajaa. Projektityöskentelyn suurimmat haasteet voidaan luokitella oppilaan ja opettajan toimintaan, itse projektiin tai koulutoiminnan puitteisiin liittyviksi. Jokaiseen osa-alueeseen opettaja voi omalla toiminnallaan vaikuttaa.

General information

Publication status: Published
MoE publication type: A1 Journal article-refereed
Organisations: Mathematics, Tampereen yliopisto
Contributors: Viro, I. E., Joutsenlahti, J.
Number of pages: 10
Pages: 90-99
Publication date: 2018
Peer-reviewed: Yes

Publication information

Journal: FMSERA Journal
Volume: 2
Issue number: 1
ISSN (Print): 2489-4583
Original language: Finnish
URLs:

<https://journal.fi/fmsera/article/view/69879>

Research output: Contribution to journal › Article › Scientific › peer-review

Embroidered antennas and antenna-electronics interfaces for wearable RFID tags

We summarize the possibilities of embroidery with conductive yarn in the fabrication of antennas and antenna-electronics interconnections for wearable RFID tags. Based on our results, both fabrication time and amount of conductive yarn used in fabrication of a dipole antenna can be saved by selecting dense or parse stitching for different regions of the antenna, or by sewing only the antenna borderline. Moreover, we fabricated the antenna-IC interconnection by sewing through the pads of the fixture carrying the IC during the antenna fabrication. Our wearable prototype tag showed excellent wireless performance, and was detectable at distances of 6 and 2 meters, in air and on the human body, respectively.

General information

Publication status: Published
MoE publication type: A4 Article in a conference publication
Organisations: Faculty of Biomedical Sciences and Engineering, Research group: Wireless Identification and Sensing Systems Research Group
Contributors: Virkki, J., Chen, X., Björninen, T., Ukkonen, L.
Number of pages: 3
Publication date: 20 Sep 2017

Host publication information

Title of host publication: IMWS-AMP 2017 International Microwave Workshop Series on Advanced Materials and Processes
Publisher: IEEE
ISBN (Print): 978-1-5386-0480-9
DOIs:

[10.1109/IMWS-AMP.2017.8247437](https://doi.org/10.1109/IMWS-AMP.2017.8247437)

Research output: Chapter in Book/Report/Conference proceeding › Conference contribution › Scientific › peer-review

Uudessa COMBI-hankkeessa tutkitaan energiatehokkaan palvelurakentamisen haasteita ja ratkaisuja

General information

Publication status: Published

MoE publication type: B3 Non-refereed article in conference proceedings

Organisations: Department of Civil Engineering, Research group: Building Physics, School of Architecture, Research group: ASUTUT, Research area: Structural Engineering, Research group: Capacity Development of Water and Environmental Services CADWES, Research group: Real estate development, Research group: Service Life Engineering of Structures, Aalto University, Tampere University of Applied Sciences TAMK

Contributors: Vinha, J., Hedman, M., Sirén, K., Harsia, P., Pentti, M., Teriö, O., Heljo, J., Laukkarinen, A., Annila, P., Kaasalainen, H., Jokisalo, J., Pihlajamaa, P.

Number of pages: 10

Pages: 487-496

Publication date: 20 Oct 2015

Host publication information

Title of host publication: Rakennusfysiikka 2015. Uusimmat tutkimustulokset ja hyvät käytännön ratkaisut. 20.-22.10.2015, Tampere.

Publisher: Tampereen teknillinen yliopisto, rakennustekniikan laitos, rakennetekniikka

Editors: Vinha, J., Ruuska, T.

ISBN (Print): 978-952-15-3580-2

Publication series

Name: Rakennustekniikan laitos. Rakennetekniikka. Seminaarijulkaisu

No.: 4

ASJC Scopus subject areas: Civil and Structural Engineering, Building and Construction

URLs:

<http://www.tut.fi/cs/groups/public/@I912/@web/@p/documents/liit/x124266.pdf>

Bibliographical note

ORG=rak,0.8

ORG=ark,0.2

Research output: Chapter in Book/Report/Conference proceeding › Conference contribution › Scientific

Rakennusfysiikka 2015. Uusimmat tutkimustulokset ja hyvät käytännön ratkaisut: 20.-22.10.2015, Tampere. Seminaarijulkaisu 4

General information

Publication status: Published

MoE publication type: C2 Edited books

Organisations: Department of Civil Engineering, Research group: Building Physics

Contributors: Vinha, J. (ed.), Ruuska, T. (ed.)

Publication date: 2015

Publication information

Place of publication: Tampere

Publisher: Tampereen teknillinen yliopisto. Rakennustekniikan laitos

ISBN (Print): 978-952-15-3580-2

Original language: Finnish

Publication series

Name: Tampereen teknillinen yliopisto, rakennustekniikan laitos, rakennetekniikka, seminaarijulkaisu

Publisher: Tampereen teknillinen yliopisto

Electronic versions:

2015_alkusivut

2015_artikkelit

URLs:

<http://urn.fi/URN:ISBN:978-952-15-3580-2>

Research output: Book/Report › Anthology › Scientific › peer-review

Uusi Rakennusfysiikan käsikirja - perustiedot rakennusfysiikallisesta suunnittelusta ja tutkimuksista

General information

Publication status: Published
MoE publication type: B3 Non-refereed article in conference proceedings
Organisations: Department of Civil Engineering, Research group: Building Physics
Contributors: Vinha, J.
Number of pages: 6
Pages: 115-120
Publication date: 20 Oct 2015

Host publication information

Title of host publication: Rakennusfysiikka 2015. Uusimmat tutkimustulokset ja hyvät käytännön ratkaisut. 20.-22.10.2015, Tampere
Place of publication: Tampere
Publisher: Tampereen teknillinen yliopisto, rakennustekniikan laitos, rakennetekniikka
Editors: Vinha, J., Ruuska, T.
ISBN (Print): 978-952-15-3580-2
Keywords: Double skin facade, Energy efficiency, New renovation concepts, Innovative HVAC, Earth to air heat exchanger
Research output: Chapter in Book/Report/Conference proceeding › Conference contribution › Scientific

Uusi Rakennusfysiikan käsikirja

General information

Publication status: Published
MoE publication type: B3 Non-refereed article in conference proceedings
Organisations: Department of Civil Engineering, Research group: Building Physics
Contributors: Vinha, J.
Number of pages: 6
Pages: 167-172
Publication date: 2015

Host publication information

Title of host publication: Sisäilmastoseminaari 2015
ISBN (Print): 9789525236439

Publication series

Name: Sisäilmastoyhdistys raportti
No.: 33
ISSN (Electronic): 1237-1866
Research output: Chapter in Book/Report/Conference proceeding › Conference contribution › Scientific

Rakennusten rakennusfysiikan suunnittelun ja toteutuksen periaatteet

General information

Publication status: Published
MoE publication type: D2 Article in professional manuals or guides or professional information systems or text book material
Organisations: Department of Civil Engineering, Research group: Building Physics
Contributors: Vinha, J.
Number of pages: 28
Pages: 399-426
Publication date: 2015

Host publication information

Title of host publication: Rakentajain kalenteri 2016
Publisher: Rakennustieto Oy

Publication series

Name: Rakentajain kalenteri
Publisher: Rakennustieto Oy
Volume: 100
ISSN (Print): 0355-550X
ISSN (Electronic): 1799-9391
Research output: Chapter in Book/Report/Conference proceeding › Chapter › Professional

The behaviour of transverse bar reinforcement of slim floor beams in precast floors

Typical slim floor construction consists of precast hollow core slabs supported on shallow steel beams. The steel beams are contained within the depth of the floor slab and the floor beams can be detailed as either composite or bare steel beams. The joints between precast elements are reinforced with transverse steel rebars and are then filled with concrete. The transverse bars are installed through holes in the web of a special perforated steel beam profile. In this research the behaviour of the transverse rebars is studied numerically using Abaqus/Cae FEM-modelling software. The aim of this study is to investigate the effects of the transverse reinforcement on the composite beam behaviour and on the crack formation at the longitudinal interface between steel beam web and concrete. The numerical modelling of the transverse rebars and the local behaviour of rebar within the cracked area is of special interest. The numerical analysis results are compared with and validated by experimental test results carried out with similar floor beam structures. Based on the analysis results, the load paths within the slim floor construction and the effect of transverse reinforcement on floor beam behaviour are discussed.

General information

Publication status: Published
MoE publication type: A4 Article in a conference publication
Organisations: University of Oulu
Contributors: Vinberg, M., Malaska, M., Peltonen, S.
Number of pages: 6
Publication date: 2014

Host publication information

Title of host publication: Eurosteel 2014 : 7th European Conference on Steel and Composite Structures, 10.-12.9.2014, Naples, Italy
Place of publication: Belgium
Publisher: ECCS - European Convention for Constructional Steelwork
Editors: Landolfo, R., Mazzolani, F.
Article number: 33-493
ISBN (Electronic): 978-92-9147-121-8
Research output: Chapter in Book/Report/Conference proceeding > Conference contribution > Scientific > peer-review

Feasibility of electric buses in public transport

This study examines the economic feasibility of electric buses in a mid-sized city, where public transport is currently organized with buses only. The difference in lifetime cost of electric buses and diesel buses was calculated with the chosen parameters that were selected after careful background analysis. A viable business case can be created when the battery and the charging infrastructure are selected shrewdly. The electricity is much cheaper fuel than diesel but with the current battery technologies and battery prices the significant cost from operating an e-bus comes from the wear of the battery. Two types of Li-ion batteries were compared, LFP (Lithium Iron Phosphate) and LTO (Lithium Titanate). Also different conductive opportunity charging strategies were examined: 1. Charging at the depot. 2. Charging at the end stop(s). 3.

Charging at the line stops.

The round trip line length assessed was 20 km. Calculations show that the LTO buses and a fast charger at the end stop complemented with low power overnight chargers at the depot is the best investment combination based on the given assumptions. The 200 kW charging power is sufficient to ensure the charging in the normal end stop breaks. Due to a longer cycle life the wear cost per km was lower for LTO than for LFP. LTO is also better adapted for fast charging. The battery size has to be sufficient compared to the required driving range during peak consumption, to the charging current and to the performance requirements of the e-bus. Oversizing the battery has some positive effects (improved cycle life, less heating and better flexibility) but the negative effects were estimated to be more significant (higher investment cost, increased weight and space requirement).

General information

Publication status: Published
MoE publication type: D3 Professional conference proceedings
Organisations: Department of Electrical Engineering, Research area: Power engineering
Contributors: Vilppo, O., Markkula, J.
Number of pages: 9
Publication date: 3 May 2015

Host publication information

Title of host publication: EVS28 28th International Electric Vehicle Symposium and Exhibition
URLs:

<http://www.a3ps.at/site/sites/default/files/downloads/evs28/papers/C4-03.pdf>

Research output: Chapter in Book/Report/Conference proceeding > Conference contribution > Professional

Fully printed memristors for a self-sustainable recorder of mechanical energy

Memristors have attracted significant interest in recent years because of their role as a missing electronic component and unique functionality that has not previously existed. Since the first discoveries of the existence of memristive materials, various different fabrication processes for memristors have been presented. Here, a simple additive fabrication process is demonstrated where memristors were deposited on a polymer substrate by conventional inkjet printing. The memristor structure was printed on a 125 μm thick polyethylene terephthalate (PET) substrate by sandwiching a thin layer of TiO_x between two silver nanoparticle ink electrodes. Current–voltage (I – V) characterization measurements were performed and they showed clear memristive behavior when voltage pulse amplitude varied between -1.5 V and 1.5 V . The corresponding resistance change is approximately between $150\ \Omega$ and $75\ \text{k}\Omega$. In order to demonstrate the switching scheme in practical application, printed memristors and a printed voltage doubler were connected with a piezoelectric element. The element was subjected to impact-type excitation thus producing an electric charge that was able to switch the memristor between high and low resistive states. These results pave the way for an exploitation of cost-efficient, self-sufficient, all-printable memory elements for wide utilization in future electronics applications.

General information

Publication status: Published

MoE publication type: A1 Journal article-refereed

Organisations: Department of Electronics and Communications Engineering, Department of Automation Science and Engineering, Research area: Microsystems, Research area: Measurement Technology and Process Control

Contributors: Vilmi, P., Nelo, M., Voutilainen, J., Palosaari, J., Pörhönen, J., Tuukkanen, S., Jantunen, H., Juuti, J., Fabritius, T.

Number of pages: 8

Publication date: 19 Apr 2016

Peer-reviewed: Yes

Publication information

Journal: Flexible and Printed Electronics

Volume: 1

Issue number: 2

Article number: 025002

ISSN (Print): 2058-8585

Original language: English

Electronic versions:

Vilmi_2015_Printed_memristor_preprint

DOIs:

10.1088/2058-8585/1/2/025002

URLs:

<http://urn.fi/URN:NBN:fi:tty-201606134229>

Source: Bibtex

Source ID: urn:93364f0c9fc6d11e220f8d004617b3a2

Research output: Contribution to journal > Article > Scientific > peer-review

Empowerment in construction: a qualitative analysis of subcontractors' quality assurance

General information

Publication status: Published

MoE publication type: A4 Article in a conference publication

Organisations: Department of Civil Engineering, Research group: Capacity Development of Water and Environmental Services CADWES

Contributors: Viita, J., Junnonen, J.

Pages: 436-448

Publication date: 2016

Host publication information

Title of host publication: Proceedings of the CIB World Building Congress 2016: Volume II - Environmental Opportunities and Challenges. Constructing Commitment and Acknowledging Human Experiences

Publisher: Tampere University of Technology. Department of Civil Engineering

ISBN (Electronic): 978-952-15-3742-4

URLs:

<http://urn.fi/URN:ISBN:978-952-15-3742-4>

Research output: Chapter in Book/Report/Conference proceeding > Conference contribution > Scientific > peer-review

Effect of Inductor Saturation on the Harmonic Currents of Grid-Connected Three-Phase VSI in PV Application

The optimal design of a VSI based photovoltaic (PV) inverter has been studied extensively during the last years. The focus in these studies has been in the selection of the reactive components of the LCL-filter, leaving the inductor design out from

the discussion. However, the inductor design plays important role when the design target is to minimize the size and the cost of the filter. Unfortunately, the minimization of the filter size might yield saturating inductors. In this paper, the effect of inductor saturation on the harmonic currents of grid-connected three-phase PV inverter is studied by simulations and measurements on a prototype inverter. The results indicate that application of saturating inductors increases the fifth and seventh harmonics in the output current of the inverter when it is operating at open-loop. However, these harmonics are effectively attenuated when the inverter is operated at closed-loop.

General information

Publication status: Published

MoE publication type: A4 Article in a conference publication

Organisations: Department of Electrical Engineering, Research area: Power engineering, Smart Energy Systems (SES)

Contributors: Viinamäki, J., Jokipii, J., Suntio, T.

Number of pages: 8

Pages: 1209-1216

Publication date: 2015

Host publication information

Title of host publication: 2015 9th International Conference on Power Electronics and ECCE Asia (ICPE-ECCE Asia), 1-5 June 2015, Seoul

Publisher: IEEE

ISBN (Print): 978-89-5708-254-6

Keywords: Inductor nonlinearity, inductor saturation, PV inverter design, three-phase inverter

DOIs:

10.1109/ICPE.2015.7167934

Research output: Chapter in Book/Report/Conference proceeding > Conference contribution > Scientific > peer-review

Heat Loss Rate of the Finnish Building Stock

This paper presents a bottom-up model for studying the heat loss rate of the building stock. The model is a step towards more complex building-stock power modeling, whose goal is to predict the sources and the amount of demand response potential under different conditions. The heat loss rate is the fraction of thermal power needed to compensate for the heat loss via exterior walls, windows, roofs, floors and ventilation in the buildings. The heat loss rate depends on the physical characteristics of the building envelope and ventilation and on weather conditions.

We first examine the current state of power and energy modeling. We then describe the research object of this study and the calculation method. The calculation results presented in the third section are illustrated at the hourly level, sorted by the main source of the heating energy of the building. In addition to the analysis of the building stock level, the heat loss rate was calculated on a building level using some typical building information models for validation purposes. The validation indicated that the results obtained with the two methods were consistent and that the order of magnitude was reasonable. The Finnish building stock was used as a research object in the demonstration of the model. Finally, some further needs for research are discussed.

General information

Publication status: Published

MoE publication type: A1 Journal article-refereed

Organisations: Department of Civil Engineering, Research group: Real estate development, Research group: Capacity Development of Water and Environmental Services CADWES, Research group: Service Life Engineering of Structures

Contributors: Vihola, J., Sorri, J., Heljo, J., Kero, P.

Number of pages: 8

Pages: 601-608

Publication date: 2015

Peer-reviewed: Yes

Publication information

Journal: Procedia Economics and Finance

Volume: 21

ISSN (Print): 2212-5671

Original language: English

Keywords: buildings stock, energy systems, heat loss rate, power modeling

Electronic versions:

Heat loss rate of the Finnish building stock

DOIs:

10.1016/S2212-5671(15)00218-X

URLs:

<http://urn.fi/URN:NBN:fi:tty-201604183810>

<http://www.sciencedirect.com/science/article/pii/S221256711500218X>
Source: RIS
Source ID: urn:16F0384ED693DEFF48B71B73D5740E05
Research output: Contribution to journal > Article > Scientific > peer-review

Life-Cycle Economics of Rentable Prefabricated School Facility Units in Municipal Real Estate Procurement

General information

Publication status: Published
MoE publication type: A4 Article in a conference publication
Organisations: Department of Civil Engineering, Research group: Real estate development, Research group: Service Life Engineering of Structures, School of Architecture
Contributors: Vihola, J., Edelman, H.
Number of pages: 12
Pages: 76-87
Publication date: 27 May 2016

Host publication information

Title of host publication: Proceedings of the CIB World Building Congress 2016: Volume V : Advancing Products and Services

Publisher: Tampere University of Technology. Department of Civil Engineering

ISBN (Electronic): 978-952-15-3745-5

Keywords: Prefabricated spatial units, public real estate procurement, school facilities, municipal economics, life-cycle economics

Electronic versions:

Full Paper

URLs:

<http://urn.fi/URN:NBN:fi:tyy-201606224311>

URLs:

<http://www.wbc16.com/wbc16/welcome.html> (CIB World Building Congress 2016 : Volume V Advancing Products and Services)

https://tutcris.tut.fi/admin/files/6334504/WBC16_vihola.pdf (CIB World Building Congress 2016 : Volume V Advancing Products and Services)

Research output: Chapter in Book/Report/Conference proceeding > Conference contribution > Scientific > peer-review

High-power 1550 nm tapered DBR lasers fabricated using soft UV-nanoimprint lithography

Paper reports the DBR-RWG surface grating design, the fabrication process, and the output characteristics of tapered DBR laser diodes for the applications, like for example LIDAR and range finding, that require eye-safe high-power single-mode coherent light sources. The fabricated regrowth-free DBR AlGaInAs/InP lasers exhibited a CW output power as high as 560 mW in single-mode operation at room temperature. At maximum output power the SMSR was 38 dB, proving the excellent behavior of the surface gratings. The tapered section enabled scaling the maximum CW power at room temperature from 125 mW to 560 mW, by increasing its length from 0.5 mm to 4.0 mm. The paper discusses the limitations and performance variation associated to the power scaling by using the tapered section length as a scaling parameter.

General information

Publication status: Published

MoE publication type: A4 Article in a conference publication

Organisations: Optoelectronics Research Centre, Research group: Nanophotonics, Research group: Semiconductor Technology and Applications, Materials Research Laboratory, Turun Yliopisto/Turun Biomateriaalikeskus

Contributors: Viheriälä, J., Aho, A. T., Mäkelä, J., Salmi, J., Virtanen, H., Leinonen, T., Dumitrescu, M., Guina, M.

Number of pages: 7

Publication date: 2016

Host publication information

Title of host publication: High-Power Diode Laser Technology and Applications XIV

Publisher: SPIE

Article number: 97330Q

ISBN (Electronic): 9781628419689

Publication series

Name: SPIE Conference Proceedings

Publisher: SPIE

Volume: 9733

ISSN (Print): 0277-786X

ASJC Scopus subject areas: Applied Mathematics, Computer Science Applications, Electrical and Electronic Engineering, Electronic, Optical and Magnetic Materials, Condensed Matter Physics

Keywords: 1550 nm laser diode, DBR, Power scaling, Tapered laser diode

DOIs:

10.1117/12.2207423

Bibliographical note

INT=orc,"Aho, Antti T."

JUFOID=71479

Source: Scopus

Source ID: 84978785955

Research output: Chapter in Book/Report/Conference proceeding › Conference contribution › Scientific › peer-review

1180 nm GaInNAs quantum well based high power DBR laser diodes

We report state-of-the-art results for 1180nm (narrow linewidth) laser diodes based on GaInNAs quantum wells and show results for ridge waveguide DBR laser diode including its reliability tests. Manuscript demonstrates 500 mW output power in continuous-wave operation at room temperature, wide single mode tuning region and narrow linewidth operation. Devices reached narrow linewidth operation (>250 kHz) across their operation band.

General information

Publication status: Published

MoE publication type: A4 Article in a conference publication

Organisations: Photonics, Optoelectronics Research Centre, Tampere University of Technology

Contributors: Viheriälä, J., Aho, A., Virtanen, H., Koskinen, M., Dumitrescu, M., Guina, M.

Number of pages: 6

Publication date: 24 Feb 2017

Host publication information

Title of host publication: High-Power Diode Laser Technology XV

Publisher: SPIE

Editor: Zediker, M. S.

Article number: 100860K

Publication series

Name: Proceedings of SPIE

Publisher: SPIE

Volume: 10086

ISSN (Print): 0277-786X

ISSN (Electronic): 1996-756X

ASJC Scopus subject areas: Physics and Astronomy (miscellaneous)

Keywords: DBR laser, dbr, 1180nm, 1178nm, 1154nm, SHG

Electronic versions:

1180 nm GaInNAs quantum well based high power DBR laser diodes

DOIs:

10.1117/12.2251317

URLs:

<http://urn.fi/URN:NBN:fi:tuni-201912197004>

Bibliographical note

INT=fot,"Koskinen, Mervi"

Research output: Chapter in Book/Report/Conference proceeding › Conference contribution › Scientific › peer-review

1.3µm U-bend traveling wave SOA devices for high efficiency coupling to silicon photonics

We present a U-bend design for traveling wave III-V gain devices, such as semiconductor optical amplifiers and laser diodes. The design greatly simplifies the butt-coupling between the III-V chip and silicon-on-insulator photonic circuit by bringing the I/O ports on one facet. This removes the need for precise dimension control otherwise required for 2-side coupling, therefore increasing the yield of mounted devices towards 100%. The design, fabrication and characterization of the U-bend device based on Euler bend geometry is presented. The losses for a bend with a minimum bending radius of 83 µm are 1.1 dB. In addition, we present an analysis comparing the yield and coupling losses of the traditionally cleaved devices with the results that the Euler bend approach enable, with the final conclusion that the yield is improved by several times while the losses are decreased by several dB.

General information

Publication status: Published
MoE publication type: A4 Article in a conference publication
Organisations: Physics, VTT Technical Research Centre of Finland
Contributors: Viheriälä, J., Tuorila, H., Zia, N., Cherchi, M., Aalto, T., Guina, M.
Publication date: 2019

Host publication information

Title of host publication: Silicon Photonics XIV
Publisher: SPIE, IEEE
Editors: Reed, G. T., Knights, A. P.
Article number: 109230E
ISBN (Electronic): 9781510624887

Publication series

Name: Proceedings of SPIE - The International Society for Optical Engineering
Volume: 10923
ISSN (Print): 0277-786X
ISSN (Electronic): 1996-756X
ASJC Scopus subject areas: Electronic, Optical and Magnetic Materials, Condensed Matter Physics, Computer Science Applications, Applied Mathematics, Electrical and Electronic Engineering
Keywords: Coupling losses, Hybrid integration, III-V, Semiconductor optical amplifiers, Silicon-on-insulator
DOIs:
10.1117/12.2505935

Bibliographical note

jufoid=71479
Source: Scopus
Source ID: 85065404814
Research output: Chapter in Book/Report/Conference proceeding > Conference contribution > Scientific > peer-review

Electrostatic Threats in Hospital Environment

Uncontrolled electrostatic discharge (ESD) sources may cause unpleasant experiences as well as more serious hazards to health. We have observed surprisingly high energy ESD sources in the hospital environment. These findings are analyzed and discussed in this article. In addition, electrostatic attraction and charge relaxation of materials for medical purposes are studied and solutions are proposed.

General information

Publication status: Published
MoE publication type: A4 Article in a conference publication
Organisations: Department of Electronics and Communications Engineering, Cascade Metrol, Kanta Hame Cent Hosp, Premix Oy, Ion PhasE, Electrostat Solut Ltd
Contributors: Viheriäkoski, T., Kokkonen, M., Tamminen, P., Karja, E., Hillberg, J., Smallwood, J.
Number of pages: 9
Publication date: 2014

Host publication information

Title of host publication: 2014 36TH Electrical overstress/electrostatic discharge symposium (EOS/ESD)
Publisher: IEEE COMPUTER SOC

Publication series

Name: Electrical Overstress Electrostatic Discharge Symposium
Publisher: IEEE COMPUTER SOC
ISSN (Print): 0739-5159
Source: WOS
Source ID: 000355792800054
Research output: Chapter in Book/Report/Conference proceeding > Conference contribution > Scientific > peer-review

Benchmarking of Factory Level ESD Control

A standard compliance of the factory level ESD control varies between organizations. We have audited twelve different factories during the 24-month benchmarking period. These audits were focused on the ESD control programs and the process control. The summary of results and examples of the best practices are presented in this paper.

General information

Publication status: Published

MoE publication type: A4 Article in a conference publication
Organisations: Department of Electronics and Communications Engineering, ABB Oy, Drives, Nokia Corporation, Cascade Metrology
Contributors: Viheriäkoski, T., Kohtamäki, J., Peltoniemi, T., Tamminen, P.
Number of pages: 7
Publication date: 27 Sep 2015

Host publication information

Title of host publication: Electrical Overstress/Electrostatic Discharge Symposium Proceedings 2015
Volume: 2015
Place of publication: USA
Publisher: IEEE COMPUTER SOC
Article number: 6B.1
ISBN (Print): 9781479988952
ASJC Scopus subject areas: Engineering(all)
Keywords: Surface Resistivity, dissipative material, measurement
Electronic versions:
PID3769119
DOIs:
10.1109/EOSESD.2015.7314769
URLs:
<http://urn.fi/URN:NBN:fi:tty-201603013595>
Research output: Chapter in Book/Report/Conference proceeding › Conference contribution › Scientific › peer-review

Uncertainties in Charge Measurements of ESD Risk Assessment

Charge measurement techniques are often considered too complicated to the process control of electronics manufacturing. In his study, we show that expensive instrumentation is not necessarily needed for characterizing ESD source parameters in a risk assessment. Measurement can be made accurately when uncertainties are properly taken into account.

General information

Publication status: Published
MoE publication type: A4 Article in a conference publication
Organisations: Department of Electronics and Communications Engineering, ABB Oy, Drives, Cascade Metrology, Nokia Corporation
Contributors: Viheriäkoski, T., Kohtamäki, J., Peltoniemi, T., Tamminen, P.
Number of pages: 8
Publication date: 27 Sep 2015

Host publication information

Title of host publication: Electrical Overstress / Electrostatic Discharge Symposium Proceedings 2015
Volume: 2015
Place of publication: USA
Publisher: IEEE COMPUTER SOC
Article number: 6B.3
ISBN (Print): 9781479988952
ASJC Scopus subject areas: Engineering(all)
Keywords: ESD, charge, measurement, Uncertainty estimation
Electronic versions:
PID3768707
DOIs:
10.1109/EOSESD.2015.7314802
URLs:
<http://urn.fi/URN:NBN:fi:tty-201603013596>
Research output: Chapter in Book/Report/Conference proceeding › Conference contribution › Scientific › peer-review

Charge relaxation of slowly dissipative polymers

Charge relaxation times of solid planar polymers were assessed with different charging methods in a controlled environment. Electrically isolated samples had relatively long relaxation periods. The longest measurement sequence was 62 hours. An electrostatic behavior of the samples under test was then characterized in a changing electrostatic field.

General information

Publication status: Published
MoE publication type: A4 Article in a conference publication

Organisations: Department of Electronics and Communications Engineering
Contributors: Viheriäkoski, T., Kärjä, E., Hillberg, J., Tamminen, P.
Number of pages: 9
Pages: 1-9
Publication date: 18 Oct 2016

Host publication information

Title of host publication: 2016 38th Electrical Overstress/Electrostatic Discharge Symposium (EOS/ESD)
Publisher: IEEE
ISBN (Electronic): 978-1-5853-7289-8
Keywords: electric charge, electrostatics, polymers, charge relaxation, electrical isolated sample, electrostatic field behavior, slowly dissipative polymer, solid planar polymer, time 62 hour, Charge measurement, Charge transfer, Electric potential, Electrodes, Electrostatics, Ions
DOIs:
10.1109/EOSESD.2016.7592533
Source: Bibtex
Source ID: urn:dd06edd7b8b73b5d55aa28c271275556
Research output: Chapter in Book/Report/Conference proceeding > Conference contribution > Scientific > peer-review

Electrostatic discharge characteristics of conductive polymers

ESD control items are generally characterized by direct current measurements at certain voltage levels. Discharge resistance may, however, have a remarkable voltage and frequency dependency. We have assessed conductive polymers by comparing the resistivities of the solid planar objects with the resistances of electrostatic discharges. Conductive polymers may have applicable characteristics of current attenuation for ESD control items.

General information

Publication status: Published
MoE publication type: A4 Article in a conference publication
Organisations: Faculty of Biomedical Sciences and Engineering, Cascade Metrology, Premix Oy, Infenion Technologies AG
Contributors: Viheriäkoski, T., Kärjä, E., Gärtner, R., Tamminen, P.
Publication date: 18 Oct 2017

Host publication information

Title of host publication: Electrical Overstress/Electrostatic Discharge Symposium Proceedings 2017, EOS/ESD 2017
Publisher: ESD Association
ISBN (Electronic): 1585372935
ASJC Scopus subject areas: Electrical and Electronic Engineering
Source: Scopus
Source ID: 85037810021
Research output: Chapter in Book/Report/Conference proceeding > Conference contribution > Scientific > peer-review

Qualification challenges of footwear and flooring systems

Measurement of body voltage alone can result in erroneous conclusions in qualification of footwear and flooring systems in combination with a person. Measurement uncertainties should be taken into account. We have studied the time dependency and charge generation of some footwear and flooring systems. The most significant inconsistencies of the voltage measurement are discussed in this technical paper.

General information

Publication status: Published
MoE publication type: A4 Article in a conference publication
Organisations: Faculty of Biomedical Sciences and Engineering, Cascade Metrology, Sievin Jalkine Oy, Electrostatic Solutions Ltd., Armeka Engineering
Contributors: Viheriäkoski, T., Jokinen, V., Smallwood, J., Korpipää, A., Tamminen, P.
Publication date: 18 Oct 2017

Host publication information

Title of host publication: Electrical Overstress/Electrostatic Discharge Symposium Proceedings 2017, EOS/ESD 2017
Publisher: ESD Association
ISBN (Electronic): 1585372935
ASJC Scopus subject areas: Electrical and Electronic Engineering
Source: Scopus
Source ID: 85037814104
Research output: Chapter in Book/Report/Conference proceeding > Conference contribution > Scientific > peer-review

Probabilistic Mapping of Human Visual Attention from Head Pose Estimation

General information

Publication status: Published

MoE publication type: A1 Journal article-refereed

Organisations: Automation and Hydraulic Engineering, Aalto University School of Electrical Engineering

Contributors: Veronese, A., Racca, M., Pieters, R., Kyrki, V.

Number of pages: 11

Publication date: 30 Oct 2017

Peer-reviewed: Yes

Publication information

Journal: Frontiers in Robotics and AI

Article number: 53

ISSN (Print): 2296-9144

Ratings:

Scopus rating (2017): SNIP 1.479

Original language: English

Electronic versions:

frobt-04-00053

DOIs:

10.3389/frobt.2017.00053

URLs:

<http://urn.fi/URN:NBN:fi:tty-201712142366>

Research output: Contribution to journal > Article > Scientific > peer-review

Model-Driven Development of Control Applications: On Modeling Tools, Simulations and Safety

Control systems are required in various industrial applications varying from individual machines to manufacturing plants and enterprises. Software applications have an important role as an implementation technology in such systems, which can be based on Distributed Control System (DCS) or Programmable Control System (PLC) platforms, for example. Control applications are computer programs that, with control system hardware, perform control tasks. Control applications are efficient and flexible by nature; however, their development is a complex task that requires the collaboration of experts and information from various domains of expertise.

This thesis studies the use of Model-Driven Development (MDD) techniques in control application development. MDD is a software development methodology in which models are used as primary engineering artefacts and processed with both manual work and automated model transformations. The objective of the thesis is to explore whether or not control application development can benefit from MDD and selected technologies enabled by it. The research methodology followed in the thesis is the constructive approach of design science.

To answer the research questions, tools are developed for modeling and developing control applications using UML Automation Profile (UML AP) in a model-driven development process. The modeling approach is developed based on open source tools on Eclipse platform. In the approach, modeling concepts are kept extendable. Models can be processed with model transformation techniques that plug in to the tool. The approach takes into account domain requirements related to, for example, re-use of design. According to assessment of industrial applicability of the approach and tools as part of it, they could be used for developing industrial DCS based control applications.

Simulation approaches that can be used in conjunction to model-driven development of control applications are presented and compared. Development of a model-in-the-loop simulation support is rationalized to enable the use of simulations early while taking into account the special characteristics of the domain. A simulator integration is developed that transforms UML AP control application models to Modelica Modeling Language (ModelicaML) models, thus enabling closed-loop simulations with ModelicaML models of plants to be controlled. The simulation approach is applied successfully in simulations of machinery applications and process industry processes.

Model-driven development of safety applications, which are parts of safety systems, would require taking into account safety standard requirements related to modeling techniques and documentation, for example. Related to this aspect, the thesis focuses on extending the information content of models with aspects that are required for safety applications. The modeling of hazards and their associated risks is supported with fault tree notation. The risk and hazard information is integrated into the development process in order to improve traceability. Automated functions enable generating documentation and performing consistency checks related to the use of standard solutions, for example. When applicable, techniques and notations, such as logic diagrams, have been chosen so that they are intuitive to developers but also comply with recommendations of safety standards.

General information

Publication status: Published

MoE publication type: G5 Doctoral dissertation (article)

Organisations: Department of Automation Science and Engineering, Research area: Information Systems in Automation

Contributors: Vepsäläinen, T.

Number of pages: 115

Publication date: 5 Jun 2015

Publication information

Publisher: Tampere University of Technology

ISBN (Print): 978-952-15-3528-4

ISBN (Electronic): 978-952-15-3536-9

Original language: English

Publication series

Name: Tampere University of Technology. Publication

Publisher: Tampere University of Technology

Volume: 1303

ISSN (Print): 1459-2045

Electronic versions:

vepsalainen_1303

URLs:

<http://URN.fi/URN:ISBN:978-952-15-3536-9>

Bibliographical note

Awarding institution: Tampere University of Technology

Versio ok 16.12.2015

Research output: Book/Report > Doctoral thesis > Collection of Articles

A computationally feasible optimization approach to inverse SAR translational motion compensation

The traditional approach to inverse synthetic aperture radar translational motion compensation is to solve the problem in the two distinct parts of range alignment and autofocus. In this paper, we follow this practice and propose an approach based on the global range alignment and contrast optimization autofocus methods. The proposed range alignment procedure parametrizes the track as a spline polynomial and minimizes the loss function determined by the sum of the squared envelope differences. The necessary numerical global optimization is performed with the differential evolution algorithm. The solution of the autofocus problem is produced with first order numerical optimization, as we solve it by using an expression derived for the gradient of the loss function. In this paper, we consider the back-projection case but the proposed approach is easily extended to other reconstruction techniques. We use simulated inverse synthetic aperture radar data to demonstrate the proposed approach and to illustrate its computational efficiency.

General information

Publication status: Published

MoE publication type: A4 Article in a conference publication

Organisations: Department of Signal Processing, Research group: MMDM, Finnish Defence Research Agency

Contributors: Vehmas, R., Jylhä, J., Väilä, M., Kylmälä, J.

Number of pages: 4

Pages: 17-20

Publication date: 2015

Host publication information

Title of host publication: Proceedings of the 12th European Radar Conference (EuRAD 2015)

Publisher: IEEE

ISBN (Print): 978-2-87487-041-5

DOIs:

10.1109/EuRAD.2015.7346226

Bibliographical note

EXT="Kylmälä, Jarkko"

EXT="Vehmas, Risto"

Research output: Chapter in Book/Report/Conference proceeding > Conference contribution > Scientific > peer-review

Nano-structured optical fibers made of glass-ceramics, and phase separated and metallic particle-containing glasses

For years, scientists have been looking for different techniques to make glasses perfect: fully amorphous and ideally homogeneous. Meanwhile, recent advances in the development of particle-containing glasses (PCG), defined in this paper as glass-ceramics, glasses doped with metallic nanoparticles, and phase-separated glasses show that these "imperfect"

glasses can result in better optical materials if particles of desired chemistry, size, and shape are present in the glass. It has been shown that PCGs can be used for the fabrication of nanostructured fibers—a novel class of media for fiber optics. These unique optical fibers are able to outperform their traditional glass counterparts in terms of available emission spectral range, quantum efficiency, non-linear properties, fabricated sensors sensitivity, and other parameters. Being rather special, nanostructured fibers require new, unconventional solutions on the materials used, fabrication, and characterization techniques, limiting the use of these novel materials. This work overviews practical aspects and progress in the fabrication and characterization methods of the particle-containing glasses with particular attention to nanostructured fibers made of these materials. A review of the recent achievements shows that current technologies allow producing high-optical quality PCG-fibers of different types, and the unique optical properties of these nanostructured fibers make them prospective for applications in lasers, optical communications, medicine, lighting, and other areas of science and industry.

General information

Publication status: Published

MoE publication type: A2 Review article in a scientific journal

Organisations: Physics, Research group: Photonics Glasses, Université Côte d'Azur, Ecole Centrale de Nantes, PSL Research University

Contributors: Veber, A., Lu, Z., Vermillac, M., Pigeonneau, F., Blanc, W., Petit, L.

Number of pages: 29

Publication date: 2019

Peer-reviewed: Yes

Publication information

Journal: Fibers

Volume: 7

Issue number: 12

ISSN (Print): 2079-6439

Ratings:

Scopus rating (2019): CiteScore 2.7 SJR 0.442 SNIP 1.036

Original language: English

ASJC Scopus subject areas: Ceramics and Composites, Civil and Structural Engineering, Biomaterials, Mechanics of Materials

Keywords: Fabrication, Glass, Glass-ceramics, Metallic nanoparticles, Optical fibers, Optical properties, Phase-separation

Electronic versions:

fibers-07-00105-v2

DOIs:

10.3390/fib7120105

URLs:

<http://urn.fi/URN:NBN:fi:tuni-202001171373>

Source: Scopus

Source ID: 85076893292

Research output: Contribution to journal › Review Article › Scientific › peer-review

Effects of adiabatic heating estimated from tensile tests with continuous heating

The mechanical behavior of metastable austenitic stainless steels is strongly influenced by the strain induced phase transformation of austenite into martensite. The phase transformation rate is significantly affected by the strain rate and by the adiabatic heating at higher strain rates. Uncoupling of the effects of strain rate and adiabatic heating can lead to a better understanding of the strain-induced martensitic transformation and allow more accurate material modeling. This paper presents a preliminary analysis of the effects of adiabatic heating during a tensile test. The adiabatic heating as a function of strain was calculated from the stress-strain curves obtained in adiabatic conditions. Then the tensile tests were carried out at a lower strain rate while continuously heating the specimen at the same rate as obtained in the adiabatic conditions. With this method, the thermal conditions of the adiabatic tests were reproduced in the low rate conditions, which would normally be isothermal without the external heating. The martensite fraction was evaluated using the magnetic balance method. In this paper, we present a detailed description of the experimental procedure and discuss the observed changes in the mechanical behavior and microstructure of the studied steel.

General information

Publication status: Published

MoE publication type: A4 Article in a conference publication

Organisations: Materials Science, Research group: Materials Characterization

Contributors: Vazquez Fernandez, N., Isakov, M., Hokka, M., Kuokkala, V. T.

Number of pages: 7

Pages: 1-7

Publication date: 2018

Host publication information

Title of host publication: Dynamic Behavior of Materials - Proceedings of the 2017 Annual Conference on Experimental and Applied Mechanics

Volume: 1

Publisher: Springer New York LLC

ISBN (Print): 9783319629551

Publication series

Name: Conference Proceedings of the Society for Experimental Mechanics

ISSN (Print): 2191-5644

ASJC Scopus subject areas: Engineering(all), Computational Mechanics, Mechanical Engineering

Keywords: Adiabatic heating, Magnetic balance method, Martensite transformation, Metastable austenite, Stainless steel

DOIs:

10.1007/978-3-319-62956-8_1

Bibliographical note

jufoid=72540

Source: Scopus

Source ID: 85033464703

Research output: Chapter in Book/Report/Conference proceeding › Conference contribution › Scientific › peer-review

The Role of Customer Experience in Value Creation in Business-to-Business Context

The Role of Customer Experience in Value Creation in Business-to-Business Context

General information

Publication status: Unpublished

MoE publication type: D3 Professional conference proceedings

Organisations: Department of Information Management and Logistics, Research group: Novi, Tampere University of Technology, Tampere University of Applied Science

Contributors: Väyrynen, H., Vasell, T., Helander, N., Boedeker, M., Andersson, T.

Number of pages: 1

Pages: 146

Publication date: 12 Aug 2015

Host publication information

Title of host publication: 23rd Nordic Academy of Management Conference : NFF 2015

Publisher: Nordic Academy of Management

Article number: 24.02

URLs:

<https://conference.cbs.dk/index.php/NFF2015/NFF2015/schedConf/presentations> (Abstracts in conference publication)

Bibliographical note

AUX=tlo,"Vasell, Tytti"

Research output: Chapter in Book/Report/Conference proceeding › Conference contribution › Professional

Knowledge Management Practices in Large Companies

General information

Publication status: Published

MoE publication type: A1 Journal article-refereed

Organisations: Department of Information Management and Logistics, Research group: Novi, University of Vaasa

Contributors: Väyrynen, H., Helander, N., Kukko, M.

Number of pages: 17

Pages: 56-72

Publication date: 2014

Peer-reviewed: Yes

Early online date: 2014

Publication information

Journal: The Macrotheme Review

Volume: 3

Issue number: 9

Article number: 3(9)

ISSN (Print): 1848-4735

Original language: English

Keywords: Knowledge Management, practices, survey, large companies

Electronic versions:

Knowledge Management Practices in Large Companies_Author

URLs:

<http://urn.fi/URN:NBN:fi:tty-201604203832>

Bibliographical note

Versio ok 20.4.2016 /KK

EXT="Helander, Nina"

Research output: Contribution to journal › Article › Scientific › peer-review

Data-Driven Approach for Analysis of Performance Indices in Mobile Work Machines

This paper presents a data-driven approach for the analysis of performance indices in mobile work machines. Performance analysis and optimisation of mobile work machines has become increasingly important in recent years. The mobile work machine optimisation is performed based on performance measurements. One of the most interesting and potential approach for improving the quality of the performance analysis is the utilisation of Big Data and data-driven analysis methods, such as machine learning. This study utilises a machine learning algorithm, Classification and Regression Trees (CART), in the performance analysis of the mobile work machines. The most significant benefit of the presented method is that it provides a statistical reference of the machine performance for the operators. The method enables operators to compare performance against reference fleet of machines working in similar operating conditions. This feature can lead to more informative and reliable interpretations and analysis of the performance values. The results of this paper demonstrate how the presented method was used to analyse the performance of a mobile work machine fleet.

General information

Publication status: Published

MoE publication type: A4 Article in a conference publication

Organisations: Department of Automation Science and Engineering, Research area: Dynamic Systems, Research area: Measurement Technology and Process Control, Tampere University of Technology

Contributors: Väyrynen, T., Peltokangas, S., Anttila, E., Vilkkö, M.

Number of pages: 7

Pages: 81-86

Publication date: 19 Jul 2015

Host publication information

Title of host publication: DATA ANALYTICS 2015, The Fourth International Conference on Data Analytics

Editors: Klemas, T., Chan, S.

ISBN (Electronic): 978-1-61208-423-7

Bibliographical note

AUX=ase,"Anttila, Eero"

Research output: Chapter in Book/Report/Conference proceeding › Conference contribution › Scientific › peer-review

Knowledge Management operationalization – how it differs in large enterprises and SMEs in Finland

Information and knowledge are essential resources for businesses to maintain their competitiveness and to constantly develop further. Knowledge Management (KM) enables companies to develop their activities by having the right information at the right time, as well as by offering the tools to manage the skills and knowledge of the personnel. The aim of this paper is to empirically analyze how KM is operationalized in large and small and medium sized companies in Finland, and furthermore, what kinds of challenges the companies face in KM operationalization. The empirical study was carried out in spring 2014 as a web-based questionnaire survey and structured interviews. Results of the study provide direction for the development directions of KM in Finnish companies.

General information

Publication status: Unpublished

MoE publication type: D3 Professional conference proceedings

Organisations: Department of Information Management and Logistics, Research group: Novi

Contributors: Väyrynen, H., Helander, N.

Number of pages: 27

Pages: 1-27

Publication date: Aug 2015

Host publication information

Title of host publication: 23rd Nordic Academy of Management Conference : NFF 2015

Publisher: Nordic Academy of Management

Keywords: Knowledge Management, survey, large and small and medium sized companies

Electronic versions:

NFF conference paper KM operationalization

URLs:

<http://urn.fi/URN:NBN:fi:tty-201605033933>

URLs:

<https://conference.cbs.dk/index.php/NFF2015/NFF2015/schedConf/overview>

Research output: Chapter in Book/Report/Conference proceeding › Conference contribution › Professional

Why don't one maximizes database utilization in product and service development in manufacturing?

General information

Publication status: Published

MoE publication type: A4 Article in a conference publication

Organisations: Industrial and Information Management, Research group: Business Ecosystems, Networks and Innovations

Contributors: Väyrynen, H., Manu, M.

Number of pages: 13

Pages: 93-105

Publication date: 7 Jun 2017

Host publication information

Title of host publication: Proceedings of the 12th International Forum on Knowledge Asset Dynamics 2017 : St. Petersburg, Russia, 7-9 June 2017

Place of publication: St. Petersburg, Russia

ISBN (Print): 978-88-96687-10-9

Publication series

Name: Proceedings IFKAD

ISSN (Print): 2280-787X

Keywords: Technology adoption, DATABASE, customer oriented approach, Practice, Development

Research output: Chapter in Book/Report/Conference proceeding › Conference contribution › Scientific › peer-review

Parameters Affecting the Upcycling of Waste Cotton and PES/CO Textiles

General information

Publication status: Published

MoE publication type: A1 Journal article-refereed

Organisations: Department of Materials Science, Research group: Fibre Materials

Contributors: Vats, S., Rissanen, M.

Number of pages: 12

Pages: 166-177

Publication date: 30 May 2016

Peer-reviewed: Yes

Publication information

Journal: Recycling

Volume: 1

Issue number: 1

ISSN (Print): 2313-4321

Original language: English

Electronic versions:

[recycling-01-00166](https://doi.org/10.3390/recycling1010166)

DOIs:

[10.3390/recycling1010166](https://doi.org/10.3390/recycling1010166)

URLs:

<http://urn.fi/URN:NBN:fi:tty-201605304201>

Research output: Contribution to journal › Article › Scientific › peer-review

Identifying and measuring customer value - case multi-locational worker

General information

Publication status: Published

MoE publication type: A4 Article in a conference publication

Organisations: Department of Information Management and Logistics, Research group: Novi, Department of Civil Engineering

Contributors: Vasell, T., Vuolle, M., Petrulaitiene, V., Nenonen, S., Jylhä, T.
Number of pages: 9
Pages: 143-151
Publication date: 2016

Host publication information

Title of host publication: Research papers for EuroFM's 15th research symposium at EFMC2016 : 8-9 June 2016 in Milan, Italy

Publisher: EuroFM

Editors: Nielsen, S., Jensen, P. A.

ISBN (Electronic): 9788750211020

Keywords: facility management, Value co-creation, Customer experience, customer value measuring

URLs:

http://orbit.dtu.dk/files/124939454/EFMC2016_proceeding.pdf

Source: Bibtex

Source ID: urn:3e8ad9e3f5cee371d9024be9db9d287f

Research output: Chapter in Book/Report/Conference proceeding > Conference contribution > Scientific > peer-review

Balancing Expectations to the Health Software Production Process Standard

This paper presents the stakeholder expectations to the new version of the ISO/IEC health software life cycle standard 62304. This software production standard is central to the medical device industry but the new version is expected to cover even more scope including also other health software than just regulated medical device software. This paper discusses how to balance the expectations of the law makers, regulatory bodies, software producers and users etc.

Compared to the present version the new version should take more into account the special characteristics of developing low risk mobile health application software and cybersecurity while maintaining the endorsement of the regulatory bodies.

General information

Publication status: Published

MoE publication type: A4 Article in a conference publication

Organisations: Department of Signal Processing, Research group: Sleep and Sensory Signal Analysis Group-SSSAG

Contributors: Värri, A.

Publication date: 2015

Host publication information

Title of host publication: The 3rd International Virtual Research Conference In Technical Disciplines

ISBN (Print): 978-80-554-1125-5

Publication series

Name: RCITD - Proceedings in Research Conference in Technical Disciplines

ISSN (Print): 2453-6571

ISSN (Electronic): 1339-5076

DOIs:

10.18638/rcitd.2015.3.1.71

Research output: Chapter in Book/Report/Conference proceeding > Conference contribution > Scientific > peer-review

A new generation sweating thermal manikin for the evaluation of the thermal comfort of protective clothing in Arctic Conditions

Working or staying in cold conditions set high demands for the garments to sustain the thermal comfort of the wearer. The high thermal insulation needed in cold conditions, like in Arctic areas, can cause heat stress when working in high intensity and post exercise chill while the remaining moisture in the clothing layers due to sweating increases heat loss. The thermoregulatory properties of textiles from material level to garment level can be determined with a wide selection of test methods. Hot plates, water vapour permeability tests and a sweating thermal cylinder are used for planar textiles to determine thermal comfort properties on material level to be able to select the most suitable candidates for the garments for the required end use conditions. For garment level testing, the non-movable or movable thermal or sweating thermal manikins offer the most sophisticated objective methods. They simulate human body heat and sweat production and body movements in controlled ambient conditions for determining the thermal comfort properties either of a piece of garment or the whole clothing systems. The effect of garment design can be determined in addition to material properties.

General information

Publication status: Published

MoE publication type: B2 Part of a book or another research book

Organisations: Department of Materials Science, Research group: Fibre Materials

Contributors: Varheenmaa, M.

Number of pages: 7

Pages: 154-161
Publication date: 2015

Host publication information

Title of host publication: Arctic Wears - Perspectives on Arctic Clothing
Publisher: Lapland University of Applied Sciences
Editors: Konola, S., Kähkönen, P.
ISBN (Print): 978-952-316-085-9
ISBN (Electronic): 978-952-316-086-6

Publication series

Name: Liiketoiminta ja yrittäjyys Sarja B. Raportit ja selvitykset 10/2015
Publisher: Lapland University of Applied Sciences
Research output: Chapter in Book/Report/Conference proceeding › Chapter › Scientific

Betonin kosteusteknisten materiaaliominaisuuksien määrittäminen

General information

Publication status: Published
MoE publication type: D3 Professional conference proceedings
Organisations: Civil Engineering, Research group: Building Physics, Laboratory of Civil Engineering
Contributors: Vääntinen, K., Tuominen, E., Vinha, J.
Number of pages: 10
Pages: 461-470
Publication date: 24 Oct 2017

Host publication information

Title of host publication: Rakennusfysiikka 2017. Uusimmat tutkimustulokset ja hyvät käytännön ratkaisut : 24.-26.10.2017, Tampere
Volume: 2
Place of publication: Tampere
Publisher: Tampereen teknillinen yliopisto, Rakennustekniikka, Rakennusfysiikka
Editors: Vinha, J., Kivioja, H.
ISBN (Print): 978-952-15-4023-3

Publication series

Name: Tampereen teknillinen yliopisto. Rakennustekniikka. Rakennusfysiikka.
ASJC Scopus subject areas: Engineering(all)
URLs:
http://www.tut.fi/cs/groups/public_news/@l102/@web/@p/documents/liit/x229246.pdf

Bibliographical note

INT=RAK, "Vääntinen, Kari"
Research output: Chapter in Book/Report/Conference proceeding › Conference contribution › Professional

A mixed-integer linear programming approach for global discrete size optimization of frame structures

This paper proposes a method to solve discrete size optimization problems of frame structures to global optimality. Global optimality is guaranteed by reformulating the optimization problem as a mixed-integer linear program (MILP) and solving it with the branch-and-bound method. The presented mixed variable formulation extends the existing mixed variable formulation for size and topology optimization of truss structures. The MILP is obtained by adopting the simultaneous analysis and design approach. The variables consist of binary decision variables to select a profile section from the catalog, and state variables representing the member end forces. The equilibrium equations and member stiffness relations are included as constraints. The displacement and stress constraints are formulated such that for each member limit values are imposed at predefined locations along the member. The proposed method is applied to a three-bay three-story frame.

General information

Publication status: Published
MoE publication type: A4 Article in a conference publication
Organisations: Department of Civil Engineering, Research group: Metal and Light-weight structures, KU Leuven
Contributors: Van Mellaert, R., Mela, K., Tiainen, T., Heinisuo, M., Lombaert, G., Schevenels, M.
Number of pages: 14
Pages: 3395-3408
Publication date: 2016

Host publication information

Title of host publication: ECCOMAS Congress 2016 - Proceedings of the 7th European Congress on Computational Methods in Applied Sciences and Engineering : Crete; Greece; 5 June 2016 through 10 June 2016

Volume: 2

Publisher: National Technical University of Athens

ISBN (Electronic): 9786188284401

ASJC Scopus subject areas: Artificial Intelligence, Applied Mathematics

Keywords: Discrete optimization, Frame structures, Global optimization, Mixed-integer linear programs, Size optimization
URLs:

<http://www.scopus.com/inward/record.url?scp=84995387507&partnerID=8YFLogxK> (Link to publication in Scopus)

<https://www.eccomas2016.org/>

Source: Scopus

Source ID: 84995387507

Research output: Chapter in Book/Report/Conference proceeding › Conference contribution › Scientific › peer-review

Customers' conscious experience in a coffee shop

General information

Publication status: Published

MoE publication type: A4 Article in a conference publication

Organisations: Pori Department, Research group: Business Ecosystems, Networks and Innovations

Contributors: Vanharanta, H., Kantola, J., Seikola, S.

Number of pages: 8

Pages: 618-625

Publication date: 2015

Host publication information

Title of host publication: 6th International Conference on Applied Human Factors and Ergonomics (AHFE 2015) and the Affiliated Conferences, AHFE 2015

Publisher: Elsevier

Publication series

Name: Procedia Manufacturing

Volume: 3

ISSN (Print): 2351-9789

Electronic versions:

Customers' Conscious Experience in a Coffee Shop

DOIs:

[10.1016/j.promfg.2015.07.283](https://doi.org/10.1016/j.promfg.2015.07.283)

URLs:

<http://urn.fi/URN:NBN:fi:tty-201606064220>

Bibliographical note

EXT="Kantola, Jussi"

Research output: Chapter in Book/Report/Conference proceeding › Conference contribution › Scientific › peer-review

Proactive vision for strategy making

General information

Publication status: Published

MoE publication type: A4 Article in a conference publication

Organisations: Pori Department, Research group: Business Ecosystems, Networks and Innovations

Contributors: Vanharanta, H., Kantola, J.

Number of pages: 8

Pages: 587-594

Publication date: 2015

Host publication information

Title of host publication: 6th International Conference on Applied Human Factors and Ergonomics (AHFE 2015) and the Affiliated Conferences, AHFE 2015

Publisher: Elsevier

Publication series

Name: Procedia Manufacturing

Volume: 3
ISSN (Print): 2351-9789
Electronic versions:
Proactive vision for strategy making
DOIs:
10.1016/j.promfg.2015.07.272
URLs:
<http://urn.fi/URN:NBN:fi:tty-201606064219>

Bibliographical note

EXT="Kantola, Jussi"

Research output: Chapter in Book/Report/Conference proceeding › Conference contribution › Scientific › peer-review

Utilizing knowledge networks in virtual or augmented reality solution creation

Contemporary digital transformation brings new opportunities for companies, lately especially in the form of virtual and augmented reality solutions (VR/AR). While the technologies are developing fast, knowledge about them and their possibilities is difficult to locate and reach. Cross-organizational knowledge networks that share knowledge about technology and its applications are needed. This paper analyzes cross-organizational knowledge sharing networks that operate behind the scenes of virtual and augmented reality. To understand the knowledge networking processes, this paper presents a case study of a regional VR/AR community. The aim of the paper is to understand how knowledge sharing networks naturally operate in the VR/AR context and what kind of processes and tools organizations harness. The paper presents a description on how the interviewed organizations and individuals utilize their knowledge network in VR/AR knowledge acquisition and creation. The distinct characteristics of the VR/AR field are discussed in light of existing literature on knowledge sharing and knowledge networks. In the findings, the need for a more systematic way of utilizing the network is identified. Knowledge networks provide the best value for their members when the network is actively harnessed, and there are network actors who focus on systematically spreading knowledge across the network. While the case study shows that the network members feel that they gain knowledge from the network, the use of the network varies between organizations and individuals. The network shows signs of movement toward more systematic knowledge sharing, and the knowledge network literature suggests that this development will improve the benefits of network participation for all actors in the network. Further studies on a larger scale in similar types of networks are suggested to allow better understanding of knowledge sharing in knowledge networks, and the challenges and benefits that are connected to it. VR/AR development as a rapidly evolving field lends itself to be an interesting context for studying knowledge networks.

General information

Publication status: Published

MoE publication type: A4 Article in a conference publication

Organisations: Industrial and Information Management, Research group: Knowledge and Learning Research Center, Pervasive Computing, Research area: User experience, Tampere University of Technology

Contributors: Vanhalakka, J., Ilvonen, I., Väättäjä, H.

Number of pages: 7

Pages: 1008-1014

Publication date: 2017

Host publication information

Title of host publication: Proceedings of the 18th European Conference on knowledge Management ECKM 2017 : 7-8 September 2017, Barcelona, Spain

Publisher: Academic Conferences and Publishing International

Editors: Marimon, F., Mas-Machuca, M., Berbegal-Mirabent, J., Bastida, R.

ISBN (Print): 978-1-911218-48-7

ISBN (Electronic): 978-1-911218-49-4

Research output: Chapter in Book/Report/Conference proceeding › Conference contribution › Scientific › peer-review

Hard Rock (- ei Hallelujah, vaan) Tribology: Pohjoismainen kaivosteollisuuden kulumisongelmiin keskittyvä kurssi ja seminaari Tampereella

General information

Publication status: Published

MoE publication type: D1 Article in a trade journal

Organisations: Department of Materials Science, Research group: Materials Characterization

Contributors: Valtonen, K., Tiainen, T.

Pages: 30-33

Publication date: 2 Sep 2015

Peer-reviewed: Unknown

Publication information

Journal: *Materia*

Volume: 2015

Issue number: 1

ISSN (Print): 1459-9694

Original language: Finnish

URLs:

<http://www.vuorimiesyhdistys.fi/julkaisut/materia>

Research output: Contribution to journal > Article > Professional

MathCheck: a tool for checking math solutions in detail

General information

Publication status: Published

MoE publication type: A4 Article in a conference publication

Organisations: Department of Mathematics, Research group: MAT Computer Science and Applied Logics

Contributors: Valmari, A., Kaarakka, T.

Publication date: Sep 2016

Host publication information

Title of host publication: SEFI 2016 Annual Conference Proceedings : Engineering Education on Top of the World: Industry University Cooperation

Publisher: European Society for Engineering Education SEFI

ISBN (Print): 9782873520144

Research output: Chapter in Book/Report/Conference proceeding > Conference contribution > Scientific > peer-review

The logics taught and used at high schools are not the same

Typical treatises on propositional and predicate logic do not tell how to deal with undefined expressions, such as division by zero. However, there seems to be a sound (albeit inexplicit) reasoning system that addresses undefined expressions, because equations and inequations involving them are routinely solved in schools and universities without running into fundamental inconsistencies. In this study we discover this school logic and formalize its semantics. The need to do so arose when developing software that gives students feedback on every reasoning step of their solution, instead of just telling whether the roots that they finally report are the correct roots. The problem of undefined expressions has been addressed in computer science. However, school logic proves different from those approaches. School logic is based on a Kleene-style third "undefined" truth value and the treatment of " \Rightarrow " and " \Leftrightarrow " not as propositional operators but as reasoning operators.

General information

Publication status: Published

MoE publication type: A4 Article in a conference publication

Organisations: Pervasive Computing, University of Tampere

Contributors: Valmari, A., Hella, L.

Number of pages: 15

Pages: 172-186

Publication date: May 2017

Host publication information

Title of host publication: Proceedings of the Fourth Russian Finnish Symposium on Discrete Mathematics

Place of publication: Turku

Publisher: TURKU CENTRE FOR COMPUTER SCIENCE

Editors: Karhumäki, J., Matiyasevich, Y., Saarela, A.

ISBN (Print): 978-952-12-3547-4

Publication series

Name: TUCS Lecture Notes

Publisher: Turku Centre for Computer Science

No.: 26

ISSN (Print): 1797-8823

ASJC Scopus subject areas: Mathematics(all)

Keywords: logic

URLs:

<http://www.doria.fi/handle/10024/143322>

Research output: Chapter in Book/Report/Conference proceeding > Conference contribution > Scientific > peer-review

DCASE 2016 Acoustic Scene Classification Using Convolutional Neural Networks

General information

Publication status: Published

MoE publication type: A4 Article in a conference publication

Organisations: Department of Signal Processing, Research group: Audio research group

Contributors: Valenti, M., Diment, A., Parascandolo, G., Squartini, S., Virtanen, T.

Publication date: 1 Sep 2016

Host publication information

Title of host publication: Proceedings of the Detection and Classification of Acoustic Scenes and Events 2016 Workshop (DCASE2016)

Publisher: Tampere University of Technology. Department of Signal Processing

ISBN (Electronic): 978-952-15-3807-0

Keywords: Acoustic scene classification, convolutional neural networks, DCASE, computational audio processing

URLs:

<http://www.cs.tut.fi/sgn/arg/dcase2016/documents/workshop/Valenti-DCASE2016workshop.pdf>

<http://urn.fi/URN:ISBN:978-952-15-3807-0>

Source: Bibtex

Source ID: urn:c2fdc060aad74381513299d25e4a3052

Research output: Chapter in Book/Report/Conference proceeding > Conference contribution > Scientific > peer-review

Implementation Experiences and Design Challenges for Resilient SDN Based Secure WAN Overlays

Mobile computing devices, industrial control systems, and service provider clouds often need to be connected to each other over wide area networks. However, reliability, quality of services and confidentiality are challenging in such setups. Moreover, isolated appliances and physical equipment face harsh environment conditions. In this paper we explore designing secure layer 2 overlay networks using Software Defined Networking (SDN), and challenges in implementing them with open source tools.

General information

Publication status: Published

MoE publication type: A4 Article in a conference publication

Organisations: Department of Pervasive Computing, Research area: Information security

Contributors: Vajaranta, M., Kannisto, J., Harju, J.

Number of pages: 7

Pages: 17-23

Publication date: 4 Aug 2016

Host publication information

Title of host publication: 2016 11th Asia Joint Conference on Information Security (AsiaJCIS)

Publisher: IEEE

ISBN (Electronic): 978-1-5090-2285-4

DOIs:

10.1109/AsiaJCIS.2016.25

Research output: Chapter in Book/Report/Conference proceeding > Conference contribution > Scientific > peer-review

Consumer acceptance in new service innovation: Enhancing consumer durables with new product-related services.

Manufacturing companies are increasingly offering services to gain benefits in the competitive markets but also to reach closer contact with their customers. However, customer acceptance of the new services defines whether the manufacturers succeed in their service launches or if the investments have been misspent. The importance of customer acceptance has been noticed widely in the previous literature but the research has not really extended to the domain of product-related consumer services. This paper contributes to this literature by discussing consumer acceptance of a product-related service but also acceptance of a manufacturer as a service provider. The focus is on a service enhancing consumer durable provided by a manufacturer through retailer network. The data was collected in two phases; preliminary data by

interviews realized in one country and the actual data set by questionnaire carried out in two other countries. This study shows that the customer acceptance of product-related service is not self-evident. Considering customer's earlier service usage, brand loyalty, and trialability of the service innovation are important in service acceptance. Surprisingly, respondent's age and gender affected only rarely customers' perceptions and wishes for services from manufacturers even though these factors have been found important in some other studies. As a conclusion, manufacturers introducing service innovations need to strive to enhance consumers' service acceptance by providing information about the service for potential customers, facilitating service deployment and use as well as ensuring smooth service implementation.

General information

Publication status: Published

MoE publication type: A4 Article in a conference publication

Organisations: Department of Industrial Management, Research group: Center for Research on Operations Projects and Services

Contributors: Vaittinen, E., Nenonen, S.

Publication date: 2015

Host publication information

Title of host publication: Proceedings of the 22nd Innovation Product Development Management Conference (IPDMC)

Publication series

Name: International Product Development Management Conference

ISSN (Print): 1998-7374

Research output: Chapter in Book/Report/Conference proceeding › Conference contribution › Scientific › peer-review

Enhancing the acceptance of advanced services among users of complex systems

Purpose: In order to succeed in servitization, manufacturing firms need to understand the mechanisms through which their customers accept advanced services. This research explores the customers' readiness towards more advanced services. The goal is increased knowledge on the aspects that manufacturers need to consider when bringing advanced services into market and ways to enhance the customer acceptance of these services.

Design/methodology/approach: A qualitative case study design is used, to analyse readiness for advanced services and service acceptance in a manufacturer's three customer firms. Interview data were collected among 14 persons at the different customer sites and were content analysed.

Findings: The results show that customers accustomed to purchasing basic services or implementing them in-house may not yet be ready to purchase advanced services from manufacturers. Customers are uncertain about the benefits and the complete costs of the service. Manufacturers can enhance the customers' acceptance of advanced services by certain activities within the organisation and in relation to the customers e.g. by training service employees and educating the customers.

Originality/value: The results offer new knowledge on customer service acceptance in a business-to-business context and, thereby, complement previous studies on the supplier perspective to servitization and service acceptance in consumer business. The contributions help manufacturers to identify practices for enhancing the customer firms' readiness and acceptance of advanced services.

General information

Publication status: Published

MoE publication type: A4 Article in a conference publication

Organisations: Department of Industrial Management, Research group: Center for Research on Operations Projects and Services

Contributors: Vaittinen, E., Martinsuo, M., Nenonen, S.

Number of pages: 9

Pages: 162-170

Publication date: May 2016

Host publication information

Title of host publication: Servitization: Shift, Transform, Grow : Proceedings of the Spring Servitization Conference, 16-17 May 2016 (SSC2016)

Editors: Baines, T., Harrison, D., Zolkiewski, J.

ISBN (Print): 978-185-44-9403-0

Electronic versions:

SSC, Vaittinen, Martinsuo & Nenonen

URLs:

<http://urn.fi/URN:NBN:fi:tty-201708171686>

URLs:

<http://www.aston.ac.uk/aston-business-school/research/events/ssc2016/>

Research output: Chapter in Book/Report/Conference proceeding › Conference contribution › Scientific › peer-review

Ready to sell? Requirements for promoting service selling in a manufacturing firm

General information

Publication status: Published

MoE publication type: A4 Article in a conference publication

Organisations: Industrial and Information Management, Research group: Center for Research on Operations Projects and Services

Contributors: Vaittinen, E., Martinsuo, M.
Number of pages: 9
Pages: 26-34
Publication date: May 2018

Host publication information

Title of host publication: Proceedings of the Spring Servitization Conference, Driving Competitiveness through Servitization, 14-16 May 2018
Publisher: Aston University
Editors: Bigdeli, A., Frandsen, T., Raja, J., Baines, T.
ISBN (Print): 9781854494481
Research output: Chapter in Book/Report/Conference proceeding > Conference contribution > Scientific > peer-review

Cross-Cultural Design of Mobile Mathematics Learning Service for South African Schools

In the era of mobile devices and services, researchers in the educational domain have been interested in how to support learning with mobile technology in both local and global contexts. Recent human-computer interaction (HCI) research in the educational domain has particularly focused on how to develop mobile learning services and how to evaluate the learning outcomes. However, learning occurs in a local cultural context and the impact of culturally sensitive issues of the design of mobile learning needs more attention. We studied mobile mathematics learning -service in a longitudinal research with over 30 South African schools during three years. Our aim was to understand culturally dependent issues which need to be taken into consideration in the design of mobile learning services. We found subjective and objective culturally dependent issues in the content, context, infrastructure and technology of mobile learning and therefore, subjects to cross-cultural research. In conclusion, we argue that localization enhances the user experience and therefore support learning.

General information

Publication status: Published
MoE publication type: A1 Journal article-refereed
Organisations: Department of Pervasive Computing, Research area: User experience, University of Tampere
Contributors: Vainio, T., Walsh, T., Varsaluoma, J.
Number of pages: 12
Pages: 81-93
Publication date: 2015
Peer-reviewed: Yes

Publication information

Journal: IADIS International Journal on WWW/Internet
Volume: 12
Issue number: 1
ISSN (Print): 1645-7641
Original language: English
Keywords: Cross-Cultural Design, Mobile Learning, Cultural Context, Subjective and Objective Culture
URLs:
<http://www.iadisportal.org/ijwi/papers/2014121106.pdf>

Bibliographical note

EXT="Vainio, Teija"
Research output: Contribution to journal > Article > Scientific > peer-review

Learning maths with mobiles: Cross-cultural design of technology with experiences in South-Africa and Finland

This chapter presents an overview of our experiences on cross-cultural design of technology in the context of mobile learning focusing on supporting learners to study mathematics in two different countries. The aim of our study is to discuss design issues from the perspective of two different types of cultures and reflect culturally sensitive issues based on a longitudinal study, which included empirical data from altogether over 3500 learners of grades 9 and 10. As a result we outline two focus areas: content and concept for best design practices. Furthermore, we argue that cross-cultural design of technology can help to identify culturally sensitive areas such as attitudes towards informal and collaborative learning and recognizing the local context for the content. Cross-cultural design of technology supports development of good user experience of mobile learning services for different local learning contexts.

General information

Publication status: Published
MoE publication type: A3 Part of a book or another research book
Organisations: Department of Pervasive Computing, Research area: User experience
Contributors: Vainio, T., Walsh, T.
Number of pages: 18

Pages: 79-96
Publication date: 13 Jul 2015

Host publication information

Title of host publication: Integrating Touch-Enabled and Mobile Devices into Contemporary Mathematics Education
Publisher: IGI Global
ISBN (Print): 9781466687158
ISBN (Electronic): 9781466687141
ASJC Scopus subject areas: Social Sciences(all)
DOIs:
10.4018/978-1-4666-8714-1.ch004

Bibliographical note

EXT="Vainio, Teija"
Source: Scopus
Source ID: 84957956201
Research output: Chapter in Book/Report/Conference proceeding › Chapter › Scientific › peer-review

A follow-up case study of the relation of PLM Architecture, Maturity and Business processes

This paper presents findings of two research projects, which study current PLM practices and future PLM challenges of global manufacturing companies. This study focuses on maturity of PLM adoption, PLM system architectures and integrations between the tools and seeks a better understanding of a real business phenomenon by comparing case companies to models presented in literature. Data was collected by interviews and benchmarking sessions in six plus three companies in two projects. The companies are categorized by using a four level PLM maturity model. This research indicates that the PLM adoption maturity and architecture models are related to the effectiveness of PLM usage. Service and project businesses seem to be challenging aspects. This is because PLM systems are mainly used in beginning of life activities of the product. In the future also the end of life and middle of life activities should receive more support from the tools and software.

General information

Publication status: Published
MoE publication type: A4 Article in a conference publication
Organisations: Department of Mechanical Engineering and Industrial Systems, Research area: Life-cycle Management
Contributors: Vainio, V. V., Pulkkinen, A.
Number of pages: 7
Pages: 867-873
Publication date: 2016

Host publication information

Title of host publication: Product Lifecycle Management in the Era of Internet of Things : 12th IFIP WG 5.1 International Conference, PLM 2015, Doha, Qatar, October 19-21, 2015, Revised Selected Papers
Publisher: Springer New York LLC
ISBN (Print): 9783319331102

Publication series

Name: IFIP Advances in Information and Communication Technology
Volume: 467
ISSN (Print): 1868-4238
ASJC Scopus subject areas: Information Systems and Management
Keywords: PLM maturity, PLM systems architecture, Product lifecycle management
DOIs:
10.1007/978-3-319-33111-9_79
Source: Scopus
Source ID: 84964911364
Research output: Chapter in Book/Report/Conference proceeding › Conference contribution › Scientific › peer-review

Learning Maths with mobiles: Cross-cultural design of technology with experiences in South-Africa and Finland

This chapter presents an overview of our experiences on cross-cultural design of technology in the context of mobile learning focusing on supporting learners to study mathematics in two different countries. The aim of our study is to discuss design issues from the perspective of two different types of cultures and reflect culturally sensitive issues based on a longitudinal study, which included empirical data from altogether over 3500 learners of grades 9 and 10. As a result we outline two focus areas: content and concept for best design practices. Furthermore, we argue that cross-cultural design of technology can help to identify culturally sensitive areas such as attitudes towards informal and collaborative learning and recognizing the local context for the content. Cross-cultural design of technology supports development of good user experience of mobile learning services for different local learning contexts.

General information

Publication status: Published
MoE publication type: A3 Part of a book or another research book
Organisations: Pervasive Computing
Contributors: Vainio, T., Walsh, T.
Number of pages: 19
Pages: 741-759
Publication date: 18 Aug 2016

Host publication information

Title of host publication: Blended Learning: Concepts, Methodologies, Tools, and Applications
Volume: 4
Publisher: IGI Global
ISBN (Print): 9781522507833
ISBN (Electronic): 9781522507840
ASJC Scopus subject areas: Social Sciences(all), Computer Science(all)
DOIs:
10.4018/978-1-5225-0783-3.ch037

Bibliographical note

EXT="Vainio, Teija"
Source: Scopus
Source ID: 85016852656
Research output: Chapter in Book/Report/Conference proceeding > Chapter > Scientific > peer-review

Continuous-wave optical parametric oscillators for mid-infrared spectroscopy

The atmospheric window at 3 to 5 μm is one of the most important spectral regions for molecular spectroscopy. This region accommodates strong fundamental vibrational spectra of several interesting molecules, including species relevant for air quality monitoring, medical diagnostics, and fundamental research. These applications require excellent spectroscopic sensitivity and selectivity. For example, atmospheric research often needs precise quantification of trace gas fractions of down to the parts-per-trillion level (10^{-12}), with the capability of resolving individual spectral features of different molecular compounds. This sets stringent requirements for the light source of the spectrometer in terms of output power, noise, and linewidth. In addition, the wavelength tuning range of the light source needs to be large, preferably over the entire atmospheric window, in order to enable measurements of molecular fingerprints of several compounds. Continuous-wave optical parametric oscillators (CW-OPOs) are one of the few light sources that have the potential of combining all these favorable characteristics. This contribution summarizes our progress in the development of CW-OPOs, with an emphasis on precise frequency control methods for high-resolution molecular spectroscopy. Examples of new applications enabled by the advanced CW-OPO technologies will be presented. These examples include a demonstration of world-record detection sensitivity in trace gas analysis, as well as the first characterization of infrared spectrum of radioactive methane $^{14}\text{CH}_4$.

General information

Publication status: Published
MoE publication type: A4 Article in a conference publication
Organisations: Physics, Research group: Infrared Light Sources, University of Helsinki
Contributors: Vainio, M.
Publication date: 2020

Host publication information

Title of host publication: Nonlinear Frequency Generation and Conversion : Materials and Devices XIX
Publisher: SPIE
Editors: Schunemann, P. G., Schepler, K. L.
Article number: 1126419
ISBN (Print): 9781510632912
ISBN (Electronic): 9781510632929

Publication series

Name: Proceedings of SPIE - The International Society for Optical Engineering
Volume: 11264
ISSN (Print): 0277-786X
ISSN (Electronic): 1996-756X
ASJC Scopus subject areas: Electronic, Optical and Magnetic Materials, Condensed Matter Physics, Computer Science Applications, Applied Mathematics, Electrical and Electronic Engineering
Keywords: Infrared spectroscopy, Molecular spectroscopy, Nonlinear optics, Optical frequency conversion
DOIs:

10.1117/12.2548711

Bibliographical note

jufoid=71479

Source: Scopus

Source ID: 85084182629

Research output: Chapter in Book/Report/Conference proceeding › Conference contribution › Scientific › peer-review

Characterizing the Context of Use in Mobile Work

The context of use has been widely acknowledged as important when designing and evaluating systems for work related activities. This paper describes in case of mobile news making the synthesized findings on the context of use. Findings are categorized to five components and nineteen subcomponents and characterized with examples from our studies. The presented findings validate a previously presented model for context of use in mobile HCI, extend it, and elaborate the definitions for the components. The presented elaborated model can be applied by academics and practitioners in development, research and evaluation activities from identifying requirements to evaluating systems for mobile work. Findings support understanding what circumstances and how they can contribute to user experience and acceptance of designed systems.

General information

Publication status: Published

MoE publication type: A4 Article in a conference publication

Organisations: Department of Pervasive Computing, Research area: User experience, Augmented Human Activities (AHA)

Contributors: Vätätäjä, H.

Number of pages: 167

Pages: 97-113

Publication date: 2015

Host publication information

Title of host publication: Human Work Interaction Design. Work Analysis and Interaction Design Methods for Pervasive and Smart Workplaces : 4th IFIP 13.6 Working Conference, HWID 2015, London, UK, June 25-26, 2015, Revised Selected Papers

Publisher: Springer Verlag

ISBN (Print): 978-3-319-27047-0

ISBN (Electronic): 978-3-319-27048-7

Publication series

Name: IFIP Advances in Information and Communication Technology

Volume: 468

ISSN (Print): 1868-4238

ASJC Scopus subject areas: Computer Science (miscellaneous)

Keywords: human-computer interaction, human-technology interaction, work, mobile work, CONTEXT, context of use, journalism, smartphone, news, news making

Electronic versions:

Vaataja-Characterizing the context of use in mobile work-HWID-2015. Embargo ended: 25/06/16

DOIs:

10.1007/978-3-319-27048-7_7

Research output: Chapter in Book/Report/Conference proceeding › Conference contribution › Scientific › peer-review

Integrating mobile orienteering to team forming activity in a software engineering course

One of the most important skills software engineers need when entering work life is working in teams, including communicating, collaborating, as well as coordinating work in a team. This paper presents a team building activity aiming to support the first phases of team formation with a mobile orienteering activity. Created tasks at orienteering checkpoints were related to communication, collaboration and work division. Students were enthusiastic about the activity and expressed in their group reports on the activity that it supported the team building activity well, helped break the ice and supported agreeing the ways of working. Students also liked getting out of the classroom. The approach seems promising and we will investigate in the future similar type of activities in the first phases of team formation as well as will explore further integrating physical activity to the exercise sessions.

General information

Publication status: Published

MoE publication type: A4 Article in a conference publication

Organisations: Department of Pervasive Computing, Research area: User experience

Contributors: Vätätäjä, H., Ahtinen, A.

Publication date: Sep 2016

Host publication information

Title of host publication: SEFI 2016 Annual Conference Proceedings : Engineering Education on Top of the World: Industry University Cooperation

Publisher: European Society for Engineering Education SEFI

ISBN (Electronic): 9782873520144

Keywords: soft skills, engineering skills, collaboration, Team working, group forming, mobile orienteering, team forming
URLs:

http://www.sefi.be/conference-2016/papers/Engineering_Skills/vaataja-integrating-mobile-orienteering-to-team-forming-activity-176.pdf

Research output: Chapter in Book/Report/Conference proceeding › Conference contribution › Scientific › peer-review

Dual-Mode Behavior in Multi-Section DFB Semiconductor Lasers with Laterally-Coupled Ridge-Waveguide Surface Gratings

General information

Publication status: Published

MoE publication type: B3 Non-refereed article in conference proceedings

Organisations: Optoelectronics Research Centre, Research group: Semiconductor Technology and Applications,

Research group: Nanophotonics

Contributors: Uusitalo, T., Virtanen, H., Viheriälä, J., Salmi, J. O., Aho, A., Dumitrescu, M.

Publication date: Jun 2015

Host publication information

Title of host publication: The European Conference on Lasers and Electro-Optics 2015

Publisher: OSA - The Optical Society

Article number: CB_P_26

ISBN (Electronic): 978-1-4673-7475-0

URLs:

https://www.osapublishing.org/abstract.cfm?uri=CLEO_Europe-2015-CB_P_26

Research output: Chapter in Book/Report/Conference proceeding › Conference contribution › Scientific

Difference frequency modulation of multi-section dual-mode lasers with nanoscale surface gratings

General information

Publication status: Published

MoE publication type: A4 Article in a conference publication

Organisations: Optoelectronics Research Centre, Research group: Semiconductor Technology and Applications,

Research group: Nanophotonics, Facilities and Infrastructure

Contributors: Uusitalo, T., Virtanen, H., Viheriälä, J., Salmi, J., Aho, A. T., Dumitrescu, M.

Number of pages: 9

Publication date: 7 Mar 2016

Host publication information

Title of host publication: SPIE Proceedings : Novel In-Plane Semiconductor Lasers XV

Volume: 9767

Publisher: SPIE

Editors: Belyanin, A. A., Smowton, P. M.

Article number: 97670S

Publication series

Name: Proceedings of SPIE

ISSN (Electronic): 0277-786X

Keywords: Frequency modulation, lasers, Nanotechnology, Modulation, Nanoimprint lithography, Quantum dots, terahertz radiation, ultraviolet radiation, distributed feedback laser diodes

DOIs:

10.1117/12.2213888

Bibliographical note

INT=orc,"Aho, Antti T."

JUFOID=71479

Research output: Chapter in Book/Report/Conference proceeding › Conference contribution › Scientific › peer-review

Transverse structure optimization of laterally-coupled ridge waveguide DFB lasers

A new figure of merit for single transverse mode operation and an accurate procedure for calculating the coupling coefficient in distributed feedback lasers with laterally-coupled ridge waveguide surface grating structures are introduced. Based on the difference in optical confinement between the pumped and un-pumped regions in the transverse plane, the single transverse mode figure of merit is effective and easy to calculate, while the improved coupling coefficient calculation procedure gives experimentally confirmed better results than the standard calculation approaches.

General information

Publication status: Published

MoE publication type: A4 Article in a conference publication

Organisations: Optoelectronics Research Centre, Research group: Semiconductor Technology and Applications

Contributors: Uusitalo, T., Virtanen, H., Dumitrescu, M.

Number of pages: 2

Pages: 79-80

Publication date: 17 Aug 2016

Host publication information

Title of host publication: 16th International Conference on Numerical Simulation of Optoelectronic Devices, NUSOD 2016

Publisher: IEEE

Article number: 7547038

ISBN (Electronic): 9781467386036

ASJC Scopus subject areas: Electrical and Electronic Engineering, Electronic, Optical and Magnetic Materials, Modelling and Simulation, Numerical Analysis

DOIs:

10.1109/NUSOD.2016.7547038

Source: Scopus

Source ID: 84987653468

Research output: Chapter in Book/Report/Conference proceeding › Conference contribution › Scientific › peer-review

Review on mobility as a service in scientific literature

Our current private car based transport system is inefficient and unsustainable. The Mobility as a Service (MaaS) model is offering a solution by combining public and private transport modes and aiming to provide seamless trips over one interface. This study summarises the current state of the art of MaaS research by analysing scientific research papers. Overall, 16 MaaS-related documents in Scopus and ScienceDirect databases were recognised as relevant for this study. The relevant literature was divided into three groups according to the topics of the studies. The most significant observations are presented based on the literature and future research needs are discussed. Currently, there are relatively few MaaS-related scientific studies published, but the issue is topical as most of the relevant studies were published in 2016 or 2017. This study helps the MaaS stakeholders and the scientific community to recognize the current state of the art and where to focus in future.

General information

Publication status: Published

MoE publication type: D3 Professional conference proceedings

Organisations: Civil Engineering

Contributors: Utriainen, R., Pöllänen, M.

Number of pages: 15

Pages: 141-155

Publication date: 2017

Host publication information

Title of host publication: Conference Proceedings 1st International Conference on Mobility as a Service : ICoMaaS, Tampere 28.-29.11.2017

Publisher: Tampere University of Technology

Article number: 15

URLs:

<http://www.tut.fi/verne/icomaas/download/>

http://www.tut.fi/verne/wp-content/uploads/ICoMaaS_Proceedings_S4.pdf

Research output: Chapter in Book/Report/Conference proceeding › Conference contribution › Professional

Green picosecond narrow-linewidth tapered fiber laser system

General information

Publication status: Published

MoE publication type: A4 Article in a conference publication

Organisations: Physics, Computing Sciences, Research group: Nanophotonics, Ampliconyx Oy

Contributors: Ustimchik, V., Fedotov, A., Rissanen, J., Noronen, T., Gumenyuk, R., Chamorovskii, Y., Filippov, V.

Pages: 246 - 251

Publication date: 2020

Host publication information

Title of host publication: Fiber Lasers XVII: Technology and Systems

Publisher: SPIE

Editor: Dong, L.

Publication series

Name: Proceedings of SPIE

Volume: 11260

ISSN (Print): 0277-786X

Keywords: Green laser, High peak power, Picosecond, Narrow linewidth, frequency doubling, MOPA, linear-polarized, singlemode tapered PM fiber

DOIs:

10.1117/12.2546003

Bibliographical note

jufoid=71479

EXT="Noronen, T."

EXT="Filippov, V."

Source: Bibtex

Source ID: 10.1117/12.2546003

Research output: Chapter in Book/Report/Conference proceeding > Conference contribution > Scientific > peer-review

Evaluation of Median Root Prior for Robust In-Beam PET Reconstruction

Dose delivery verification in proton beam radiotherapy is used to ensure the delivery of the dose to the correct location. A positron emission tomography (PET) scanner can be used to detect the secondary radiation during the treatment, so-called in-beam PET. This is a challenging application for PET due to the low counts and limited angular coverage. We propose a maximum a posteriori (MAP) reconstruction with median root prior (MRP) for the reconstruction of in-beam PET data. The proposed method was compared against MAP with total variation (TV) prior and maximum likelihood expectation maximization (MLEM), which have previously been used for this application. The effects of different ring configurations and time-of-flight information were tested with simulations of a geometrical phantom and a realistic patient treatment plan. The results indicate that both MAP methods produced sharper edges than MLEM, allowing more accurate edge localization in the reconstructed images. Even for the partial ring configurations, no elongation was observed with MAP methods. MAP-MRP successfully reduced the noise, whereas MAP-TV resulted in checkerboard artifacts. MAP-MRP was also more stable against the selection of the reconstruction parameters. In conclusion, MAP-MRP offers a simple and robust alternative for the reconstruction of in-beam PET data.

General information

Publication status: Published

MoE publication type: A1 Journal article-refereed

Organisations: Mathematics, Signal Processing, Research group: M2oBSI, University of Groningen

Contributors: Us, D., Brzezinski, K., Buitenhuis, T., Dendooven, P., Ruotsalainen, U.

Number of pages: 8

Pages: 490-498

Publication date: 5 Sep 2018

Peer-reviewed: Yes

Publication information

Journal: IEEE Transactions on Radiation and Plasma Medical Sciences

Volume: 2

Issue number: 5

ISSN (Print): 2469-7303

Original language: English

DOIs:

10.1109/TRPMS.2018.2854231

Research output: Contribution to journal > Article > Scientific > peer-review

Laser Scanning Tasks of Building Refurbishment Project

Laser scanning is quickly becoming a common and beneficial tool in the field of civil engineering. In refurbishment projects, fast data capture, millions of measurement points and high accuracy have marked laser scanners out from conventional measurements as a data acquisition method. By using laser scanning and point clouds in refurbishment projects multiple benefits could be achieved: reduction of mistakes in the design phase and on the building site, more realistic visualizations of existing buildings, and savings in time and costs. The utility of laser scanning and point clouds surfaces especially when renovating old complex buildings without accurate construction drawings, documents or measurements.

However, the process of the procurement of laser scanning is generally unclear and there is very little standardization and regulation in the matter. The roles and assignments of every party in the process are obscure and the lack of knowledge about the use and the limits and the benefits of laser scanning in a building project can reduce clients' interest toward laser scanning.

This paper presents the different kinds of refurbishment project types where laser scanning has been used in Finland. The study represents the benefits, limits and challenges concerning laser scanning faced in these projects. The results of the study are based on the interviews of the organizations with experience in laser scanning in refurbishment projects. The study reveals that laser scanning is considered a valid and accurate method for data acquisition in refurbishment projects and it has been used also for visualization, piecework, quantity surveying and detail measuring and observing. However, there have been challenges especially with laser scanning operations in buildings in use, on the technical determination of laser scanning and during and after the process from a point cloud into an inventory model.

General information

Publication status: Published

MoE publication type: A4 Article in a conference publication

Organisations: Civil Engineering, Research group: Responsible Construction

Contributors: Uotila, U., Saari, A., Junnonen, J.

Publication date: 2018

Host publication information

Title of host publication: Proceedings of the 17th International Conference on Computing in Civil and Building Engineering (ICCCBE)

ISBN (Print): 978-951-758-632-0

Research output: Chapter in Book/Report/Conference proceeding > Conference contribution > Scientific > peer-review

Nanocellulose as a Piezoelectric Material

Cellulose-based nanomaterials, which are generally known as nanocelluloses, are interesting renewable biomaterials which have potential applications for example in material science, electronics and biomedical engineering and diagnostics. Cellulose has a strong ability to form lightweight, highly porous and entangled networks that make nanocellulose suitable as substrate or membrane material. Recently, also studies related to piezoelectric behavior of nanocellulose have been published. The piezoelectricity of wood was proposed already in 1955 by Eiichi Fukada, but only very slightly studied since then. Here, we show the experimental evidence of significant piezoelectric activity of different types of nanocellulose films. Wood-based cellulose nanofibril (CNF) and cellulose nanocrystals (CNC) films, and bacterial nanocellulose (BC) films have been studied. The recent results suggest that nanocellulose is a potential bio-based piezoelectric sensor material.

General information

Publication status: Published

MoE publication type: A3 Part of a book or another research book

Organisations: Faculty of Biomedical Sciences and Engineering, Nokia Technologies

Contributors: Tuukkanen, S., Rajala, S.

Number of pages: 14

Pages: 1-14

Publication date: 29 Aug 2018

Host publication information

Title of host publication: Piezoelectricity - Organic and Inorganic Materials and Applications

Publisher: InTech Open Access Publisher

ISBN (Electronic): 978-953-51-6209-4

Electronic versions:

61113

DOIs:

10.5772/intechopen.77025

URLs:

<http://urn.fi/URN:NBN:fi:tty-201809052276>

Research output: Chapter in Book/Report/Conference proceeding > Chapter > Scientific > peer-review

Infinitesimals and Pavelka logic

Rational Pavelka Logic does not admit infinitesimals. We argue that infinitesimals are important in logic and we present an alternative approach which admits them. It is built up in a similar style, but based on the Chang's perfect MV-algebra. We prove a partial result towards the completeness of this logic. We also discuss a combined approach using more complex perfect MV-algebras.

General information

Publication status: Published

MoE publication type: A4 Article in a conference publication

Organisations: Department of Mathematics, Research group: MAT Computer Science and Applied Logics, Czech Tech Univ, Czech Technical University Prague

Contributors: Turunen, E., Navara, M.

Number of pages: 7

Pages: 1027-1033

Publication date: 2015

Host publication information

Title of host publication: PROCEEDINGS OF THE 2015 CONFERENCE OF THE INTERNATIONAL FUZZY SYSTEMS ASSOCIATION AND THE EUROPEAN SOCIETY FOR FUZZY LOGIC AND TECHNOLOGY

Place of publication: PARIS

Publisher: Atlantis Press

Editors: Alonso, J., Bustince, H., Reformat, M.

ISBN (Electronic): 978-94-62520-77-6

Publication series

Name: Advances in Intelligent Systems Research

Publisher: ATLANTIS PRESS

Volume: 89

ISSN (Print): 1951-6851

Keywords: Mathematical fuzzy logic, Rational Pavelka Logic, Lukasiewicz operations, MV-algebra, perfect MV-algebra, Chang's MV-algebra, FUZZY LOGIC, PROPOSITIONAL CALCULI, TRUTH-CONSTANTS, COMPLETENESS

DOIs:

10.2991/ifsa-eusflat-15.2015.145

Source: WOS

Source ID: 000358581100145

Research output: Chapter in Book/Report/Conference proceeding › Conference contribution › Scientific › peer-review

Tunable nonlinear effects through focused spatially phase-shaped beams

General information

Publication status: Published

MoE publication type: B3 Non-refereed article in conference proceedings

Organisations: Department of Physics, Research area: Optics, Research group: Nonlinear Optics, Aalto University

Contributors: Turquet, L., Bautista, G., Karvonen, L., Dhaka, V., Chen, Y., Jiang, H., Huhtio, T., Lipsanen, H., Kauranen, M.

Publication date: 2015

Host publication information

Title of host publication: European Quantum Electronics Conference 2015

Publisher: Optical Society of America

Article number: EG_P_11

ISBN (Electronic): 978-1-4673-7475-0

Keywords: Nonlinear optics, SPATIAL LIGHT-MODULATOR, MICROSCOPY, beam shaping

URLs:

http://www.osapublishing.org/abstract.cfm?URI=EQEC-2015-EG_P_11

Bibliographical note

EXT="Dhaka, V."

EXT="Chen, Y."

Source: Bibtex

Source ID: urn:3623590cd14102e9789109aea5912da4

Research output: Chapter in Book/Report/Conference proceeding › Conference contribution › Scientific

Tunable second-harmonic generation in a single nanostructure

General information

Publication status: Published

MoE publication type: D3 Professional conference proceedings

Organisations: Department of Physics, Research area: Optics, Research group: Nonlinear Optics, Department of Micro- and Nanosciences, Aalto University, Aalto University, Department of Applied Physics and Nanomicroscopy Center

Contributors: Turquet, L., Bautista, G., Kakko, J., Karvonen, L., Dhaka, V., Chen, Y., Jiang, H., Huhtio, T., Lipsanen, H., Kauranen, M.

Number of pages: 2

Publication date: 2015

Host publication information

Title of host publication: The Eleventh Finland-Japan Joint Symposium on Optics in Engineering

URLs:

http://www2.uef.fi/documents/1812306/2637761/Program_File+OIE2015.pdf/2e71a273-2b87-414c-b4a1-fb77be93660e

Bibliographical note

ISBN kysytty, HO.

Research output: Chapter in Book/Report/Conference proceeding › Conference contribution › Professional

Use of high-order beams to calibrate spatial light modulators for microscopy

We present here a technique based on high-order laser beams to quickly calibrate phase-only SLMs for microscopy. This method uses the microscopy setup itself and therefore no extra setups or alignment are required.

General information

Publication status: Published

Organisations: Department of Physics, Research area: Optics, Research group: Nonlinear Optics

Contributors: Turquet, L., Kauranen, M., Bautista, G.

Number of pages: 1

Publication date: 2016

Peer-reviewed: Unknown

Event:

URLs:

<http://hbar.kapsi.fi/proceedings.pdf#section.10.5>

Research output: Other conference contribution › Paper, poster or abstract › Scientific

Laastien vedenimukertoimen määrittämisen virhelähdekokeet

General information

Publication status: Published

MoE publication type: B3 Non-refereed article in conference proceedings

Organisations: Department of Civil Engineering

Contributors: Tuominen, E., Vinha, J.

Number of pages: 6

Pages: 239-244

Publication date: 20 Oct 2015

Host publication information

Title of host publication: Rakennusfysiikka 2015. Uusimmat tutkimustulokset ja hyvät käytännön ratkaisut. 20.-22.10.2015, Tampere

Place of publication: Tampere

Publisher: Tampereen teknillinen yliopisto, rakennustekniikan laitos, rakennetekniikka

Editors: Vinha, J., Ruuska, T.

ISBN (Print): 978-952-15-3580-2

Keywords: Double skin facade, Energy efficiency, New renovation concepts, Innovative HVAC, Earth to air heat exchanger

Bibliographical note

AUX=rak,"Tuominen, Eero"

Research output: Chapter in Book/Report/Conference proceeding › Conference contribution › Scientific

Kapillaaristen vedenmuominaisuuksien määrittämiseen sopivan vapaan vedenimukoelaitteiston kehittäminen

General information

Publication status: Published
MoE publication type: B3 Non-refereed article in conference proceedings
Organisations: Department of Civil Engineering, Research group: Building Physics
Contributors: Tuominen, E., Vinha, J.
Number of pages: 6
Pages: 233-238
Publication date: 20 Oct 2015

Host publication information

Title of host publication: Rakennusfysiikka 2015. Uusimmat tutkimustulokset ja hyvät käytännön ratkaisut. 20.-22.10.2015, Tampere
Place of publication: Tampere
Publisher: Tampereen teknillinen yliopisto, rakennustekniikan laitos, rakennetekniikka
Editors: Vinha, J., Ruuska, T.
ISBN (Print): 978-952-15-3580-2
Keywords: Double skin facade, Energy efficiency, New renovation concepts, Innovative HVAC, Earth to air heat exchanger

Bibliographical note

AUX=rak,"Tuominen, Eero"
Research output: Chapter in Book/Report/Conference proceeding › Conference contribution › Scientific

Suomessa markkinoilla olevien kalsiumsilikaattilevyjen rakennusfysikaaliset materiaaliominaisuudet

General information

Publication status: Published
MoE publication type: D3 Professional conference proceedings
Organisations: Civil Engineering, Research group: Building Physics, Laboratory of Civil Engineering
Contributors: Tuominen, E., Vainio, M., Vinha, J.
Number of pages: 6
Pages: 455-460
Publication date: 24 Oct 2017

Host publication information

Title of host publication: Rakennusfysiikka 2017. Uusimmat tutkimustulokset ja hyvät käytännön ratkaisut : 24.-26.10.2017, Tampere
Volume: 2
Place of publication: Tampere
Publisher: Tampereen teknillinen yliopisto, Rakennustekniikka, Rakennusfysiikka
Editors: Vinha, J., Kivioja, H.
ISBN (Print): 978-952-15-4023-3

Publication series

Name: Tampereen teknillinen yliopisto. Rakennustekniikka. Rakennusfysiikka.
ASJC Scopus subject areas: Engineering(all)
URLs:
http://www.tut.fi/cs/groups/public_news/@l102/@web/@p/documents/liit/x229244.pdf

Bibliographical note

INT=rak,"Vainio, Maarit"
Research output: Chapter in Book/Report/Conference proceeding › Conference contribution › Professional

Behavior of capacitive humidity sensors in monitoring the drying of concrete walls

This research examines the behavior of capacitive humidity sensors in monitoring the drying of concrete walls in continuous measurements in laboratory conditions. Tests are carried out using continuous measuring of moisture with different capacitive sensors in concrete structures varied with three different types of thermal insulation materials. Sensors are sealed in plastic tubes that were preinstalled into the casting molds. Three borehole measurements are carried out as reference during the research. Results show differences in performance between the examined humidity sensors from two different manufacturers. The main difference is related to stability as sensors from the other manufacturer prove to be more prone to error. The study affirms that measuring humidity in concrete is challenging even when using high-quality humidity sensors.

General information

Publication status: Published
MoE publication type: A1 Journal article-refereed
Organisations: Civil Engineering, Research group: Building Physics
Contributors: Tuominen, E., Vinha, J., Raunima, T.
Number of pages: 6
Publication date: 2019
Peer-reviewed: Yes

Publication information

Journal: MATEC Web of Conferences
Volume: 282
Article number: 02053
ISSN (Print): 2274-7214
Ratings:
Scopus rating (2019): CiteScore 0.8 SJR 0.166 SNIP 0.714
Original language: English
ASJC Scopus subject areas: Civil and Structural Engineering
Electronic versions:
matecconf_cesbp2019_02053
DOIs:
10.1051/matecconf/201928202053
URLs:
<http://urn.fi/URN:NBN:fi:tuni-201912126820>

Bibliographical note

INT=ceng,"Raunima, Tuomas"
Research output: Contribution to journal > Conference article > Scientific > peer-review

Calculation method to determine capillary properties of building materials with automatic free water intake test

The water absorption coefficient and capillary saturation water content are common building physical material properties. This paper presents a calculation method to determine these values with an automated free water intake test arrangement. Buoyancy affects weighing results in the automatic measurement and it is recommended to take these factors into account when deriving the real water intake of a specimen. A new mathematical method is presented and trial experiments have been conducted. The method is proven to work with the polymer modified plaster, concrete, autoclaved aerated concrete and lightweight aggregate concrete, which represent materials from both extremes of capillary activity. The functionality and advantages of the test arrangement for both low and high suction materials are presented.

General information

Publication status: Published
MoE publication type: A1 Journal article-refereed
Organisations: Civil Engineering, Research group: Building Physics
Contributors: Tuominen, E., Vinha, J.
Number of pages: 6
Publication date: 2019
Peer-reviewed: Yes

Publication information

Journal: MATEC Web of Conferences
Volume: 282
Article number: 02037
ISSN (Print): 2274-7214
Ratings:
Scopus rating (2019): CiteScore 0.8 SJR 0.166 SNIP 0.714
Original language: English
ASJC Scopus subject areas: Civil and Structural Engineering
Electronic versions:
matecconf_cesbp2019_02037
DOIs:
10.1051/matecconf/201928202037
URLs:
<http://urn.fi/URN:NBN:fi:tuni-201912126839>
Research output: Contribution to journal > Conference article > Scientific > peer-review

Thermal and moisture properties of calcium silicate insulation boards

The purpose of this research was to determine thermal and moisture properties of calcium silicate insulation boards available on the Finnish market. Ruggedness testing and test arrangement development were done related to the pressure plate test, which was used to measure desorption isotherms in capillary range. Four calcium silicate and one calcium hydroxide board were examined. The determined material properties are water vapour permeability, water absorption coefficient, capillary saturation water content, moisture sorption isotherm in hygroscopic and capillary range, thermal conductivity and specific heat capacity. Ruggedness tests and development were done to the pressure plate measurement method. Capacitance needles were tested as a method to evaluate the state of equilibrium and different vacuum saturation methods were tested.

General information

Publication status: Published

MoE publication type: A1 Journal article-refereed

Organisations: Civil Engineering, Research group: Building Physics

Contributors: Tuominen, E., Tuominen, O., Vainio, M., Ruuska, T., Vinha, J.

Number of pages: 7

Publication date: 2019

Peer-reviewed: Yes

Publication information

Journal: MATEC Web of Conferences

Volume: 282

Article number: 02065

ISSN (Print): 2274-7214

Ratings:

Scopus rating (2019): CiteScore 0.8 SJR 0.166 SNIP 0.714

Original language: English

ASJC Scopus subject areas: Civil and Structural Engineering

Electronic versions:

matecconf_cesbp2019_02065

DOIs:

10.1051/matecconf/201928202065

URLs:

<http://urn.fi/URN:NBN:fi:tuni-202001091153>

Bibliographical note

INT=ceng,"Tuominen, Olli"

INT=ceng,"Vainio, Maarit"

Research output: Contribution to journal › Conference article › Scientific › peer-review

International Workshop on MicroFactories (IWMF 2012): 17th-20th June 2012 Tampere Hall Tampere, Finland

This Workshop provides a forum for researchers and practitioners in industry working on the diverse issues of micro and desktop factories, as well as technologies and processes applicable for micro and desktop factories. Micro and desktop factories decrease the need of factory floor space, and reduce energy consumption and improve material and resource utilization thus strongly supporting the new sustainable manufacturing paradigm. They can be seen also as a proper solution to point-of-need manufacturing of customized and personalized products near the point of need.

General information

Publication status: Published

MoE publication type: D4 Published development or research report or study

Organisations: Department of Mechanical Engineering and Industrial Systems

Contributors: Tuokko, R. (ed.), Lanz, M. (ed.), Luostarinen, P. (ed.)

Number of pages: 186

Publication date: 2012

Publication information

Publisher: Tampere University of Technology. Department of Production Engineering

ISBN (Electronic): 978-952-15-2936-8

Original language: English

Electronic versions:

iwmf_2012

URLs:

<http://URN.fi/URN:ISBN:978-952-15-2936-8>

Bibliographical note

Versio ok 16.12.2015

Research output: Book/Report › Commissioned report › Professional

MYSTERY SHOPPERS RECOGNISING KNOWLEDGE SHARING BARRIERS IN HIGHER EDUCATION

This study focuses on the knowledge sharing barriers in the space between learning and teaching in higher education as reported by mystery shoppers. There is surprisingly little context-specific research on learning and teaching in a knowledge intensive community like a university from the perspective of knowledge management (KM). Discussing learning and teaching within KM is based on considering students controversially as customers or stakeholders. Thus including them more meaningfully in assessing and developing teaching practices, or knowledge flow, seems justified. The specific aim of this paper is to first recognise possible knowledge sharing barriers and then categorize such barriers emerging from the material into three larger domains, namely, individual barriers, technological barriers and organisational barriers.

There were 45 students from all faculties participating in a mystery shopper project in a Finnish university of technology. They observed their learning experience for six weeks in order to supplement data from other sources, to add a student voice on the process of developing learning and teaching in higher education.

The research approach represents qualitative content analysis in which knowledge-sharing barriers were recognised from the qualitative mystery shopper data. The results identify teaching practises that contribute to creating knowledge sharing barriers. More detailed and almost real-time contextual activity sampling is suggested as a method for further study and also an avenue for instant feedback for teaching staff. The results will provide data on current knowledge practices and learning processes in a technical university in Finland.

General information

Publication status: Published

MoE publication type: A4 Article in a conference publication

Organisations: Language Centre, Department of Information Management and Logistics, Research group: Novi, University of Tampere

Contributors: Tukiainen, M., Helander, N., Mäkinen, M.

Publication date: 16 Nov 2015

Host publication information

Title of host publication: ICERI2015 Proceedings : 8th annual International Conference of Education, Research and Innovation Seville (Spain). 16th - 18th of November, 2015.

ISBN (Electronic): 978-84-608-2657-6

URLs:

<https://iased.org/iceri/>

Bibliographical note

ORG=kie,0.5

ORG=tlo,0.5

Research output: Chapter in Book/Report/Conference proceeding › Conference contribution › Scientific › peer-review

University Students' Perceptions of Academic Writing: An Academic Literacies Perspective

General information

Publication status: Published

MoE publication type: A4 Article in a conference publication

Organisations: Language Centre, Department of Information Management and Logistics, Research group: Novi, University of Tampere

Contributors: Tukiainen, M., Mäkinen, M., Helander, N.

Number of pages: 7

Pages: 7589-7595

Publication date: 16 Nov 2015

Host publication information

Title of host publication: ICERI2015 Proceedings : 8th annual International Conference of Education, Research and Innovation Seville (Spain). 16th - 18th of November, 2015.

ISBN (Electronic): 978-84-608-2657-6

URLs:

<https://iased.org/iceri/>

Bibliographical note

ORG=kie,0.5

ORG=tlo,0.5

High efficiency dilute nitride solar cells: Simulations meet experiments

Parameter extraction procedure and simulation of dilute nitride solar cells are reported. Using PC1D simulation and fitting to experimental current-voltage and external quantum efficiency data, we retrieve the phenomenological material parameters for GaInNAs solar cells. Based on these, we have constructed a model that can explain the changes in short circuit current and open circuit voltage of n-i-p solar cells subjected to rapid thermal annealing. The model reveals that non-annealed MBE-grown GaInNAs material has an n-type doping that evolves to p-type upon rapid thermal annealing. The change of doping type and the shift of the physical location of the pn-junction were confirmed by Kelvin-probe force microscopy. The PC1D modelling was found to work well also for GaInNAs p-i-n solar cells with opposite polarity. It was also found that the GaInNAs lower doping levels in p-i-n solar cells grown at lowered As/III flux ratios were associated with increased carrier lifetimes.

General information

Publication status: Published

MoE publication type: A1 Journal article-refereed

Organisations: Optoelectronics Research Centre, Research group: Semiconductor Technology and Applications

Contributors: Tukiainen, A., Aho, A., Polojärvi, V., Ahorinta, R., Guina, M.

Number of pages: 20

Pages: 113-132

Publication date: 2016

Peer-reviewed: Yes

Publication information

Journal: Journal of Green Engineering

Volume: 5

Issue number: 3-4

Article number: 8

ISSN (Print): 1904-4720

Ratings:

Scopus rating (2016): CiteScore 0.7 SJR 0.132 SNIP 0.294

Original language: English

ASJC Scopus subject areas: Environmental Engineering, Energy(all), Physics and Astronomy(all), Materials Science(all)

DOIs:

10.13052/jge1904-4720.5348

URLs:

<http://www.scopus.com/inward/record.url?scp=84983050025&partnerID=8YFLogxK> (Link to publication in Scopus)

Source: Scopus

Source ID: 84983050025

Research output: Contribution to journal › Article › Scientific › peer-review

Students as mystery shoppers: lowering knowledge sharing barriers in higher education

This empirical research paper focuses on discussing potential knowledge sharing barriers volunteering students as mystery shoppers perceived in the context of higher education. More specifically, the focus is on students' ideas on finding solutions to lowering individual knowledge sharing barriers, i.e. improving the quality of their instruction.

Mystery shopping is a method of observing service performance from the user, or customer, perspective and it has been widely used to evaluate the overall service quality within service businesses. Using empirical data from students volunteering as mystery shoppers appears not as a widely used research and development tool.

Moreover, there is little context-specific research on learning and teaching in such a knowledge intensive community like a university from the perspective of knowledge management (KM). KM offers thus a useful approach for analysing learning and teaching, as well as improving the processes of knowledge creation.

A Finnish technical university and its student union organised a mystery shopping project with 45 student participants.

They observed their learning experiences for six weeks in order to complement data from other sources. The students kept a casual theme-based diary on four larger topics: teaching staff and teaching (including pedagogical competence and teaching culture, instruction and guidance, course arrangements), students and the learning culture, student services and learning environment. The initial goal of the project was to add a student voice on the processes of developing learning and teaching in higher education.

The research approach represents qualitative content analysis in which knowledge-sharing barriers were first recognised from the qualitative mystery shopper data. Next those instances where the students offered their solution to lowering that barrier were selected for further analysis. The results identify learner suggestions that may contribute to lowering knowledge sharing barriers. Result also indicate that individual knowledge sharing barriers as described in the literature appear to be valid in a higher education setting.

General information

Publication status: Published
MoE publication type: A4 Article in a conference publication
Organisations: Language Centre
Contributors: Tukiainen, M. O.
Publication date: 13 Sep 2016

Host publication information

Title of host publication: 44th Annual Conference Of The European Society For Engineering Education : 12-15 September 2016, Tampere, Finland

Place of publication: Tampere

ISBN (Electronic): 978-2-87352-012-0

ASJC Scopus subject areas: Education

URLs:

[http://www.sefi.be/conference-](http://www.sefi.be/conference-2016/papers/Continuing_Engineering_Education_and_Lifelong_Learning__Engineering_Education_Research/tukiainen-students-as-mystery-shoppers-168_a.pdf)

[2016/papers/Continuing_Engineering_Education_and_Lifelong_Learning__Engineering_Education_Research/tukiainen-students-as-mystery-shoppers-168_a.pdf](http://www.sefi.be/conference-2016/papers/Continuing_Engineering_Education_and_Lifelong_Learning__Engineering_Education_Research/tukiainen-students-as-mystery-shoppers-168_a.pdf)

URLs:

<http://www.tut.fi/fi/tietoa-yliopistosta/uutiset-ja-tapahtumat/tapahtumat/sefi2016-44th-annual-conference-of-the-european-society-for-engineering-education-x111754>

Research output: Chapter in Book/Report/Conference proceeding › Conference contribution › Scientific › peer-review

Hydrodynamic Classification of Natural Flows Using an Artificial Lateral Line and Frequency Domain Features

General information

Publication status: Published

MoE publication type: A4 Article in a conference publication

Organisations: Department of Signal Processing, Research group: Vision, Tallinn University of Technology, Tallinn, Estonia

Contributors: Tuhtan, J., Strokina, N., Toming, G., Muhammad, N., Kruusmaa, M., Kämäräinen, J.

Publication date: 2015

Host publication information

Title of host publication: 36th IAHR World Congress

ISBN (Electronic): 978-90-824846-0-1

URLs:

http://app.iahr2015.info/programma_details/2833

Research output: Chapter in Book/Report/Conference proceeding › Conference contribution › Scientific › peer-review

Experimenting traditional and modern reliability models in a 3-years european software project

Reliability is a very important non-functional aspect for software systems and artefacts. In literature, several definitions of software reliability exist and several methods and approaches exist to measure reliability of a software project. However, in the literature no works focus on the applicability of these methods in all the development phases of real software projects. In this paper, we describe the methodology we adopted during the S-CASE FP7 European Project to predict reliability for both the S-CASE platform as well as for the software artefacts automatically generated by using the S-CASE platform. Two approaches have been adopted to compute reliability: The first one is the Rome Lab Model, a well adopted traditional approach in industry; the second one is an empirical approach defined by the authors in a previous work. An extensive dataset of results has been collected during all the phases of the project. The two approaches can complement each other, to support to prediction of reliability during all the development phases of a software system in order to facilitate the project management from a non-functional point-of-view.

General information

Publication status: Published

MoE publication type: A4 Article in a conference publication

Organisations: Università degli Studi Dell'Insubria, Former organisation of the author

Contributors: Tosi, D., Lenarduzzi, V., Morasca, S., Taibi, D.

Number of pages: 11

Pages: 304-314

Publication date: 2017

Host publication information

Title of host publication: Proceedings of the 11th European Conference on Information Systems Management, ECISM 2017

Publisher: Academic Conferences and Publishing International Limited

ISBN (Electronic): 9781911218524

ASJC Scopus subject areas: Computer Science Applications, Information Systems, Management Information Systems
Keywords: Early Reliability, Perceived Reliability, Predictive Models, Reliability by design, Rome Lab Model, Static Analysis

URLs:

<http://www.scopus.com/inward/record.url?scp=85039850001&partnerID=8YFLogxK> (Link to publication in Scopus)

Source: Scopus

Source ID: 85039850001

Research output: Chapter in Book/Report/Conference proceeding › Conference contribution › Scientific › peer-review

Sub-parts-per-trillion sensitivity in trace gas detection by cantilever-enhanced photo-acoustic spectroscopy

We report a simple cantilever-enhanced photoacoustic detector, which reaches exceptionally good sensitivity in trace gas detection of hydrogen fluoride by using a highly stable narrow-linewidth optical parametric oscillator at 2.476 μm .

General information

Publication status: Published

MoE publication type: A4 Article in a conference publication

Organisations: Photonics, University of Helsinki, Gasera Ltd.

Contributors: Tomberg, T., Vainio, M., Hieta, T., Halonen, L.

Publication date: 2018

Host publication information

Title of host publication: CLEO : Applications and Technology, CLEO_AT 2018

Publisher: OSA - The Optical Society

ISBN (Electronic): 9781557528209

ASJC Scopus subject areas: Electronic, Optical and Magnetic Materials, Mechanics of Materials

DOIs:

10.1364/CLEO_AT.2018.ATh1O.8

Source: Scopus

Source ID: 85049146097

Research output: Chapter in Book/Report/Conference proceeding › Conference contribution › Scientific › peer-review

Lean manufacturing methods in simulation literature: Review and association analysis

The lean manufacturing philosophy includes several methods that aim to remove waste from production. This paper studies lean manufacturing methods and how simulation is used to consider them. In order to do this, it reviews papers that study simulation together with lean methods. The papers that are reviewed are categorized according to the lean methods used and result types obtained. Analysis is performed in order to gain knowledge about the volumes of occurrence of different methods and result types. Typical methods in the papers are different types of value stream mapping and work-in-process models. An exploratory analysis is performed to reveal the relationships between the methods and result types. This is done using association analysis. It reveals the methods that are commonly studied together in the literature. The paper also lists research areas that are not considered in the literature. These areas are often related to the analysis of variation.

General information

Publication status: Published

MoE publication type: A4 Article in a conference publication

Organisations: Department of Mechanical Engineering and Industrial Systems, Research area: Manufacturing and Automation, Aalto University, Department of Engineering Design and Production

Contributors: Tokola, H., Niemi, E., Väistö, V.

Number of pages: 10

Pages: 2239-2248

Publication date: 16 Feb 2016

Host publication information

Title of host publication: 2015 Winter Simulation Conference (WSC)

ISBN (Print): 978-1-4673-9743-8

ASJC Scopus subject areas: Software, Modelling and Simulation, Computer Science Applications

DOIs:

10.1109/WSC.2015.7408336

Bibliographical note

EXT="Niemi, Esko"

Research output: Chapter in Book/Report/Conference proceeding › Conference contribution › Scientific › peer-review

Calcium signaling in astrocytes: modeling Fura-2AM measurements

General information

Publication status: Published

Organisations: Department of Signal Processing, Research group: Computational Neuro Science-CNS

Contributors: Toivari, E., Manninen, T., Nahata, A. K., Jalonen, T. O., Linne, M.

Number of pages: 1

Publication date: 2010

Peer-reviewed: Yes

Publication information

Journal: Frontiers in Neuroscience

ISSN (Print): 1662-4548

Ratings:

Scopus rating (2010): SJR 1.347 SNIP 0.694

Original language: English

DOIs:

10.3389/conf.fnins.2010.13.00061

URLs:

http://www.frontiersin.org/10.3389/conf.fnins.2010.13.00061/event_abstract

Research output: Contribution to journal › Meeting Abstract › Scientific › peer-review

Dynamics of rogue wave and soliton emergence in spontaneous modulation instability

Numerical simulations of spontaneous modulation instability show that localized structures in the chaotic instability field are well-described by analytic elementary and higher order soliton on finite background solutions of the nonlinear Schrödinger equation.

General information

Publication status: Published

MoE publication type: B3 Non-refereed article in conference proceedings

Organisations: Department of Physics, Frontier Photonics, The University of Auckland, University College Dublin, Ireland, Christina Thorpe, Université de Franche-Comté, Institut FEMTO-ST, School of Mathematical Sciences, University College Dublin

Contributors: Toenger, S., Godin, T., Billet, C., Dias, F., Erkintalo, M., Genty, G., Dudley, J. M.

Number of pages: 2

Publication date: 4 May 2015

Host publication information

Title of host publication: CLEO: QELS - Fundamental Science, CLEO_QELS 2015

Publisher: Optical Society of America (OSA)

ISBN (Print): 9781557529688

ASJC Scopus subject areas: Atomic and Molecular Physics, and Optics, Electrical and Electronic Engineering

DOIs:

10.1364/CLEO_QELS.2015.FW4D.2

Source: Scopus

Source ID: 84935059381

Research output: Chapter in Book/Report/Conference proceeding › Conference contribution › Scientific

Breathers Emergence in Spontaneous Modulation Instability

General information

Publication status: Published

MoE publication type: B3 Non-refereed article in conference proceedings

Organisations: Department of Physics, Research group: Nonlinear Fiber Optics, Research area: Optics

Contributors: Toenger, S., Godin, T., Billet, C., Dias, F., Erkintalo, M., Genty, G., Dudley, J. M.

Publication date: 2015

Host publication information

Title of host publication: European Quantum Electronics Conference 2015

Publisher: Optical Society of America (OSA)

Article number: EF_P_25

ISBN (Electronic): 978-1-4673-7475-0

URLs:

https://www.osapublishing.org/abstract.cfm?uri=eqec-2015-EF_P_25&origin=search

Source: Bibtex

Source ID: urn:4ae642c11bd3a5e3ed329d3c2860b0a4

Research output: Chapter in Book/Report/Conference proceeding › Conference contribution › Scientific

Intensity Interferometry of Supercontinuum Light

General information

Publication status: Published

MoE publication type: B3 Non-refereed article in conference proceedings

Organisations: Photonics, Tampere University of Technology

Contributors: Toenger, S., Ahvenjärvi, J., Ryzkowski, P., Genty, G.

Publication date: Jun 2018

Host publication information

Title of host publication: Trends in Electromagnetic Coherence

Place of publication: Joensuu

Publisher: University of Eastern Finland

Editors: Setälä, T., Turunen, J., T. Friberg, A., Saastamoinen, K.

ISBN (Print): 978-952-61-2817-7

Publication series

Name: Publications of the University of Eastern Finland. Reports and studies in forestry and natural sciences

No.: 32

ISSN (Print): 1798-5684

Keywords: interferometric autocorrelation, Two-photon absorption, supercontinuum

Bibliographical note

jufoid=71333

Research output: Chapter in Book/Report/Conference proceeding › Conference contribution › Scientific

Dynamics of value in technology inspired value co-creation: Case in homecare value network

General information

Publication status: Published

MoE publication type: A4 Article in a conference publication

Organisations: Industrial Engineering and Management, Research group: Cost Management Center

Contributors: Tiitola, V., Korhonen, T., Laine, T., Lyly-Yrjänäinen, J.

Publication date: 2019

Host publication information

Title of host publication: 14th IFKAD 2019 Proceedings : 5-7 June 2019, Matera, Italy

Publisher: IKAM Centro Studi & Ricerche

ISBN (Electronic): 978-88-96687-12-3

Publication series

Name: PROCEEDINGS IFKAD

ISSN (Electronic): 2280-787X

URLs:

<https://www.ifkad.org/previous-editions/ifkad-2019/>

Research output: Chapter in Book/Report/Conference proceeding › Conference contribution › Scientific › peer-review

Intracavity double diode structures with GaInP barrier layers for thermophotonic cooling

General information

Publication status: Published

MoE publication type: A4 Article in a conference publication

Organisations: Photonics, Research group: Semiconductor Technology and Applications, Research group: Ultrafast and intense lasers

Contributors: Tiira, J., Radevici, I., Haggren, T., Hakkarainen, T., Kivisaari, P., Lyytikäinen, J., Aho, A., Tukiainen, A.,

Guina, M., Oksanen, J.

Publication date: 17 Feb 2017

Host publication information

Title of host publication: Proc. SPIE 10121 : Optical and Electronic Cooling of Solids II

Volume: 10121
Publisher: SPIE
Article number: 1012109
ISBN (Electronic): 9781510606838

Publication series

Name: Proceedings of SPIE
Volume: 10121
ISSN (Print): 0277-786X
ISSN (Electronic): 1996-756X
DOIs:
10.1117/12.2250843

Research output: Chapter in Book/Report/Conference proceeding > Conference contribution > Scientific > peer-review

Finite temperature path-integral modeling of quantum dot cellular automata

General information

Publication status: Published
Organisations: Department of Physics, Research group: Semiconductor Technology and Applications, Optoelectronics Research Centre, Research area: Computational Physics, Research group: Electronic Structure Theory
Contributors: Tiihonen, J., Schramm, A., Kylänpää, I., Rantala, T.
Publication date: 29 Mar 2016
Peer-reviewed: Unknown
Event: Paper presented at PHYSICS DAYS / FYSIIKAN PÄIVÄT : ANNUAL MEETING OF THE FINNISH PHYSICAL SOCIETY, .
URLs:

<http://hbar.kapsi.fi/proceedings.pdf> (Proceedings)

Research output: Other conference contribution > Paper, poster or abstract > Scientific

Optimization of high strength steel tubular trusses

General information

Publication status: Published
MoE publication type: A4 Article in a conference publication
Organisations: Department of Civil Engineering, Research group: Metal and Light-wight structures
Contributors: Tiainen, T., Mela, K., Jokinen, T., Heinisuo, M.
Publication date: 2014

Host publication information

Title of host publication: Eurosteel 2014 7th European conference on steel and composite structures
ISBN (Print): 978-92-9147-121-8
Research output: Chapter in Book/Report/Conference proceeding > Conference contribution > Scientific > peer-review

Teräsristikon paarteiden liitoksen vapaan välin leikkausvoiman arviointi

General information

Publication status: Published
MoE publication type: A4 Article in a conference publication
Organisations: Department of Civil Engineering, Research group: Metal and Light-wight structures
Contributors: Tiainen, T., Heinisuo, M.
Number of pages: 6
Pages: 30-35
Publication date: 2015

Host publication information

Title of host publication: Proceedings of the XII Finnish Mechanics Days. Suomen XII Mekaniikkapäivien esitelmät
Publisher: Rakenteiden Mekaniikan Seura ry
ISBN (Print): 978-952-93-5608-9
ISBN (Electronic): 978-952-93-5609-6
Research output: Chapter in Book/Report/Conference proceeding > Conference contribution > Scientific > peer-review

Collagen-immobilized polyimide membranes for retinal pigment epithelial cell adherence and proliferation

Degenerative retinal diseases are a leading cause of visual loss and irreversible blindness, particularly in the developed world. Retinal pigment cell (RPE) transplantation is nowadays considered the most promising therapeutic approach for

certain retinal diseases, and the presence of a supportive scaffold has been considered essential to ensure the success of the implant. In this work, collagen IV was covalently immobilized to the surface of polyimide membranes, with the purpose of developing scaffold materials for RPE cell culture. The covalent modification method involved four steps: argon-plasma treatment, acrylic acid graft polymerization, surface activation, and finally immobilization of collagen type IV. Collagen-modified membranes did not become more rough but became significantly more hydrophilic than the unmodified and dip-coated controls. ARPE-19 cell morphology and attachment were studied by immunofluorescence staining and confocal microscopy. Covalently modified surfaces showed cell attachment and cell properties comparable to the uncoated and dip-coated controls. This work demonstrated the potential of collagen IV-immobilized polyimide membranes as substrates for the growth of ARPE-19 cells.

General information

Publication status: Published

MoE publication type: A1 Journal article-refereed

Organisations: Faculty of Biomedical Sciences and Engineering, Research group: Biomaterials and Tissue Engineering Group, BioMediTech, University of Tampere, BioMediTech

Contributors: Teymouri, S., Calejo, M. T., Hiltunen, M., Sorkio, A. E., Juuti-Uusitalo, K., Skottman, H., Kellomäki, M.

Publication date: 6 Mar 2017

Peer-reviewed: Yes

Publication information

Journal: Cogent Chemistry

Volume: 3

Issue number: 1

ISSN (Print): 2331-2009

Original language: English

Keywords: Polyimide, Retinal pigment epithelial cell, SURFACE MODIFICATION, tissue engineering

Electronic versions:

Collagen immobilized polyimide membranes for retinal pigment epithelial cell adherence and proliferation

DOIs:

10.1080/23312009.2017.1292593

URLs:

<http://urn.fi/URN:NBN:fi:ty-201703231218>

Research output: Contribution to journal > Article > Scientific > peer-review

Arbitrary Land Use Policy in Jordan between Legal Brand and Property Control

The absence of appropriate land use planning, leapfrog population growth, and high demand for urban land persist among the prevailing urban characteristics of Amman. Generally, land use policy in Jordan, and particularly in Amman remains out of control because of some social considerations and inconsistent laws.

Such phenomenon creates serious problems related to the local land market. This paper attempts to address the wide gap between land supply and demand through analysis of the relevant institutional framework, land governance, land policy and practice in Jordan. However, the historical background of land proprietorship is given parallel to the overall institutional framework of land regulation. The magnitude and reason for legal land tenure along the proposed urban corridors shall also be examined.

General information

Publication status: Published

MoE publication type: E1 Popularised article, newspaper article

Organisations: University of Jordan, Architectural department, Hashemite University, Zarqa-Jordan

Contributors: Tewfik, M., Amr, A.

Number of pages: 8

Pages: 86-93

Publication date: Dec 2014

Peer-reviewed: Unknown

Publication information

Journal: European International Journal of Science and Technology

Volume: 3

Issue number: 9

ISSN (Print): 2304-9693

Original language: English

ASJC Scopus subject areas: Urban Studies, Geography, Planning and Development, Architecture

Keywords: Urban development, regional development, timber construction, innovation network, development platform, Urban form, urban planning, urban processes

Electronic versions:

"Arbitrary Land Use Policy in Jordan between Legal Brand and

URLs:

<http://urn.fi/URN:NBN:fi:tty-201708161684>

Research output: Contribution to journal › Article › General public

Energiätehokkuus rakennusalan ammattityövoiman täydennyskoulutuksessa

General information

Publication status: Published

MoE publication type: B3 Non-refereed article in conference proceedings

Organisations: Department of Civil Engineering, Research group: Capacity Development of Water and Environmental Services CADWES

Contributors: Teriö, O., Sorri, J.

Number of pages: 6

Pages: 97-102

Publication date: 20 Oct 2015

Host publication information

Title of host publication: Rakennusfysiikka 2015. Uusimmat tutkimustulokset ja hyvät käytännön ratkaisut. 20.-22.10.2015, Tampere

Place of publication: Tampere

Publisher: Tampereen teknillinen yliopisto, rakennustekniikan laitos, rakennetekniikka

Editors: Vinha, J., Ruuska, T.

ISBN (Print): 978-952-15-3580-2

Keywords: Double skin facade, Energy efficiency, New renovation concepts, Innovative HVAC, Earth to air heat exchanger

Research output: Chapter in Book/Report/Conference proceeding › Conference contribution › Scientific

Moisture and building processes in Finland

General information

Publication status: Published

MoE publication type: A4 Article in a conference publication

Organisations: Department of Civil Engineering, Research group: Capacity Development of Water and Environmental Services CADWES

Contributors: Teriö, O., Hämäläinen, J., Uotila, U., Sorri, J., Saari, A.

Number of pages: 11

Pages: 907-917

Publication date: 2016

Host publication information

Title of host publication: Proceedings of the 20th CIB World Building Congress 2016: Volume I - Creating built environments of new opportunities. (Tampere University of Technology. Department of Civil Engineering. Construction Management and Economics. Report; Vol. 18).

Volume: I

Place of publication: Tampere

Publisher: Tampere University of Technology. Department of Civil Engineering

Editors: Kähkönen, K., Keinänen, M.

ISBN (Electronic): 978-952-15-3741-7

Keywords: construction site, drying, energy, heating, moisture

URLs:

https://tutcris.tut.fi/portal/files/6186667/WBC16_Vol_1.pdf

Bibliographical note

INT=ark,"Hämäläinen, Jari"

Research output: Chapter in Book/Report/Conference proceeding › Conference contribution › Scientific › peer-review

Puukerrostalorakentamisen kosteudenhallinta

General information

Publication status: Published

MoE publication type: B3 Non-refereed article in conference proceedings

Organisations: Civil Engineering, Research group: Capacity Development of Water and Environmental Services CADWES, Research group: Building Physics, Tampere University of Technology, Laboratory of Civil Engineering

Contributors: Teriö, O., Penttilä, O., Laukkarinen, A., Musakka, S., Vinha, J.

Number of pages: 6

Pages: 173-178
Publication date: 24 Oct 2017

Host publication information

Title of host publication: Rakennusfysiikka 2017. Uusimmat tutkimustulokset ja hyvät käytännön ratkaisut : 24.-26.10.2017, Tampere
Volume: 1
Place of publication: Tampere
Publisher: Tampereen teknillinen yliopisto, Rakennustekniikka, Rakennusfysiikka
Editors: Vinha, J., Kivioja, H.
ISBN (Print): 978-952-15-4022-6

Publication series

Name: Tampereen teknillinen yliopisto. Rakennustekniikka. Rakennusfysiikka.
ASJC Scopus subject areas: Civil and Structural Engineering, Building and Construction

Bibliographical note

INT=rak,"Penttilä, Olavi"

INT=rak,"Musakka, Sami"

Research output: Chapter in Book/Report/Conference proceeding > Conference contribution > Scientific

Management accounting and new service development under servitization: literature review and case studies

General information

Publication status: Published
MoE publication type: A4 Article in a conference publication
Organisations: Department of Industrial Management, Research group: Cost Management Center, Scuola Superiore Sant'Anna, Istituto di Management, Pisa, Italy
Contributors: Tenucci, A., Laine, T.
Publication date: 15 Jun 2016

Host publication information

Title of host publication: Proceedings of the Manufacturing Accounting Research Conference 2016 : Lisbon, Portugal, June 15-17, 2016
URLs:
http://www.eiasm.org/frontoffice/event_announcement.asp?event_id=1155#4716
Research output: Chapter in Book/Report/Conference proceeding > Conference contribution > Scientific > peer-review

Detection and Assessment of Sleep-Disordered Breathing with Special Interest of Prolonged Partial Obstruction

Sleep-disordered breathing (SDB) has become more common and puts more strain on public health services than ever before. Obstructive sleep apnea (OSA) and its health consequences such as different cardiovascular diseases are nowadays well recognized. In addition to OSA, attention has recently been paid to another SDB; prolonged partial obstruction. However, it is often undiagnosed and easily left untreated because of the low number of respiratory events during polysomnography recording. This patient group has found to present with more atypical subjective symptoms than OSA patients.

Polysomnography (PSG) is considered to be the gold standard in reference methods in SDB diagnostics. PSG is a demanding and laborious multichannel recording method and often requires subjects to spend one night in a sleep laboratory. There is long tradition in Finland to use mattress sensors in SDB diagnostics. Recently, smaller electromechanical film transducer (Emfit) mattresses have replaced the old Static Charge-Sensitive Bed (SCSB) mattresses. However, a proper clinical validation of Emfit mattresses in SDB diagnostics has not been carried out.

In this work, the use of Emfit recording in the detection of sleep apneas, hypopneas, and prolonged partial obstruction with increased respiratory effort was evaluated. The general aim of the thesis is to develop and improve the diagnostic methods for sleep-related breathing disorders.

Comparisons with both PSG with nasal pressure recording and transesophageal pressure were made. Special attention was paid to the existence of the spiking phenomenon in the Emfit mattress in relation to changes in negative intrathoracic pressure in estimating increased respiratory effort. This entails monitoring the esophageal pressure as a part of nocturnal polysomnography. The recording method is demanding and uncomfortable and is usually not used with ordinary sleep laboratory patients. Thus, reliable and easy indirect quantification methods for respiratory effort are needed in clinical work. According to the results presented in this work, the Emfit signal reveals increased respiratory effort as well as apneas/hypopneas.

To find out the prevalence and consequences of prolonged partial obstruction among sleep laboratory patients was another aim of this thesis. This was done by retrospective analyses of sleep laboratory patients from one year. The

prevalence of patients with prolonged partial obstruction was 11%. They were as sleepy as OSA patients, but their life quality was worse, as assessed by a survey. These results, along with the findings of the heart rate variation evaluation carried out in this thesis, suggest that prolonged partial obstruction and OSA should be considered as different entities of SDB.

With the Emfit mattress sensor, the SDB types can be differentiated, which is expected to enhance the accuracy of diagnostics. However, there is increasing need for easy and cheap screening methods to evaluate nocturnal breathing. In this respect, the usability of compressed tracheal sound signal scoring in SDB screening was estimated. The method reveals apneas and hypopneas but, according to the present findings, it can also be used in the detection of prolonged partial obstruction. The findings encourage the use of compressed tracheal sound analysis in screening different SDB.

The analysis of sleep recordings is still based on a doctor's subjective and visual estimation. To date, no generally accepted and sufficiently reliable automatic analysis method exists. Robust, automatic quantification methods with easier techniques for non-invasive sleep recording would enable the analysis methods to be also used for screening purposes. In this technology-orientated world, people could take much more responsibility and take care of themselves better by following their own biosignals and by changing their health habits earlier. The need for good sleep as a necessity for good life and health is widely recognized.

General information

Publication status: Published

MoE publication type: G5 Doctoral dissertation (article)

Organisations: Department of Electronics and Communications Engineering

Contributors: Tenhunen, M.

Number of pages: 77

Publication date: 4 Sep 2015

Publication information

Place of publication: Tampere

Publisher: Tampere University of Technology

ISBN (Print): 978-952-15-3531-4

ISBN (Electronic): 978-952-15-3556-7

Original language: English

Publication series

Name: Tampere University of Technology. Publication

Publisher: Tampere University of Technology

Volume: 1304

ISSN (Print): 1459-2045

Electronic versions:

tenhunen_1304

URLs:

<http://URN.fi/URN:ISBN:978-952-15-3556-7>

Bibliographical note

Awarding institution: Tampere University of Technology

Versio ok 16.12.2015

Research output: Book/Report > Doctoral thesis > Collection of Articles

Arkinen liikkuminen kontekstina kaupunkitilan tarkasteluun

General information

Publication status: Published

Organisations: School of Architecture

Contributors: Tartia, J.

Publication date: 2015

Peer-reviewed: No

Publication information

Journal: Versus

ISSN (Print): 2242-3443

Original language: Finnish

URLs:

<http://www.ays.fi/versus/>

Research output: Contribution to journal > Special issue > Scientific

Beaconing in a highway scenario: Vulnerable vehicles problem

Periodic exchange of short status messages using IEEE 802.11p also referred to as beaconing is a core inter-vehicle communication mode enabling novel cooperative safety applications. A beaconing in the platoon of vehicles moving on a highway is studied as one of the popular practical scenarios. This paper demonstrates that when the inter-arrival times of beacons are small and under certain medium access control protocol parameters, some vehicles in the platoon may suffer from serious performance degradation. The condition when such situation takes place is studied and recommendations are given on a proper choice of IEEE 802.11p parameters.

General information

Publication status: Published
MoE publication type: A4 Article in a conference publication
Organisations: Electronics and Communications Engineering
Contributors: Tariq, A. B.
Number of pages: 7
Pages: 169-175
Publication date: 2012

Host publication information

Title of host publication: Proceedings of the 11th Conference of Open Innovations Association FRUCT, FRUCT 2012
Volume: 2012-April
Publisher: IEEE
ISBN (Electronic): 9785808807075
ASJC Scopus subject areas: Computer Science(all), Electrical and Electronic Engineering
Keywords: Beaconing, Hidden-nodes, IEEE 802.11p, Terms, VANET
DOIs:
10.23919/FRUCT.2012.8253122

Bibliographical note

INT=el"Tariq, Ali Bin"
Source: Scopus
Source ID: 85044729916
Research output: Chapter in Book/Report/Conference proceeding > Conference contribution > Scientific > peer-review

Turvallisuuden johtajat - Esimiesten johtajuus, osaaminen ja sitoutuminen

General information

Publication status: Published
MoE publication type: D4 Published development or research report or study
Organisations: Department of Industrial Management, Research group: Safety Management and Engineering
Contributors: Tappura, S., Hyytinen, T., Kivistö-Rahnasto, J., Nenonen, N., Vasara, J.
Number of pages: 144
Publication date: 30 Dec 2015

Publication information

Place of publication: Tampere
Publisher: Tampereen teknillinen yliopisto; Tampereen yliopisto
ISBN (Electronic): 978-952-15-3662-5
Original language: Finnish
Electronic versions:
Loppuraportti_kaikki
URLs:
<http://URN.fi/URN:ISBN:978-952-15-3662-5>
Research output: Book/Report > Commissioned report > Professional

How to support managers' commitment to safety management and leadership in organizations: good practices from the managers' viewpoint

General information

Publication status: Published
MoE publication type: A4 Article in a conference publication
Organisations: Department of Industrial Management, Research group: Safety Management and Engineering
Contributors: Tappura, S., Nenonen, N., Kivistö-Rahnasto, J.

Publication date: Sep 2015

Host publication information

Title of host publication: WOS 8th international conference - Book of Abstracts

ISBN (Print): 978-989-98203-5-7

URLs:

<http://www.wos2015.net/index.asp?pag=tp>

Research output: Chapter in Book/Report/Conference proceeding > Conference contribution > Scientific > peer-review

On the threshold based neuronal spike detection, and an objective criterion for setting the threshold

In this paper, we investigate the workings of threshold (TH) based spike detection for neuronal extracellular field potential spikes. Thresholding is the most used spike detection method. In general, it is employed by setting the TH as per convention and without considering either the undetected or spurious spikes. In this paper, we provide insight in to the workings of thresholding, and proposed a new objective way to set the TH based on spike count histogram analysis. We illustrate the method with 2D and 3D simulations and analysis of measured data.

General information

Publication status: Published

MoE publication type: A4 Article in a conference publication

Organisations: Department of Electronics and Communications Engineering, Research group: Computational Biophysics and Imaging Group, BioMediTech, Integrated Technologies for Tissue Engineering Research (ITTE), BioMediTech

Contributors: Tanskanen, J. M. A., Kapucu, F. E., Hyttinen, J. A. K.

Number of pages: 4

Pages: 1016-1019

Publication date: 1 Jul 2015

Host publication information

Title of host publication: International IEEE/EMBS Conference on Neural Engineering, NER

Publisher: IEEE COMPUTER SOCIETY PRESS

ISBN (Print): 9781467363891

ASJC Scopus subject areas: Artificial Intelligence, Mechanical Engineering

DOIs:

10.1109/NER.2015.7146799

Source: Scopus

Source ID: 84940384726

Research output: Chapter in Book/Report/Conference proceeding > Conference contribution > Scientific > peer-review

Development of Si neural probe module with adjustable gain amplifier for neuronal signal recording

In recent years, lots of research on biomedical technologies directly using bio-signals such as BMI (Brain Machine Interface) have been performed intensively. Among bio-signals, ECoG (Electrocorticogram), LFP (Local Field Potential), and AP (Action Potential) are usually recorded especially for diagnosis, treatment, and prevention of brain diseases. These bio-signals have different amplitudes and frequency bandwidths, and the signal intensities vary accordingly with recording electrode conditions and individual variation. Therefore, a multiple bio-signals recording system having adjustable gain and bandwidth is strongly required. In this study, we designed the adjustable gain amplifier appropriate for the system, and fabricated the module composed of the amplifier and a Si neural probe for the multiple bio-signal recording in the deep brain. Additionally, we verified fundamental functions of the module by in vitro experiments.

General information

Publication status: Published

MoE publication type: A1 Journal article-refereed

Organisations: Department of Electronics and Communications Engineering, Research group: Biomaterials and Tissue Engineering Group, Research group: Computational Biophysics and Imaging Group, BioMediTech, Integrated Technologies for Tissue Engineering Research (ITTE), Graduate School of Engineering, Electrical and Electronics Engineering Department, Department of Bioengineering and Robotics, Tohoku University, Nagasaki Institute of Applied Science

Contributors: Tani, T., Naganuma, H., Harashima, T., Iwagami, T., Kino, H., Kiyoyama, K., Kellomäki, M., Hyttinen, J., Tanaka, T.

Pages: O-377-O-378

Publication date: 17 Aug 2014

Peer-reviewed: Yes

Publication information

Journal: Transactions of Japanese Society for Medical and Biological Engineering

Volume: 52

ISSN (Print): 1347-443X

Ratings:

Scopus rating (2014): CiteScore 0.1 SJR 0.127 SNIP 0.038

Original language: English

ASJC Scopus subject areas: Biomedical Engineering

Keywords: Adjustable gain amplifier, Multiple bio-signal recording, Si neural probe

DOIs:

10.11239/jsmbe.52.O-377

Source: Scopus

Source ID: 84939449061

Research output: Contribution to journal › Article › Scientific › peer-review

Effect of elevated nitrate and sulfate concentrations on selenate removal by mesophilic anaerobic granular sludge bed reactors

Simultaneous removal of selenate (SeO₄²⁻), nitrate (NO₃⁻) and sulfate (SO₄²⁻), typically present in Se-contaminated wastewaters, by Eerbeek anaerobic granular sludge, was investigated in batch and continuous bioreactor experiments. Batch experiments showed that SeO₄²⁻ removal was enhanced to 91% in simulated wastewater with SeO₄²⁻ + NO₃⁻ + SO₄²⁻ (1 : 40 : 100 SeO₄²⁻ : NO₃⁻ : SO₄²⁻ molar ratios) compared to simulated wastewater with SeO₄²⁻ alone (67%). SeO₄²⁻ removal was severely impacted by high concentrations of SO₄²⁻ (SeO₄²⁻ : SO₄²⁻ > 1 : 300). Removal of SeO₄²⁻, NO₃⁻ and SO₄²⁻ at a 1 : 40 : 100 ratio was studied in a 2 L lab-scale upflow anaerobic sludge blanket (UASB) reactor operated at 20 [degree]C, a 24 h hydraulic retention time and a 2 g COD L⁻¹ day⁻¹ organic loading rate using lactate as the electron donor. The removal efficiencies were stabilized at 100, 30 and 80% for NO₃⁻, SO₄²⁻ and total Se, respectively, during 92 days of UASB operation. The total Se removal efficiencies dropped to 47% or even to a negative value when, respectively, SO₄²⁻ and NO₃⁻ were sequentially excluded from the influent. Speciation of Se, particularly the microbial production of colloidal Se₀ levels, was influenced by both SO₄²⁻ and NO₃⁻. The results presented here demonstrate that UASB reactors are capable of removing SeO₄²⁻ in the presence of millimolar concentrations of NO₃⁻ and SO₄²⁻ typically found in Se-contaminated wastewaters.

General information

Publication status: Published

MoE publication type: A1 Journal article-refereed

Organisations: Chemistry and Bioengineering, UNESCO-IHE Institute for Water Education

Contributors: Tan, L. C., Nancharaiyah, Y. V., van Hullebusch, E. D., Lens, P. N. L.

Pages: 303-314

Publication date: 2018

Peer-reviewed: Yes

Early online date: 5 Dec 2017

Publication information

Journal: Environmental Science: Water Research & Technology

Volume: 4

Issue number: 2

ISSN (Print): 2053-1400

Ratings:

Scopus rating (2018): CiteScore 5.3 SJR 1.104 SNIP 1.081

Original language: English

DOIs:

10.1039/C7EW00307B

Source: Bibtex

Source ID: urn:83b997c5e222c3328f8a2e876e3d3da8

Research output: Contribution to journal › Article › Scientific › peer-review

Field Collapse Event ESD Test Method

A novel field collapse event ESD test method is presented in this paper. The device under test is continuously grounded in an electrostatic field and when the field is removed it drives current through the device. We show with measurements and simulations how to use this method to test ESD immunity of electronic products.

General information

Publication status: Published

MoE publication type: A4 Article in a conference publication

Organisations: Sensing Systems for Wireless Medicine (MediSense), Department of Electronics and Communications

Engineering, Research group: Wireless Identification and Sensing Systems Research Group, Cascade Metrol, Microsoft

Contributors: Tamminen, P., Viheriäkoski, T., Reinvuori, T., Sydänheimo, L., Ukkonen, L.

Number of pages: 6

Publication date: 2014

Host publication information

Title of host publication: 2014 36TH Electrical overstress/electrostatic discharge symposium (EOS/ESD)
Publisher: IEEE COMPUTER SOC

Publication series

Name: Electrical Overstress Electrostatic Discharge Symposium
Publisher: IEEE COMPUTER SOC
ISSN (Print): 0739-5159
Source: WOS
Source ID: 000355792800014

Research output: Chapter in Book/Report/Conference proceeding > Conference contribution > Scientific > peer-review

ESD Sensitivity of 01005 Chip Resistors and Capacitors

Miniaturization of passive surface mount components has decreased the package size down to 01005. These tiny components are ESD sensitive and can get ESD damages on a system board. In this paper ESD sensitivities of 01005 chip resistors and capacitors are studied on a system board.

General information

Publication status: Published
MoE publication type: A4 Article in a conference publication
Organisations: Sensing Systems for Wireless Medicine (MediSense), Department of Electronics and Communications Engineering, Research group: Wireless Identification and Sensing Systems Research Group
Contributors: Tamminen, P., Sydänheimo, L., Ukkonen, L.
Number of pages: 9
Publication date: 2014

Host publication information

Title of host publication: 2014 36TH Electrical Overstress/Electrostatic Discharge Symposium (EOS/ESD)
Publisher: IEEE COMPUTER SOC

Publication series

Name: Electrical Overstress Electrostatic Discharge Symposium
Publisher: IEEE COMPUTER SOC
ISSN (Print): 0739-5159
Source: WOS
Source ID: 000355792800042

Research output: Chapter in Book/Report/Conference proceeding > Conference contribution > Scientific > peer-review

The effect of USB ground cable and product dynamic capacitance on IEC61000-4-2 qualification

IEC61000-4-2 discharge stress levels are studied with varying product capacitance and ground connections. Stress levels are evaluated based on the measured and simulated peak current, peak power, pulse rise time, and energy transfer along to the USB cable. These stress parameters can be significantly affected by adjusting the test setup.

General information

Publication status: Published
MoE publication type: A4 Article in a conference publication
Organisations: Sensing Systems for Wireless Medicine (MediSense), Department of Electronics and Communications Engineering, Research group: Wireless Identification and Sensing Systems Research Group
Contributors: Tamminen, P., Ukkonen, L., Sydänheimo, L.
Number of pages: 10
Publication date: 27 Sep 2015

Host publication information

Title of host publication: Electrical Overstress / Electrostatic Discharge Symposium Proceedings 2015
Volume: 2015
Place of publication: USA
Publisher: IEEE COMPUTER SOC
Article number: 7B.2
ISBN (Print): 9781479988952
ASJC Scopus subject areas: Engineering(all)
Keywords: USB, IEC61000-4-2, ESD, EMC, cable
Electronic versions:

7B2_Tamminen

DOIs:

10.1109/EOSESD.2015.7314766

URLs:

<http://urn.fi/URN:NBN:fi:tty-201603013600>

Research output: Chapter in Book/Report/Conference proceeding › Conference contribution › Scientific › peer-review

ESD and Disturbance Cases in Electrostatic Protected Areas

Electrostatic protected area (EPA) can effectively prevent ESD failures from charged operators, work benches and tools. However, electrical disturbances and ESD events from other sources can still exist in well-built EPAs. In this paper failures found in electronic assembly environments are analyzed to improve coverage of ESD control programs.

General information

Publication status: Published

MoE publication type: A4 Article in a conference publication

Organisations: Sensing Systems for Wireless Medicine (MediSense), Department of Electronics and Communications Engineering, Research group: Wireless Identification and Sensing Systems Research Group, Cascade Metrology

Contributors: Tamminen, P., Viheriäkoski, T., Ukkonen, L., Sydänheimo, L.

Number of pages: 7

Publication date: 27 Sep 2015

Host publication information

Title of host publication: Electrical Overstress / Electrostatic Discharge Symposium Proceedings 2015

Volume: 2015

Place of publication: USA

Publisher: IEEE COMPUTER SOC

Article number: 5B.2

ISBN (Print): 9781479988952

ASJC Scopus subject areas: Engineering(all)

Keywords: EPA, ESD, DISTURBANCES, EMI, failure

Electronic versions:

5B.2_Tamminen_2015

DOIs:

10.1109/EOSESD.2015.7314792

URLs:

<http://urn.fi/URN:NBN:fi:tty-201603013599>

Research output: Chapter in Book/Report/Conference proceeding › Conference contribution › Scientific › peer-review

Charged cable-system ESD event

A charged electronic system failed while it was connected to a USB port. The resulting discharge current waveform had a sub-nanosecond initial peak that bypassed on-board protection devices. In this study the ESD stress waveform is analyzed with simulation and measurement methods.

General information

Publication status: Published

MoE publication type: A4 Article in a conference publication

Organisations: Department of Electronics and Communications Engineering

Contributors: Tamminen, P., Viheriäkoski, T.

Publication date: 18 Oct 2016

Host publication information

Title of host publication: 2016 38th Electrical Overstress/Electrostatic Discharge Symposium (EOS/ESD)

Publisher: IEEE

ISBN (Electronic): 978-1-5853-7289-8

Keywords: cable shielding, cables (electric), electromagnetic shielding, electrostatic discharge, peripheral interfaces, ESD stress waveform, USB port, charged cable system ESD event, charged electronic system, discharge current waveform, on-board protection devices, subnanosecond initial peak, Cable TV, Cable shielding, Current measurement, Discharges (electric), Power cables, Universal Serial Bus, Wires

DOIs:

10.1109/EOSESD.2016.7592559

Source: Bibtex

Source ID: urn:5e9eb39001154b3f7501d98bb2d14c27

Research output: Chapter in Book/Report/Conference proceeding › Conference contribution › Scientific › peer-review

Are Finns walking the talk?: Examining the national collaboration process on engineering education for sustainable development five years later

In 2009, the National Collaboration Group for Finnish Engineering Education published a proposal for action on sustainable development (SD). The aim of this paper is to analyze how the three main universities providing engineering education have fulfilled their commitments. The study consists of interviews with key stakeholders supplemented with the analysis of documented material. It is argued that the studied universities are now committed to SD in their strategies. However, a lot of work remains to be done before the strategies are implemented and SD is integrated to all degree programmes. Recommendations for the next steps are presented.

General information

Publication status: Published

MoE publication type: D3 Professional conference proceedings

Organisations: Department of Chemistry and Bioengineering, The Education Fund

Contributors: Takala, A., Korhonen-Yrjänheikki, K.

Publication date: 1 Jun 2015

Host publication information

Title of host publication: Conference on Engineering Education for Sustainable Development (7th : 2015 : Vancouver, B.C.)

DOIs:

10.14288/1.0064702

URLs:

<https://open.library.ubc.ca/cIRcle/collections/52657/items/1.0064702>

Research output: Chapter in Book/Report/Conference proceeding › Conference contribution › Professional

Finnish Engineering Education for Sustainable Development in 2016 - Call for collaborative learning

General information

Publication status: Published

MoE publication type: A4 Article in a conference publication

Organisations: Department of Civil Engineering, The Education Fund

Contributors: Takala, A., Korhonen-Yrjänheikki, K.

Publication date: Sep 2016

Host publication information

Title of host publication: SEFI 2016 Annual Conference Proceedings : Engineering Education on Top of the World: Industry University Cooperation

Publisher: European Society for Engineering Education SEFI

ISBN (Electronic): 9782873520144

URLs:

http://www.sefi.be/conference-2016/papers/Sustainability_and_Engineering_Education/takala-finnish-engineering-education-for-sustainable-development-135_a.pdf

Research output: Chapter in Book/Report/Conference proceeding › Conference contribution › Scientific › peer-review

Learning for sustainable water and sanitation services

General information

Publication status: Published

MoE publication type: A4 Article in a conference publication

Organisations: Department of Chemistry and Bioengineering

Contributors: Takala, A.

Pages: 250-258

Publication date: 2016

Host publication information

Title of host publication: Proceedings of the 8th International Conference on Engineering Education for Sustainable Development (Bruges, 4-7 September 2016) : Building a circular economy together

Place of publication: Brugge

Publisher: Instituut vóór Duurzame Ontwikkeling vzw

Editor: Mazijn, B.

Article number: D.3.2

ISBN (Electronic): 978-90-903-0131-0

URLs:

http://instituutvoorduurzameontwikkeling.be/fileadmin/user_upload/eesd2016_proceedings.pdf

Research output: Chapter in Book/Report/Conference proceeding › Conference contribution › Scientific › peer-review

The Web as a software platform: Ten years later

In the past ten years, the Web has become a dominant deployment environment for new software systems and applications. In view of its current popularity, it is easy to forget that only 10-15 years ago hardly any developer would write serious software applications for the Web. Today, the use of the web browser as a software platform is commonplace, and JavaScript has become one of the most popular programming languages in the world. In this paper we revisit some predictions that were made over ten years ago when the Lively Kernel project was started back in 2006. Ten years later, most of the elements of the original vision have been fulfilled, although not entirely in the fashion we originally envisioned. We look back at the Lively Kernel vision, reflecting our original goals to the state of the art in web programming today.

General information

Publication status: Published
MoE publication type: A4 Article in a conference publication
Organisations: Pervasive Computing, Nokia, University of Helsinki
Contributors: Taivalsaari, A., Mikkonen, T.
Number of pages: 10
Pages: 41-50
Publication date: 2017

Host publication information

Title of host publication: WEBIST 2017 - Proceedings of the 13th International Conference on Web Information Systems and Technologies
Publisher: SCITEPRESS
ISBN (Electronic): 9789897582462
ASJC Scopus subject areas: Computer Networks and Communications, Information Systems
Keywords: HTML5, JavaScript, Live object systems, Lively kernel, Web applications, Web programming
DOIs:
10.5220/0006234800410050
Source: Scopus
Source ID: 85024473230
Research output: Chapter in Book/Report/Conference proceeding > Conference contribution > Scientific > peer-review

Web User Interface Implementation Technologies: An Underview

General information

Publication status: Published
MoE publication type: A4 Article in a conference publication
Organisations: Pervasive Computing, Research area: Software engineering, University of Lugano (USI), Università della Svizzera Italiana, Nokia Technologies, University of Helsinki
Contributors: Taivalsaari, A., Mikkonen, T., Systä, K., Pautasso, C.
Number of pages: 10
Pages: 127-136
Publication date: 5 Sep 2018

Host publication information

Title of host publication: 14th International Conference on Web Information Systems and Technologies
Publisher: SCITEPRESS
ISBN (Print): 978-989-758-324-7
DOIs:
10.5220/0006885401270136

Bibliographical note

EXT="Taivalsaari, Antero"
EXT="Mikkonen, Tommi"
Research output: Chapter in Book/Report/Conference proceeding > Conference contribution > Scientific > peer-review

Towards a Classification Schema for Development Technologies: an Empirical Study in the Avionic Domain

General information

Publication status: Published
MoE publication type: A1 Journal article-refereed
Organisations: University of Kaiserslautern, Free University of Bozen-Bolzano, Free University of Bolzano-Bozen, Liebherr-Aerospace
Contributors: Taibi, D., Lenarduzzi, V., Dieudonne, L., Plociennik, C.

Number of pages: 11
Pages: 125-135
Publication date: 1 Aug 2015
Peer-reviewed: Yes

Publication information

Journal: INTERNATIONAL JOURNAL ON ADVANCES IN SOFTWARE
Volume: 8
Issue number: 1&2
ISSN (Print): 1942-2628
Original language: English
Electronic versions:
Towards a Classification Schema for Development Technologies and an Empirical Study in the Avionic Domain
URLs:
<http://urn.fi/URN:NBN:fi:tty-201802091204>
Research output: Contribution to journal › Article › Scientific › peer-review

Architectural patterns for microservices: A systematic mapping study

Microservices is an architectural style increasing in popularity. However, there is still a lack of understanding how to adopt a microservice-based architectural style. We aim at characterizing different microservice architectural style patterns and the principles that guide their definition. We conducted a systematic mapping study in order to identify reported usage of microservices and based on these use cases extract common patterns and principles. We present two key contributions. Firstly, we identified several agreed microservice architecture patterns that seem widely adopted and reported in the case studies identified. Secondly, we presented these as a catalogue in a common template format including a summary of the advantages, disadvantages, and lessons learned for each pattern from the case studies. We can conclude that different architecture patterns emerge for different migration, orchestration, storage and deployment settings for a set of agreed principles.

General information

Publication status: Published
MoE publication type: A4 Article in a conference publication
Organisations: Pervasive Computing, Free University of Bolzano-Bozen
Contributors: Taibi, D., Lenarduzzi, V., Pahl, C.
Number of pages: 12
Pages: 221-232
Publication date: 2018

Host publication information

Title of host publication: CLOSER 2018 - Proceedings of the 8th International Conference on Cloud Computing and Services Science
Publisher: SCITEPRESS
ISBN (Electronic): 9789897582950
ASJC Scopus subject areas: Computer Science (miscellaneous), Software, Computer Science Applications
Keywords: Architectural style, Architecture pattern, Cloud migration, Cloud native, DevOps, Microservices
DOIs:
10.5220/0006798302210232
Source: Scopus
Source ID: 85046716130
Research output: Chapter in Book/Report/Conference proceeding › Conference contribution › Scientific › peer-review

From monolithic systems to microservices: A decomposition framework based on process mining

Decomposition is one of the most complex tasks during the migration from monolithic systems to microservices, generally performed manually, based on the experience of the software architects. In this work, we propose a 6-step framework to reduce the subjectivity of the decomposition process. The framework provides software architects with a set of decomposition options, together with a set of measures to evaluate and compare their quality. The decomposition options are identified based on the independent execution traces of the system by means of the application of a process-mining tool to the log traces collected at runtime. We validated the process, in an industrial project, by comparing the proposed decomposition options with the one proposed by the software architect that manually analyzed the system. The application of our framework allowed the company to identify issues in their software that the architect did not spot manually, and to discover more suitable decomposition options that the architect did not consider. The framework could be very useful also in other companies to improve the quality of the decomposition of any monolithic system, identifying different decomposition strategies and reducing the subjectivity of the decomposition process. Moreover, researchers could extend our approach increasing the support and further automating the decomposition support.

General information

Publication status: Published
MoE publication type: A4 Article in a conference publication
Organisations: Computing Sciences, TASE - Tampere Software Engineering Research Group
Contributors: Taibi, D., Systä, K.
Number of pages: 12
Pages: 153-164
Publication date: 2019

Host publication information

Title of host publication: CLOSER 2019 - Proceedings of the 9th International Conference on Cloud Computing and Services Science
Publisher: SCITEPRESS
Editors: Ferguson, D., Munoz, V. M., Helfert, M., Pahl, C.
ISBN (Electronic): 9789897583650
ASJC Scopus subject areas: Computer Science (miscellaneous), Computer Science Applications
Keywords: Cloud-native, Microservice decomposition, Microservice migration, Microservice slicing, Microservices
DOIs:
10.5220/0007755901530164
Source: Scopus
Source ID: 85067463647
Research output: Chapter in Book/Report/Conference proceeding › Conference contribution › Scientific › peer-review

Patterns for serverless functions (Function-as-a-Service): A multivocal literature review

[Context] Serverless is a recent technology that enables companies to reduce the overhead for provisioning, scaling and in general managing the infrastructure. Companies are increasingly adopting Serverless, by migrating existing applications to this new paradigm. Different practitioners proposed patterns for composing and managing serverless functions. However, some of these patterns offer different solutions to solve the same problem, which makes it hard to select the most suitable solution for each problem. [Goal] In this work, we aim at supporting practitioners in understanding the different patterns, by classifying them and reporting possible benefits and issues. [Method] We adopted a multivocal literature review process, surveying peer-reviewed and grey literature and classifying patterns (common solutions to solve common problems), together with benefits and issues. [Results] Among 24 selected works, we identified 32 patterns that we classified as orchestration, aggregation, event-management, availability, communication, and authorization. [Conclusion] Practitioners proposed a list of fairly consistent patterns, even if a small number of patterns proposed different solutions to similar problems. Some patterns emerged to circumvent some serverless limitations, while others for some classical technical problems (e.g. publisher/subscriber).

General information

Publication status: Published
MoE publication type: A4 Article in a conference publication
Organisations: Computing Sciences, Free University of Bolzano-Bozen
Contributors: Taibi, D., El Ioini, N., Pahl, C., Niederkofler, J. R. S.
Number of pages: 12
Pages: 181-192
Publication date: 2020

Host publication information

Title of host publication: CLOSER 2020 - Proceedings of the 10th International Conference on Cloud Computing and Services Science
Volume: 1
Publisher: SCITEPRESS
Editors: Ferguson, D., Helfert, M., Pahl, C.
ISBN (Electronic): 9789897584244
ASJC Scopus subject areas: Computer Science (miscellaneous), Computer Science Applications, Software
Keywords: Cloud, Function as a Service, Serverless, Serverless Functions
Electronic versions:
Patterns for serverless functions 2020
DOIs:
10.5220/0009578501810192
URLs:
<http://urn.fi/URN:NBN:fi:tuni-202008286730>
Source: Scopus
Source ID: 85088373702
Research output: Chapter in Book/Report/Conference proceeding › Conference contribution › Scientific › peer-review

Reinforcement learning for improved UAV-based integrated access and backhaul operation

There is a strong interest in utilizing commercial cellular networks to support unmanned aerial vehicles (UAVs) to send control commands and communicate heavy traffic. Cellular networks are well suited for offering reliable and secure connections to the UAVs as well as facilitating traffic management systems to enhance safe operation. However, for the full-scale integration of UAVs that perform critical and high-risk tasks, more advanced solutions are required to improve wireless connectivity in mobile networks. In this context, integrated access and backhaul (IAB) is an attractive approach for the UAVs to enhance connectivity and traffic forwarding. In this paper, we study a novel approach to dynamic associations based on reinforcement learning at the edge of the network and compare it to alternative association algorithms. Considering the average data rate, our results indicate that the reinforcement learning methods improve the achievable data rate. The optimal parameters of the introduced algorithm are highly sensitive to the donor next generation node base (DgNB) and UAV IAB node densities, and need to be identified beforehand or estimated via a stateful search. However, its performance nearly converges to that of the ideal scheme with a full knowledge of the data rates in dense deployments of DgNBs.

General information

Publication status: Published

MoE publication type: A4 Article in a conference publication

Organisations: Electrical Engineering, Research group: Emerging Technologies for Nano-Bio-Info-Cogno, Research group: Wireless Communications and Positioning, Intel Corporation

Contributors: Tafintsev, N., Moltchanov, D., Simsek, M., Yeh, S. P., Andreev, S., Koucheryavy, Y., Valkama, M.

Number of pages: 7

Publication date: 2020

Host publication information

Title of host publication: 2020 IEEE International Conference on Communications Workshops, ICC Workshops 2020 - Proceedings

Publisher: IEEE

ISBN (Print): 978-1-7281-7441-9

ISBN (Electronic): 9781728174402

Publication series

Name: IEEE/CIC international conference on communications in China - workshops

ISSN (Print): 2474-9133

ISSN (Electronic): 2474-9141

ASJC Scopus subject areas: Artificial Intelligence, Computer Networks and Communications, Signal Processing, Information Systems and Management, Control and Optimization

DOIs:

10.1109/ICCWorkshops49005.2020.9145423

Bibliographical note

JUF0ID=88220

Source: Scopus

Source ID: 85090294995

Research output: Chapter in Book/Report/Conference proceeding › Conference contribution › Scientific › peer-review

Project types and industrial collaboration in project-based learning

Project-based learning is important in engineering education as it makes the students test their skills in a real-life setting. We have organised project-based learning for software engineering students since 1991. Already in the early times, the projects were based on collaboration with near-by companies and other customers. This collaboration with external organisations, called customers in this paper, creates strong links between education and surrounding society.

In this paper, we report the experiences from our project courses. Especially we describe 1) how the courses have helped collaboration between students, teachers and companies, 2) the different categories for topics and goals of the projects. Based on the analysis, we outline a new project type, a technology exploration project.

General information

Publication status: Published

MoE publication type: A4 Article in a conference publication

Organisations: Department of Pervasive Computing, Research area: Software engineering

Contributors: Systä, K., Vuori, M., Järvinen, H., Ahtee, T., Sten, H.

Number of pages: 11

Publication date: 12 Nov 2016

Host publication information

Title of host publication: Proceedings of SEFI 2016 annual conference

Place of publication: Tampere / Brussels

Publisher: European Society for Engineering Education SEFI

Editors: Järvinen, H., Clark, R.

ISBN (Electronic): 9782873520144

ASJC Scopus subject areas: Computer Science(all)

Keywords: project courses, engineering education, innovation, university-industry collaboration

Electronic versions:

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URLs:

<http://sefibenvvh.cluster023.hosting.ovh.net/wp-content/uploads/2017/09/systa-project-types-and-industrial-collaboration-in-project-based-learning-187.pdf>

<http://urn.fi/URN:NBN:fi:tyy-201709201899>

Research output: Chapter in Book/Report/Conference proceeding > Conference contribution > Scientific > peer-review

On the Socio-Technical Dependencies in Free/Libre/Open Source Software Projects

During the course of the past two decades, Open Source Software (OSS) development model has lead to a number of projects which have produced software that rivals and in some cases even exceeds the scale and quality of the traditional software projects. Among others, Eclipse, Apache, Linux, and BSD operating system are representative examples of such success stories.

However, OSS project like traditional in-house projects, often pose the potential for enormous problems, whose effects run the gamut from immense cumulative delay through complete breakdown and failure. This situation is evident, as OSS development is a socio-technical endeavor and is non-trivial. Such development occurs within an intensively collaborative process, in which technical prowess must go hand in hand with the efficient coordination and management of a large number of social, inter-personal interactions across the development organization. Furthermore, those social and technical dimensions are not orthogonal. It has been recognized that the structure of a software product and the layout of the development organization working on that product correlate.

Therefore this thesis argue that a comprehensive understanding on the sustainable evolution of OSS projects can be gained through the examination of the mutual influence of social and technical dimensions in OSS development. Thus, the goal of this thesis is the verification and reasoning of the following proposition,

“The evolution of the Open Source Software (OSS) project is constrained by the non-orthogonal evolution of Social and Technical dimensions (often termed as Socio-Technical dependency) of such projects”.

In concrete terms, this thesis investigates and measures empirically the extent to which the two dimensions of OSS projects, social and technical, approximate and influence each other during the evolution of the projects. Perceived insight is then used to build proposals that would provide empirical basis to frame theory around the affirmed proposition.

Moving towards this goal, this thesis proposes models, methods, frameworks and tool supports to measure, assess, and reason the socio-technical dependency within OSS project context. The starting point is to propose a data model to mimic the social and technical dimensions and their inter-relationships. This model is instantiated through the repository data of OSS projects that represent each of these dimensions. Then, methods and a mathematical model are proposed to derive dependency between the two dimensions, and to utilize them in measuring socio-technical dependency quantitatively. These proposals are then put into practice within distinct OSS project contexts to empirically measure and investigate socio-technical dependency. Along the process, frameworks, architectural design and corresponding tool implementations are provided to automate the analysis and visualization of such dependency.

Reported results suggest that high degree of socio-technical congruence can be considered as the implicit underlying principle for building team collaboration and coordination within the developer community of long lived OSS projects. Even being highly distributed community of developers, and mostly using passive communication channels, OSS communities are tied together by maintaining task dependent communication. Such communication is often ad-hoc, adaptive and situated as it cope with rapid and continuous changes in the underlying software.

Additionally, collaboration among projects are significantly influenced by the resembling properties among the projects. Resembling properties (e.g., project domain, size, and programming language) often form a favorable ground, thus creating a stimuli for developers to participate in those projects.

General information

Publication status: Published

MoE publication type: G5 Doctoral dissertation (article)

Organisations: Department of Pervasive Computing, Research area: Software engineering

Contributors: Syeed, M. M. M.

Publication date: 29 May 2015

Publication information

Publisher: Tampere University of Technology
ISBN (Print): 978-952-15-3525-3
ISBN (Electronic): 978-952-15-3533-8
Original language: English

Publication series

Name: Tampere University of Technology. Publication
Publisher: Tampere University of Technology
Volume: 1300
ISSN (Print): 1459-2045
Electronic versions:
mahbubul_1300
URLs:
<http://URN.fi/URN:ISBN:978-952-15-3533-8>

Bibliographical note

Awarding institution: Tampere University of Technology
Versio ok 16.12.2015
Research output: Book/Report › Doctoral thesis › Collection of Articles

Public-sector as an Initiator in a Collaborative Innovation Process

General information

Publication status: Published
MoE publication type: A4 Article in a conference publication
Organisations: Pori Department, Research group: Business Ecosystems, Networks and Innovations
Contributors: Suominen, A. H., Mäenpää, S., Breite, R.
Number of pages: 12
Publication date: 2015

Host publication information

Title of host publication: The XXVI ISPIM Innovation Conference – Shaping the Frontiers of Innovation Management – Budapest, Hungary, 14-17 June 2015
Publisher: International Society for Professional Innovation Management ISPIM
ISBN (Electronic): 978-952-265-779-4
Research output: Chapter in Book/Report/Conference proceeding › Conference contribution › Scientific › peer-review

Network archetypes in the network formation phase - case new market entry of Finnish maritime network

A theory of co-opetition in supply networks with specified four archetypes has been proposed in the earlier literature. As the model is not yet exhaustive, this study examines it in a case network in its formation phase. The findings bring new contribution to understanding the model of supply network archetypes and the utility of its four interrelated elements in forming strategic supply networks. The results provide novel evidence that competing situation within network and network organizations' co-opetitive or non-collaborative strategies with competitors, are essential information when forming a network, determining its network level objectives and governance.

General information

Publication status: Published
MoE publication type: D3 Professional conference proceedings
Organisations: Pori Department, Research group: Business Ecosystems, Networks and Innovations
Contributors: Suominen, A., Breite, R.
Number of pages: 10
Publication date: 29 Jun 2015

Host publication information

Title of host publication: 22nd International Annual EurOMA Conference Neuchâtel, Switzerland 28 June – 1 July 2015
ASJC Scopus subject areas: Business, Management and Accounting(all)
Keywords: supply network archetype, co-opetition, network governance model

Bibliographical note

xoa
Research output: Chapter in Book/Report/Conference proceeding › Conference contribution › Professional

Enablers and barriers of inter-organizational network's formation for new market entry: case Finnish maritime industry

Failures of networking attempts are rarely reported in the literature. This study examined an intentionally formed, non-successful case network in its formation phase by using Lowenberg's holistic conceptual model for strategic alliance issues that links six organizational theories to the network management processes. This empirical study of a whole network at network level involved one survey (n=20) and 61 semi-structured interviews in more than 20 Finnish maritime industry organizations and observations in six workshops, while the network aimed at joint market entry. The paper presents 11 enablers

and six barriers discovered in the networks formation phase. The findings contribute to understanding the enablers and barriers in network formation affecting failure, especially the significance of network strategy formulation and communication to network organizations in intentionally formed networks. Presenting conclusions for academics and managers, the paper fulfils the gap in the literature of whole networks, particularly their failures in their formation phase.

General information

Publication status: Published

MoE publication type: D3 Professional conference proceedings

Organisations: Pori Department, Research group: Business Ecosystems, Networks and Innovations

Contributors: Suominen, A.

Number of pages: 30

Publication date: 3 Jul 2015

Host publication information

Title of host publication: 31st EGOS Colloquium, General Theme, Organizations and the Examined Life: Reason, Reflexivity and Responsibility, July 2–4, 2015 Athens, Greece

Publisher: SAGE Publications

Publication series

Name: Organization Studies

ISSN (Print): 0170-8406

ISSN (Electronic): 1741-3044

ASJC Scopus subject areas: Social Sciences(all), Business, Management and Accounting(all)

Keywords: network strategy, network formation, network failure, whole network, market entry

Bibliographical note

xoa Enablers and barriers of inter-organizational networks formation 14.7.2015 ei tarkistettu, siirretty kohdasta additional files

Research output: Chapter in Book/Report/Conference proceeding › Conference contribution › Professional

Framework for optimization and scheduling of a copper production plant

This work presents a nonlinear optimization and scheduling approach applied to a copper production plant. The solution maximizes smelting furnace production and provides valid converting schedules by simulating the evolution of the process over the optimization horizon. The production process is briefly described and the main models used to predict and calculate furnace and converter parameters are detailed. Though the solution is concentrated on the main elements, copper and iron, the optimization framework enables easy future augmentation with more complex models. A schedule optimization case is presented.

General information

Publication status: Published

MoE publication type: A3 Part of a book or another research book

Organisations: Department of Automation Science and Engineering, Research area: Dynamic Systems, Research area: Measurement Technology and Process Control

Contributors: Suominen, O., Mörsky, V., Ritala, R., Vilkkö, M.

Number of pages: 6

Pages: 1243-1248

Publication date: 25 Jun 2016

Host publication information

Title of host publication: 26th European Symposium on Computer Aided Process Engineering, 2016

Volume: 38

Publisher: Elsevier Science B.V.

ISBN (Print): 9780444634283

Publication series

Name: Computer Aided Chemical Engineering

ISSN (Print): 1570-7946

ASJC Scopus subject areas: Chemical Engineering(all), Computer Science Applications

Keywords: copper smelting, modelling, nonlinear optimization, Scheduling

DOIs:

10.1016/B978-0-444-63428-3.50212-5

URLs:

<http://www.scopus.com/inward/record.url?scp=84994385954&partnerID=8YFLogxK> (Link to publication in Scopus)

Bibliographical note

JUFOID=70254

Source: Scopus

Source ID: 84994385954

Research output: Chapter in Book/Report/Conference proceeding › Chapter › Scientific › peer-review

Power bases in lead organization network governance form: a multi-level approach

General information

Publication status: Published

Organisations: Pori Department, Research group: Business Ecosystems, Networks and Innovations

Contributors: Suominen, A., Mäenpää, S.

Publication date: 7 Jul 2016

Peer-reviewed: Unknown

Event: Paper presented at European Group for Organizational Studies Colloquium, .

URLs:

http://www.egosnet.org/2016_naples/general_theme

Research output: Other conference contribution › Paper, poster or abstract › Scientific

Knowledge sharing in knowledge collectivity: case digitalization in industrial network

Knowledge sharing (KS) in the inter-organizational setting is not widely researched area. However, in temporary organizations such as projects, sharing expert knowledge is essential and may take place in knowledge collectivities, i.e., Collectivities of Practices (CIP). Due to CIPs' often temporary nature, time and socialization are lacking, thus efficient KS practices are required. The complexity of projects may also necessitate CIPs to cross organization boundaries, forming inter-organizational CIPs, IO-CIPs. Therefore, a better understanding of intra-organizational practices overlapping inter-organizational KS is called for. This paper contemplates on who should participate and how the process of boundary spanning KS should be put into practice in IO-CIP context. We present a case of a network-dependent focal company aiming to form a new digitalization strategy, which requires boundary-spanning knowledge management (KM) approaches. We concentrate both on intra- and inter-organizational steps needed for developing a digitalization roadmap eventually encompassing the whole network. Based on case observations we conclude that KS in industrial IO-CIP context involves multiple internal and external stakeholders, which also play facilitating roles in KS process. The results also reveal that it is possible to achieve KS in a larger group with a stepwise, well-facilitated and goal-oriented approach that involves experts into practices gradually. Additionally, complex phenomena in industrial networks, such as digitalization, requires other processes of KM besides KS: knowledge transfer for explicit knowledge and knowledge creation at the network level, too. Thus, in IO-CIP setting, KM processes of the company and network should be approached holistically, aiming at an overall view. The results shed light on KS in inter-organizational setting, particularly the overlap between intra-organizational practices and inter-organizational KS within knowledge collectivities. We contribute to boundary spanning inter-organizational KS by adding a description of the KS practices in CIPs, which is based on the theory of social constructivism of knowledge, and expand the viewpoint of the CIP-concept also towards inter-organizational setting.

General information

Publication status: Published

MoE publication type: A4 Article in a conference publication

Organisations: Research group: Business Ecosystems, Networks and Innovations, Industrial and Information Management

Contributors: Suominen, A. H., Mäenpää, S.

Number of pages: 8

Pages: 956-963

Publication date: 7 Sep 2017

Host publication information

Title of host publication: Proceedings of the 18th European Conference on Knowledge Management ECKM 2017 : 7-8 September 2017, Barcelona, Spain

Publisher: Academic Conferences and Publishing International

Editors: Marimon, F., Mas-Machuca, M., Berbegal-Mirabent, J., Bastida, R.

ISBN (Print): 978-1-911218-48-7

ISBN (Electronic): 978-1-911218-49-4

ASJC Scopus subject areas: Business, Management and Accounting(all)

Research output: Chapter in Book/Report/Conference proceeding › Conference contribution › Scientific › peer-review

Revisiting technological depths and breadths effects on firm performance: the case of pharmaceutical industry

General information

Publication status: Published

MoE publication type: B3 Non-refereed article in conference proceedings

Organisations: Information and Knowledge Management, Research group: Business Ecosystems, Networks and Innovations, VTT Tech Res Ctr Finland, VTT Technical Research Center Finland, VTT Technical Research Centre of Finland, Innovation and Knowledge Economy, VTT Technical Research Centre of Finland

Contributors: Suominen, A., Hajikhani, A., Seppänen, M.

Publication date: Jun 2019

Host publication information

Title of host publication: Proceedings of International Society for Professional Innovation Management (ISPIM) : 16-19 June, 2019, Florence, Italy

Publisher: International Society for Professional Innovation Management ISPIM

ISBN (Print): 978-952-335-351-0

URLs:

<https://search.proquest.com/docview/2297093349/fulltext/A0A6F0AAD87946F6PQ/1?accountid=14242>

Research output: Chapter in Book/Report/Conference proceeding › Conference contribution › Scientific

Task-setting strategies for hackathon goal achievement in industrial intra-organizational innovation

This paper addresses the hackathon as an innovation contest method in the IT industry, beyond the coding context. Specifically, it focuses on hackathon task-setting strategies, i.e. drawing boundaries to specify the problem to be solved. Although task setting plays an integral part in hackathon goal achievement, i.e. whether the hackathon is perceived as successful or not, task setting has not yet been the focus of hackathon research. Therefore, this paper presents a case study of an IT company with four subsidiaries operating in four countries in the Baltic region, carrying out 17 intra- or intra-inter-organizational hackathons in six iterations. As a result, the paper reveals hackathon task-setting strategies in terms of the employee maturity level regarding the corporate context of the subsidiaries. Presenting conclusions for both academics and industry, the paper contributes to the literature on hackathon task-setting strategies particularly in organizations in the IT sector, with varying maturity levels.

General information

Publication status: Published

MoE publication type: A4 Article in a conference publication

Organisations: Information and Knowledge Management, Research group: Business Ecosystems, Networks and Innovations, curlabs ab, Häme University of Applied Sciences

Contributors: Suominen, A., Jonsson, V., Bäckman, J., Halvari, S.

Number of pages: 14

Publication date: 19 Jun 2019

Host publication information

Title of host publication: The ISPIM Innovation Conference – Celebrating Innovation: 500 Years Since daVinci : 16-19 June 2019, Florence, Italy

Volume: 93

Place of publication: Florence, Italy

Publisher: International Society for Professional Innovation Management ISPIM

Editor: Bitran, I.

ISBN (Print): 978-952-335-351-0

Research output: Chapter in Book/Report/Conference proceeding › Conference contribution › Scientific › peer-review

Towards Capturing Interaction in the Interactive Use of Controls - The Role of Reflection

General information

Publication status: Published

MoE publication type: A4 Article in a conference publication

Organisations: Department of Industrial Management, Research group: Cost Management Center

Contributors: Suomala, P., Hilden, S.

Publication date: 2015

Host publication information

Title of host publication: 8th conference on performance measurement and management control, Nice, France, September 30 October 2, 2015

Publication series

Name: Conference on performance measurement and management control

Publisher: European Institute for Advanced Studies in Management

ISSN (Print): 2295-1660

URLs:

http://www.eiasm.org/frontoffice/event_announcement.asp?event_id=1035

Research output: Chapter in Book/Report/Conference proceeding › Conference contribution › Scientific › peer-review

Effect of air gap on the adhesion of PET layer on cardboard substrate in extrusion coating

General information

Publication status: Published

MoE publication type: A4 Article in a conference publication

Organisations: Materials Science

Contributors: Suokas, E.

Number of pages: 16

Pages: 529-544

Publication date: 1 Jan 2017

Host publication information

Title of host publication: 16th TAPPI European PLACE Conference 2017

Publisher: TAPPI Press

ISBN (Electronic): 9781510850880

ASJC Scopus subject areas: Media Technology, Chemical Engineering(all), Chemistry(all), Mechanical Engineering, Materials Science(all)

Source: Scopus

Source ID: 85044480842

Research output: Chapter in Book/Report/Conference proceeding › Conference contribution › Scientific › peer-review

Process time importance in the product properties evolvement during extrusion coating of different LDPE grades

Process time in air gap region is one of the most important variables in the coating property development, when the molten polymer is moving from the die exit into the nip region in extrusion coating. Coating property evolvement of different LDPE grades are presented in the paper. The importance of the throughput rate and line speed to the process times is discussed by considering the effect of molecular structure of different polyolefins. The draw down ratio based on the grammage measurements is proposed to use in the practical situations.

General information

Publication status: Published

MoE publication type: A4 Article in a conference publication

Organisations: Materials Science, Research group: Paper Converting and Packaging

Contributors: Suokas, E., Kuusipalo, J.

Number of pages: 9

Pages: 151-159

Publication date: 1 Jan 2018

Host publication information

Title of host publication: 15th TAPPI Advanced Coating Fundamentals Symposium 2018 : Charlotte; United States; 14 April 2018 through 15 April 2018

Publisher: TAPPI Press

ISBN (Electronic): 9781510871885

ASJC Scopus subject areas: Media Technology, Materials Chemistry, Surfaces, Coatings and Films

URLs:

<http://www.scopus.com/inward/record.url?scp=85059262851&partnerID=8YFLogxK> (Link to publication in Scopus)

Source: Scopus

Source ID: 85059262851

Research output: Chapter in Book/Report/Conference proceeding › Conference contribution › Scientific › peer-review

An example of scenario-based evaluation of military capability areas An impact assessment of alternative systems on operations

The concept of military capabilities is often used in strategic planning of defense. This study describes an example of scenario-based evaluation of military capability areas using alternative systems. The study concentrates on three capability areas: protection, awareness and engagement. Evaluations of new systems in realistic but future-oriented scenarios may reveal new possibilities to utilize collaboration of different systems or to replace existing systems with new ones. The study indicates how the combination of UAVs and satellites is the most prominent system compared to UAV or satellite systems to enhance protection, engagement and awareness capability, especially in the 10-year span.

Technology development may reveal unexpected synergies in the utilization of the combination of these two systems. Further work will focus on the application of the methodology in other areas and on the collection of data to analyze the effect of the technology development to the capability areas.

General information

Publication status: Published

MoE publication type: A4 Article in a conference publication

Organisations: Research group: System-on-Chip for GNSS, Wireless Communications and Cyber-Physical Embedded Computing, Department of Electronics and Communications Engineering, Wireless Communications and Positioning (WICO), Information Technology Division, Finnish Defence Research Agency

Contributors: Suojanen, M., Kuikka, V., Nikkarila, J. P., Nurmi, J.

Number of pages: 7

Pages: 601-607

Publication date: 2 Jun 2015

Host publication information

Title of host publication: 9th Annual IEEE International Systems Conference, SysCon 2015 - Proceedings

Publisher: The Institute of Electrical and Electronics Engineers, Inc.

ISBN (Print): 9781479959273

ASJC Scopus subject areas: Computer Networks and Communications, Control and Systems Engineering

Keywords: impact assessment, military capability, scenario, systems, technology forecasting

DOIs:

10.1109/SYSCON.2015.7116817

Source: Scopus

Source ID: 84941308805

Research output: Chapter in Book/Report/Conference proceeding > Conference contribution > Scientific > peer-review

User experience in technology investment decisions of industrial firms

General information

Publication status: Published

MoE publication type: A4 Article in a conference publication

Organisations: Department of Industrial Management, Research group: Center for Innovation and Technology Research, Pori Department, Research group: Business Ecosystems, Networks and Innovations

Contributors: Sundberg, H., Seppänen, M.

Publication date: 10 Jun 2015

Host publication information

Title of host publication: 22nd Innovation & Product Development Management Conference, IPDMC

Place of publication: Copenhagen

Publisher: EIASM

URLs:

http://www.eiasm.org/frontoffice/event_announcement.asp?event_id=1079

Bibliographical note

ORG=pla,0.5

ORG=tta,0.5

Research output: Chapter in Book/Report/Conference proceeding > Conference contribution > Scientific > peer-review

Recurrence network analysis of wide band oscillations of local field potentials from the primary motor cortex reveals rich dynamics.

Aggregate signals that reflect activities of a large number of neurons in the cerebral cortex, local field potentials (LFPs) have been observed to mediate gross functional activities of a relatively small volume of the brain tissues. There are several bands of the oscillations frequencies in LFPs that have been observed across multiple brain areas. The signature oscillation band of the LFPs in the primary motor cortex (MI) is over β range and it has been consistently observed both in human and non-human primates around the time of visual cues and movement onsets. However, its dynamical behavior has not been well characterized. Furthermore, dynamics of β oscillations has been documented based on the phase locking of β oscillations, but not in terms of the inherent dynamics of the oscillations themselves. Here, we used the complexity measure derived from cluster coefficients of a recurrence network and analyzed a pair of wide-band signals, one including β band of the LFPs and the other ranging the low γ band in MI recorded from a non-human primate. We show rather unique temporal profiles of the evoked responses using complexity of the dynamical behavior in both bands of the oscillation, either of which is not simply resembling either the power of the oscillation or the phase locking of β oscillations. Therefore, the current method can reveal a new type of dynamics of the underlying network complexity during the task simply based on event evoked potentials of wide-band oscillatory signals.

General information

Publication status: Published

MoE publication type: A4 Article in a conference publication

Organisations: Department of Electronics and Communications Engineering, Research group: Computational Biophysics and Imaging Group, BioMediTech, Integrated Technologies for Tissue Engineering Research (ITTE), Department of Organismal Biology and Anatomy, University of Chicago

Contributors: Subramaniam, N. P., Hyttinen, J., Hatsopoulos, N. G., Takahashi, K.

Number of pages: 4

Pages: 960-963

Publication date: 1 Jul 2015

Host publication information

Title of host publication: International IEEE/EMBS Conference on Neural Engineering, NER

Publisher: IEEE COMPUTER SOCIETY PRESS

ISBN (Print): 9781467363891

ASJC Scopus subject areas: Artificial Intelligence, Mechanical Engineering

Keywords: event evoked potentials, functional connectivity, Local field potentials, motor cortex, recurrence network, temporal dynamics

DOIs:

10.1109/NER.2015.7146785

Source: Scopus

Source ID: 84940371617

Research output: Chapter in Book/Report/Conference proceeding > Conference contribution > Scientific > peer-review

Effects of subsampling on characteristics of RNA-seq data from triple-negative breast cancer patients

Background: Data from RNA-seq experiments provide a wealth of information about the transcriptome of an organism. However, the analysis of such data is very demanding. In this study, we aimed to establish robust analysis procedures that can be used in clinical practice. Methods: We studied RNA-seq data from triple-negative breast cancer patients. Specifically, we investigated the subsampling of RNA-seq data. Results: The main results of our investigations are as follows: (1) the subsampling of RNA-seq data gave biologically realistic simulations of sequencing experiments with smaller sequencing depth but not direct scaling of count matrices; (2) the saturation of results required an average sequencing depth larger than 32 million reads and an individual sequencing depth larger than 46 million reads; and (3) for an abrogated feature selection, higher moments of the distribution of all expressed genes had a higher sensitivity for signal detection than the corresponding mean values. Conclusions: Our results reveal important characteristics of RNA-seq data that must be understood before one can apply such an approach to translational medicine.

General information

Publication status: Published

MoE publication type: A1 Journal article-refereed

Organisations: Department of Signal Processing, Queen's University, Belfast, Northern Ireland, University of Arkansas for Medical Sciences

Contributors: Stupnikov, A., Glazko, G. V., Emmert-Streib, F.

Publication date: 8 Sep 2015

Peer-reviewed: Yes

Publication information

Journal: Chinese Journal of Cancer

Volume: 34

Issue number: 10

ISSN (Print): 1944-446X

Ratings:

Scopus rating (2015): CiteScore 4.8 SJR 1.081

Original language: English

ASJC Scopus subject areas: Oncology

Keywords: Computational genomics, High-dimensional biology, RNA-seq data, Statistical robustness, Triple-negative breast cancer

DOIs:

10.1186/s40880-015-0040-8

Source: Scopus

Source ID: 84944199836

Research output: Contribution to journal > Article > Scientific > peer-review

Open knowledge-driven manufacturing & logistics - The eScop approach

General information

Publication status: Published

MoE publication type: C2 Edited books

Organisations: Department of Automation Science and Engineering, Research group: Factory automation systems technology

Contributors: Strzelczak, S. (ed.), Balda, P. (ed.), Garetti, M. (ed.), Lobov, A. (ed.)

Number of pages: 404

Publication date: 2015

Publication information

Place of publication: Warsaw, Poland

Publisher: Warsaw University of Technology Publishing House

ISBN (Print): 978-83-7814-440-3

Original language: English

Research output: Book/Report > Anthology > Scientific > peer-review

Dynamic laser speckle metrology with binarization of speckle patterns

Dynamic laser speckle analysis is non-destructive detection of physical or biological activity through statistical processing of speckle patterns on the surface of diffusely reflecting objects. This method is sensitive to microscopic changes of the surface over time and needs simple optical means. Advances in computers and 2D optical sensors forced development of pointwise algorithms. They rely on acquisition of a temporal sequence of correlated speckle images and generate activity data as a 2D spatial contour map of the estimate of a given statistical parameter. The most widely used pointwise estimates are the intensity-based estimates which compose each map entry from a time sequence of intensity values taken at one and the same pixel in the acquired speckle images. Accuracy of the pointwise approach is strongly affected by the signal-dependent nature of the speckle data when the spread of intensity fluctuations depends on the intensity itself. The latter leads to erroneous activity determination at non-uniform distribution of intensity in the laser beam for the non-normalized estimates. Normalization of the estimates, introduces errors. We propose to apply binarization to the acquired speckle images by comparing the intensity values in the temporal sequence for a given spatial point to the mean intensity value estimated for this point and to evaluate a polar correlation function. Efficiency of this new processing algorithm is checked both by simulation and experiment.

General information

Publication status: Published

MoE publication type: A4 Article in a conference publication

Organisations: Signal Processing, Research group: 3D MEDIA, Bulgarian Academy of Sciences

Contributors: Stoykova, E., Nazarova, D., Berberova, N., Gotchev, A., Ivanov, B., Mateev, G.

Publication date: 2017

Host publication information

Title of host publication: 19th International Conference and School on Quantum Electronics: Laser Physics and Applications

Publisher: SPIE

Article number: 102260R

ISBN (Electronic): 9781510609532

Publication series

Name: Proceedings of SPIE

Volume: 10226

ISSN (Print): 0277-786X

ASJC Scopus subject areas: Electronic, Optical and Magnetic Materials, Condensed Matter Physics, Computer Science Applications, Applied Mathematics, Electrical and Electronic Engineering

Keywords: Binary patterns, Dynamic speckle, Intensity-based algorithms, Optical metrology, Pointwise processing

DOIs:

10.1117/12.2262330

Bibliographical note

JUFOID=71479

Source: Scopus

Source ID: 85017345812

Research output: Chapter in Book/Report/Conference proceeding > Conference contribution > Scientific > peer-review

Customer lifetime value in manufacturing services

General information

Publication status: Published

MoE publication type: A4 Article in a conference publication
Organisations: Department of Industrial Management, Research group: Cost Management Center
Contributors: Stormi, K., Laine, T., Suomala, P.
Publication date: 15 Jun 2016

Host publication information

Title of host publication: Proceedings of the Manufacturing Accounting Research Conference 2016 : Lisbon, Portugal, June 15-17, 2016

Place of publication: Belgium

Publisher: European Institute for Advanced Studies in Management EIASM

URLs:

http://www.eiasm.org/frontoffice/event_announcement.asp?event_id=1155#4336

Research output: Chapter in Book/Report/Conference proceeding > Conference contribution > Scientific > peer-review

Agile methods in performance management system development process

General information

Publication status: Published

MoE publication type: A4 Article in a conference publication

Organisations: Department of Industrial Management, Research group: Cost Management Center, Managing digital industrial transformation (mDIT)

Contributors: Stormi, K., Laine, T., Korhonen, T.

Publication date: 2016

Host publication information

Title of host publication: 10th Conference On New Directions In Management Accounting, Brussels, Belgium, December 14-16, 2016

URLs:

http://www.eiasm.org/frontoffice/event_announcement.asp?event_id=1162#4483

Research output: Chapter in Book/Report/Conference proceeding > Conference contribution > Scientific > peer-review

Acquisition of E5 Galileo signals in Matlab

General information

Publication status: Published

MoE publication type: A1 Journal article-refereed

Organisations: Research group: Wireless Communications and Positioning, Department of Electronics and Communications Engineering, Wireless Communications and Positioning (WICO)

Contributors: Stepanova, E., Kudryavtsev, I., Lohan, E.

Number of pages: 7

Pages: 36-42

Publication date: 2015

Peer-reviewed: Yes

Publication information

Journal: Procedia Engineering

Volume: 104

ISSN (Print): 1877-7058

Ratings:

Scopus rating (2015): CiteScore 0.9 SJR 0.239 SNIP 0.566

Original language: English

DOIs:

[10.1016/j.proeng.2015.04.094](https://doi.org/10.1016/j.proeng.2015.04.094)

Research output: Contribution to journal > Article > Scientific > peer-review

Moving manufacturing back: a content-based literature review

The purpose of this research is to systematically review and analyze the state-of-the-art of research on the backshoring, reshoring, and insourcing of manufacturing, published in peer-reviewed international scientific journals. We identify 21 articles from 2005 to 2015. The content analysis identifies 23 factors that influence the decision to move manufacturing back, and which we categorize in 8 clusters. We also analyze the content with respect to research methodology, industry type, and firm size. Furthermore, we provide suggestions for further research on the phenomenon of moving manufacturing back in a research agenda.

General information

Publication status: Published
MoE publication type: D3 Professional conference proceedings
Organisations: Department of Industrial Management, University of Southern Denmark, Lund University
Contributors: Stentoft, J., Olhager, J., Heikkilä, J., Thoms, L.
Publication date: Jun 2015

Host publication information

Title of host publication: 22nd EurOMA Conference : Operations management for sustainable competitiveness
Place of publication: Neuchatel, Switzerland
URLs:
<http://www.euroma2015.org/>
Research output: Chapter in Book/Report/Conference proceeding > Conference contribution > Professional

Quantitative Estimation of Long-living Fluorescent Molecules from Temporal Fluorescence Intensity Data Corrupted by Nonzero-mean Noise

General information

Publication status: Published
MoE publication type: A4 Article in a conference publication
Organisations: Department of Signal Processing, Research group: Laboratory of Biosystem Dynamics-LBD, Research area: Information Technology for Biology and Health, Research area: Intelligence in Machines, Research group: MMDM, Research area: Signal and Information Processing
Contributors: Startceva, S., Chandraseelan, J. G., Visa, A., Ribeiro, A. S.
Pages: 17-24
Publication date: 2016

Host publication information

Title of host publication: BIOSIGNALS 2016 - 9th International Conference on Bio-Inspired Systems and Signal Processing, Proceedings; Part of 9th International Joint Conference on Biomedical Engineering Systems and Technologies, BIOSTEC 2016
Publisher: SCITEPRESS
ISBN (Print): 9789897581700
Research output: Chapter in Book/Report/Conference proceeding > Conference contribution > Scientific > peer-review

Remarks on characterization of bent functions in terms of gibbs dyadic derivatives

General information

Publication status: Published
MoE publication type: A4 Article in a conference publication
Organisations: Department of Signal Processing, Research group: Algebraic and Algorithmic Methods in Signal Processing AAMSP, Signal Processing Research Community (SPRC), University of Niš, Technical University of Dortmund
Contributors: Stanković, R. S., Astola, J. T., Moraga, C., Stanković, M., Gajić, D.
Number of pages: 8
Pages: 632-639
Publication date: 2015

Host publication information

Title of host publication: Computer Aided Systems Theory – EUROCAST 2015 : 15th International Conference, Las Palmas de Gran Canaria, Spain, February 8-13, 2015, Revised Selected Papers
Publisher: Springer
ISBN (Print): 978-3-319-27339-6
ISBN (Electronic): 978-3-319-27340-2

Publication series

Name: Lecture Notes in Computer Science
Volume: 9520
ISSN (Print): 0302-9743
ISSN (Electronic): 1611-3349
ASJC Scopus subject areas: Computer Science(all), Theoretical Computer Science
Keywords: Bent functions, Dyadic derivatives, GPU, Walsh functions
DOIs:
10.1007/978-3-319-27340-2_78
Source: Scopus
Source ID: 84952325470

Gibbs Dyadic Differentiation on Groups - Evolution of the Concept

Differential operators are usually used to determine the rate of change and the direction of change of a signal modeled by a function in some appropriately selected function space. Gibbs derivatives are introduced as operators permitting differentiation of piecewise constant functions. Being initially intended for applications in Walsh dyadic analysis, they are defined as operators having Walsh functions as eigenfunctions. This feature was used in different generalizations and extensions of the concept firstly defined for functions on finite dyadic groups. In this paper, we provide a brief overview of the evolution of this concept into a particular class of differential operators for functions on various groups.

General information

Publication status: Published

MoE publication type: A4 Article in a conference publication

Organisations: Signal Processing, Department of Computer Science, Faculty of Electronic Engineering, Technical University of Dortmund

Contributors: Stankovic, R. S., Astola, J., Moraga, C.

Number of pages: 9

Pages: 229-237

Publication date: 2018

Host publication information

Title of host publication: Computer Aided Systems Theory – EUROCAST 2017 - 16th International Conference, Revised Selected Papers

Publisher: Springer Verlag

ISBN (Print): 9783319747262

Publication series

Name: Lecture Notes in Computer Science

Volume: 10672

ISSN (Print): 0302-9743

ISSN (Electronic): 1611-3349

ASJC Scopus subject areas: Theoretical Computer Science, Computer Science(all)

DOIs:

10.1007/978-3-319-74727-9_27

Bibliographical note

EXT="Stankovic, Radomir S."

jufoid=79748

Source: Scopus

Source ID: 85041720547

Research output: Chapter in Book/Report/Conference proceeding › Conference contribution › Scientific › peer-review

Towards the Structure of a Class of Permutation Matrices Associated With Bent Functions

Bent functions, that are useful in cryptographic applications, can be characterized in different ways. A recently formulated characterization is in terms of the Gibbs dyadic derivative. This characterization can be interpreted through permutation matrices associated with bent functions by this differential operator. We point out that these permutation matrices express some characteristic block structure and discuss a possible determination of it as a set of rules that should be satisfied by the corresponding submatrices. We believe that a further study of this structure can bring interesting results providing a deeper insight into features of bent functions.

General information

Publication status: Published

MoE publication type: A4 Article in a conference publication

Organisations: Computing Sciences, Mathematical Institute of SASA, Faculty of Electronic Engineering, Technical University of Dortmund

Contributors: Stankovic, R. S., Stankovic, M., Astola, J., Moraga, C.

Pages: 83-105

Publication date: 2018

Host publication information

Title of host publication: Proceedings of the 13 International Workshop on Boolean Problems

Publisher: Springer

ISBN (Print): 978-3-030-20322-1

ISBN (Electronic): 978-3-030-20323-8

DOIs:

10.1007/978-3-030-20323-8_4

Bibliographical note

EXT="Stankovic, Radomir S."

Research output: Chapter in Book/Report/Conference proceeding › Conference contribution › Scientific › peer-review

Building new computational models to support health behavior change and maintenance: new opportunities in behavioral research

Adverse and suboptimal health behaviors and habits are responsible for approximately 40 % of preventable deaths, in addition to their unfavorable effects on quality of life and economics. Our current understanding of human behavior is largely based on static “snapshots” of human behavior, rather than ongoing, dynamic feedback loops of behavior in response to ever-changing biological, social, personal, and environmental states. This paper first discusses how new technologies (i.e., mobile sensors, smartphones, ubiquitous computing, and cloud-enabled processing/computing) and emerging systems modeling techniques enable the development of new, dynamic, and empirical models of human behavior that could facilitate just-in-time adaptive, scalable interventions. The paper then describes concrete steps to the creation of robust dynamic mathematical models of behavior including: (1) establishing “gold standard” measures, (2) the creation of a behavioral ontology for shared language and understanding tools that both enable dynamic theorizing across disciplines, (3) the development of data sharing resources, and (4) facilitating improved sharing of mathematical models and tools to support rapid aggregation of the models. We conclude with the discussion of what might be incorporated into a “knowledge commons,” which could help to bring together these disparate activities into a unified system and structure for organizing knowledge about behavior.

General information

Publication status: Published

MoE publication type: A1 Journal article-refereed

Organisations: Department of Signal Processing, Research group: Personal Health Informatics-PHI, Research Community on Data-to-Decision (D2D), University of Southern California, Arizona State University, Northeastern University, National Institutes of Health, Bethesda, Northwestern University, Wharton School, University of Pennsylvania, Scientific Institute Hospital San Raffaele, Valencia Polytechnical University, Columbia University in the City of New York, VTT Technical Research Centre of Finland

Contributors: Spruijt-Metz, D., Hekler, E., Saranummi, N., Intille, S., Korhonen, I., Nilsen, W., Rivera, D. E., Spring, B., Michie, S., Asch, D. A., Sanna, A., Salcedo, V. T., Kukakfa, R., Pavel, M.

Number of pages: 12

Pages: 335-346

Publication date: 17 Sep 2015

Peer-reviewed: Yes

Publication information

Journal: Translational Behavioral Medicine

Volume: 5

Issue number: 3

ISSN (Print): 1869-6716

Ratings:

Scopus rating (2015): CiteScore 3.1 SJR 0.754 SNIP 0.838

Original language: English

ASJC Scopus subject areas: Behavioral Neuroscience, Applied Psychology

Keywords: Computational models of behavior, Connected health, Health-related behavior, Just-in-time adaptive interventions, mHealth, Mobile health, Real-time interventions

DOIs:

10.1007/s13142-015-0324-1

Bibliographical note

EXT="Saranummi, Niilo"

Source: Scopus

Source ID: 84939204163

Research output: Contribution to journal › Article › Scientific › peer-review

Case depth prediction of nitrided components

General information

Publication status: Published

MoE publication type: B3 Non-refereed article in conference proceedings

Organisations: Materials Science

Contributors: Sorsa, A., Santa-aho, S., Aylott, C., Shaw, B., Vippola, M., Leiviskä, K.

Number of pages: 8
Pages: 65-72
Publication date: 24 Sep 2017

Host publication information

Title of host publication: 12th International Conference on Barkhausen Noise and Micromagnetic Testing
Publisher: ICBM
ISBN (Print): 978-952-68852-0-9
Keywords: Barkhausen noise
Research output: Chapter in Book/Report/Conference proceeding › Conference contribution › Scientific

Moduulirakentaminen: Teräskennoteknologian mahdollisuudet

General information

Publication status: Published
MoE publication type: D4 Published development or research report or study
Organisations: Department of Civil Engineering, Research group: Capacity Development of Water and Environmental Services CADWES
Contributors: Sorri, J. (ed.)
Number of pages: 114
Publication date: 2013

Publication information

Publisher: Tampereen teknillinen yliopisto. Rakennustekniikan laitos
ISBN (Print): 978-952-15-3035-7
ISBN (Electronic): 978-952-15-3036-4
Original language: Finnish

Publication series

Name: Tampereen teknillinen yliopisto. Rakennustekniikan laitos. Rakennustuotanto ja -talous. Raportti
Publisher: Tampereen teknillinen yliopisto
Volume: 14
ISSN (Print): 1797-8904
Electronic versions:
moduulirakentaminen_teraskennoteknologian_mahdollisuudet
URLs:
<http://URN.fi/URN:ISBN:978-952-15-3036-4>

Bibliographical note

Versio ok 16.12.2015
Research output: Book/Report › Commissioned report › Professional

Building Codes and Demand Response of Energy Use

Buildings are an essential part of the wider energy system. A significant share of electricity consumption occurs in buildings. Traditionally buildings have been places where electricity is consumed. Now they have a growing role also as a location where renewable energy production, such as solar power, occurs.

Demand response means the voluntary actions that are taken on the customer side as a response to something on the demand side. In practice, demand response can involve, for example, reducing the energy consumption during the peak times of the larger energy system or shifting the timing of the building's energy consumption by synchronizing it with local renewable energy production's profile inside the building. The building codes of Finland direct the designers' energy-related solutions both in new construction and licenced renovations.

In this conceptual paper the literature related to demand response and regulation is reviewed, and it is discussed what kind of a role the building codes could have in advancing the buildings' preconditions for demand response. Demand response is currently brought out in EU directives in the regulation with relation to network operators. However, preparedness for demand response could also be advanced by giving more attention to the timing of power use in the building codes.

General information

Publication status: Published
MoE publication type: A4 Article in a conference publication
Organisations: Department of Civil Engineering, Research group: Capacity Development of Water and Environmental Services CADWES, Research group: Real estate development, Department of Electrical Engineering, Research area: Power engineering, Lappeenranta University of Technology, Tampere University of Applied Science

Contributors: Sorri, J., Heljo, J., Järventausta, P., Honkapuro, S., Harsia, P.
Number of pages: 14
Pages: 8-21
Publication date: 2016

Host publication information

Title of host publication: Proceedings of the CIB World Building Congress 2016: Volume IV : Understanding Impacts and Functioning of Different Solutions

Volume: 4

Publisher: Tampere University of Technology. Department of Civil Engineering

Editors: Nenonen, S., Junnonen, J.

ISBN (Electronic): 978-952-15-3744-8

Keywords: building codes, demand response, energy law, energy use, power

Electronic versions:

Building Codes and Demand Response of Energy Use (Paper)

URLs:

<http://urn.fi/URN:NBN:fi:tty-201606174283>

URLs:

https://tutcris.tut.fi/portal/files/6186967/WBC16_Vol_4.pdf (Proceedings of the CIB World Building Congress 2016: Volume IV - Understanding Impacts and Functioning of Different Solutions)

<http://www.wbc16.com/wbc16/welcome.html>

Research output: Chapter in Book/Report/Conference proceeding > Conference contribution > Scientific > peer-review

Energiätehokkuusinformaatio palvelurakennuksissa

General information

Publication status: Published

MoE publication type: B3 Non-refereed article in conference proceedings

Organisations: Civil Engineering, Research group: Capacity Development of Water and Environmental Services CADWES

Contributors: Sorri, J., Heljo, J., Uotila, U., Ruusala, A.

Number of pages: 6

Pages: 325-330

Publication date: 2017

Host publication information

Title of host publication: Rakennusfysiikka 2017: Uusimmat tutkimustulokset ja hyvät käytännön ratkaisut : 24.-26.10.2017, Tampere

Volume: 1

Place of publication: Tampere

Publisher: Tampereen teknillinen yliopisto, Rakennustekniikka, Rakennusfysiikka

ISBN (Print): 978-952-15-4022-6

Publication series

Name: Tampereen teknillinen yliopisto. Rakennustekniikka. Rakennusfysiikka.

URLs:

http://www.tut.fi/cs/groups/public_news/@1102/@web/@p/documents/liit/x229242.pdf

Research output: Chapter in Book/Report/Conference proceeding > Conference contribution > Scientific

Image-based characterization of the pulp flows

Material flow characterization is important in the process industries and its further automation. In this study, close-to-laminar pulp suspension flows are analyzed based on double-exposure images captured in laboratory conditions. The correlation-based methods including autocorrelation and the particle image pattern technique were studied. During the experiments, synthetic and real test data with manual ground truth were used. The particle image pattern matching method showed better performance achieving the accuracy of 90.0% for the real data set with linear motion of the suspension and 79.2% for the data set with flow distortions.

General information

Publication status: Published

MoE publication type: A1 Journal article-refereed

Organisations: Department of Signal Processing, Lappeenranta University of Technology, Machine Vision and Pattern Recognition Laboratory, Laboratory of Biosystem Dynamics, Univ of Oulu, Monash University Malaysia

Contributors: Sorokin, M., Strokina, N., Eerola, T., Lensu, L., Karttunen, K., Kalviainen, H.

Number of pages: 8

Pages: 630-637

Publication date: 1 Jul 2016

Peer-reviewed: Yes

Publication information

Journal: Pattern Recognition and Image Analysis

Volume: 26

Issue number: 3

ISSN (Print): 1054-6618

Ratings:

Scopus rating (2016): CiteScore 0.7 SJR 0.255 SNIP 0.872

Original language: English

ASJC Scopus subject areas: Computer Graphics and Computer-Aided Design, Computer Vision and Pattern Recognition

Keywords: double-exposure, particle image velocimetry, pulp flow estimation

DOIs:

10.1134/S1054661816030196

Source: Scopus

Source ID: 84984924424

Research output: Contribution to journal › Article › Scientific › peer-review

Interdisciplinary water research network building within Nordic and Baltic countries.

General information

Publication status: Published

MoE publication type: A2 Review article in a scientific journal

Organisations: Department of Chemistry and Bioengineering, Research group: Industrial Bioengineering and Applied Organic Chemistry, Department of Civil Engineering

Contributors: Sörensen, J., Kurki, V., Sidaraviciute, R., Ngari Kibocha, S., Retike, I., Ikobe, G., Tichonovas, M., Elijosiute, E., Rajala, R.

Number of pages: 5

Pages: 79-83

Publication date: 2015

Peer-reviewed: Yes

Publication information

Journal: Vatten

Issue number: 71

ISSN (Print): 0042-2886

Original language: English

URLs:

http://www.tidskriftenvatten.se/mag/tidskriftenvatten.se/dircode/docs/48_article_4763.pdf

Research output: Contribution to journal › Review Article › Scientific › peer-review

Mechanisms of disruptive technological change: Case studies in transformation of traditional industries

The purpose of the manuscript is to use grounded theory building method to investigate three industry contexts that show disruptive innovations based in digital technologies that change the dynamics in industry competition. Specifically, we investigate the mechanisms of disruption in these cases and seek common features of change. Our analysis builds on mechanisms as detecting actors, their properties, and start- and end-states of the system under change and activities of the actors that bring about the change. Our analysis shows common themes that are exhibited throughout all the cases. One of these mechanisms is de-coupling of traditional value chain activities. These de-coupling mechanisms are driven by the formation of innovation ecosystems rather than traditional value chains. This is further accelerated by the emergence of platforms and digital technologies at large. We propose, based on our results, some fundamental mechanisms that are driving industry transformation due to digitalization. We also discuss managerial and theoretical implications of our results in detail.

General information

Publication status: Published

MoE publication type: A4 Article in a conference publication

Organisations: Industrial and Information Management, Research group: Center for Innovation and Technology Research

Contributors: Sommarberg, M., Mäkinen, S.

Number of pages: 10

Pages: 1-10

Publication date: 1 Dec 2017

Host publication information

Title of host publication: Proceedings in 2017 Portland International Conference in Management and Engineering (PICMET) : (PICMET) 9-13 July 2017
Publisher: IEEE
ISBN (Electronic): 978-1-890843-36-6
DOIs:

10.23919/PICMET.2017.8125297

Research output: Chapter in Book/Report/Conference proceeding › Conference contribution › Scientific › peer-review

Technopreneurial Characteristics Rising from the Ashes of Creative Destruction

This paper uses the grounded theory building method to investigate the differences and similarities in the evolutionary paths of three entrepreneurial ventures. Theory-based reasoning was used to select cases representing different technopreneurial business models, namely product, expert service, and integrated product-service business models. Our cases emerged from a disrupted global technology corporation and they represent the economic activity emerging from classical creative destruction. We investigate the evolutionary paths of these ventures from their start-up by employing the resource-based view (RBV) approach to determine the critical change points and watershed events that guide the path of the cases. With these analyses, we are able to differentiate the performance differentials and evolutionary trajectories of the cases. The cases suggest that while the strength of the original path is strong it is possible to change the course despite path dependencies. We outline the mechanisms that facilitated these transitions (e.g., finding a suitable equity fund as a catalyst to make the change). Hence, we find that entrepreneurial ventures are not as path dependent as previous studies suggest; rather, there is managerial discretion to change the evolutionary trajectories. Our study suggests that the capabilities acquired over a long period of time in a global technology corporation contribute to the ability to change the path. We discuss the theoretical and practical implications of the critical decision points during the evolutionary trajectories of ventures.

General information

Publication status: Published

MoE publication type: A4 Article in a conference publication

Organisations: Industrial and Information Management, Research group: Center for Innovation and Technology Research

Contributors: Sommarberg, M., Mäkinen, S.

Number of pages: 10

Pages: 1-10

Publication date: 1 Oct 2018

Host publication information

Title of host publication: Proceedings in 2018 Portland International Conference in Management and Engineering (PICMET) : (PICMET) 19-23 August 2018

Publisher: IEEE

ISBN (Electronic): 978-1-890843-37-3

DOIs:

10.23919/PICMET.2018.8481846

Bibliographical note

jufoid=9093

Research output: Chapter in Book/Report/Conference proceeding › Conference contribution › Scientific › peer-review

Digital image correlation study of the deformation and functioning of the human heart during open-heart surgery

Currently, ultrasound technology is routinely used for monitoring of the left side of the human heart during open-heart surgery. However, this method shows shortcomings in providing accurate information of the right ventricle and atrium. The aim of this paper is to demonstrate how Digital Image Correlation (DIC) can be used to monitor the functioning of the heart during open-heart surgery and potentially overcome some of the shortcomings of ultrasound methods. Being a contact-free method is a major asset from a practical implementation perspective of DIC. In this paper, we present the methodology of the experiment and some preliminary results of a study in which a DIC system was installed in an operating room and image sequences of the heart were taken at three stages of the surgery. We present a procedure for obtaining DIC measurements in this challenging setting, discuss how the data was extracted as well as how the measured values changed during the operation in the context of the surgical stages and interventions performed.

General information

Publication status: Published

MoE publication type: A4 Article in a conference publication

Organisations: Materials Science, Research group: Materials Characterization

Contributors: Soltani, A., Curtze, S., Lahti, J., Järvelä, K., Laurikka, J., Hokka, M., Kuokkala, V. T.

Number of pages: 9

Pages: 19-27

Publication date: 2018

Host publication information

Title of host publication: Mechanics of Biological Systems, Materials and other topics in Experimental and Applied Mechanics - Proceedings of the 2017 Annual Conference on Experimental and Applied Mechanics
Volume: 4
Publisher: Springer New York LLC
ISBN (Print): 9783319635514

Publication series

Name: Conference Proceedings of the Society for Experimental Mechanics
ISSN (Print): 2191-5644
ISSN (Electronic): 2191-5652
ASJC Scopus subject areas: Engineering(all), Computational Mechanics, Mechanical Engineering
Keywords: Biomaterial characterization, Deformation, DIC, Motion, Open heart surgery
DOIs:
10.1007/978-3-319-63552-1_4
Source: Scopus
Source ID: 85032509230
Research output: Chapter in Book/Report/Conference proceeding > Conference contribution > Scientific > peer-review

Comparative evaluation of radio propagation properties at 15 GHz and 60 GHz frequencies

Due to explosive growth in the mobile data demand, millimeter-wave (mmWave) spectrum is to become one of the key enablers for the next-generation 5G wireless. Accurate characterization of mmWave channels has crucial implications on 5G network planning — as compared to more conventional frequency bands — due to a higher impact that surrounding objects have on the radio propagation. In this work, we contribute mmWave channel measurements and compare our obtained results across several metrics of interests, mindful of previously standardized models. The proposed analysis is conducted for a typical mmWave system deployment operating at 15 and 60 GHz. The evaluation studies a difference between the obtained results for the two frequency bands considered, as well as verifies their predictability when utilizing modern modeling considerations.

General information

Publication status: Published
MoE publication type: A4 Article in a conference publication
Organisations: Electronics and Communications Engineering, Research group: Emerging Technologies for Nano-Bio-Info-Cogno
Contributors: Solomitckii, D., Semkin, V., Naderpour, R., Ometov, A., Andreev, S.
Number of pages: 5
Pages: 91-95
Publication date: 1 Nov 2017

Host publication information

Title of host publication: 2017 9th International Congress on Ultra Modern Telecommunications and Control Systems and Workshops (ICUMT)
Publisher: IEEE
ISBN (Electronic): 978-1-5386-3435-6
Keywords: 3GPP, Antenna measurements, Delays, Optical attenuators, Optical transmitters, Receiving antennas, channel sounding, mmWave systems, practical measurements, radio propagation, urban deployments
Electronic versions:
Comparative Evaluation of Radio Propagation Properties 2017
DOIs:
10.1109/ICUMT.2017.8255207
URLs:
<http://urn.fi/URN:NBN:fi:tuni-202002262369>

Bibliographical note

jufoid=72315
Source: Bibtex
Source ID: urn:e3e92af655321f382b94981bdab749a2
Research output: Chapter in Book/Report/Conference proceeding > Conference contribution > Scientific > peer-review

Research-industry collaboration: a review of the literature on evaluation methods and motivations

Relationships and collaborations between research and industry play an essential role in sustaining innovation. Therefore, different types of innovation models developed to refer to a set of interaction channels, mechanism and forms of linkage between academia and industry. The latter studies highlight enhancing and diminishing factors of collaboration management, practices on knowledge interactions and collaborative relationships on various levels depending on considered industrial sectors. This review establishes the state of current knowledge in the field and classifies key metrics

and indicators for evaluation of research-industry collaboration linkage.

General information

Publication status: Published

MoE publication type: A4 Article in a conference publication

Organisations: Industrial Engineering and Management, Research group: Center for Innovation and Technology Research , CERN, European Organization for Nuclear Research (CERN)

Contributors: Solodko, A., Mäkinen, S., Lasheras, N. C., Bedolla, J. S., Saari, U.

Number of pages: 7

Publication date: 29 Aug 2019

Host publication information

Title of host publication: PICMET 2019 Conference : August 25-29, 2019, Portland, Oregon, USA

Place of publication: Portland

Article number: 19R0108

ISBN (Electronic): 978-1-890843-40-3

DOIs:

10.23919/PICMET.2019.8893878

Research output: Chapter in Book/Report/Conference proceeding › Conference contribution › Scientific › peer-review

Drying-Mediated Self-Assembly of Graphene for Inkjet Printing of High-Rate Micro-supercapacitors

Scalable fabrication of high-rate micro-supercapacitors (MSCs) is highly desired for on-chip integration of energy storage components. By virtue of the special self-assembly behavior of 2D materials during drying thin films of their liquid dispersion, a new inkjet printing technique of passivated graphene micro-flakes is developed to directly print MSCs with 3D networked porous microstructure. The presence of macroscale through-thickness pores provides fast ion transport pathways and improves the rate capability of the devices even with solid-state electrolytes. During multiple-pass printing, the porous microstructure effectively absorbs the successively printed inks, allowing full printing of 3D structured MSCs comprising multiple vertically stacked cycles of current collectors, electrodes, and solid-state electrolytes. The all-solid-state heterogeneous 3D MSCs exhibit excellent vertical scalability and high areal energy density and power density, evidently outperforming the MSCs fabricated through general printing techniques.

General information

Publication status: Published

MoE publication type: A1 Journal article-refereed

Organisations: Electrical Engineering, Research group: Laboratory for Future Electronics, Research group: Wireless Communications and Positioning, KTH Royal Institute of Technology

Contributors: Sollami Delekta, S., Laurila, M., Mäntysalo, M., Li, J.

Number of pages: 14

Publication date: 27 Jan 2020

Peer-reviewed: Yes

Publication information

Journal: Nano-Micro Letters

Volume: 12

Article number: 40

ISSN (Print): 2311-6706

Original language: English

Electronic versions:

Drying-Mediated Self-Assembly of Graphene 2020

DOIs:

10.1007/s40820-020-0368-8

URLs:

<http://urn.fi/URN:NBN:fi:tuni-202008266668>

Research output: Contribution to journal › Article › Scientific › peer-review

Full-Field Temperature and Strain Measurement in Dynamic Tension Tests on SS 304

The thermomechanical response of 304-stainless steel tension specimens to a range of strain rates from $7 \times 10^{-3} \text{ s}^{-1}$ to 2600 s^{-1} was investigated. Quasi-static tests (7×10^{-3} to 0.8 s^{-1}) were completed on a hydraulic load frame, intermediate tests (200 s^{-1}) were performed with a modified pressure bar, and high strain rate tests (2600 s^{-1}) on a split Hopkinson pressure bar. Full-field infrared thermography and strain measurements were recorded during each test. Infrared measurements were taken using the Telops FAST-IR 1000 infrared camera at rates up to 30,000 frames per second. 2D-DIC was used to compute strain from simultaneously recorded visible images taken at rates up to 90,000 frames per second. Max temperatures of $290 \text{ }^\circ\text{C}$ were recorded in the necking region of a uniaxial specimen at a strain rate of 2600 s^{-1} . These measurements can be used to investigate the transition of isothermal deformation to adiabatic deformation and to determine the portion of plastic work converted to heat at each strain rate.

General information

Publication status: Published

MoE publication type: A4 Article in a conference publication

Organisations: Department of Materials Science, Research group: Materials Characterization, The Ohio State University, Columbus, OH, USA, Department of Mechanical Engineering

Contributors: Smith, J., Kuokkala, V., Seidt, J., Gilat, A.

Number of pages: 8

Pages: 37-44

Publication date: 2016

Host publication information

Title of host publication: Dynamic Behavior of Materials, Volume 1 : Proceedings of the 2016 Annual Conference on Experimental and Applied Mechanics

Publisher: Springer International Publishing

ISBN (Print): 978-3-319-41131-6

ISBN (Electronic): 978-3-319-41132-3

Publication series

Name: Conference proceedings of the Society for Experimental Mechanics

ISSN (Electronic): 2191-5644

DOIs:

10.1007/978-3-319-41132-3_6

Bibliographical note

JUF0ID=72540

Research output: Chapter in Book/Report/Conference proceeding > Conference contribution > Scientific > peer-review

Internal Heat Generation in Tension Tests of AISI 316 Using Full-Field Temperature and Strain Measurements

Full-field temperature and strain measurements were recorded during tension tests of AISI 316 on a hydraulic load frame at a strain rate of 1 s^{-1} . The temperature increase was measured on one side of the specimen using a high speed IR camera while the deformation was measured on the opposite side with a visible camera, each at a frame rate of 500 FPS. Uniform deformation of the specimen was observed up to strains of 0.25 until necking occurred and localization strains reached up to 0.75 at failure. The maximum temperature as measured by the IR camera was $260 \text{ }^\circ\text{C}$ before failure. The fraction of plastic work converted to heat (β) was calculated over the entire gage length of the specimen using the local measurements of stress, strain, and temperature and varied between 0.6 and 0.9 throughout the test.

General information

Publication status: Published

MoE publication type: A4 Article in a conference publication

Organisations: Materials Science, The Ohio State University, Columbus, OH, USA, Department of Mechanical Engineering

Contributors: Smith, J., Kuokkala, V., Seidt, J., Gilat, A.

Number of pages: 7

Pages: 97-103

Publication date: 2018

Host publication information

Title of host publication: Advancement of Optical Methods in Experimental Mechanics, Volume 3. Conference Proceedings of the Society for Experimental Mechanics Series

Volume: 3

Publisher: Springer New York LLC

ISBN (Print): 978-3-319-63027-4

ISBN (Electronic): 978-3-319-63028-1

Publication series

Name: Conference Proceedings of the Society for Experimental Mechanics

ISSN (Print): 2191-5644

DOIs:

10.1007/978-3-319-63028-1_16

Bibliographical note

JUF0ID=72540

Research output: Chapter in Book/Report/Conference proceeding > Conference contribution > Scientific > peer-review

Optimizing investment in ESD control

We examine strategies for optimizing investment in ESD protection and trade-offs that can arise. Standard ESD measures require low expertise but may result in unnecessary equipment spend. Tailored EPAs may require higher expertise and

greater training. ESD control measures and equipment used with inadequate understanding can fail to yield the potential benefits expected. Optimal ESD control results from understanding ESD threats and control, with effective implementation.

General information

Publication status: Published

MoE publication type: A4 Article in a conference publication

Organisations: Department of Electronics and Communications Engineering, Electrostat Solut Ltd, Cascade Metrol

Contributors: Smallwood, J., Tamminen, P., Viheriäkoski, T.

Number of pages: 6

Publication date: 2014

Host publication information

Title of host publication: 2014 Electrical Overstress/Electrostatic Discharge Symposium (EOS/ESD)

Publisher: IEEE COMPUTER SOC

Publication series

Name: Electrical Overstress Electrostatic Discharge Symposium

Publisher: IEEE COMPUTER SOC

ISSN (Print): 0739-5159

Source: WOS

Source ID: 000355792800025

Research output: Chapter in Book/Report/Conference proceeding › Conference contribution › Scientific › peer-review

Second-harmonic generation from thermally-evaporated indium selenide thin films

General information

Publication status: Published

MoE publication type: B3 Non-refereed article in conference proceedings

Organisations: Department of Physics, Research group: Nonlinear Optics, Research area: Optics

Contributors: Slablab, A., Divya, S., Koskinen, K., Czaplicki, R., Kailasnath, M., Radhakrishnan, P., Kauranen, M.

Pages: CE_12_4

Publication date: 21 Jun 2015

Host publication information

Title of host publication: The European Conference on Lasers and Electro-Optics 2015 : Munich Germany 21–25 June 2015

Publisher: Optical Society of America

ISBN (Electronic): 978-1-4673-7475-0

URLs:

http://www.osapublishing.org/abstract.cfm?URI=CLEO_Europe-2015-CE_12_4

Source: Bibtex

Source ID: urn:888ad7045d652720bf995336ec1122eb

Research output: Chapter in Book/Report/Conference proceeding › Conference contribution › Scientific

Development of a Low-Cost Fuzzy Gain Schedule Neutralization Control System

This paper has focused on the development of a Low-Cost Fuzzy Gain Schedule Neutralization Control System. The system dynamics has been identified for different operational conditions. The implementation and instrumentation of a typical Neutralization System using low cost elements, with an appropriate monitoring, control and data acquisition of the process variables has been successfully implemented, as well as the Fuzzy Gain Schedule pH neutralization controller. As inputs it has been used the Auxiliary Variable, defined with the linguist terms as Acid, Neutral and Alkaline by three trapezoidal membership functions, as well as the control error and the change in the control error, both defined by five triangular membership functions. The controller outputs were defined for the Acid and Alkali pumps by 18 triangular membership functions and it was defined a set of 50 fuzzy rules. The development of the control system considered in this paper reveals an attractive industrial application perspective, representing a potential application for water consumption reduction in industry, based on low cost elements.

General information

Publication status: Published

MoE publication type: A4 Article in a conference publication

Organisations: Department of Automation Science and Engineering, University of Campinas, Federal University of Uberlândia

Contributors: Sislian, R., Da Silva, F. V., Gedraite, R., Jokinen, H., An, D. K. R.

Number of pages: 4

Pages: 575-578

Publication date: Oct 2015

Host publication information

Title of host publication: WCECS 2015 - World Congress on Engineering and Computer Science 2015
Volume: II
Publisher: Newswood Limited
ISBN (Electronic): 9789881404725

Publication series

Name: Lecture Notes in Engineering and Computer Science
Volume: 2220
ISSN (Electronic): 2078-0966
ASJC Scopus subject areas: Computer Science (miscellaneous)
Keywords: Fuzzy control, Neutralization, Water consumption reduction
URLs:
http://www.iaeng.org/publication/WCECS2015/WCECS2015_pp575-578.pdf
Source: Scopus
Source ID: 84992694500
Research output: Chapter in Book/Report/Conference proceeding › Conference contribution › Scientific › peer-review

The use of mathematical modeling for the development of a low cost fuzzy gain schedule neutralization control system

General information

Publication status: Published
MoE publication type: A3 Part of a book or another research book
Organisations: Automation and Hydraulic Engineering, Faculty of Biomedical Sciences and Engineering, Federal Institute of São Paulo, Universidade Estadual de Campinas, Federal University of Uberlândia
Contributors: Sislian, R., da Silva, F. V., Gedraite, R., Jokinen, H., Rajan, D. K.
Number of pages: 15
Pages: 525-539
Publication date: 4 Feb 2017

Host publication information

Title of host publication: Transactions on Engineering Technologies : World Congress on Engineering and Computer Science 2015
Publisher: Springer Singapore
ISBN (Print): 9789811027161
ISBN (Electronic): 9789811027178
ASJC Scopus subject areas: Medicine(all), Biochemistry, Genetics and Molecular Biology(all), Immunology and Microbiology(all)
DOIs:
[10.1007/978-981-10-2717-8_37](https://doi.org/10.1007/978-981-10-2717-8_37)
Research output: Chapter in Book/Report/Conference proceeding › Chapter › Scientific › peer-review

Recent progress in wafer-fused VECSELs emitting in the 1310 nm waveband

Over the last years we have continuously improved the performance of 1300 nm band VECSELs with wafer fused gain mirrors in the intra-cavity diamond and the flip-chip heat dissipation configurations. In this work we present recent results for gain mirrors that implement both heat-dissipation schemes applied to the same fused gain mirror structure. We demonstrate record high output powers of 7.1 W in the intra-cavity diamond heat-spreader configuration and 6.5 W in the flip-chip heat dissipation scheme. These improvements are achieved due to optimization of the wafer fused gain mirror structure based on AlGaInAs/InP-active region fused to AlAs-GaAs distributed Bragg reflector (DBR) and application of efficient methods of bonding semiconductor gain mirror chips to diamond heatspreaders.

General information

Publication status: Published
MoE publication type: A4 Article in a conference publication
Organisations: Optoelectronics Research Centre, Research group: Ultrafast and intense lasers, Frontier Photonics, École Polytechnique Fédérale de Lausanne, CH-1015 Lausanne, Switzerland
Contributors: Sirbu, A., Rantamäki, A., Iakolev, V., Mereuta, A., Caliman, A., Volet, N., Lyytikäinen, J., Okhotnikov, O., Kapon, E.
Number of pages: 7
Publication date: 2015

Host publication information

Title of host publication: Proceedings of SPIE vol. 8966, 2014.
Place of publication: BELLINGHAM
Publisher: SPIE

Editor: Guina, M.

Publication series

Name: Proceedings of SPIE

Publisher: SPIE-INT SOC OPTICAL ENGINEERING

Volume: 9349

ISSN (Print): 0277-786X

Keywords: Wafer-fused vertical-external-cavity surface-emitting lasers (VECSELs), wafer-fused gain mirrors, optically pumped VECSELs, photonics technology, SEMICONDUCTOR DISK LASER

DOIs:

10.1117/12.2079752

Source: WOS

Source ID: 000353134900006

Research output: Chapter in Book/Report/Conference proceeding > Conference contribution > Scientific > peer-review

Effect of Laser Power on Yield of TiO₂ Nanoparticles Synthesized by Pulsed Laser Ablation in Water

In this study, the pulsed laser ablation in liquids (PLAL) technique was used on titanium in deionized water at different laser powers to understand its effect on the synthesis yield of nanoparticles. A 500-ns 1062-nm fiber laser at 25 kHz was used to effect PLAL of titanium to produce nanoparticles. TEM images of the synthesized nanoparticles showed spherical particles ranging from 332 nm in diameter. The electron diffraction pattern and high peaks in the wide-angle x-ray scattering (WAXS) pattern indicated high crystallinity of nanoparticles. WAXS results showed nanoparticles were allotropes of titania: rutile and anatase. Synthesis yield measurements indicated an increase in yield with the increase in laser power as long as the increase in laser fluence remains proportional to the increase in laser power. However, the yield increased proportionally with the increase in laser fluence. The analysis of the chosen laser pulse duration and repetition rate showed an increase in the yield with longer pulse duration and higher repetition rate.

General information

Publication status: Published

MoE publication type: A1 Journal article-refereed

Organisations: Materials Science, Research group: Ceramic materials, Mechanical Engineering and Industrial Systems,

Research area: Manufacturing and Automation, Research group: Surface Engineering, Research group: Materials

Characterization, Research group: Ceramic materials

Contributors: Singh, A., Vihinen, J., Frankberg, E., Hyvärinen, L., Honkanen, M., Levänen, E.

Number of pages: 5

Pages: 39-43

Publication date: Mar 2017

Peer-reviewed: Yes

Publication information

Journal: Journal of Ceramic Science and Technology

Volume: 8

Issue number: 1

ISSN (Print): 2190-9385

Ratings:

Scopus rating (2017): CiteScore 1.8 SJR 0.374 SNIP 0.778

Original language: English

Keywords: Nanoparticles, synthesis yield, pulsed laser ablation in liquids, WAXS, laser fluence, WAVELENGTH, GOLD

Electronic versions:

10.4416_JCST2016-00071-1

DOIs:

10.4416/JCST2016-00071

URLs:

<http://urn.fi/URN:NBN:fi:tuni-201910183944>

Source: WOS

Source ID: 000397702900008

Research output: Contribution to journal > Article > Scientific > peer-review

Influence of the rotor eccentricity on the torque of a cage induction machine

The non-uniform air gap in an electrical machine caused by rotor eccentricity creates an asymmetrical flux-density distribution in the air gap. This can affect the nominal torque produced by the machine. Eccentricity also produces forces that act on the rotor which may also have an effect on the torque. Thus, it is important to know how the torque of the machine behaves. In this paper, the torque of a cage induction machine is studied when the machine has dynamic eccentricity. The study is performed using the finite element method and a magnetic vector potential formulation. The torque is calculated by the method of energy balance. The harmonic components of the torque are also analyzed. The results show that the machine under eccentricity does not exhibit the same torque as a normal healthy machine. The

harmonic components around the first principal slot harmonic is most affected.

General information

Publication status: Published

MoE publication type: A1 Journal article-refereed

Organisations: Electrical Energy Engineering, Research group: Electromechanics, Research area: Power engineering, Aalto University

Contributors: Silwal, B., Rasilo, P., Belahcen, A., Arkkio, A.

Pages: 383-396

Publication date: Jun 2017

Peer-reviewed: Yes

Publication information

Journal: Archives of Electrical Engineering

Volume: 66

Issue number: 2

ISSN (Print): 2300-2506

Ratings:

Scopus rating (2017): CiteScore 1.2 SJR 0.233 SNIP 0.65

Original language: English

Electronic versions:

Silwal2017

DOIs:

10.1515/ae-2017-0029

URLs:

<http://urn.fi/URN:NBN:fi:tty-201708151681>

Research output: Contribution to journal > Article > Scientific > peer-review

Home Network Security: Modelling Power Consumption to Detect and Prevent Attacks on Homenet Routers

Future home networks are expected to become extremely sophisticated, yet only the most technically adept persons are equipped with skills to secure them. In this paper, we provide a novel solution to detect and prevent attacks on home routers based on anomalous power consumption. We developed a means of measuring power consumption that could be used in a wide variety of home networks, although our primary focus on is on profiling Homenet-based residential routers, specifically to detect attacks against homenet routing infrastructure. Several experimental results are presented when the infrastructure is exposed to various types of attacks, which show strong evidence of the feasibility of our approach.

General information

Publication status: Published

MoE publication type: A4 Article in a conference publication

Organisations: Department of Pervasive Computing, Research area: Information security

Contributors: Silverajan, B., Vajaranta, M., Kolehmainen, A.

Pages: 9-16

Publication date: 4 Aug 2016

Host publication information

Title of host publication: Proceedings of the 11th Asia Joint Conference on Information Security (AsiaJCIS 2016), Fukuoka, Japan, August 4-5, 2016

Publisher: IEEE

ISBN (Electronic): 978-1-5090-2285-4

DOIs:

10.1109/AsiaJCIS.2016.10

Research output: Chapter in Book/Report/Conference proceeding > Conference contribution > Scientific > peer-review

A Semantic Meta-Model Repository for Lightweight M2M

One of the biggest problems in managing devices for the Internet of Things (IoT) is the ability for a management server to independently discover and retrieve data models for vendor-specific devices. At the same time, several device management methods also lack methods for device vendors to share their data models in a consistent manner. This paper presents the design and implementation of a repository that can flexibly accommodate many needs with regards to these issues, and allows device vendors to publish semantically similar data models as well as attach meta-data to these models. A Machine-to-Machine (M2M) communication interface also allows a management server to communicate with the repository. We show how these techniques can be used with the Lightweight Machine-to-Machine (LWM2M) standard.

General information

Publication status: Published

MoE publication type: A4 Article in a conference publication
Organisations: Computing Sciences, Research area: Information security, Ericsson
Contributors: Silverajan, B., Zhao, H., Kamath, A.
Number of pages: 5
Pages: 468-472
Publication date: 11 Apr 2019

Host publication information

Title of host publication: 2018 IEEE International Conference on Communication Systems, ICCS 2018
Publisher: IEEE
ISBN (Electronic): 9781538678640
ASJC Scopus subject areas: Computer Networks and Communications, Hardware and Architecture, Information Systems and Management, Aerospace Engineering
Keywords: data model repository, IoT device management, LWM2M
DOIs:
10.1109/ICCS.2018.8689185
Source: Scopus
Source ID: 85065038511
Research output: Chapter in Book/Report/Conference proceeding › Conference contribution › Scientific › peer-review

Enabling cybersecurity incident reporting and coordinated handling for maritime sector

The maritime industry is experiencing a new era of digital transformation. At the same time as the number of cyberattacks and cybersecurity incidents are increasing, cybersecurity awareness and incident reporting in this sector remains low. In this paper, we describe a cybersecurity incident reporting system for the maritime industry that aims to address this issue. The work focuses on autonomous and unmanned vessels, but can be equally applied to other areas of the maritime industry. The proposed approach has been evaluated experimentally and the results demonstrate its applicability and feasibility.

General information

Publication status: Published
MoE publication type: A4 Article in a conference publication
Organisations: Computing Sciences, Research area: Information security
Contributors: Silverajan, B., Vistiaho, P.
Number of pages: 8
Pages: 88-95
Publication date: 1 Aug 2019

Host publication information

Title of host publication: 2019 14th Asia Joint Conference on Information Security, AsiaJCIS 2019
Publisher: IEEE
ISBN (Electronic): 9781728125565
ASJC Scopus subject areas: Software, Information Systems and Management, Computer Networks and Communications, Safety, Risk, Reliability and Quality
Keywords: Cybersecurity incident exchange, Maritime cybersecurity, Smart ports, Smart ships
DOIs:
10.1109/AsiaJCIS.2019.000-1
Research output: Chapter in Book/Report/Conference proceeding › Conference contribution › Scientific › peer-review

Web-user-interface system utilizing rhmei and open data for a water quality analyzer

General information

Publication status: Published
MoE publication type: A4 Article in a conference publication
Organisations: Research group: Software Engineering and Intelligent Systems, Pervasive Computing, Keio University, Japan, Global Environmental System Leaders Program, Keio University, Japan
Contributors: Sillberg, P., Veessommai, C., Soini, J., Jaakkola, H.
Number of pages: 8
Pages: 444-451
Publication date: 2017

Host publication information

Title of host publication: The Proceedings of the 27th International Conference on Information Modelling and Knowledge Bases, EJC 2017 : June 5-9, 2017, Krabi, Thailand
Publisher: Sirindhorn International Institute of Technology, Thammasat University, Thailand
Editors: Somlertlamvanich, V., Chawakitchareon, P., Hansuebsai, A., Koopipat, C., Kiyoki, Y., Kangassalo, H., Thalheim, B., Yoshida, N.

ISBN (Electronic): 978-616-407-165-0

Electronic versions:

water

URLs:

<http://urn.fi/URN:NBN:fi:tty-201712042302>

Research output: Chapter in Book/Report/Conference proceeding > Conference contribution > Scientific > peer-review

Toward Manageable Data Sources

General information

Publication status: Published

MoE publication type: A4 Article in a conference publication

Organisations: Research group: Software Engineering and Intelligent Systems, Pervasive Computing

Contributors: Sillberg, P.

Pages: 485-494

Publication date: Jun 2018

Host publication information

Title of host publication: EJC 2018 : Proceedings of the 28th International Conference on Information Modelling and Knowledge Bases

Publisher: Transport and Telecommunication Institute

Editors: Endrjukaite, T., Kangassalo, H., Thalheim, B., Kiyoki, Y.

ISBN (Electronic): 978-9984-818-89-4

Research output: Chapter in Book/Report/Conference proceeding > Conference contribution > Scientific > peer-review

Erosion testing of filled and/or reinforced vinyl ester composites in water medium at elevated temperature

General information

Publication status: Published

MoE publication type: D3 Professional conference proceedings

Organisations: Department of Materials Science, Research group: Plastics and Elastomer Technology, Outotec Research Center

Contributors: Siljander, S., Kiviniemi, M., Sarlin, E., Lindgren, M., Suihkonen, R., Vuorinen, J.

Number of pages: 10

Publication date: 2015

Host publication information

Title of host publication: Proceedings of the 20th International Conference on Composite Materials

URLs:

<http://iccm20.org/fullpapers/file?f=BJk14rEQqP>

Bibliographical note

ISBN kysytty, ei löydy / TL

Research output: Chapter in Book/Report/Conference proceeding > Conference contribution > Professional

The effect of physical adhesion promotion treatments on interfacial adhesion in cellulose-epoxy composite

General information

Publication status: Published

MoE publication type: D3 Professional conference proceedings

Organisations: Department of Materials Science, Research group: Plastics and Elastomer Technology, Research group: Paper Converting and Packaging

Contributors: Siljander, S., Lehmonen, J., Tanaka, A., Ketoja, J., Heikkilä, P., Lahti, J., Sarlin, E., Vuorinen, J.

Number of pages: 10

Publication date: 2015

Host publication information

Title of host publication: Proceedings of the 20th International Conference on Composite Materials

URLs:

<http://iccm20.org/fullpapers/file?f=WM39KAy5r2>

Bibliographical note

ISBN- tai ISSN-numeroa kysytty, ei löydy

Fault Tolerance of Digital Hydraulics in High Dynamic Hydraulic System

General information

Publication status: Published

MoE publication type: A4 Article in a conference publication

Organisations: Department of Intelligent Hydraulics and Automation, Research group: Digital hydraulics, Robert Bosch GmbH, Germany, Tamlink Ltd

Contributors: Siivonen, L., Linjama, M., Huova, M., Försterling, H., Stamm, E., Deubel, T.

Number of pages: 11

Publication date: 20 May 2015

Host publication information

Title of host publication: The Fourteenth Scandinavian International Conference on Fluid Power

Volume: 1

Place of publication: Tampere, Finland

Edition: 1

ISBN (Print): 978-952-15-3530-7

ISBN (Electronic): 978-952-15-3530-7

URLs:

<http://urn.fi/URN:ISBN:978-952-15-3530-7>

Bibliographical note

EXT="Siivonen, Lauri"

Research output: Chapter in Book/Report/Conference proceeding › Conference contribution › Scientific › peer-review

Analysis of outdoor and indoor propagation at 15 GHz and millimeter wave frequencies in microcellular environment

The main target of this article is to perform the multidimensional analysis of multipath propagation in an indoor and outdoor environment at higher frequencies i.e. 15 GHz, 28 GHz and 60 GHz, using "sAGA" a 3D ray tracing tool. A real world outdoor Line of Sight (LOS) microcellular environment from the Yokusuka city of Japan is considered for the analysis. The simulation data acquired from the 3D ray tracing tool includes the received signal strength, power angular spectrum and the power delay profile. The different propagation mechanisms were closely analyzed. The simulation results show the difference of propagation in indoor and outdoor environment at higher frequencies and draw a special attention on the impact of diffuse scattering at 28 GHz and 60 GHz. In a simple outdoor microcellular environment with a valid LOS link between the transmitter and a receiver, the mean received signal at 28 GHz and 60 GHz was found around 5.7 dB and 13 dB inferior in comparison with signal level at 15 GHz. Whereas the difference in received signal levels at higher frequencies were further extended in an indoor environment due to higher building penetration loss. However, the propagation and penetration loss at higher frequency can be compensated by using the antenna with narrow beamwidth and larger gain.

General information

Publication status: Published

MoE publication type: A1 Journal article-refereed

Organisations: Electrical Engineering, Research group: Laboratory of Radio Network Planning, Research group: Wireless Communications and Positioning

Contributors: Sheikh, M. U., Lempiainen, J.

Number of pages: 8

Pages: 160-167

Publication date: 2018

Peer-reviewed: Yes

Publication information

Journal: Advances in Science, Technology and Engineering Systems

Volume: 3

Issue number: 1

ISSN (Print): 2415-6698

Ratings:

Scopus rating (2018): CiteScore 0 SNIP 0.297

Original language: English

ASJC Scopus subject areas: Engineering (miscellaneous), Management of Technology and Innovation, Physics and Astronomy (miscellaneous)

Keywords: 3D ray tracing, 5G, Microcellular, Millimeter wave frequencies, Multipath propagation, System performance

DOIs:

10.25046/aj030120

Source: Scopus

Source ID: 85061718805

Research output: Contribution to journal › Article › Scientific › peer-review

Enhanced outdoor to indoor propagation models and impact of different ray tracing approaches at higher frequencies

The main target of this article is to study the provision of indoor service (coverage) using outdoor base station at higher frequencies i.e. 10 GHz, 30 GHz and 60 GHz. In an outdoor to indoor propagation, an angular wall loss model is used in the General Building Penetration (GBP) model for estimating the additional loss at the intercept point of the building exterior wall. A novel angular wall loss model based on a separate incidence angle in azimuth and elevation plane is proposed in this paper. In the second part of this study, an Extended Building Penetration (EBP) model is proposed, and the performance of EBP model is compared with the GBP model. In EBP model, the additional fifth path known as the "Direct path" is proposed to be included in the GBP model. Based on the evaluation results, the impact of the direct path is found significant for the indoor users having the same or closed by height as that of the height of the transmitter. For the indoor users located far away from the exterior wall of building, a modified and enhanced approach of ray tracing type is proposed in this article. In the light of acquired simulation results, the impact of a modified ray tracing approach is emphasized.

General information

Publication status: Published

MoE publication type: A1 Journal article-refereed

Organisations: Electrical Engineering, Research group: Laboratory of Radio Network Planning, Research group: Wireless Communications and Positioning, Ericsson Research

Contributors: Sheikh, M. U., Hiltunen, K., Lempiainen, J.

Number of pages: 11

Pages: 58-68

Publication date: 2018

Peer-reviewed: Yes

Publication information

Journal: Advances in Science, Technology and Engineering Systems

Volume: 3

Issue number: 2

ISSN (Print): 2415-6698

Ratings:

Scopus rating (2018): CiteScore 0 SNIP 0.297

Original language: English

ASJC Scopus subject areas: Engineering (miscellaneous), Management of Technology and Innovation, Physics and Astronomy (miscellaneous)

Keywords: Angular loss, Building penetration loss, Outdoor to indoor, Propagation, Ray tracing, Wall loss model

DOIs:

10.25046/aj030207

Source: Scopus

Source ID: 85061801748

Research output: Contribution to journal › Article › Scientific › peer-review

Assessment of Coordinated Multipoint Transmission Modes for Indoor and Outdoor Users at 28 GHz in Urban Macrocellular Environment

The aim of this article is to analyze and evaluate the performance of Coordinated Multipoint (CoMP) transmission approach at a frequency of 28 GHz using three dimensional ray tracing simulations in an urban macrocellular environment. The new performance metric introduced in this article is the relative power usage. Other performance metrics examined in this article are received power, the Signal to Interference plus Noise Ratio (SINR), user throughput, relative throughput gain, and the percentage of overlapping area with multiple cells. Indoor and outdoor users are separately analyzed for few key performance indicators. Different cases of coordinated multipoint transmission i.e. intra-node and inter-node coordination is analyzed. The post analysis of the acquired simulation data shows that the use of CoMP functionality is more beneficial for the cell edge users compared with the other users in terms of improving the user's experience. The throughput gain as well as the transmission overhead of the CoMP approach increases with the increase in number CoMP ports. Inter-node CoMP is much more power efficient and beneficial in comparison with the intra-node CoMP case.

General information

Publication status: Published

MoE publication type: A1 Journal article-refereed

Organisations: Electrical Engineering, Research group: Laboratory of Radio Network Planning, Research group: Wireless Communications and Positioning, Aalto University

Contributors: Sheikh, M., Biswas, R., Lempiainen, J., Jantti, R.
Number of pages: 8
Pages: 119-126
Publication date: 16 Mar 2019
Peer-reviewed: Yes

Publication information

Journal: Advances in Science, Technology and Engineering Systems Journal (ASTESJ)
Volume: 4
Issue number: 2
ISSN (Print): 2415-6698
Ratings:
Scopus rating (2019): CiteScore 0.6 SJR 0.139 SNIP 0.298
Original language: English
DOIs:
10.25046/aj040216
Research output: Contribution to journal › Article › Scientific › peer-review

Farm detection based on deep convolutional neural nets and semi-supervised green texture detection using VIS-NIR satellite image

Farm detection using low resolution satellite images is an important topic in digital agriculture. However, it has not received enough attention compared to high-resolution images. Although high resolution images are more efficient for detection of land cover components, the analysis of low-resolution images are yet important due to the low-resolution repositories of the past satellite images used for timeseries analysis, free availability and economic concerns. The current paper addresses the problem of farm detection using low resolution satellite images. In digital agriculture, farm detection has significant role for key applications such as crop yield monitoring. Two main categories of object detection strategies are studied and compared in this paper; First, a two-step semi-supervised methodology is developed using traditional manual feature extraction and modelling techniques; the developed methodology uses the Normalized Difference Moisture Index (NDMI), Grey Level Co-occurrence Matrix (GLCM), 2-D Discrete Cosine Transform (DCT) and morphological features and Support Vector Machine (SVM) for classifier modelling. In the second strategy, high-level features learnt from the massive filter banks of deep Convolutional Neural Networks (CNNs) are utilised. Transfer learning strategies are employed for pretrained Visual Geometry Group Network (VGG-16) networks. Results show the superiority of the high-level features for classification of farm regions.

General information

Publication status: Published
MoE publication type: A4 Article in a conference publication
Organisations: Electrical Engineering, Coventry University
Contributors: Sharifzadeh, S., Tata, J., Tan, B.
Number of pages: 9
Pages: 100-108
Publication date: 2019

Host publication information

Title of host publication: DATA 2019 - Proceedings of the 8th International Conference on Data Science, Technology and Applications
Publisher: SCITEPRESS
Editors: Hammoudi, S., Quix, C., Bernardino, J.
ISBN (Electronic): 9789897583773
ASJC Scopus subject areas: Hardware and Architecture, Information Systems, Software, Computer Networks and Communications
Keywords: Classification, Convolutional Neural Nets (CNNs), Digital Agriculture, Satellite Image, Supervised Feature Extraction
Electronic versions:
DATA_2019_68
DOIs:
10.5220/0007954901000108
URLs:
<http://urn.fi/URN:NBN:fi:tuni-201910234035>
Research output: Chapter in Book/Report/Conference proceeding › Conference contribution › Scientific › peer-review

基于相位旋转的SCMA码本优化方法

To solve the high bit error ratio (BER) problem under the condition of high overload of sparse code multiple access (SCMA), the influence of phase rotation on the SCMA code is studied firstly. Two schemes of optimizing the phase rotation angle are then proposed based on the controlled-distance among the constellation points of synthetic

constellation. The first scheme is called the rotation based on maximizing minimum euclidean distance (M-rotation) and the second is the rotation based on exponential average (E-rotation). E-rotation achieves better BER performance than M-rotation, but M-rotation is outstanding at the case of high signal-to-noise ratio (SNR). With respect to the decoding complexity, both schemes have no distinction but E-rotation gets better performance than M-rotation when the partial extrinsic information transmission of MPA (PEIT-MPA) is adopted.

General information

Publication status: Published

MoE publication type: A1 Journal article-refereed

Organisations: Electronics and Communications Engineering, Chongqing University of Posts and Telecommunications, Huawei Technologies Co., Ltd.

Contributors: Shao, K., Zhou, B., Wang, G., Yu, B.

Number of pages: 9

Pages: 2354-2362

Publication date: 2018

Peer-reviewed: Yes

Publication information

Journal: Xi Tong Gong Cheng Yu Dian Zi Ji Shu/Systems Engineering and Electronics

Volume: 40

Issue number: 10

ISSN (Print): 1001-506X

Ratings:

Scopus rating (2018): CiteScore 0.9 SJR 0.198 SNIP 0.478

Original language: Chinese

ASJC Scopus subject areas: Control and Systems Engineering, Electrical and Electronic Engineering

Keywords: Codebook design, Phase rotation, Sparse code multiple access (SCMA), Synthetic constellation

DOIs:

10.3969/j.issn.1001-506X.2018.10.29

Source: Scopus

Source ID: 85056877151

Research output: Contribution to journal > Article > Scientific > peer-review

Platform Competences to Enhance Network Effects in Business Ecosystems

General information

Publication status: Published

MoE publication type: A4 Article in a conference publication

Organisations: Pori Department, Research group: Business Ecosystems, Networks and Innovations, Queensland University of Technology QUT, VTT Technical Research Centre of Finland

Contributors: Seppänen, M., Dedehayir, O., Still, K., Valkokari, K., Suominen, A.

Publication date: 8 Dec 2015

Host publication information

Title of host publication: 2015 ISPIM Innovation Summit in Brisbane, Australia - 6-9 December 2015

Publisher: International Society for Professional Innovation Management ISPIM

ISBN (Electronic): 978-1-911136-00-2

Research output: Chapter in Book/Report/Conference proceeding > Conference contribution > Scientific > peer-review

Towards automation security research and training environment

An automation system is a networked software product in hardware intensive environment and requires more than normal IT security skills. Building an automation security research and training environment for automation requires knowledge on the internal workings of an automation system as well as creative approach on how to keep the system secure where needed, and broken when required for development and teaching purposes. The main challenges are to combine the amount of automation specific hardware and to create good practices which keep the need for maintenance, versatility and pedagogical aspects in balance. This paper presents a project called TUTCyberLabs, the learned lessons and the design decisions. The main focus is on Department of Automation Science and Engineering environment ASECyberLab.

General information

Publication status: Published

MoE publication type: A4 Article in a conference publication

Organisations: Department of Automation Science and Engineering, Research area: Information Systems in Automation, Research area: Dynamic Systems, Department of Pervasive Computing, Research area: Information security, Department of Electrical Engineering, Research area: Power engineering, Ajeco Inc, VTT Technical Research Centre of Finland

Contributors: Seppälä, J., Salmenperä, M., Koivisto, H., Harju, J., Repo, S., Holmström, J., Ahonen, P.
Publication date: 18 Mar 2015

Host publication information

Title of host publication: Proceedings of Automaatio XXI, The Industrial Revolution of Internet – From Intelligent Devices to Networked Intelligence

Place of publication: Helsinki, Finland

Publisher: Suomen Automaatioseura ry

ISBN (Electronic): 978-952-5183-46-7

Publication series

Name: SAS Julkaisusarja

Publisher: Finnish Society of Automation

Volume: 44

Bibliographical note

ORG=ase,0.8

ORG=tie,0.1

ORG=dee,0.1

Research output: Chapter in Book/Report/Conference proceeding > Conference contribution > Scientific > peer-review

Impedanssipneumografia pienten lasten alahengitytiesoireiden selvittelyssä

General information

Publication status: Published

MoE publication type: D2 Article in professional manuals or guides or professional information systems or text book material

Organisations: Department of Electronics and Communications Engineering, Research group: Physiological Measurement Systems and Methods Group

Contributors: Seppä, V., Pelkonen, A. S., Kotaniemi-Syrjänen, A., Viik, J., Mäkelä, M. J., Malmberg, P.

Publication date: 2015

Host publication information

Title of host publication: Allergiatutkimussäätiön vuosikirja 2015

Publication series

Name: Allergiakoulu

Publisher: Allergiatutkimussäätiö

ISSN (Print): 1457-2508

Research output: Chapter in Book/Report/Conference proceeding > Chapter > Professional

Kuorielementtien kuivumisen mallintaminen hydrataation huomioivalla FEM-laskennalla

General information

Publication status: Published

MoE publication type: B3 Non-refereed article in conference proceedings

Organisations: Civil Engineering, Research group: Building Physics, Laboratory of Civil Engineering

Contributors: Sekki, P., Korhonen, L., Vinha, J.

Number of pages: 7

Pages: 399-405

Publication date: 24 Oct 2017

Host publication information

Title of host publication: Rakennusfysiikka 2017. Uusimmat tutkimustulokset ja hyvät käytännön ratkaisut : 24.-26.10.2017, Tampere

Volume: 2

Place of publication: Tampere

Publisher: Tampereen teknillinen yliopisto, Rakennustekniikka, Rakennusfysiikka

Editors: Vinha, J., Kivioja, H.

ISBN (Print): 978-952-15-4023-3

Publication series

Name: Tampereen teknillinen yliopisto. Rakennustekniikka. Rakennusfysiikka.

ASJC Scopus subject areas: Engineering(all)

Bibliographical note

INT=RAK, "Korhonen, Lauri"

Research output: Chapter in Book/Report/Conference proceeding › Conference contribution › Scientific

2D Video Coding of Volumetric Video Data

Due to the increased popularity of augmented and virtual reality experiences, the interest in representing the real world in an immersive fashion has never been higher. Distributing such representations enables users all over the world to freely navigate in never seen before media experiences. Unfortunately, such representations require a large amount of data, not feasible for transmission on today's networks. Thus, efficient compression technologies are in high demand. This paper proposes an approach to compress 3D video data utilizing 2D video coding technology. The proposed solution was developed to address the needs of 'tele-immersive' applications, such as virtual (VR), augmented (AR) or mixed (MR) reality with Six Degrees of Freedom (6DoF) capabilities. Volumetric video data is projected on 2D image planes and compressed using standard 2D video coding solutions. A key benefit of this approach is its compatibility with readily available 2D video coding infrastructure. Furthermore, objective and subjective evaluation shows significant improvement in coding efficiency over reference technology.

General information

Publication status: Published

MoE publication type: A4 Article in a conference publication

Organisations: Signal Processing, Nokia Technologies

Contributors: Schwarz, S., Hannuksela, M. M., Fakour-Sevom, V., Sheikhi-Pour, N.

Number of pages: 5

Pages: 61-65

Publication date: 5 Sep 2018

Host publication information

Title of host publication: 2018 Picture Coding Symposium, PCS 2018 - Proceedings

Publisher: IEEE

Article number: 8456265

ISBN (Print): 9781538641606

ASJC Scopus subject areas: Signal Processing, Media Technology

DOIs:

10.1109/PCS.2018.8456265

Bibliographical note

INT=sgn, "Sheikhi-Pour, Nahid"

Source: Scopus

Source ID: 85053915056

Research output: Chapter in Book/Report/Conference proceeding › Conference contribution › Scientific › peer-review

Compensation of PV generator output power fluctuations with energy storage systems

Photovoltaic generators (PVG) suffer from short-term intermittency of output power. With significant penetration of PV this intermittency can lead to power systems instability and power quality problems. Energy storage systems (ESS) can be used to compensate PV power fluctuations in order to mitigate these problems. In this paper ESS behavior, control and sizing have been investigated to mitigate instabilities caused by PV power plants operating in Northern European conditions through simulations that utilize measurements from the Tampere University of Technology (TUT) Solar PV power station research plant. Continuous synchronized measurements have been recorded with the irradiance and PV module temperature sensor network with a 10 Hz sampling frequency since June 2011. The ESS capacity and power requirements are derived from the simulations for different PVG sizes and PV power ramp rate (RR) limits. The results show how both capacity and power requirements decrease as functions of the RR limit and the PVG size. Also, interesting differences have been noticed compared to similar studies done in Southern European climate, which indicate that the operational climate of the PVG can have an effect on ESS sizing.

General information

Publication status: Published

MoE publication type: A4 Article in a conference publication

Organisations: Department of Electrical Engineering, Research area: Power engineering, Tampere University of Technology

Contributors: Schnabel, J., Valkealahti, S.

Number of pages: 5

Pages: 2177-2181

Publication date: 14 Sep 2015

Host publication information

Title of host publication: 31st European Photovoltaic Solar Energy Conference and Exhibition (31st EU PVSEC), 14– 18 September, 2015, Hamburg, Germany

ISBN (Print): 3-936338-39-6

ASJC Scopus subject areas: Energy(all)

DOIs:

10.4229/EUPVSEC20152015-5BV.2.6

Research output: Chapter in Book/Report/Conference proceeding › Conference contribution › Scientific › peer-review

JPEG Pleno: a standard framework for representing and signaling plenoptic modalities

In recent years, we have observed the advent of plenoptic modalities such as light fields, point clouds and holography in many devices and applications. Besides plenty of technical challenges brought by these new modalities, a particular challenge is arising at the horizon, namely providing interoperability between these devices and applications, and – in addition – at a cross-modality level. Based on these observations the JPEG committee (ISO/IEC JTC1/SC29/WG1 and ITU-T SG16) has initiated a new standardization initiative – JPEG Pleno – that is intended to define an efficient framework addressing the above interoperability issues. In this paper, an overview is provided about its current status and future plans.

General information

Publication status: Published

MoE publication type: A4 Article in a conference publication

Organisations: Signal Processing, Research group: Signal Interpretation and Compression-SIC, Vrije Universiteit Brussel, Ostendo, Ecole Polytechnique Fédérale de Lausanne, Instituto Superior Tecnico, Lissabon, Portugal, University of Science and Technology of China

Contributors: Schelkens, P., Alpaslan, Z., Ebrahimi, T., Pereira, F., Pinheiro, A., Tabus, I., Chen, Z.

Number of pages: 10

Publication date: 2018

Host publication information

Title of host publication: SPIE Proceedings Volume 10752: Applications of Digital Image Processing XLI

Volume: 10752

Publisher: SPIE

Publication series

Name: SPIE Conference Proceedings

ISSN (Print): 0277-786X

Electronic versions:

JPEG Pleno: a standard framework 2018

DOIs:

10.1117/12.2323404

URLs:

<http://urn.fi/URN:NBN:fi:tuni-202003102636>

Research output: Chapter in Book/Report/Conference proceeding › Conference contribution › Scientific › peer-review

JPEG Pleno light field coding technologies

JPEG Pleno provides a standard framework to facilitate the capture, representation, and exchange of light field, point cloud and holographic imaging modalities. JPEG Pleno Part 2 addresses coding of light field data. Two coding modes are supported for this modality. The first mode exploits the redundancy in this 4D data by utilizing a 4D transform technique, the second mode is based on 4D prediction. Both techniques are outlined in this paper as well as the file format that encapsulates the resulting codestreams.

General information

Publication status: Published

MoE publication type: A4 Article in a conference publication

Organisations: Computing Sciences

Contributors: Schelkens, P., Astola, P., da Silva, E. A., Pagliari, C., Perra, C., Tabus, I., Watanabe, O.

Publication date: 6 Sep 2019

Host publication information

Title of host publication: Applications of Digital Image Processing XLII

Publisher: SPIE

Article number: 111371G

ISBN (Electronic): 9781510629677

Publication series

Name: Proceedings of SPIE

Volume: 11137

ISSN (Print): 0277-786X
ISSN (Electronic): 1996-756X
DOIs:
10.1117/12.2532049

Bibliographical note

jufoid=71479

Research output: Chapter in Book/Report/Conference proceeding › Conference contribution › Scientific › peer-review

Stirring the Construction Project Management with Co-creation and Continuous Improvement

Abstract Gathering information that is capable to explain customers' needs is usually seen as a quite straightforward part of the traditional construction process: a customer should be able to tell all relevant needs in the first stage so that a building could be designed and built according to the gained information. But the process is lacking of service abilities if a customer wants to modify the given information due to a change in circumstances, albeit such a change is easily caused due turbulent economic situations and long spans in real-estate development projects. Hence the customer perspective regarding the construction management (CM) process should be accommodated better. In this paper, the case studies of the four premises improvement projects are reported upon, where the CM process was altered to include and apply the concepts of continuous improvement and co-creation. The process documentation covered the impacts of the case project on the usability of the premises, the indoor climate conditions (carbon dioxide and temperature) metering, the time lapse cameras and the on-line user feedback system. The documentation consists of the minutes of the meetings, the financial reporting and the time tables. Both the processes and the results of the projects are analysed. Based on the key findings, some suggestions are put forth upon how to improve the CM process to better serve customer interests and quality improvement in the future.

General information

Publication status: Published

MoE publication type: A1 Journal article-refereed

Organisations: Department of Civil Engineering, Research group: Digitalization in the real estate and construction sector, School of Architecture

Contributors: Savolainen, J., Kähkönen, K., Niemi, O., Poutanen, J., Varis, E.

Number of pages: 8

Pages: 64-71

Publication date: 2015

Peer-reviewed: Yes

Publication information

Journal: Procedia Economics and Finance

Volume: 21

ISSN (Print): 2212-5671

Original language: English

Keywords: Co-creation, construction management, continuous improvement, customer relations management, quality management

DOIs:

10.1016/S2212-5671(15)00151-3

Bibliographical note

ORG=rak,1

ORG=ark,0

Source: RIS

Source ID: urn:76EF98A938A43DE456AFD5111BF4116C

Research output: Contribution to journal › Article › Scientific › peer-review

Tailoring directional scattering of second-harmonic generation from (111)-GaAs nanoantennas

The group of zincblende III-V compound semiconductors, especially (100)-grown AlGaAs and GaAs, have recently been presented as promising materials for second harmonic generation (SHG) at the nanoscale. However, major obstacles to push the technology towards practical applications are the limited control over directionality of the SH emission and especially zero forward/backward radiation. In this work we provide both theoretically and experimentally a solution to these problems by presenting the first SHG nanoantennas made from (111)-GaAs embedded in a low index material. These nanoantennas show superior forward directionality compared to their (100)-counterparts. Most importantly, it is possible to manipulate the SHG radiation pattern of the nanoantennas by changing the pump polarization without affecting the linear properties and the total nonlinear conversion efficiency.

General information

Publication status: Published

MoE publication type: A4 Article in a conference publication

Organisations: Research group: Nonlinear Optics, Physics, Australian National University, Friedrich-Schiller-University Jena, School of Engineering and Information Technology, University of New South Wales (UNSW) Australia, Institute of Applied Physics of the Russian Academy of Sciences

Contributors: Sautter, J., Xu, L., Miroshnichenko, A., Lysevych, M., Volkovskaya, I., Smirnova, D., Camacho Morales, M., Zangeneh Kamali, K., Karouta, F., Vora, K., Tan, H. H., Kauranen, M., Staude, I., Jagadish, C., Neshev, D. N., Rahmani, M.

Publication date: 2019

Host publication information

Title of host publication: AOS Australian Conference on Optical Fibre Technology, ACOFT 2019 and Australian Conference on Optics, Lasers, and Spectroscopy, ACOLS 2019

Publisher: SPIE

Editors: Mitchell, A., Rubinsztein-Dunlop, H.

Article number: 112000H

ISBN (Electronic): 9781510631403

Publication series

Name: Proceedings of SPIE - The International Society for Optical Engineering

Volume: 11200

ISSN (Print): 0277-786X

ISSN (Electronic): 1996-756X

ASJC Scopus subject areas: Electronic, Optical and Magnetic Materials, Condensed Matter Physics, Computer Science Applications, Applied Mathematics, Electrical and Electronic Engineering

Keywords: Dielectric nanoantennas, Directional emission, Multipolar interference, Second harmonic generation

DOIs:

10.1117/12.2539086

Bibliographical note

jufoid=71479

Source: Scopus

Source ID: 85079653740

Research output: Chapter in Book/Report/Conference proceeding > Conference contribution > Scientific > peer-review

Management accounting in managerial work: engaging facts and feelings in decision making

General information

Publication status: Published

MoE publication type: A4 Article in a conference publication

Organisations: Department of Industrial Management, Research group: Cost Management Center

Contributors: Saukkonen, N., Laine, T., Suomala, P.

Publication date: 15 Jun 2016

Host publication information

Title of host publication: Proceedings of the Manufacturing Accounting Research Conference 2016 : Lisbon, Portugal, June 15-17, 2016

Publisher: European Institute for Advanced Studies in Management EIASM

Publication series

Name:

ISSN (Print): 2295-1709

Name: Proceedings of the Manufacturing Accounting Research Conference

URLs:

http://www.eiasm.org/frontoffice/event_announcement.asp?event_id=1155#4716

Research output: Chapter in Book/Report/Conference proceeding > Conference contribution > Scientific > peer-review

Studies of Physical Phase State of Aerosol Nanoparticles

Aerosol particles produced in the atmosphere have major effects on the life on Earth: cloud formation starts on seed particles, often formed by photochemical oxidation of biogenic volatile organic compounds; visibility, corrosion, and health problems are caused by anthropogenic hydrocarbon and sulfur emission processed into particles by the atmosphere and the sun.

Naturally occurring secondary organic aerosol (SOA) particles can produce up to a half of the non-refractory mass of aerosol particles of less than micrometer in size. This makes SOA a large contributing factor to the climate system of the Earth. The actual effect that these particles have is, however, not well known, compared to the other effects affecting the climate. The research effort to increase the understanding and reduce the uncertainties around the climate effects of SOA encompasses an interdisciplinary research community.

The recent advance made by the observation of a solid phase of SOA by Virtanen et al. (2010) was the starting point for this thesis. The solid phase of SOA particles means that a long-held assumption of a partition equilibrium between the condensed phase and the gas phase of the semivolatile species may be wrong and produce too low a timescale for the particle chemical reaction rates and uptake coefficients.

This work consists of new developments in the instrumentation of particle properties as well as new observations of laboratory-generated secondary organic aerosol. The method development has two branches, one concentrates on finding more information from the measurement signal of an electrical low pressure impactor (ELPI) used in a somewhat unconventional way, whereas the other consists of a new detection method for particle bounce and response to different humidity and phase hysteresis induced by a carefully controlled humidity history.

The methods and observations made during this work are by no means the final word on the subject, but they are being used and further developed by the scientific community. Study of the particle phase and bounce as well as SOA mechanical properties and kinetics is well underway, and its results will be used to further refine the understanding of both aerosol fundamentals as well as the climate system.

General information

Publication status: Published

MoE publication type: G5 Doctoral dissertation (article)

Organisations: Department of Physics, Research area: Aerosol Physics

Contributors: Saukko, E.

Number of pages: 51

Publication date: 26 Jun 2015

Publication information

Publisher: Tampere University of Technology

ISBN (Print): 978-952-15-3544-4

ISBN (Electronic): 978-952-15-3608-3

Original language: English

Publication series

Name: Tampere University of Technology. Publication

Publisher: Tampere University of Technology

Volume: 1308

ISSN (Print): 1459-2045

Electronic versions:

saukko_1308

URLs:

<http://URN.fi/URN:ISBN:978-952-15-3608-3>

Bibliographical note

Awarding institution: Tampere University of Technology

Versio ok 16.12.2015

Research output: Book/Report > Doctoral thesis > Collection of Articles

Development of chip-surface stimulus electrode array for fully-implantable subretinal prosthesis chip

In this study, we have developed a chip-surface stimulus electrode array for fully-implantable subretinal prosthesis chip. To realize visual restoration with high resolution, stimulus electrodes should be miniaturized and arrayed with high density. When we miniaturize them, however, their electrochemical impedances become higher and their amount of charge injection become smaller. Additionally, as the number of electrodes increases, it becomes difficult to make electrical connection to each pixel of the retinal prosthesis chip and each electrode by electrical wiring. To overcome these problems, we have developed the stimulus electrodes that have low electrochemical impedances and large charge injection capacities, and established a fabrication process of chip-surface stimulus electrode array. We fabricated the stimulus electrodes made of extremely porous platinum which had large-surface-area compared with conventional Pt. We also fabricated the chip-surface stimulus electrodes array on the subretinal prosthesis chip which surface was rough and covered with insulator film.

General information

Publication status: Published

MoE publication type: A1 Journal article-refereed

Organisations: Department of Electronics and Communications Engineering, Research group: Biomaterials and Tissue Engineering Group, BioMediTech, Integrated Technologies for Tissue Engineering Research (ITTE), International Graduate School in Biomedical Engineering and Medical Physics (Ministry of Education in Finland), Graduate School of Engineering, Tohoku University

Contributors: Sasaki, Y., Suzuki, T., Iwagami, T., Tani, T., Naganuma, H., Kino, H., Hyttinen, J., Kellomäki, M., Tanaka, T.
Pages: O-253-O-254
Publication date: 17 Aug 2014
Peer-reviewed: Yes

Publication information

Journal: Transactions of Japanese Society for Medical and Biological Engineering

Volume: 52

ISSN (Print): 1347-443X

Ratings:

Scopus rating (2014): CiteScore 0.1 SJR 0.127 SNIP 0.038

Original language: English

ASJC Scopus subject areas: Biomedical Engineering

Keywords: Electrode, Extremely porous platinum, Retinal prosthesis

DOIs:

10.11239/jsmbe.52.O-253

Source: Scopus

Source ID: 84939439184

Research output: Contribution to journal > Article > Scientific > peer-review

Kids Out! Urban environments and physical activity among children and adolescents

General information

Publication status: Published

MoE publication type: Not Eligible

Organisations: School of Architecture, Research group: EDGE

Contributors: Sarjala, S.

Number of pages: 1

Publication date: 26 Feb 2013

Host publication information

Title of host publication: 2013 Active Living Research (ALR) Annual Conference in San Diego, CA

Bibliographical note

xabstract

Research output: Chapter in Book/Report/Conference proceeding > Conference contribution > Scientific > peer-review

Organic Chromophores in Self-Assembled Monolayers and Supramolecular Arrays

Large aromatic chromophores, e.g. phthalocyanines or perylene derivatives are widely used in modern photonic applications. For these systems, well-organized films of the chromophores are very important. One of the ways to ensure the order on molecular level is to bind the organic dyes covalently to a solid substrate with a suitable anchor group. Expanding the concept, multilayered supramolecular assemblies can be built on surfaces as well.

In the present Thesis various chromophores with a capability to anchor onto a solid surface were prepared. Synthesized molecules were porphyrins, phthalocyanines, and perylene mono- and diimides with different substituents. The anchor-surface pairs were of several types, and the chromophores were attached to a surface by one- or two-step methods.

Two of the perylene monoimide derivatives were found to be a perfect basement for construction of multilayered films. Using a metal-ligand interaction it was possible to prepare stable double layers, as well ten molecules thick stable deeply colored multilayer films. The developed approach is versatile and will allow in future to expand the capabilities of molecular film architecture.

General information

Publication status: Published

MoE publication type: G5 Doctoral dissertation (article)

Organisations: Department of Chemistry and Bioengineering, Research group: Supramolecular photochemistry

Contributors: Sariola-Leikas, E.

Number of pages: 58

Publication date: 20 Nov 2015

Publication information

Publisher: Tampere University of Technology

ISBN (Print): 978-952-15-3600-7

ISBN (Electronic): 978-952-15-3623-6

Original language: English

Publication series

Name: Tampere University of Technology. Publication

Publisher: Tampere University of Technology

Volume: 1334

ISSN (Print): 1459-2045

Electronic versions:

sariola-leikas_1334

URLs:

<http://URN.fi/URN:ISBN:978-952-15-3623-6>

Bibliographical note

Awarding institution: Tampere University of Technology

Version: 16.12.2015

Research output: [Book/Report](#) › [Doctoral thesis](#) › [Collection of Articles](#)

Emergence of relationship triads in construction project networks

Research is increasingly addressing attention to project networks, in terms of inter-organizational relationships. Very often, research is focused on customers and contractors at the center of the project networks and their strong dyadic relationships. Less attention has been paid to the non-central actors and triadic relationships, which might have significant role in project delivery and in the construction innovations. This research focuses on the emergence of relationship triad between contractor, supplier and designer. The goal of this research is to identify contractors' motives to engage in triadic relationship, and practices to adopt contractor-supplier-designer triads in the construction project networks. Qualitative, exploratory research strategy is employed in the context of construction project networks, with contractors as adopters of relationship triads. Interviews are conducted with contractors, to discover the specifics of contractor-supplier-designer relationship triads in construction projects. The results indicate that contractors are motivated to enhance their dyadic relationships with suppliers and designer, but they are also motivated and capable to adopt triadic relationships with these actors. The research contributes by showing that relationship triads promote development and innovations in construction projects. As key contributions, this research suggests practices and project conditions through which beneficial relationship triads can be adopted.

General information

Publication status: Published

MoE publication type: D3 Professional conference proceedings

Organisations: Department of Industrial Management, Research group: Center for Research on Operations Projects and Services

Contributors: Sariola, R.

Number of pages: 13

Pages: 1-13

Publication date: 2015

Host publication information

Title of host publication: 23rd Nordic Academy of Management conference, NFF, 12-14 August 2015, Copenhagen, Denmark

Place of publication: Copenhagen, Denmark

Publisher: Nordic Academy of Management

Publication series

Name: Nordic Academy of Management Conference

URLs:

<https://nordicacademy.hi.is/>

URLs:

<https://conference.cbs.dk/index.php/NFF2015/NFF2015/schedConf/presentations>

Research output: [Chapter in Book/Report/Conference proceeding](#) › [Conference contribution](#) › [Professional](#)

Enhancing the supplier's third-party relationships in construction projects

Project delivery involves networks of customers, contractors, suppliers, and various third parties. Previous research has focused on contractual relationships in the direct supply chains, with less attention to third parties and non-contractual relationships. This study develops and tests a framework of relationship strength and its antecedents in the non-contractual relationship of component suppliers and designers as third parties. The intent is to identify factors relevant to enhancing the supplier's third party relationships. The results reveal the supplier's activeness and technical capability as antecedents to trust, and supplier's technical capability and supplier-designer cooperation outside projects as antecedents to commitment.

General information

Publication status: Published

MoE publication type: D3 Professional conference proceedings

Organisations: Department of Industrial Management, Research group: Center for Research on Operations Projects and Services

Contributors: Sariola, R., Martinsuo, M.

Number of pages: 21

Publication date: Jun 2015

Host publication information

Title of host publication: The Bartlett IRNOP 2015 : International Research Network on Organizing by Projects Conference

Publisher: IRNOP

Keywords: project networks, supplier relationships, relationship strength

URLs:

<https://www.bartlett.ucl.ac.uk/cpm/irnop-2015/programme>

Research output: Chapter in Book/Report/Conference proceeding › Conference contribution › Professional

icellfusion: Tool for fusion and analysis of live-cell images from time-lapse multimodal microscopy

Temporal, multimodal microscopy imaging of live cells is becoming widely used in studies of cellular processes. In general, temporal sequences of images with functional and morphological data from live cells are acquired using multiple image sensors. The images from the different sources usually differ in resolution and have non-coincident fields of view, making the merging process complex. We present a new tool - iCellFusion - that performs data fusion of images from Phase-Contrast Microscopy and Fluorescence Microscopy in order to correlate the information on cell morphology, lineage and functionality. Prior to image fusion, iCellFusion performs automatic or computer-aided cell segmentation and establishes cell lineages. We exemplify its usage on time-lapse, multimodal microscopy images of bacteria producing fluorescent spots. We expect iCellFusion to assist research in Cell and Molecular Biology and the healthcare sector, where live-cell imaging is an increasingly important technique to detect and study diseases at the cellular level.

General information

Publication status: Published

MoE publication type: A3 Part of a book or another research book

Organisations: Signal Processing, Research group: Laboratory of Biosystem Dynamics-LBD, Instituto de Desenvolvimento de Novas Tecnologias

Contributors: Santinha, J., Gupta, A., Martins, L., Annala, T., Häkkinen, A., Mora, A., Lloyd-Price, J., Ribeiro, A., Oliveira, S. M. D., Fonseca, J. R.

Number of pages: 29

Pages: 806-834

Publication date: 30 Aug 2016

Host publication information

Title of host publication: Biometrics: Concepts, Methodologies, Tools, and Applications

Publisher: IGI Global

ISBN (Print): 9781522509837

ISBN (Electronic): 9781522509844

ASJC Scopus subject areas: Computer Science(all)

DOIs:

10.4018/978-1-5225-0983-7.ch033

Source: Scopus

Source ID: 85015879219

Research output: Chapter in Book/Report/Conference proceeding › Chapter › Scientific › peer-review

How is it sustainable? Identifying key indicators for sustainable educational design

General information

Publication status: Published

MoE publication type: A4 Article in a conference publication

Organisations: Department of Civil Engineering

Contributors: Sandström, N., Hytti, V., Nenonen, S., Lonka, K.

Number of pages: 3

Pages: 4217-4219

Publication date: 2016

Host publication information

Title of host publication: 10th INTED 2016 Conference Proceedings : 7-9 March, 2016, Valencia, Spain

Editors: Gómez Chova, L., López Martínez, A., Candel Torres, I.

ISBN (Electronic): 978-84-608-5617-7

Publication series

Name: INTED proceedings

ISSN (Electronic): 2340-1079

Keywords: 516 Educational sciences

DOIs:

10.21125/inted.2016.2037

Source: Bibtex

Source ID: urn:6581b3d417d27c5477c844ae889e72da

Research output: Chapter in Book/Report/Conference proceeding › Conference contribution › Scientific › peer-review

Participatory service design and community involvement in designing future-ready sustainable learning landscapes

The United Nations Sustainable Development Goals (SDGs) work as a new agenda for sustainable development globally. Many if not most of the SDGs can be combined with different levels of education. This paper leans on previous work in Sustainable Education Design (SED), which looked at sustainability from its multifaceted angles with a broad global scope. The context of the study is a campus at a research-intensive Finnish university. The methodology entailed participatory service design approaches. For piloting, one classroom was chosen as a test bed. The data consist of workshops, use walks and structured interviews. The analysis started from identifying KPIs of sustainable learning environment creation, after which these were tested against Sustainable Education Design Criteria described in a manual book earlier. The key findings include nine preliminary alternative KPIs that were merged with previous SED criteria and related SDGs. The alternative KPIs were trialled in the test bed environment. These proposed alternative KPIs can be used as indicators for sustainability, innovation and learning during participatory change processes and in evaluating the outcome.

General information

Publication status: Published

MoE publication type: A4 Article in a conference publication

Organisations: Civil Engineering, Research group: Responsible Construction, Helsinki University

Contributors: Sandström, N., Nevgi, A., Nenonen, S.

Publication date: 2 Sep 2019

Host publication information

Title of host publication: SBE 19 - Emerging Concepts for Sustainable Built Environment 22–24 May 2019, Helsinki, Finland

Publisher: IOP Publishing

Publication series

Name: IOP Conference Series: Earth and Environmental Science

Volume: 297

ISSN (Print): 1755-1307

ASJC Scopus subject areas: Environmental Science(all), Earth and Planetary Sciences(all)

Electronic versions:

Sandström_2019_IOP_Conf._Ser._Earth_Environ._Sci._297_012031

DOIs:

10.1088/1755-1315/297/1/012031

URLs:

<http://urn.fi/URN:NBN:fi:tuni-201910153860>

Bibliographical note

jufoid=85001

Source: Scopus

Source ID: 85072832468

Research output: Chapter in Book/Report/Conference proceeding › Conference contribution › Scientific › peer-review

EMCCD imaging of strongly ionizing radioactive materials for safety and security

General information

Publication status: Published

MoE publication type: B3 Non-refereed article in conference proceedings

Organisations: Department of Physics, Research area: Optics, Frontier Photonics

Contributors: Sand, J., Ihantola, S., Peräjärvi, K., Toivonen, H., Nicholl, A., Hrnccek, E., Toivonen, J.

Pages: JSII_P_1

Publication date: 12 May 2013

Host publication information

Title of host publication: 2013 Conference on Lasers and Electro-Optics - International Quantum Electronics Conference

Publisher: Optical Society of America

ISBN (Electronic): 978-1-4799-0594-2

Keywords: Radioluminescence, Imaging of alpha emitters

URLs:

http://www.osapublishing.org/abstract.cfm?URI=CLEO_Europe-2013-JSII_P_1

Source: Bibtex

Source ID: urn:29a089b7818f19ccf28db64b192d34f6

Research output: Chapter in Book/Report/Conference proceeding › Conference contribution › Scientific

Scanning of radioluminescence emission with a PMT for remote detection of alpha contamination

General information

Publication status: Published

MoE publication type: B3 Non-refereed article in conference proceedings

Organisations: Department of Physics, Research area: Optics, Research group: Applied Optics, STUK Radiat & Nucl Safety Author, Commiss European Communities, Joint Res Ctr, Inst Transuranium Elements

Contributors: Sand, J., Ihantola, S., Nicholl, A., Hrncek, E., Toivonen, J., Toivonen, H., Peräjärvi, K.

Publication date: 2015

Host publication information

Title of host publication: The European Conference on Lasers and Electro-Optics 2015

Publisher: Optical Society of America

Article number: CN_2_3

ISBN (Electronic): 978-1-4673-7475-0

Keywords: Radioluminescence, alpha radiation, Optical detection of alpha emitters

URLs:

http://www.osapublishing.org/abstract.cfm?URI=CLEO_Europe-2015-CN_2_3

Source: Bibtex

Source ID: urn:c5e6c13ca1357cdf98039843381a5b5f

Research output: Chapter in Book/Report/Conference proceeding › Conference contribution › Scientific

A model based analysis of the measurement errors in inductively coupled passive resonance sensors

A lumped element model was used to predict the measurement results of an inductively coupled resonance sensor. Errors related to the inductive coupling and the reader coil self-resonance were studied. The model was compared with measurements made with a physical circuit.

General information

Publication status: Published

MoE publication type: A4 Article in a conference publication

Organisations: Department of Automation Science and Engineering, Research area: Microsystems, Research area: Measurement Technology and Process Control, Integrated Technologies for Tissue Engineering Research (ITTE)

Contributors: Salpavaara, T., Lekkala, J.

Number of pages: 4

Publication date: 2015

Host publication information

Title of host publication: IMEKO XXI World Congress, Proceedings, August 30 - September 4, 2015, Prague, Czech Republic

Editor: Holub, J.

ISBN (Print): 978-80-01-05793-3

Keywords: passive resonance sensor, inductive coupling, lumped element model, measurement error

Research output: Chapter in Book/Report/Conference proceeding › Conference contribution › Scientific › peer-review

Ulkoiseinien rakennusfysikaaliset riskit ja pitkäaikaiskestävät ratkaisut

General information

Publication status: Published

MoE publication type: B2 Part of a book or another research book

Organisations: Department of Civil Engineering, Research group: Building Physics

Contributors: Salonen, J., Laukkarinen, A., Vinha, J.

Number of pages: 8

Pages: 74-81

Publication date: 2015

Host publication information

Title of host publication: Korjaa ja korota : Kerrostalojen korjaamisen ja lisäkerrosten rakentamisen ratkaisuja
Volume: 62
Place of publication: Oulu, Finland
Publisher: Oulun yliopisto
Editors: Soikkeli, A., Koiso-Kanttila, J., Sorri, L.
ISBN (Print): 978-952-62-0727-8

Publication series

Name: Oulun yliopisto, arkkitehtuurin osasto. A. Julkaisu
ISSN (Electronic): 0357-8704
ASJC Scopus subject areas: Building and Construction
Research output: Chapter in Book/Report/Conference proceeding > Chapter > Scientific

Backend infrastructure supporting audio augmented reality and storytelling

Today, museums are looking for new ways to attract and engage audience. These include virtual exhibitions, augmented reality and 3D modelling based applications, and interactive digital storytelling. The target of all these activities is to provide better experiences for audiences that are very familiar with the digital world. In augmented reality (AR) and interactive digital storytelling (IDS) systems, visual presentation has been dominant. In contrast to this trend, we have chosen to concentrate on auditory presentation. A key element for this is a backend service supporting different client applications. This paper discusses our experiences from designing a portable open source based audio digital asset management system (ADAM), which supports interaction with smart phones and tablets containing audio augmented reality and audio story applications. We have successfully implemented ADAM system and evaluated it in the Museum of Technology in Helsinki, Finland.

General information

Publication status: Published
MoE publication type: A4 Article in a conference publication
Organisations: Department of Pervasive Computing, Research area: Software engineering, Helsinki Metropolia University of Applied Sciences
Contributors: Salo, K., Giova, D., Mikkonen, T.
Number of pages: 11
Pages: 325-335
Publication date: 2016

Host publication information

Title of host publication: Human Interface and the Management of Information: Applications and Services : 18th International Conference, HCI International 2016 Toronto, Canada, July 17-22, 2016. Proceedings, Part II
Publisher: Springer Verlag
ISBN (Print): 9783319403960

Publication series

Name: Lecture Notes in Computer Science
Volume: 9735
ISSN (Print): 0302-9743
ISSN (Electronic): 1611-3349
ASJC Scopus subject areas: Computer Science(all), Theoretical Computer Science
Keywords: Audio augmented reality, Digital asset management, Metadata, Open source DAM, Soundscape
DOIs:
10.1007/978-3-319-40397-7_31
URLs:
<http://urn.fi/URN:ISBN:978-3-319-40397-7>
Source: Scopus
Source ID: 84978903908
Research output: Chapter in Book/Report/Conference proceeding > Conference contribution > Scientific > peer-review

Alipaineistetun tuulettuvan ryömintätilan rakennusfysikaaliset FEM-simuloinnit

General information

Publication status: Published
MoE publication type: B3 Non-refereed article in conference proceedings
Organisations: Civil Engineering, Research group: Building Physics, Tampere University of Technology, Laboratory of Civil Engineering
Contributors: Salo, J., Huttunen, P., Vinha, J.
Number of pages: 11

Pages: 413-422
Publication date: 24 Oct 2017

Host publication information

Title of host publication: Rakennusfysiikka 2017. Uusimmat tutkimustulokset ja hyvät käytännön ratkaisut : 24-26.10.2017, Tampere
Volume: 2
Place of publication: Tampere
Publisher: Tampereen teknillinen yliopisto, Rakennustekniikka, Rakennusfysiikka
Editors: Vinha, J., Kivioja, H.
ISBN (Print): 978-952-15-4023-3

Publication series

Name: Tampereen teknillinen yliopisto. Rakennustekniikka. Rakennusfysiikka.
URLs:
http://www.tut.fi/cs/groups/public_news/@l102/@web/@p/documents/liit/x229155.pdf

Bibliographical note

INT=RAK, "Salo, Juha"
Research output: Chapter in Book/Report/Conference proceeding › Conference contribution › Scientific

Älylaitteet ja stressi: Aiheuttajat, seuraukset ja hallintakeinot

General information

Publication status: Published
MoE publication type: D2 Article in professional manuals or guides or professional information systems or text book material
Organisations: Information and Knowledge Management, Jyväskylän yliopisto
Contributors: Salo, M., Pirkkalainen, H.
Number of pages: 12
Pages: 79-90
Publication date: 2019

Host publication information

Title of host publication: Lapset, nuoret ja älylaitteet - Taiten tasapainoon
Publisher: KUSTANNUS OY DUODECIM
Editors: Kosola, S., Moisala, M., Ruokoniemi, P.
Research output: Chapter in Book/Report/Conference proceeding › Chapter › Professional

How to co-learn in campus.

General information

Publication status: Published
MoE publication type: D2 Article in professional manuals or guides or professional information systems or text book material
Organisations: Department of Civil Engineering, Research group: Digitalization in the real estate and construction sector
Contributors: Salmisto, A.
Number of pages: 18
Pages: 320-337
Publication date: 2015

Host publication information

Title of host publication: Oppiva kampus - How to co-create campus?
Place of publication: Tampere
Publisher: Suomen Yliopistokiinteistöt Oy
Editors: Nenonen, S., Kärnä, S., Junnonen, J., Tähtinen, S., Sandström, N.
ISBN (Print): 978-952-15-3478-2
ISBN (Electronic): 978-952-15-3479-9
URLs:
http://www.sykoy.fi/wp-content/uploads/oppiva-kampus_valmis_pieni.pdf
Research output: Chapter in Book/Report/Conference proceeding › Chapter › Professional

Relations between civil engineering students' approaches to learning, perceptions of the development of professional skills and perceived workload

General information

Publication status: Published

MoE publication type: A4 Article in a conference publication

Organisations: Department of Civil Engineering, Research group: Digitalization in the real estate and construction sector, Teaching and Learning Services, University of Helsinki

Contributors: Salmisto, A., Postareff, L., Nokelainen, P.

Publication date: 2016

Host publication information

Title of host publication: 44th Annual Conference of the European Society for Engineering Education SEFI2016:

Proceedings : 12-15 September 2016, Tampere, Finland

ISBN (Print): 978-2-87352-014-4

Keywords: Engineering education, professional skills, approaches to learning, perceived workload

URLs:

<http://www.sefi.be/conference->

[2016/papers/Open_and_Online_Engineering_Education__Engineering_Education_Research/salmisto-relations-between-civil-engineering-students'-approaches-54_a.pdf](http://www.sefi.be/conference-2016/papers/Open_and_Online_Engineering_Education__Engineering_Education_Research/salmisto-relations-between-civil-engineering-students'-approaches-54_a.pdf)

Research output: Chapter in Book/Report/Conference proceeding > Conference contribution > Scientific > peer-review

Development of students' multidisciplinary collaboration skills by simulation of the design process

General information

Publication status: Published

MoE publication type: A4 Article in a conference publication

Organisations: Department of Civil Engineering, Research group: Digitalization in the real estate and construction sector

Contributors: Salmisto, A., Keinänen, M., Kähkönen, K.

Pages: 348-360

Publication date: 2016

Host publication information

Title of host publication: Proceedings of the CIB World Building Congress 2016: Volume I - Creating built environments of new opportunities.

Volume: 1

ISBN (Print): 978-952-15-3741-7

Keywords: collaboration, multidisciplinary, engineering education, collaborative learning, design process

URLs:

https://tutcris.tut.fi/portal/files/6186667/WBC16_Vol_1.pdf

Research output: Chapter in Book/Report/Conference proceeding > Conference contribution > Scientific > peer-review

Competence portfolio assessment of research and development center for regional development

General information

Publication status: Published

MoE publication type: A4 Article in a conference publication

Organisations: Pori Department, Research group: Business Ecosystems, Networks and Innovations

Contributors: Salminen, V., Kantola, J. I., Vanharanta, H.

Number of pages: 9

Pages: 701-708

Publication date: 2015

Host publication information

Title of host publication: 6th International Conference on Applied Human Factors and Ergonomics (AHFE 2015) and the Affiliated Conferences, AHFE 2015

Publisher: Elsevier

Publication series

Name: Procedia Manufacturing

Volume: 3

ISSN (Print): 2351-9789

DOIs:

[10.1016/j.promfg.2015.07.310](https://doi.org/10.1016/j.promfg.2015.07.310)

Research output: Chapter in Book/Report/Conference proceeding > Conference contribution > Scientific > peer-review

Systematic approach to secure automation – coordinated voltage control use-case

General information

Publication status: Published

MoE publication type: A4 Article in a conference publication

Organisations: Department of Automation Science and Engineering, Research area: Information Systems in Automation, Research area: Dynamic Systems, Department of Electrical Engineering, Research area: Power engineering

Contributors: Salmenperä, M., Seppälä, J., Koivisto, H., Lu, S., Repo, S.

Publication date: 18 Mar 2015

Host publication information

Title of host publication: Proceedings of AutomaatioXXI, The Industrial Revolution of Internet – From Intelligent Devices to Networked Intelligence

Place of publication: Helsinki, Finland

Publisher: Suomen Automaatioseura ry

ISBN (Electronic): 978-952-5183-46-7

Publication series

Name: SAS Julkaisusarja

Publisher: Finnish Society of Automation

Volume: 44

Bibliographical note

ORG=ase,0.8

ORG=dee,0.2

Research output: Chapter in Book/Report/Conference proceeding › Conference contribution › Scientific › peer-review

Short-range supercontinuum based lidar for combustion diagnostics

We developed a short range Lidar system using a supercontinuum source spectrally tailored to cover the ro-vibrational transition energies of desired components of a flue gas. The system enables simultaneous remote measurements of the gas parameters, like temperature and concentration which play a key role in the performance of combustion power plants. The technique requires only one inspection window and can thus be used in combustion units with limited access. It exploits differential absorption between specific wavelength bands of the gas absorption spectrum. The transmittance of individual wavelength band is derived from the detected backscattered temporal intensity of the supercontinuum pulses. We demonstrate preliminary industrial measurement of water vapor temperature and concentration in a full scale boiler. The technique also enables 3D mapping of temperature and concentration.

General information

Publication status: Published

MoE publication type: A4 Article in a conference publication

Organisations: Physics, Valmet Technologies Oy

Contributors: Saleh, A., Ryczkowski, P., Genty, G., Toivonen, J.

Publication date: 2019

Host publication information

Title of host publication: SPIE Future Sensing Technologies

Publisher: SPIE, IEEE

Editors: Kimata, M., Valenta, C. R.

Article number: 111970Y

ISBN (Electronic): 9781510631113

Publication series

Name: Proceedings of SPIE

Volume: 11197

ISSN (Print): 0277-786X

ISSN (Electronic): 1996-756X

ASJC Scopus subject areas: Electronic, Optical and Magnetic Materials, Condensed Matter Physics, Computer Science Applications, Applied Mathematics, Electrical and Electronic Engineering

Keywords: Combustion, Diagnostics, Lidar, Remote sensing, Supercontinuum

DOIs:

10.1117/12.2542720

Bibliographical note

jufoid=71479

Source: Scopus

Source ID: 85078209433

On the choice of damage variable in the continuum fatigue model based on a moving endurance surface

This paper considers two different damage formulations for modelling high-cycle fatigue of materials. The underlying fatigue model is formulated within continuum mechanics framework with the concept of a moving endurance surface. Such a model has a unique feature that it allows for the concepts of fatigue limits and damage accumulation during the load history thus avoiding cycle-counting techniques. A Scalar and tensor type of damage variables are utilized with an essentially similar type of damage evolution law. The tensor damage model capable of accounting for damage induced anisotropy is based on the gradient of the endurance surface. The performance of the scalar and tensor damage formulations are compared with different multidimensional stress histories.

General information

Publication status: Published

MoE publication type: B3 Non-refereed article in conference proceedings

Organisations: Department of Mechanical Engineering and Industrial Systems, Research area: Applied Mechanics

Contributors: Saksala, T., Holopainen, S., Kouhia, R.

Number of pages: 6

Pages: 57-62

Publication date: May 2015

Host publication information

Title of host publication: Proceedings of the XII Finnish Mechanics Day

ISBN (Print): 978-952-93-5608-9

ISBN (Electronic): 978-952-93-5608-9

Keywords: high-cycle fatigue modelling, isotropic damage, anisotropic damage, endurance surface, evolution equations

URLs:

http://rmseura.tkk.fi/smp_proceedings/SMP12_Proceedings.pdf

Research output: Chapter in Book/Report/Conference proceeding › Conference contribution › Scientific

Numerical modelling of rock fracture with the embedded discontinuity approach incorporating heterogeneity

In this paper, the embedded discontinuity approach is applied to finite element modeling of rock fracture. A rate-dependent constitutive model based on the embedded displacement discontinuity theory is developed to describe the mode I, mode II and mixed mode fracture of rock in tension and compression. The bulk material is described as linear elastic until reaching the elastic limit. Beyond this limit, a rate-dependent exponential softening law governs the evolution of the embedded displacement jump. The present approach incorporates the rock heterogeneity by random description of the mineral texture of rock. Moreover, the inherent initial microcrack populations of natural rocks are accounted for as randomly oriented embedded discontinuities. Numerical examples demonstrate the model behavior in uniaxial compression and tension. The effect of loading rate and confining pressure is tested as well in 2D numerical simulations. These simulations show that the model captures the main features of rock in confined compression and uniaxial tension. The developed method has the computational efficiency of continuum plasticity models. However, it has an important advantage of accounting for the orientation of introduced microcracks.

General information

Publication status: Published

MoE publication type: A4 Article in a conference publication

Organisations: Department of Mechanical Engineering and Industrial Systems, Research area: Applied Mechanics

Contributors: Saksala, T.

Number of pages: 11

Publication date: 2015

Host publication information

Title of host publication: ISRM Congress 2015 Proceedings : Innovations in Applied and Theoretical Rock Mechanics

Publisher: International Society for Rock Mechanics ISRM

Article number: 177

ISBN (Electronic): 978-1-926872-25-4

URLs:

<https://security.gibsongroup.ca/isrm/calendar.php> (Click on Fracture Modelling (PART I) Chair: Frederic Pellet & Derek Martin)

Research output: Chapter in Book/Report/Conference proceeding › Conference contribution › Scientific › peer-review

Microrobotic platform with integrated force sensing microgrippers for characterization of fibrous materials: Case study on individual paper fibers

Mechanical characterization of micro-scale fibrous materials determines the key parameters which affect the quality of products such as composites, textile and paper. The current laboratory tests are mainly based on bulk measurements.

This thesis introduces a microrobotic platform to handle and to characterize micro-scale fibers (MF), with the dimensions of few micrometers to hundreds of micrometers, at individual fiber level. The platform facilitates handling and specimen preparation of micro-scale fibrous material. A major challenge in mechanical characterization of MF is lack of proper force sensing microgrippers in the market. MF do not need a lot of force to manipulate, but their ultimate tensile strength is high and relatively large forces are required to perform a micro-tensile test. In this thesis, three force sensing microgrippers are developed and they are integrated into the mentioned microrobotic platform. Two of them are developed to measure the bonding forces between individual pulp fibers, normal to the bonded area (Z-direction) and parallel to the bonded area (shear-mode). Their force sensing solution is based on bending polyvinylidene fluoride (PVDF) films and their force range is up to 10mN. The third one, with the force range of 20mN, is developed to perform micro-tensile tests on MF. It uses a microspring and a magnetic encoder to measure the force. The force range of this force sensing microgripper can easily be increased by changing its microspring to a stiffer one. This feature makes the proposed force sensing approach adaptable to a wide range of MF. Even though pulp and paper fibers are used as a case study in this thesis, the applications of microrobotic solutions presented here are not limited to pulp and paper fibers for the following reason: pulp and paper fibers are natural fibers with random morphology, therefore if a microrobotic solution is capable of handling these morphologically challenging fibers, it is easily adaptable to synthetic fibers which have uniform morphology. The prototypes of all three force sensing microgrippers are calibrated and their performance are validated.

General information

Publication status: Published

MoE publication type: G4 Doctoral dissertation (monograph)

Organisations: Department of Automation Science and Engineering, Research area: Information Systems in Automation, Research area: Microsystems, Research area: Measurement Technology and Process Control

Contributors: Saketi, P.

Number of pages: 116

Publication date: 21 Jul 2015

Publication information

Place of publication: Tampere

Publisher: Tampere University of Technology

ISBN (Print): 978-952-15-3545-1

ISBN (Electronic): 978-952-15-3550-5

Original language: English

Publication series

Name: Tampere University of Technology. Publication

Publisher: Tampere University of Technology

Volume: 1309

ISSN (Print): 1459-2045

Electronic versions:

saketi_1309

URLs:

<http://URN.fi/URN:ISBN:978-952-15-3550-5>

Bibliographical note

Awarding institution: Tampere University of Technology

Versio ok 16.12.2015

Research output: Book/Report > Doctoral thesis > Monograph

Optical Frequency Comb Photoacoustic Spectroscopy

We combine for the first time a mid-infrared optical frequency comb Fourier transform spectrometer with cantilever-enhanced photoacoustic detection and measure high-resolution broadband spectra of the fundamental band of methane in a few milliliter sample volume.

General information

Publication status: Published

MoE publication type: A4 Article in a conference publication

Organisations: Physics, Energy Technology and Thermal Process Chemistry, University of Helsinki

Contributors: Sadiek, I., Mikkonen, T., Vainio, M., Toivonen, J., Foltynowicz, A.

Publication date: 1 May 2019

Host publication information

Title of host publication: 2019 Conference on Lasers and Electro-Optics, CLEO 2019 - Proceedings

Publisher: IEEE

ISBN (Electronic): 9781943580576

ASJC Scopus subject areas: Spectroscopy, Industrial and Manufacturing Engineering, Safety, Risk, Reliability and Quality, Management, Monitoring, Policy and Law, Electronic, Optical and Magnetic Materials, Radiology Nuclear Medicine and imaging, Instrumentation, Atomic and Molecular Physics, and Optics

DOIs:

10.23919/CLEO.2019.8749688

Source: Scopus

Source ID: 85069190764

Research output: Chapter in Book/Report/Conference proceeding › Conference contribution › Scientific › peer-review

Short range HF radio channel measurements: Search for one path channels

High frequency (HF) radio channel is diverse since it could be a single path channel or a multipath channel. However, there is lack of information about what is the ratio between these. Herein, results from a measurement campaign in Finland for ground wave and near vertical incidence skywave (NVIS) paths are reported. It was observed that one path channels are rather widely available and in ground waves they dominate. This means that channels for high modulation orders (high data rate HF) are available and should be searched for during the link establishment process. Unfortunately, the current link establishment processes do not support that such that maybe it is time for improvements. Another observation was that if channels are available at all, then usually there are multiple channels available. This means that recently introduced wideband (up to 24 kHz) and multiband (several 3 kHz bands) HF communications have room.

General information

Publication status: Published

MoE publication type: A4 Article in a conference publication

Organisations: Department of Electronics and Communications Engineering, Research group: Wireless Communications and Positioning, Oulun Yliopisto/CWC, Kyynel Oy

Contributors: Saarnisaari, H., Hovinen, V., Tuomivaara, H., Yli-Kaakinen, J.

Number of pages: 6

Publication date: 2016

Host publication information

Title of host publication: 2016 International Conference on Military Communications and Information Systems (ICMCIS)

ISBN (Electronic): 9781509017775

DOIs:

10.1109/ICMCIS.2016.7496559

Research output: Chapter in Book/Report/Conference proceeding › Conference contribution › Scientific › peer-review

A 1.5-W frequency doubled semiconductor disk laser tunable over 40 nm at around 745 nm

1.5 W of output power was obtained in the challenging wavelength range between 700 and 800 nm by frequency doubling a wafer-fused 1.49- μm semiconductor disk laser pumped with 980-nm diodes. A bismuth borate crystal was used for doubling the frequency. A total optical-to-optical efficiency of 8.3 % was achieved. The laser was tunable from 720 to 764 nm with an intracavity birefringent plate. The beam quality parameter M² remained below 1.5 at all power levels. The laser is attractive for biomedical applications such as photodynamic therapy that benefit from the low absorption of light in tissue in this spectral range.

General information

Publication status: Published

MoE publication type: A4 Article in a conference publication

Organisations: Optoelectronics Research Centre, Research group: Ultrafast and intense lasers, Research group: Semiconductor Technology and Applications, Optoelectronics Research Centre, Tampere University of Technology, Ecole Polytech Fed Lausanne, Ecole Polytechnique Federale de Lausanne, Lab Phys Nanostruct

Contributors: Saarinen, E. J., Lyytikäinen, J., Ranta, S., Rantamäki, A., Saarela, A., Sirbu, A., Iakovlev, V., Kapon, E., Okhotnikov, O. G.

Number of pages: 8

Publication date: 2016

Host publication information

Title of host publication: Proceedings of SPIE : Vertical External Cavity Surface Emitting Lasers (VECSELs) VI

Volume: 9734

Publisher: SPIE

Article number: 97340P-8

Publication series

Name: Spie conference proceedings

Publisher: SPIE

ISSN (Electronic): 0277-786X

DOIs:

10.1117/12.2209384

Bibliographical note

INT=orc,"Saarela, Antti"

JUFOID=71479

Research output: Chapter in Book/Report/Conference proceeding › Conference contribution › Scientific › peer-review

CBRN Defense Using THz Pulse Trains from Semiconductor Disk Lasers

We propose THz generation from a photoconductive antenna illuminated by a train of optical pulses with a pulse repetition rate that corresponds to the desired THz frequency. This new method of THz generation can be seen as a hybrid between the conventional optical THz generation methods, where the optical source is either a heterodyne signal from two continuous wave lasers or a single short pulse. Therefore, the method holds promise for generating both coherent broadband and narrow-linewidth continuous wave THz radiation. The high-repetition rate optical pulse train is obtained from a semiconductor disk laser harmonically mode-locked by a semiconductor saturable absorber mirror and an intracavity etalon. Optical pulse trains with pulse repetition rates from 190 GHz to 580 GHz are demonstrated at an average optical output power of 1 W. This power level is enough for driving full arrays of photoconductive antennas. The approach may provide a compact and powerful THz source for CBRN defense.

General information

Publication status: Published

MoE publication type: A4 Article in a conference publication

Organisations: Optoelectronics Research Centre, Research group: Ultrafast and intense lasers

Contributors: Saarinen, E.

Publication date: 2015

Host publication information

Title of host publication: NATO ARW on THz Diagnostics of CBRN effects and Detection of Explosives & CBRN : Proceedings of the NATO ARW on Detection of Explosives and CBRN

Publication series

Name: NATO Science for Peace and Security Series B: Physics and Biophysics

Publisher: Springer

ISSN (Electronic): 1874-6500

Research output: Chapter in Book/Report/Conference proceeding › Conference contribution › Scientific › peer-review

Consumers' Views on Eco-Friendliness as a Dimension of a High-Tech Brand

High-tech companies are facing the need to perform deeper analysis of how consumers view the eco-friendliness of their brands, in order to create green product and marketing strategies. The focus of this paper is to study whether consumers associate eco-friendliness with high-tech brands, and what kinds of consumers are most pro-environmental based on demographics. The key finding of this research is that consumers consider also eco-friendly aspects when reflecting on high-tech brands on four dimensions also used to measure general brand experience: the sensory, affective, behavioral and intellectual dimensions [1]. Demographically, women consider eco-friendliness more in association with high-tech brands than men across all of the four brand experience dimensions. In addition, mature consumers consider on the intellectual and sensory brand dimensions more eco-friendly aspects than young consumers. There are no statistically significant differences in the responses based on the educational background of the respondents.

General information

Publication status: Published

MoE publication type: D3 Professional conference proceedings

Organisations: Department of Industrial Management, Research group: Center for Innovation and Technology Research

Contributors: Saari, U., Mäkinen, S., Alinikula, P.

Number of pages: 8

Pages: 1-8

Publication date: 17 Nov 2014

Host publication information

Title of host publication: Going Green - CARE INNOVATION 2014

Publisher: SAT Austrian Society for Systems Engineering and Automation

Article number: 067

URLs:

<http://www.4980.timewarp.at/CARE/CI2014/index.html>

Research output: Chapter in Book/Report/Conference proceeding › Conference contribution › Professional

Exhaust Particles and NO_x Emission Factors of a Modern Heavy Duty Truck equipped with the SCR in Real-world Driving Conditions

General information

Publication status: Published

MoE publication type: D3 Professional conference proceedings

Organisations: Department of Physics, Research area: Aerosol Physics, Research group: The Instrumentation, Emissions, and Atmospheric Aerosols Group, Metropolia University of Applied Sciences

Contributors: Saari, S., Karjalainen, P., Pirjola, L., Ntziachristos, L., Keskinen, J., Rönkkö, T.

Publication date: Sep 2015

Host publication information

Title of host publication: EAC 2015, European Aerosol Conference, 6-11 September, 2015, Milan, Italy

URLs:

<http://www.eac2015.it/index.php/final-programme>

Bibliographical note

ISBN kysytty, HO.

Ei ole, HO.

Research output: Chapter in Book/Report/Conference proceeding › Conference contribution › Professional

Generation of Characteristic Traffic Emission Aerosol in Particulate Filter Collection Efficiency Tests

General information

Publication status: Published

MoE publication type: D3 Professional conference proceedings

Organisations: Department of Physics, Research area: Aerosol Physics, VTT Technical Research Centre of Finland

Contributors: Saari, S., Karjalainen, P., Kalliohaka, T., Taipale, A., Rönkkö, T.

Publication date: Sep 2015

Host publication information

Title of host publication: EAC 2015, European Aerosol Conference, 6-11 September, 2015, Milan, Italy

URLs:

<http://www.eac2015.it/index.php/final-programme>

Bibliographical note

ISBN kysytty, HO.

Ei ole, HO.

Research output: Chapter in Book/Report/Conference proceeding › Conference contribution › Professional

Generation of characteristic traffic emission aerosol in particulate filter collection efficiency tests

General information

Publication status: Published

MoE publication type: D3 Professional conference proceedings

Organisations: Department of Physics, Research area: Aerosol Physics, Urban circular bioeconomy (UrCirBio), VTT Technical Research Centre of Finland

Contributors: Saari, S., Karjalainen, P., Kalliohaka, T., Taipale, A., Rönkkö, T.

Publication date: Oct 2015

Host publication information

Title of host publication: The 11th International Conference on Industrial Ventilation, Shanghai, China

URLs:

<http://www.scopus.com/inward/record.url?scp=84988008282&partnerID=8YFLogxK>

Bibliographical note

ISBN kysytty, HO.

Ei ole, HO.

Research output: Chapter in Book/Report/Conference proceeding › Conference contribution › Professional

Townhouse-talotyypin rakennuskustannukset: kolmen suunnitteluratkaisun taloudellisuuden analysointi

General information

Publication status: Published

MoE publication type: A3 Part of a book or another research book
Organisations: Department of Civil Engineering
Contributors: Saari, A., Tauriainen, M.
Number of pages: 4
Pages: 94-97
Publication date: 2015

Host publication information

Title of host publication: Nollaa parempi – Townhouse energiatehokkaassa asuinrakentamisessa
Publisher: Aalto-yliopisto
ISBN (Print): 978-952-60-6409-3
ISBN (Electronic): 978-952-60-6410-9

Publication series

Name: Aalto University publication series Crossover
No.: 9/2015

ISSN (Print): 1799-4950
ISSN (Electronic): 1799-4969

Research output: Chapter in Book/Report/Conference proceeding › Chapter › Scientific › peer-review

Study on the capability to measure stakeholders' brand experiences with a consumer-centric measurement framework

The target of this paper is to introduce a general brand experience measurement scale that can be used to measure brand experiences of the stakeholders of a company. It is proposed that also stakeholders' brand experiences can be measured with a measurement scale developed for consumer marketing research.

In literature, there are various different kinds of individual brand constructs and measurement frameworks that have been developed for tracking consumers' brand perceptions; however, these models have not been frequently used to measure brand-related aspects outside consumer-centric situations. The tracking of stakeholders' brand experiences can help companies to position their brands better in the tightening global competition where also stakeholders have a critical role and can influence the performance of the company (Hult, Mena, Ferrell, & Ferrell, 2011).

Brands are experienced via stimuli that can be either controlled by the company, including, for example, advertisements, logos, sales environments, sales packages, and services, or then they are out of their control, for example, brand related information can spread freely on the social media or by word-of-mouth (Brakus, Schmitt, & Zarantonello, 2009; Keller, 2013). Thus, it can be said that the measurement of brand experiences can give valuable information to the company on what is the status and reputation of the brand. However, it is not only the customers or consumers that have brand experiences, also stakeholders encounter brands and the way they experience them on the personal level can have a major impact on how they interact and promote the brand in other contexts. Some B2B marketing theories have brought up the importance of understanding long-term relationships between buyers and sellers, including experiences associated with the relationship (Hadjikhani & LaPlaca, 2013) as well as purchase risks (Brown, Zablah, Bellenger, & Johnston, 2011).

Brand experiences can be measured, for example, with a measurement scale (Brakus et al., 2009) that has been extended with an eco-friendliness dimension (Saari, 2016). This model has been tested with consumers, and this paper argues that the same scale can be useful for monitoring the brand experiences of other stakeholders as well. The extended brand experience scale can be used to monitor whether consumers and stakeholders experience a certain brand to be ecofriendly, and how positively or negatively they are inclined towards the eco-friendliness of the brand experiences.

With the raising focus on stakeholders' important role in solving environmental problems, the role of stakeholder marketing becomes more critical for a company (Homburg, Stierl, & Bornemann, 2013). And in this situation it becomes also more crucial to follow up what are the brand experiences of stakeholders. The stakeholders' brand experiences can give a strong indication is the company implementing its strategy correctly and are all the essential elements transparently and authentically communicated to the stakeholders, especially with regard to the environmental development activities that are reflected in the eco-friendliness dimension of brand experiences. Keywords: brand experience; brand measurement scales; stakeholders' brand experiences; stakeholder marketing

References:

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- Hadjikhani, A., & LaPlaca, P. (2013). Development of B2B marketing theory. *Industrial Marketing Management*, 42(3), 294-305.
- Homburg, C., Stierl, M., & Bornemann, T. (2013). Corporate Social Responsibility in Business-to-Business Markets: How Organizational Customers Account for Supplier Corporate Social Responsibility Engagement. *Journal of Marketing*, 77(6), 54-72.
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- Keller, K. L. (2013). *Strategic Brand Management. Building, Measuring, and Managing Brand Equity*. (4 ed.). Essex, England: Pearson Education Limited.

Saari, U. (2016). Eco-Friendliness in the Brand Experience of High-Tech Products. Tampere University of Technology, Tampere, Finland.

General information

Publication status: Published

MoE publication type: A4 Article in a conference publication

Organisations: Department of Industrial Management, Research group: Center for Innovation and Technology Research

Contributors: Saari, U., Mäkinen, S.

Number of pages: 2

Pages: 1034-1035

Publication date: 20 Jul 2016

Host publication information

Title of host publication: Global Marketing Conference Proceedings 2016 Hong Kong, July 21 - 24 : Track: Stakeholders-brand Relationships

Publication series

Name: Proceedings of the Global Marketing Conference

ISSN (Print): 1976-8699

Keywords: brand experience, brand experience measurement, brand measurement scale, stakeholders' brand experiences, stakeholder marketing

URLs:

<http://gammaconference.org/2016/?ckattempt=1>

Research output: Chapter in Book/Report/Conference proceeding > Conference contribution > Scientific > peer-review

Exploring how brand experience measurement could be used for integrating marketing and R&D

Based on a brand experience survey done on global mobile phone brands, we have analysed how brand experiences impact brand loyalty and are associated to prior product selections. We have created two conceptual models after doing exploratory factor analysis (EFA) on data collected from Finland (N=468). Our findings indicate that brand experiences of mobile phone brands consist of intellectual, sensory, behavioural, and eco-friendliness related aspects, and that the affective dimension that has earlier been linked to brand experiences is in fact associated more with brand loyalty. Also the perception of eco-friendliness in the brand experience can have an impact on brand loyalty and it is reflected in the product selection. Thus we suggest that integrated marketing and innovation management concentrate on improving the emotions consumers have towards a brand and measure this dimension to track how the brand has succeeded to deliver intellectual, sensory, behavioural and eco-friendliness related brand experiences.

General information

Publication status: Published

MoE publication type: A4 Article in a conference publication

Organisations: Department of Industrial Management, Research group: Center for Innovation and Technology Research

Contributors: Saari, U. A., Mäkinen, S. J.

Number of pages: 14

Publication date: 19 Jun 2016

Host publication information

Title of host publication: XXVII ISPIM Innovation Conference 2016 : Porto, 19-22 June, 2016

ISBN (Print): 978-952-265-929-3

Keywords: brand experience, brand experience measurement, stakeholders, product development

Electronic versions:

ISPIM2016_Saari_Makinen_Exploring how brand experience measurement

URLs:

<http://urn.fi/URN:NBN:fi:tty-201607254337>

Research output: Chapter in Book/Report/Conference proceeding > Conference contribution > Scientific > peer-review

Proceedings of the CIB World Building Congress 2016: Volume III - Building Up Business Operations and Their Logic. Shaping Materials and Technologies

General information

Publication status: Published

MoE publication type: C2 Edited books

Organisations: Department of Civil Engineering, Research group: Digitalization in the real estate and construction sector

Contributors: Saari, A. (ed.), Huovinen, P. (ed.)

Number of pages: 743

Publication date: 27 May 2016

Publication information

Publisher: Tampere University of Technology. Department of Civil Engineering
Volume: 3
ISBN (Electronic): 978-952-15-3743-1
Original language: English

Publication series

Name: Tampere University of Technology. Department of Civil Engineering. Construction Management and Economics.
Report
Volume: 18
ISSN (Print): 1797-8904
Electronic versions:
WBC16 Vol 3
URLs:
<http://urn.fi/URN:ISBN:978-952-15-3743-1>
Research output: Book/Report > Anthology > Scientific > peer-review

Applying third-party moocs in programming education: a case study

General information

Publication status: Published
MoE publication type: A4 Article in a conference publication
Organisations: Research group: Software Engineering and Intelligent Systems, Research group: Software Engineering and Intelligent Systems, Pervasive Computing
Contributors: Saari, M., Mäkinen, T., Linna, P.
Number of pages: 7
Pages: 53-59
Publication date: 3 Jul 2017

Host publication information

Title of host publication: 9th International Conference on Education and New Learning Technologies : 3-5 July, 2017
Barcelona, Spain
Place of publication: Barcelona, Spain
Publisher: IATED
ISBN (Electronic): 978-84-697-3777-4
Electronic versions:
Saari2017_EDULEARN17
DOIs:
10.21125/edulearn.2017.1014
URLs:
<http://urn.fi/URN:NBN:fi:tuni-202003112655>
Research output: Chapter in Book/Report/Conference proceeding > Conference contribution > Scientific > peer-review

Assessing the usefulness of an early idea development tool among experienced researchers

We test a novel ideation tool developed for early idea development among experienced academic researchers. We presented the Impact Canvas® tool to experienced researchers who assessed the usefulness of the tool in early idea development. This paper analyses their perceptions of the tool: its usability and visual appeal, content elements, ability to facilitate collaboration and motivate them personally. Our findings imply that the employment background of experienced researchers has an impact on how useful they consider the tool. Researchers with a background in the public sector appreciate the tool significantly more than researchers who do not have similar working experiences.

General information

Publication status: Published
MoE publication type: A1 Journal article-refereed
Organisations: Industrial and Information Management, Research group: Center for Innovation and Technology Research , Innovation Services, Research Services, University of Tampere
Contributors: Saari, U., Aarikka-Stenroos, L., Boedeker, S., Köppä, L., Langwaldt, J.
Number of pages: 6
Pages: 3-8

Publication date: 22 Dec 2017

Peer-reviewed: Yes

Publication information

Journal: CERN IdeaSquare Journal of Experimental Innovation

Volume: 1

Issue number: 2

ISSN (Print): 2413-9505

Original language: English

Keywords: Canvas tool, Early idea development, Ideation process, Ideation tool

Electronic versions:

476-2180-2-PB

DOIs:

10.23726/cij.2017.476

URLs:

<http://urn.fi/URN:NBN:fi:tty-201801311182>

Research output: Contribution to journal › Article › Scientific › peer-review

Assessing sustainability orientations of first year university students

In order for universities to be able to develop and adjust their courses and teaching methods to better support the sustainability and ethical education of university students, the status and levels of sustainability and ethical standards among freshman students need to be measured and analyzed. The objective of our research is to study do first year university students already consider sustainability and ethical aspects when assessing the business environment and opportunities in the markets. The authors intend to develop a sustainability assessment tool and determine whether entrepreneurship courses support sustainable and responsible thinking in university education by measuring the opinion of students using a self-assessment questionnaire. The development of the sustainability assessment tool is based on existing measures on students' sustainability and ethical commitment supported by the works of Buil et al. (2016) and De Clercq & Dakhli (2009). The data were collected at the Tampere University of Technology in Finland and Tallinn University of Technology in Estonia. The findings indicate that first year students already acknowledge the need for taking into account sustainability, and that it is important for business initiatives to be both socially and environmentally responsible. In addition, this study shows that the sustainability orientations of students in different engineering disciplines do not vary significantly from each other. Thus, the sustainability assessment tool developed in this study has been tested and found to be coherent among students in different engineering disciplines. Even though the data set is rather limited, it encourages further research.

General information

Publication status: Published

MoE publication type: A4 Article in a conference publication

Organisations: Industrial Engineering and Management, Research group: Center for Innovation and Technology Research , Education, Research group: Knowledge and Learning Research Center, Tallinn University of Technology, Tallinn, Estonia

Contributors: Saari, U., Venesaar, U., Ojasoo, M., Mäkinen, S., Nokelainen, P.

Number of pages: 8

Pages: 1-8

Publication date: 13 Aug 2019

Host publication information

Title of host publication: 79th Annual Meeting of the Academy of Management Proceedings : Symposium on Reported Impacts of Sustainability in Management Education and Engagement, August 9-13, 2019, Boston, Massachusetts, USA

Publisher: Academy of Management

Publication series

Name: Academy of management proceedings

ISSN (Print): 0065-0668

ISSN (Electronic): 2151-6561

URLs:

<https://aom.org/Meetings/annualmeeting/2019/AOM-2019-Understanding-the-Inclusive-Organization.aspx>

Bibliographical note

Kysytty isbn Saarelta tammikuu 2020 M. K.

Research output: Chapter in Book/Report/Conference proceeding › Conference contribution › Scientific › peer-review

Mykkäelokuvakauden elokuvateatterien huoneakustiikka

General information

Publication status: Published

MoE publication type: B3 Non-refereed article in conference proceedings

Organisations: Department of Civil Engineering, Research group: Building Acoustics, Tampere University of Technology, University of Turku

Contributors: Saarelainen, J., Kylliäinen, M., Hupaniittu, O.

Number of pages: 6

Pages: 83-88

Publication date: 1 Sep 2015

Host publication information

Title of host publication: Akustiikkapäivät 2015

Place of publication: Kuopio

Publisher: Akustinen seura

Publication series

Name: Akustiikkapäivät

ISSN (Print): 1236-8202

ASJC Scopus subject areas: Acoustics and Ultrasonics

URLs:

http://www.akustinenseura.fi/wp-content/uploads/2015/09/AP2015_Paperin_palautus_7.pdf

Research output: Chapter in Book/Report/Conference proceeding › Conference contribution › Scientific

High-Q resonance train in a plasmonic metasurface

We experimentally demonstrate a plasmonic surface that supports a series of high-quality-factor ($Q \approx 100$) surface lattice resonances. These resonances are enabled by tuning the thickness of the top-cladding layer to confine higher order diffraction-orders.

General information

Publication status: Published

MoE publication type: A4 Article in a conference publication

Organisations: Physics, University of Ottawa, Canada, Iridian Spectral Technologies, University of Rochester Institute of Optics

Contributors: Saad-Bin-Alam, M., Reshef, O., Huttunen, M. J., Carlow, G., Sullivan, B., Menard, J. M., Dolgaleva, K., Boyd, R. W.

Publication date: 1 May 2019

Host publication information

Title of host publication: 2019 Conference on Lasers and Electro-Optics, CLEO 2019 - Proceedings

Publisher: IEEE

ISBN (Electronic): 9781943580576

ASJC Scopus subject areas: Spectroscopy, Industrial and Manufacturing Engineering, Safety, Risk, Reliability and Quality, Management, Monitoring, Policy and Law, Electronic, Optical and Magnetic Materials, Radiology Nuclear Medicine and imaging, Instrumentation, Atomic and Molecular Physics, and Optics

DOIs:

10.23919/CLEO.2019.8750206

Source: Scopus

Source ID: 85069156893

Research output: Chapter in Book/Report/Conference proceeding › Conference contribution › Scientific › peer-review

The role of film processing in the large-area dielectric breakdown performance of nano-silica-BOPP films

This paper summarizes the effects of various compositional, structural and film processing factors on the breakdown behavior of laboratory- and pilot-scale melt-compounded bi-axially oriented polypropylene (BOPP) nanocomposite films with silica fillers. A self-healing multi-breakdown measurement approach has been extensively utilized for large-area breakdown characterization of a large number of material variants from different processing trials. The results suggest that although the optimum level of silica presumably resides at the low fill-fraction range (~ 1 wt-%), the silica content itself is not the only determining factor, as compounds with equal silica content were found to exhibit large differences in the breakdown properties depending on the compounding and film processing steps. Dispersion quality and filler agglomeration (in both the nm- and μm -scale) appear to be of great importance. Indications of possible interaction between nano-silica and co-stabilizer Irgafos 168 are also presented. Overall, the laboratory- and pilot-scale film processing trials suggest that up-scaling of the polymer nanocomposite production is sensible with traditional melt-blending technology, although further development and optimization of nanocomposite formulations and processing is necessary.

General information

Publication status: Published

MoE publication type: A4 Article in a conference publication

Organisations: Department of Electrical Engineering, Research area: Power engineering, VTT Technical Research Centre of Finland

Contributors: Rytöluoto, I., Lahti, K., Ritamäki, M., Karttunen, M.

Number of pages: 6

Publication date: 2015

Host publication information

Title of host publication: 24th Nordic Insulation Symposium on Materials, Components and Diagnostics (NORD-IS), Proceedings

Place of publication: Copenhagen, Denmark

ISBN (Print): 978-82-321-0274-7

Publication series

Name: Proceedings of the Nordic Insulation Symposium

No.: 24

ISSN (Electronic): 2535-3969

Research output: Chapter in Book/Report/Conference proceeding › Conference contribution › Scientific › peer-review

Morphology Development, Structure and Dielectric Properties of Biaxially Oriented Polypropylene

This paper outlines our recent study on effects of cast film extrusion and biaxial orientation on the morphological development and dielectric performance of biaxially oriented polypropylene (PP) films based on two capacitor-grade isotactic PP (iPP) raw materials. Results on polymorphic composition, melting behavior, microstructure and dielectric properties are reported. Morphological development during film manufacturing is found to have a profound effect on film structure and dielectric characteristics. Formation of structural defects was traced back to $\beta \rightarrow \alpha$ crystal transformation upon biaxial stretching.

General information

Publication status: Published

MoE publication type: A4 Article in a conference publication

Organisations: Electrical Energy Engineering, Research area: Power engineering, Research group: High voltage engineering, Borealis Polyolefine GmbH, VTT Tech Res Ctr Finland, VTT Technical Research Center Finland

Contributors: Rytöluoto, I., Ritamäki, M., Gitsas, A., Pasanen, S., Lahti, K.

Number of pages: 6

Publication date: 18 Jun 2017

Host publication information

Title of host publication: 25th Nordic Insulation Symposium on Materials, Components and Diagnostics

Publication series

Name: Proceeding of the Nordic Insulation Symposium

No.: 25

ISSN (Electronic): 2535-3969

Electronic versions:

n2017-s03p01_Rytoluoto

URLs:

<https://www.ntnu.no/ojs/index.php/nordis/article/view/2359/2200>

<http://urn.fi/URN:NBN:fi:tty-201710031980>

Research output: Chapter in Book/Report/Conference proceeding › Conference contribution › Scientific › peer-review

Experimental demonstration of temporal ghost imaging

We report on the first experimental demonstration of time-domain ghost imaging using different types of temporally incoherent light sources. Our results open novel perspectives for dynamic imaging of ultra-fast waveforms with high resolution.

General information

Publication status: Published

MoE publication type: B3 Non-refereed article in conference proceedings

Organisations: Department of Physics, Research area: Optics, Research group: Nonlinear Fiber Optics, Institut FEMTO-ST, Université de Franche-Comté, Institut FEMTO-ST, UMR 6174 CNRS-Université de Franche-Comté

Contributors: Ryczkowski, P., Barbier, M., Friberg, A. T., Dudley, J. M., Genty, G.

Publication date: 2015

Host publication information

Title of host publication: 2015 European Conference on Lasers and Electro-Optics - European Quantum Electronics Conference

Publisher: OSA

Article number: CF6_3

ISBN (Electronic): 978-1-4673-7475-0

URLs:

https://www.osapublishing.org/abstract.cfm?uri=CLEO_Europe-2015-CF_6_3

Research output: Chapter in Book/Report/Conference proceeding › Conference contribution › Scientific

Shadow Ghost Imaging in the Time Domain

General information

Publication status: Published

MoE publication type: B3 Non-refereed article in conference proceedings

Organisations: Department of Physics, Research area: Optics, Research group: Nonlinear Fiber Optics, Frontier Photonics

Contributors: Ryczkowski, P., Barbier, M., Friberg, A. T., Dudley, J. M., Genty, G.

Publication date: 2015

Host publication information

Title of host publication: Frontiers in Optics 2015

Publisher: OSA

Article number: FW6C.1

ISBN (Electronic): 978-1-943580-03-3

DOIs:

10.1364/FIO.2015.FW6C.1

Source: Bibtex

Source ID: urn:a11e0cac2c12b03797ccabee4da08320

Research output: Chapter in Book/Report/Conference proceeding › Conference contribution › Scientific

Temporal Ghost Imaging

General information

Publication status: Published

MoE publication type: B3 Non-refereed article in conference proceedings

Organisations: Department of Physics, Research area: Optics, Research group: Nonlinear Fiber Optics

Contributors: Ryczkowski, P., Barbier, M., Friberg, A. T., Dudley, J. M., Genty, G.

Publication date: 2015

Host publication information

Title of host publication: Frontiers in Optics 2015

Publisher: OSA

Article number: FTh4D.4

ISBN (Electronic): 978-1-943580-03-3

DOIs:

10.1364/FIO.2015.FTh4D.4

Source: Bibtex

Source ID: urn:f90eacbc513a12c9e9c76f77e403df8d

Research output: Chapter in Book/Report/Conference proceeding › Conference contribution › Scientific

Single Shot Time Domain Ghost Imaging using Wavelength Multiplexing

We report on the first demonstration of computational ghost imaging in the time domain using wavelength multiplexing.

The wavelength-multiplexed Hadamard patterns used to probe a time-varying waveform enables image reconstruction in real time.

General information

Publication status: Published

MoE publication type: A4 Article in a conference publication

Organisations: Department of Physics, Research area: Optics, Research group: Nonlinear Fiber Optics, Ita-Suomen yliopisto, Institut FEMTO-ST, UMR 6174 CNRS-Université de Franche-Comté

Contributors: Ryczkowski, P., Barbier, M., Friberg, A. T., Dudley, J. M., Genty, G.

Publication date: 2016

Host publication information

Title of host publication: Frontiers in Optics 2016

Publisher: Optical Society of America (OSA)

Article number: FTh5C.6

ISBN (Electronic): 978-1-943580-19-4

DOIs:

10.1364/FIO.2016.FTh5C.6

Research output: Chapter in Book/Report/Conference proceeding > Conference contribution > Scientific > peer-review

Real-time measurements of dissipative solitons in a mode-locked fiber laser

Dissipative solitons are remarkable localized states of a physical system that arise from the dynamical balance between nonlinearity, dispersion and environmental energy exchange. They are the most universal form of soliton that can exist in nature, and are seen in far-from-equilibrium systems in many fields including chemistry, biology, and physics. There has been particular interest in studying their properties in mode-locked lasers producing ultrashort light pulses, but experiments have been limited by the lack of convenient measurement techniques able to track the soliton evolution in real-time. Here, we use dispersive Fourier transform and time lens measurements to simultaneously measure real-time spectral and temporal evolution of dissipative solitons in a fiber laser as the turn-on dynamics pass through a transient unstable regime with complex break-up and collision dynamics before stabilizing to a regular mode-locked pulse train. Our measurements enable reconstruction of the soliton amplitude and phase and calculation of the corresponding complex-valued eigenvalue spectrum to provide further physical insight. These findings are significant in showing how real-time measurements can provide new perspectives into the ultrafast transient dynamics of complex systems.

General information

Publication status: Published

MoE publication type: B1 Article in a scientific magazine

Organisations: Photonics, Research group: Nonlinear Fiber Optics, Research area: Optics

Contributors: Ryczkowski, P., Närhi, M., Billet, C., Merolla, J. -, Genty, G., Dudley, J. M.

Publication date: 26 Jun 2017

Peer-reviewed: No

Publication information

Journal: arXiv eprint

ISSN (Print): 2331-8422

Original language: English

Keywords: physics.optics, nlin.PS

Electronic versions:

1706.08571v2

Bibliographical note

See also M. Närhi, P. Ryczkowski, C. Billet, G. Genty, J. M. Dudley, Ultrafast Simultaneous Real Time Spectral and Temporal Measurements of Fibre Laser Modelocking Dynamics, 2017 Conference on Lasers and Electro-Optics Europe & European Quantum Electronics Conference, paper EE-3.5 (2017)

Source: ArXiv

Source ID: <http://arxiv.org/abs/1706.08571v2>

Research output: Contribution to journal > Article > Scientific

Real-time measurements of nonlinear instabilities in optical fibers

We review recent advances in the real-time characterization of instabilities in nonlinear fiber optics systems. In particular, we show how these techniques can provide novel insight into the dynamics of ultrafast complex optical systems.

General information

Publication status: Published

MoE publication type: A4 Article in a conference publication

Organisations: Photonics, UMR 6174

Contributors: Ryczkowski, P., Närhi, M., Billet, C., Merolla, J. M., Dudley, J. M., Genty, G.

Publication date: 2018

Host publication information

Title of host publication: CLEO : Applications and Technology, CLEO_AT 2018

Publisher: OSA - The Optical Society

ISBN (Electronic): 9781557528209

ASJC Scopus subject areas: Electronic, Optical and Magnetic Materials, Mechanics of Materials

DOIs:

10.1364/CLEO_AT.2018.AF2Q.1

Source: Scopus

Source ID: 85049124778

Research output: Chapter in Book/Report/Conference proceeding › Conference contribution › Scientific › peer-review

Heat protective properties of enclosure structure from thin-wall profiles with foamed concrete

Receiving the qualitative, energy efficient and economic building is the main tendency in the civil engineering. One of the leading places is occupied by technology of frame-panel construction with use of new non-autoclaved, monolithic foamed concrete technology producing on a building site. On the example of the real samples there were determined the heat-shielding properties of foamed concrete in a condition of setting process and after attainment of strength with a practical and theoretical methods. The results were obtained for a non-autoclaved monolithic foamed concrete wall fragment (lightweight steel concrete structure - LSCS) for the areas with and without rigid reinforcement with steel thin-wall profiles (lightweight gauge steel structure - LGSS). Influence of the thermal bypass on cold-resisting properties of enclosure structures with technology "Intech LB" is revealed. On the basis of the received results, modernization of a design for improvement of its thermotechnical characteristics is made.

General information

Publication status: Published

MoE publication type: A1 Journal article-refereed

Organisations: Civil Engineering, Research group: Metal and Light-wight structures, St. Petersburg State Polytechnical University, OTSK, Ltd., Airline

Contributors: Rybakov, V. A., Ananeva, I. A., Pichugin, E. D., Garifullin, M.

Number of pages: 10

Pages: 11-20

Publication date: 1 Mar 2020

Peer-reviewed: Yes

Publication information

Journal: Magazine of Civil Engineering

Volume: 94

Issue number: 2

ISSN (Print): 2071-4726

Original language: English

ASJC Scopus subject areas: Civil and Structural Engineering, Building and Construction

Keywords: Cold-resisting properties, Non-autoclaved monolithic foamed concrete, Rigid reinforcement, Samples, SOVBI technology, Steel thin-wall profiles, Thermotechnical characteristics

Electronic versions:

02

DOIs:

10.18720/MCE.94.2

URLs:

<http://urn.fi/URN:NBN:fi:tuni-202007016284>

Source: Scopus

Source ID: 85083854606

Research output: Contribution to journal › Article › Scientific › peer-review

Laastin ja betonin lämmönjohtavuuden ja ominaislämpökapasiteetin määrittäminen lämpövirtalevyllä

General information

Publication status: Published

MoE publication type: B3 Non-refereed article in conference proceedings

Organisations: Department of Civil Engineering, Research group: Building Physics

Contributors: Ruuska, T., Vinha, J.

Number of pages: 6

Pages: 227-232

Publication date: 20 Oct 2015

Host publication information

Title of host publication: Rakennusfysiikka 2015. Uusimmat tutkimustulokset ja hyvät käytännön ratkaisut. 20.-22.10.2015, Tampere

Place of publication: Tampere

Publisher: Tampereen teknillinen yliopisto, rakennustekniikan laitos, rakennetekniikka

Editors: Vinha, J., Ruuska, T.

ISBN (Print): 978-952-15-3580-2

Keywords: Double skin facade, Energy efficiency, New renovation concepts, Innovative HVAC, Earth to air heat exchanger

Koulujen ja päiväkotien laskettu ja toteutunut energiankulutus

General information

Publication status: Published

MoE publication type: B3 Non-refereed article in conference proceedings

Organisations: Civil Engineering, Research group: Building Physics

Contributors: Ruusala, A., Vinha, J.

Number of pages: 8

Pages: 267-274

Publication date: 24 Oct 2017

Host publication information

Title of host publication: Rakennusfysiikka 2017. Uusimmat tutkimustulokset ja hyvät käytännön ratkaisut : 24.-26.10.2017, Tampere

Volume: 1

Place of publication: Tampere

Publisher: Tampereen teknillinen yliopisto, Rakennustekniikka, Rakennusfysiikka

Editors: Vinha, J., Kivioja, H.

ISBN (Print): 978-952-15-4022-6

Publication series

Name: Tampereen teknillinen yliopisto. Rakennustekniikka. Rakennusfysiikka.

ASJC Scopus subject areas: Engineering(all), Energy(all)

URLs:

http://www.tut.fi/cs/groups/public_news/@l102/@web/@p/documents/liit/x229241.pdf

Research output: Chapter in Book/Report/Conference proceeding › Conference contribution › Scientific

Comparison between calculated and billed building energy consumption values of schools and daycare centers

In many countries, building regulations set requirements for energy efficiency, which must be fulfilled in order to have a building permit. Because the actual building does not yet exist, the calculations are done in the early design phase with approximate input data. This paper presents results from dynamic whole-building simulations and compares the results to monthly calculation results, billed energy consumption and to a small number of central building energy efficiency parameters. According to the results, using a more sophisticated calculation tool does not necessarily improve the accuracy of the calculation results, if the capabilities of the tool are not properly utilised. Although there was a clear difference between the calculated and billed values, lower calculated energy consumption did correlate with lower billed values. Besides the need for extra effort to ensure accurate input data in general, input values related to infiltration and ventilation should be evaluated especially carefully.

General information

Publication status: Published

MoE publication type: A1 Journal article-refereed

Organisations: Civil Engineering, Research group: Building Physics

Contributors: Ruusala, A., Laukkarinen, A., Vinha, J.

Number of pages: 6

Publication date: 2019

Peer-reviewed: Yes

Publication information

Journal: MATEC Web of Conferences

Volume: 282

Article number: 02085

ISSN (Print): 2274-7214

Ratings:

Scopus rating (2019): CiteScore 0.8 SJR 0.166 SNIP 0.714

Original language: English

ASJC Scopus subject areas: Civil and Structural Engineering

Keywords: building energy consumption, simulation, Building physics, calculated building energy consumption, billed building energy consumption

Electronic versions:

[mateconf_cesbp2019_02085](#)

DOIs:

[10.1051/mateconf/201928202085](https://doi.org/10.1051/mateconf/201928202085)

URLs:

<http://urn.fi/URN:NBN:fi:tuni-202001091135>

Research output: Contribution to journal > Conference article > Scientific > peer-review

The Extended 1-D (One-Dimensional) Discrete Phase Retrieval Problem

In this work we discuss some difficulties that can be encountered when one uses iterative methods for finding a solution of a onedimensional discrete phase retrieval problem. Iterative methods are widely used but, unfortunately, they often stagnate. We shall show that by using an extended form of the one-dimensional discrete phase retrieval problem, we can find a solution to the problem.

General information

Publication status: Published

MoE publication type: A4 Article in a conference publication

Organisations: Department of Signal Processing, Research group: Algebraic and Algorithmic Methods in Signal Processing AAMSP, Signal Processing Research Community (SPRC), Technical University of Cluj-NapocaUniversitatea Tehnica din Cluj-Napoca

Contributors: Rusu, C., Astola, J.

Number of pages: 8

Pages: 640-647

Publication date: 2015

Host publication information

Title of host publication: Computer Aided Systems Theory – EUROCAST 2015 : 15th International Conference, Las Palmas de Gran Canaria, Spain, February 8-13, 2015, Revised Selected Papers

Publisher: Springer

ISBN (Print): 978-3-319-27339-6

ISBN (Electronic): 978-3-319-27340-2

Publication series

Name: Lecture Notes in Computer Science

Volume: 9520

ISSN (Print): 0302-9743

ISSN (Electronic): 1611-3349

ASJC Scopus subject areas: Computer Science(all), Theoretical Computer Science

Keywords: Phase retrieval, Signal reconstruction

DOIs:

10.1007/978-3-319-27340-2_79

Bibliographical note

EXT="Rusu, Corneliu"

Source: Scopus

Source ID: 84952332786

Research output: Chapter in Book/Report/Conference proceeding > Conference contribution > Scientific > peer-review

Relational Capital for Shared Vision in Innovation Ecosystems

This paper provides a multiscopic view of the relationship profiles of businesses in three selected urban innovation ecosystems. With the Triple Helix framework, the ecosystem perspective and with shared vision for transformation initiatives, we explore relationships as structure in the metropolitan areas of Austin, TX, Minneapolis, MN, and Paris, France. Network metrics are interpreted as relationship indicators; and network visualizations reveal existing relationships and distinct patterns that structure the business ecosystems in each geographic area at the enterprise, growth and startup levels. We illustrate that relationship indicators and their visualization can be valuable resources for quantitatively and qualitatively understanding and analyzing the complexities of engagement, agility, structural cohesion, vitality, embeddedness, and linking factors in innovation ecosystems. Furthermore, these indicators highlight opportunities for the development of shared vision through interventions and network orchestration.

General information

Publication status: Published

MoE publication type: A1 Journal article-refereed

Organisations: Department of Mathematics, Research group: MAT Intelligent Information Systems Laboratory

Contributors: Russell, M. G., Huhtamäki, J., Still, K., Rubens, N., Basole, R. C.

Number of pages: 36

Publication date: 2015

Peer-reviewed: Yes

Publication information

Journal: Triple Helix: A Journal of University-Industry-Government Innovation and Entrepreneurship
Volume: 2
Issue number: 1
ISSN (Print): 2197-1927
Original language: English
Keywords: Ecosystem, Networks, Innovation, Business, Metropolitan, Relationships, Visualization
DOIs:
10.1186/s40604-015-0017-2
Source: RIS
Source ID: urn:F38A9FE4A6D713DF7D7D6341B47D22C2
Research output: Contribution to journal › Article › Scientific › peer-review

Visual tools to support innovation development: User experiences from the Parisian ecosystem

Purpose – This paper reports an experimental application of network visualization to understand the value of visual expression for presenting complex knowledge assets to executive decision makers in order to develop culturally-relevant insights for program development.

Design/methodology/approach – In pairs, decision makers used interactive network visualizations to explore complex multi-layer data about relationships among key executives, companies, and financing organizations in the region served by their network facilitation programs. Their experiences were documented using pre- and post- questionnaires, as well as observations and interviews conducted by research team members.

Originality/value –The results provide novel evidence of the benefits of a relationship- based visual format to present knowledge assets for evidence-based decisions. Using interactive visualizations, the decision makers aligned views of the data with their individual cognitive mindsets. Working in pairs to complete a joint task, team members made their cultural interpretation and working explicit.

Practical implications – The findings support the argument that the value of knowledge assets in problem-solving performance depends on both the format of the data and the nature of the task. Our results support the importance of continual involvement and interaction between data analysts and decision makers; they highlight the importance of considering knowledge assets as value drivers that can support knowledge-based innovation.

General information

Publication status: Published
MoE publication type: A4 Article in a conference publication
Organisations: Department of Mathematics, Research group: MAT Intelligent Information Systems Laboratory, MediaX, Stanford University, VTT Technical Research Centre of Finland
Contributors: Russell, M. G., Still, K., Huhtamäki, J. V.
Number of pages: 14
Publication date: 10 Jun 2015

Host publication information

Title of host publication: Proceedings of the International Forum on Knowledge Asset Dynamics, 10-12 June 2015, Bari, Italy : IKFAD 2015
Publisher: Institute of Knowledge Asset Management & Arts for Business Institute
ISBN (Electronic): 978-88-96687-07-9
Research output: Chapter in Book/Report/Conference proceeding › Conference contribution › Scientific › peer-review

Is languaging experienced to improve understanding of structural mechanics?

General information

Publication status: Published
MoE publication type: A4 Article in a conference publication
Organisations: Department of Civil Engineering, Research group: Structural Mechanics
Contributors: Rundgren, A., Joutsenlahti, J., Mäkinen, J.
Publication date: 2016

Host publication information

Title of host publication: 44th SEFI 2016 Annual Conference : 12-15 September 2016 in Tampere, Finland
ISBN (Electronic): 9782873520144
URLs:
http://www.sefi.be/conference-2016/papers/Engineering_Education_Research/rundgren-is-languaging-experienced-to-improve-understanding-141_a.pdf
Research output: Chapter in Book/Report/Conference proceeding › Conference contribution › Scientific › peer-review

HVS-based local analysis of denoising efficiency for DCT-based filters

Images acquired and processed in communication and multimedia systems are often noisy. Thus, pre-filtering is a typical stage to remove noise. At this stage, a special attention has to be paid to image visual quality. This paper analyzes denoising efficiency from the viewpoint of visual quality improvement using metrics that take into account human vision system (HVS). Specific features of the paper consist in, first, considering filters based on discrete cosine transform (DCT) and, second, analyzing the filter performance locally. Such an analysis is possible due to the structure and peculiarities of the metric PSNR-HVS-M. It is shown that a more advanced DCT-based filter BM3D outperforms a simpler (and faster) conventional DCT-based filter in locally active regions, i.e., neighborhoods of edges and small-sized objects. This conclusions allows accelerating BM3D filter and can be used in further improvement of the analyzed denoising techniques.

General information

Publication status: Published

MoE publication type: A4 Article in a conference publication

Organisations: Department of Signal Processing, Research group: Algebraic and Algorithmic Methods in Signal Processing AAMSP, Research group: Computational Imaging-CI, Signal Processing Research Community (SPRC)

Contributors: Rubel, O., Ponomarenko, N., Lukin, V., Astola, J., Egiazarian, K.

Number of pages: 4

Pages: 189-192

Publication date: 14 Dec 2015

Host publication information

Title of host publication: 2015 2nd International Scientific-Practical Conference Problems of Infocommunications Science and Technology, PIC S and T 2015 - Conference Proceedings

Publisher: IEEE

ISBN (Print): 9789669751928

ASJC Scopus subject areas: Computer Science (miscellaneous), Computer Science Applications

Keywords: DCT-based filters, HVS-metrics, image denoising, local analysis

DOIs:

10.1109/INFOCOMMST.2015.7357309

Source: Scopus

Source ID: 84962840358

Research output: Chapter in Book/Report/Conference proceeding > Conference contribution > Scientific > peer-review

Making the cloud work for software producers: Linking architecture, operating cost and revenue

Cloud migration is concerned with moving an on-premise software system into the cloud. In this paper, we focus on software producers adopting the cloud to provide their solutions to enterprise customers. Their challenge is to migrate a software product, developed in-house and traditionally delivered on-premise, to an Infrastructure-as-a-Service or Platform-as-a-Service solution, while also mapping an existing traditional licensing model on to a cloud monetization model. The analysis of relevant cost types and factors of cloud computing generate relevant information for the software producers when deciding to adopt cloud computing, and defining software pricing. We present an integrated framework for informing cloud monetization based on operational cost factors for migrating to the cloud and test it in a real-life case study. Differences between basic virtualization of the software product and using fully cloud-native platform services for re-architecting the product in question are discussed.

General information

Publication status: Published

MoE publication type: A4 Article in a conference publication

Organisations: Pervasive Computing, Dublin City University, Free University of Bolzano-Bozen, Human-Centered Technology (IHTE)

Contributors: Rosati, P., Fowley, F., Pahl, C., Taibi, D., Lynn, T.

Number of pages: 12

Pages: 364-375

Publication date: 2018

Host publication information

Title of host publication: CLOSER 2018 - Proceedings of the 8th International Conference on Cloud Computing and Services Science

Publisher: SCITEPRESS

ISBN (Electronic): 9789897582950

ASJC Scopus subject areas: Computer Science (miscellaneous), Software, Computer Science Applications

Keywords: Architecture migration, Cloud migration, Monetization, Software producer, Total cost of ownership

DOIs:

10.5220/0006679303640375

Source: Scopus

Source ID: 85048894202

First-principles data set of 45,892 isolated and cation-coordinated conformers of 20 proteinogenic amino acids

We present a structural data set of the 20 proteinogenic amino acids and their amino-methylated and acetylated (capped) dipeptides. Different protonation states of the backbone (uncharged and zwitterionic) were considered for the amino acids as well as varied side chain protonation states. Furthermore, we studied amino acids and dipeptides in complex with divalent cations (Ca^{2+} , Ba^{2+} , Sr^{2+} , Cd^{2+} , Pb^{2+} , and Hg^{2+}). The database covers the conformational hierarchies of 280 systems in a wide relative energy range of up to 4 eV (390 kJ/mol), summing up to a total of 45,892 stationary points on the respective potential-energy surfaces. All systems were calculated on equal first-principles footing, applying density-functional theory in the generalized gradient approximation corrected for long-range van der Waals interactions. We show good agreement to available experimental data for gas-phase ion affinities. Our curated data can be utilized, for example, for a wide comparison across chemical space of the building blocks of life, for the parametrization of protein force fields, and for the calculation of reference spectra for biophysical applications.

General information

Publication status: Published

MoE publication type: A1 Journal article-refereed

Organisations: Department of Physics, Fritz Haber Institute of the Max Planck Society, COMP Centre of Excellence, Department of Applied Physics, Aalto University, Aalto University, Duke University

Contributors: Ropo, M., Schneider, M., Baldauf, C., Blum, V.

Publication date: 16 Feb 2016

Peer-reviewed: Yes

Publication information

Journal: Scientific Data

Volume: 3

Article number: 160009

ISSN (Print): 2052-4463

Ratings:

Scopus rating (2016): CiteScore 4.7 SJR 3.261 SNIP 2.208

Original language: English

ASJC Scopus subject areas: Education, Library and Information Sciences, Computer Science Applications, Information Systems, Statistics, Probability and Uncertainty, Statistics and Probability

Electronic versions:

ropo et al - First-principles data set

DOIs:

10.1038/sdata.2016.9

URLs:

<http://urn.fi/URN:NBN:fi:tty-201607294339>

Source: Scopus

Source ID: 84961184519

Research output: Contribution to journal › Article › Scientific › peer-review

Harmonic and Imbalance Voltage Mitigation in Smart Grids: A DSTATCOM Based Solution

General information

Publication status: Published

MoE publication type: A4 Article in a conference publication

Organisations: Department of Electrical Engineering, Research area: Power engineering, Smart Energy Systems (SES)

Contributors: Roncero-Sanchez, P., Acha, E.

Publication date: 2015

Host publication information

Title of host publication: IEEE EUROCON 2015

ISBN (Electronic): 978-1-4799-8568-5

DOIs:

10.1109/EUROCON.2015.7313751

Research output: Chapter in Book/Report/Conference proceeding › Conference contribution › Scientific › peer-review

Alkyl thiophene vinylene electropolymerization in C8mimPF6, potential use in solar cells

We report the electrosynthesis of a novel semiconductor polymer based on alkyl vinylthiophene derivative in the presence of an ionic liquid (IL). The polymerization was performed under galvanostatic conditions and the polymer was studied as potential donor component of a multilayer heterojunction organic solar cell (OSC). The monomer used was (E)-1,2-di-(3-octyl-2-thienyl) vinylene (OTV) and the IL used for the electropolymerization was 1-octyl-3-methylimidazole

hexafluorophosphate C8mimPF6. Optical properties, stability and morphology of the polymer were analyzed using FT-IR, UV-vis, Raman and XPS spectroscopy. Voltammetry analysis and scanning electron microscopy (SEM-EDX) were also performed on the polymer. The OSC assembled with the polymer of OTV was used as electro donor and C60 as acceptor. Molybdenum trioxide (MoO₃) and bathocuproine (BCP) were used as buffer layer between anode and cathode respectively. I-V curves, in the dark and under AM 1.5 solar simulator were performed to measure its efficiency.

General information

Publication status: Published

MoE publication type: A1 Journal article-refereed

Organisations: Chemistry and Bioengineering, Research group: Supramolecular photochemistry, Research group: Chemistry & Advanced Materials

Contributors: Rojas, V., Martinez, F., Bernede, J. C., Guenadez, L. C., Efimov, A., Lemmetyinen, H.

Number of pages: 13

Pages: 405-417

Publication date: May 2017

Peer-reviewed: Yes

Publication information

Journal: Materials Sciences and Applications

Volume: 8

Issue number: 5

ISSN (Print): 2153-117X

Original language: English

Electronic versions:

2017-martinez-MSA

DOIs:

10.4236/msa.2017.85013

URLs:

<http://urn.fi/URN:NBN:fi:tty-201706151598>

Research output: Contribution to journal > Article > Scientific > peer-review

Pseudo-Random Sequences in DQ-Domain Analysis of Feedforward Control in Grid-Connected Inverters

Grid-parallel inverters are typically used to connect renewable energy sources to a power grid. The impedance mismatch between the grid and the interfacing circuit can generate harmonic resonances which may lead to reduced power quality. The impedance mismatch can be mitigated by applying an inverter that employs feedforward control. This paper presents a novel DQ-domain technique, based on pseudo-random sequences, for acquiring the impedance information and verifying the effectiveness of the feedforward control. The results can be used for tuning the feedforward control and as a method to perform fast on-line stability analysis of grid-connected systems in the DQ domain.

General information

Publication status: Published

MoE publication type: A4 Article in a conference publication

Organisations: Department of Automation Science and Engineering, Department of Electrical Engineering, Research area: Power engineering, Research area: Dynamic Systems, Research area: Measurement Technology and Process Control

Contributors: Roinila, T., Messo, T., Suntio, T., Vilkkö, M.

Number of pages: 6

Pages: 1301-1306

Publication date: 2015

Host publication information

Title of host publication: 17th IFAC Symposium on System Identification SYSID 2015 – Beijing, China, 19–21 October 2015

Publication series

Name: IFAC-PapersOnLine

Volume: 48

No.: 28

ISSN (Print): 2405-8963

ASJC Scopus subject areas: Control and Systems Engineering

Keywords: Feedforward control, Fourier analysis, Frequency-response methods, Inverters, Signal analysis

DOIs:

10.1016/j.ifacol.2015.12.311

Source: Scopus

Source ID: 84988503981

Research output: Chapter in Book/Report/Conference proceeding > Conference contribution > Scientific > peer-review

Data including GROMACS input files for atomistic molecular dynamics simulations of mixed, asymmetric bilayers including molecular topologies, equilibrated structures, and force field for lipids compatible with OPLS-AA parameters

In this Data in Brief article we provide a data package of GROMACS input files for atomistic molecular dynamics simulations of multicomponent, asymmetric lipid bilayers using the OPLS-AA force field. These data include 14 model bilayers composed of 8 different lipid molecules. The lipids present in these models are: cholesterol (CHOL), 1-palmitoyl-2-oleoyl-sn-glycero-3-phosphatidylcholine (POPC), 1-palmitoyl-2-oleoyl-sn-glycero-3-phosphatidylethanolamine (POPE), 1-stearoyl-2-oleoyl-sn-glycero-3-phosphatidyl-ethanolamine (SOPE), 1-palmitoyl-2-oleoyl-sn-glycero-3-phosphatidylserine (POPS), 1-stearoyl-2-oleoyl-sn-glycero-3-phosphatidylserine (SOPS), N-palmitoyl-. D-erythro-sphingosyl-phosphatidylcholine (SM16), and N-lignoceroyl-. D-erythro-sphingosyl-phosphatidylcholine (SM24). The bilayers[U+05F3] compositions are based on lipidomic studies of PC-3 prostate cancer cells and exosomes discussed in Llorente et al. (2013) [1], showing an increase in the section of long-tail lipid species (SOPS, SOPE, and SM24) in the exosomes. Former knowledge about lipid asymmetry in cell membranes was accounted for in the models, meaning that the model of the inner leaflet is composed of a mixture of PC, PS, PE, and cholesterol, while the extracellular leaflet is composed of SM, PC and cholesterol discussed in Van Meer et al. (2008) [2]. The provided data include lipids' topologies, equilibrated structures of asymmetric bilayers, all force field parameters, and input files with parameters describing simulation conditions (md.mdp). The data is associated with the research article "Interdigitation of Long-Chain Sphingomyelin Induces Coupling of Membrane Leaflets in a Cholesterol Dependent Manner" (Róg et al., 2016) [3].

General information

Publication status: Published

MoE publication type: A1 Journal article-refereed

Organisations: Department of Physics, Research area: Computational Physics, Research group: Biological Physics and Soft Matter, University of Helsinki, University of Limerick, University of Oslo, Zora Biosciences Oy, MEMPHYS - Centre for Biomembrane Physics, University of Southern Denmark

Contributors: Róg, T., Orłowski, A., Llorente, A., Skotland, T., Sylvänne, T., Kauhanen, D., Ekroos, K., Sandvig, K., Vattulainen, I.

Number of pages: 4

Pages: 1171-1174

Publication date: 1 Jun 2016

Peer-reviewed: Yes

Publication information

Journal: Data in Brief

Volume: 7

ISSN (Print): 2352-3409

Ratings:

Scopus rating (2016): CiteScore 0.5 SJR 0.226 SNIP 0.213

Original language: English

Keywords: Force field, GROMACS, Lipid, Lipidomics, Molecular dynamics simulations, Topology

Electronic versions:

Rog et al. Data including GROMACS

Supplementary material

DOIs:

10.1016/j.dib.2016.03.067

URLs:

<http://urn.fi/URN:NBN:fi:ty-201604283887>

Source: Scopus

Source ID: 84962909567

Research output: Contribution to journal > Article > Scientific > peer-review

Managing software engineering competences with domain ontology for customer and team profiling and training

General information

Publication status: Published

MoE publication type: A4 Article in a conference publication

Organisations: Pori Department, Research group: Software Engineering and Intelligent Systems, Tallinn University of Technology, Tallinn, Estonia

Contributors: Robal, T., Ojastu, D., Kalja, A., Jaakkola, H.

Number of pages: 7

Pages: 1369 - 1376

Publication date: 2015

Host publication information

Title of host publication: PICMET '15 : Proceedings, Management of the Technology Age, August 2 - 6, 2015
Place of publication: Portland, Oregon, USA
Publisher: PICMET
Editor: Kocaoglu, D.
ISBN (Electronic): 978-1-890843-32-8
DOIs:

10.1109/PICMET.2015.7273171

Research output: Chapter in Book/Report/Conference proceeding › Conference contribution › Scientific › peer-review

Circularly Polarized Textile Antenna For 2.45 GHz

This paper presents a circularly polarized antenna on thin and flexible Denim substrate for Industrial, Scientific and Medical (ISM) band and Wireless Body Area Network (WBAN) applications at 2.45 GHz. Copper tape is used as the conductive material on 1 mm thick Denim substrate. Circular polarization is achieved by introducing rectangular slot along diagonal axes at the center of the circular patch radiator. Bandwidth enhancement is done using partial and slotted ground plane. The measured impedance bandwidth of the proposed antenna is 6.4 % (2.42 GHz to 2.58 GHz) or 160 MHz. The antenna exhibits good radiation characteristics with gain of 2.25 dB. Simulated and measured results are presented to validate the operability of antenna within the proposed frequency bands.

General information

Publication status: Published

MoE publication type: A4 Article in a conference publication

Organisations: Department of Electronics and Communications Engineering, Research group: Wireless Identification and Sensing Systems Research Group, Sensing Systems for Wireless Medicine (MediSense), Department of Electrical Engineering, University of California, Los Angeles, California, USA

Contributors: Rizwan, M., Rahmat-Samii, Y., Ukkonen, L.

Number of pages: 2

Pages: 51-52

Publication date: 21 Sep 2015

Host publication information

Title of host publication: Circularly Polarized Textile Antenna For 2.45 GHz

Publisher: IEEE

ISBN (Electronic): 978-1-4799-8543-2

Keywords: Denim, Industrial, Scientific and Medical (ISM) band, Wireless Body Area Network (WBAN), Textile antenna, Circular Polarization

DOIs:

10.1109/IMWS-BIO.2015.7303755

Research output: Chapter in Book/Report/Conference proceeding › Conference contribution › Scientific › peer-review

An Initial Homophily Indicator to Reinforce Context-Aware Semantic Computing

The vast increase of personal sensor information is driving the rise in popularity of context-aware applications. Users crave and very often expect tailored services that are based on the users' context or personal preferences. The users themselves, using forms, often provide such information. An inference solution typically addresses this problem. In this paper, we present and show by way of a real-world example, the first step towards incorporating information of the user's social networking behavior in the inference task. We define an initial indicator of a particular social phenomenon, called Homophily, and describe how the indicator measures the presence of homophily at certain moments, also capturing the degree to which it is present. Different from existing indicators, ours lends itself to indicating the presence of homophily in a way that is easier to comprehend, so that it may be easily integrated into and reinforce context-aware semantic computing.

General information

Publication status: Published

MoE publication type: A4 Article in a conference publication

Organisations: Department of Mathematics, Research group: MAT Intelligent Information Systems Laboratory

Contributors: Rivero-Rodriguez, A., Pileggi, P., Nykänen, O.

Number of pages: 5

Pages: 89-93

Publication date: 2015

Host publication information

Title of host publication: 7th International Conference on Computational Intelligence, Communication Systems and Networks (CICSyN)

Place of publication: Riga

Publisher: IEEE

ISBN (Print): 9781467370165

Publication series

Name: International Conference on Computational Intelligence, Communications and Networks

Electronic versions:

Homophily_indicator

DOIs:

10.1109/CICSyN.2015.26

URLs:

<http://urn.fi/URN:NBN:fi:tty-201604293889>

<http://www.mendeley.com/research/initial-homophily-indicator-reinforce-contextaware-semantic-computing>

Source: Mendeley

Source ID: 6f091d3c-7f8d-366f-ac71-f59b685fbff9

Research output: Chapter in Book/Report/Conference proceeding › Conference contribution › Scientific › peer-review

Combining Product Innovation With Service Innovation to Increase Value Created With a System

The focus in the businesses of manufacturing and selling technological devices has been increasingly shifting from USA and Europe towards Asiatic countries due to cost-effectiveness and lower costs of resources. In the areas where costs are inevitably higher, new measures have to be considered in order to be able to compete in the global economy. In this article, we study how can we utilize combined benefits of technological and service innovations in competing against the traditional product-oriented offerings. Product-service systems are integrated systems of products and services that create value through use for customers; the hypothesis in this article is that the efficiency of the business network can be increased by designing an integrated product-service system in comparison to the product-oriented approach. The hypothesis is studied via a real-life product-service system design case study of an automated recycling system, and system dynamics simulation is used to analyze the value created with the system in the related business network. In theory, product-service systems have many potential benefits in comparison to product-oriented offerings; identifying the benefits in practice in a case study increases the understanding of product-service systems design and facilitate their application in the industry.

General information

Publication status: Published

MoE publication type: A4 Article in a conference publication

Organisations: Aalto University, Aalto Univ, Aalto University, Sch Engn, Dept Engn Design & Prod

Contributors: Ritola, T., Coatanea, E.

Number of pages: 10

Publication date: 2014

Host publication information

Title of host publication: Proceedings of the ASME international mechanical engineering congress and exposition, 2013, vol 12

Publisher: AMER SOC MECHANICAL ENGINEERS

ISBN (Print): 978-0-7918-5641-3

Source: WOS

Source ID: 000360320700022

Research output: Chapter in Book/Report/Conference proceeding › Conference contribution › Scientific › peer-review

Interplay between offering, provider and customer in product-service system design

Customer value creation is pivotal for a company in order to be able to create value for their shareholders. Product-service systems (PSS) offer new ways for creating added value in comparison to selling traditional products with added services. The goal in this article is to study a product-service system design project and identify different interactions in the three dimensions of product-service systems - the offering, the provider, and the user/customer. Being able to identify interactions between the design elements in the three PSS dimensions would advance our understanding about PSS development in general and facilitate designing higher-value product-service systems. The research utilizes first-hand data of an availability-oriented reverse vending machine design project undergone in the research group during 2011-2012. The research resulted in identifying concrete interactions with potentially complex dynamics between the elements from the three dimensions. The interactions between the dimensions play an important role in PSS development, they may provide interesting openings for value creation, and they definitely deserve more attention and further research in the domain.

General information

Publication status: Published

MoE publication type: A4 Article in a conference publication

Organisations: Department of Mechanical Engineering and Industrial Systems, Aalto Univ, Aalto University, Helsinki Inst Phys

Contributors: Ritola, T., Coatanea, E.
Number of pages: 10
Publication date: 2013

Host publication information

Title of host publication: Proceedings of the 19th International Conference on Engineering Design (ICED13), Design for Harmonies, Vol.4: Product, Service and Systems Design , Seoul, Korea, 19-22.08.2013
Publisher: DESIGN SOC
Editors: Lindemann, U., Venkataraman, S., Kim, Y., Lee, S., DeWeck, O., Hong, Y.

Publication series

Name: International Conference on Engineering Design
Publisher: DESIGN SOC
ISSN (Print): 2220-4334
Keywords: product-service systems, design engineering, value, STRATEGY
Source: WOS
Source ID: 000360582600033
Research output: Chapter in Book/Report/Conference proceeding > Conference contribution > Scientific > peer-review

Temperature Effect on Breakdown Performance of Insulating Polymer Thin Films

General information

Publication status: Published
MoE publication type: A4 Article in a conference publication
Organisations: Department of Electrical Engineering, Research area: Power engineering
Contributors: Ritamäki, M., Rytöluoto, I., Lahti, K.
Number of pages: 4
Pages: 75-79
Publication date: 2015

Host publication information

Title of host publication: 24th Nordic Insulation Symposium on Materials, Components and Diagnostics, Proceedings
ISBN (Print): 978-82-321-0274-7

Publication series

Name: Proceedings of the Nordic Insulation Symposium
No.: 24
ISSN (Electronic): 2525-3969
Research output: Chapter in Book/Report/Conference proceeding > Conference contribution > Scientific > peer-review

Disruptive innovation in ecosystems: Path-creation and institutional barriers

General information

Publication status: Published
MoE publication type: A4 Article in a conference publication
Organisations: Department of Industrial Management, Research group: Center for Innovation and Technology Research, Lappeenranta University of Technology
Contributors: Ritola, P., Aarikka-Stenroos, L.
Number of pages: 16
Pages: 1-16
Publication date: Jun 2016

Host publication information

Title of host publication: XXVI ISPIM Conference: Porto, Portugal (2016) Blending Tomorrow's Innovation Vintage. : The International Society for Professional Innovation Management, Jun. 2016
Place of publication: Manchester
Publisher: International Society for Professional Innovation Management ISPIM
ISBN (Print): 978-952-265-929-3
ISBN (Electronic): 978-952-265-929-3
URLs:
<http://search.proquest.com/docview/1803692263?pq-origsite=gscholar>
Source: Bibtex
Source ID: urn:c0dee1d4b4657d55de8d93bf3fad657c
Research output: Chapter in Book/Report/Conference proceeding > Conference contribution > Scientific > peer-review

Large mode area double clad ytterbium tapered fiber with circular birefringency

We demonstrated, for the first time to our best knowledge, an active tapered double clad fiber with circular birefringence and 35 μm core diameter. The output radiation had perfect beam quality ($M^2=1.18/1.1$) and linearly polarized light with 15 dB of PER. The developed double clad active fiber was investigated for amplification of picosecond pulses in allfiber MOPA system. The MOPA system delivered 50 ps pulses with 55 W of the average power revealed 34.4 dB gain of the booster amplifier.

General information

Publication status: Published

MoE publication type: A4 Article in a conference publication

Organisations: Physics, Research group: Nanophotonics, Tampere University, Ampliconix Ltd, Kotelnikov Institute of Radio Engineering and Electronics

Contributors: Rissanen, J., Fedotov, A., Noronen, T., Gumenyuk, R., Chamorovskii, Y., Kolosovskii, A., Voloshin, V., Vorobev, I., Odnoblyudov, M., Filippov, V.

Number of pages: 8

Publication date: 7 Mar 2019

Host publication information

Title of host publication: Proceedings of SPIE : Fiber Lasers XVI: Technology and Systems

Publisher: SPIE-INT SOC OPTICAL ENGINEERING

Editors: Carter, A. L., Dong, L.

Publication series

Name: Proceedings of SPIE

Publisher: SPIE

Volume: 10897

ISSN (Print): 0277-786X

Keywords: polarization, ytterbium, picosecond phenomena, birefringence, fiber amplifier, fiber laser

Electronic versions:

Large mode area double clad ytterbium tapered fiber with circular birefringency

DOIs:

10.1117/12.2508811

URLs:

<http://urn.fi/URN:NBN:fi:tty-201903291360>

Bibliographical note

jufoid=71479

EXT="Noronen, Teppo"

Research output: Chapter in Book/Report/Conference proceeding > Conference contribution > Scientific > peer-review

Clean Components of Fluid Power System Reduce Maintenance Costs

General information

Publication status: Published

MoE publication type: B3 Non-refereed article in conference proceedings

Organisations: Department of Intelligent Hydraulics and Automation, Research group: Condition monitoring of hydraulic components and systems

Contributors: Rinkinen, J., Elo, L.

Number of pages: 8

Publication date: 1 Oct 2015

Host publication information

Title of host publication: Maintenance, Condition Monitoring and Diagnostics; Maintenance Performance Measurement and Management : MCMD 2015 and MPMM 2015

Article number: 2 (2015-10-01)

ISBN (Print): 978-951-98113-7-6

Research output: Chapter in Book/Report/Conference proceeding > Conference contribution > Scientific

Industrialization of hybrid and additive manufacturing-Implementation to Finnish industry (HYBRAM)

General information

Publication status: Published

MoE publication type: D4 Published development or research report or study

Organisations: Automation Technology and Mechanical Engineering, Research area: Manufacturing and Automation, VTT
Contributors: Riipinen, T., Kujanpää, V., Komi, E., Kilpeläinen, P., Savolainen, M., Puukko, P., Vihinen, J., Coatanea, E.,
Mokhtarian, H.

Number of pages: 66

Publication date: 26 Nov 2018

Publication information

Publisher: VTT Technical Research Centre of Finland

Original language: English

Publication series

Name: Research Reports

Publisher: VTT Technical Research Centre of Finland

URLs:

https://cris.vtt.fi/ws/portalfiles/portal/22519412/Report_VTT_R_06411_18.pdf (HYBRAM project report (Public))

Research output: Book/Report > Commissioned report > Professional

On the prospects of full-duplex military radios

In-band full-duplex (FD) operation can be regarded as one of the greatest discoveries in civilian/commercial wireless communications so far in this century. The concept is significant because it can as much as double the spectral efficiency of wireless data transmission by exploiting the new-found capability for simultaneous transmission and reception (STAR) that is facilitated by advanced self-interference cancellation (SIC) techniques. As the first of its kind, this paper surveys the prospects of exploiting the emerging FD radio technology in military communication applications as well. In addition to spectrally efficient two-way data transmission, the STAR capability could give a major technical advantage for armed forces by allowing their radio transceivers to conduct electronic warfare at the same time when they are also receiving or transmitting information signals at the same frequency band. After providing a detailed introduction to FD transceiver architectures and SIC requirements in military communications, this paper outlines and analyzes some potential defensive and offensive applications of the STAR capability.

General information

Publication status: Published

MoE publication type: A4 Article in a conference publication

Organisations: Electronics and Communications Engineering, Research group: Wireless Communications and Positioning , Aalto University

Contributors: Riihonen, T., Korpi, D., Rantula, O., Valkama, M.

Publication date: 23 Jun 2017

Host publication information

Title of host publication: 2017 International Conference on Military Communications and Information Systems, ICMCIS 2017

Publisher: IEEE

ISBN (Electronic): 9781538638583

ASJC Scopus subject areas: Computer Networks and Communications, Hardware and Architecture, Information Systems

Electronic versions:

On the Prospects of Full-Duplex Military Radios 2017

DOIs:

10.1109/ICMCIS.2017.7956490

URLs:

<http://urn.fi/URN:NBN:fi:tuni-202002061911>

Source: Scopus

Source ID: 85025684140

Research output: Chapter in Book/Report/Conference proceeding > Conference contribution > Scientific > peer-review

Using a synthetic probe to study the robustness of the segregation process of protein aggregates in Escherichia coli

Even though the processes of protein production and folding are not immune to errors, Escherichia coli lineages are capable to maintain a stable cell lineage, provided viable environmental conditions. One of the internal processes that makes this possible consists of segregating unwanted protein aggregates to the cell poles by nucleoid exclusion, which, combined with cell divisions, generates asymmetries in the aging process of the population, with some individuals aging faster while others exhibit rejuvenation. A recent study showed that this process is not immune to sub-optimal temperature conditions due to increased cytoplasm viscosity, which weakens the anisotropy in aggregate displacements at the nucleoid borders. This was made possible by the usage of a synthetic fluorescent probe, consisting of a RNA sequence with multiple binding sites for the MS2-GFP synthetic protein, which can be tracked in time-lapse microscopy images. Here we provide a description of the findings from these measurements and investigate with an In Silico model the consequences in the context of cell lineages.

General information

Publication status: Published

MoE publication type: A4 Article in a conference publication

Organisations: Faculty of Biomedical Sciences and Engineering, Research group: Laboratory of Biosystem Dynamics-LBD

Contributors: Ribeiro, A., Oliveira, S.

Pages: 21-22

Publication date: 26 Jun 2016

Host publication information

Title of host publication: The 8th International Conference on Bioinformatics, Biocomputational Systems and Biotechnologies (BIOTECHNO2016)

Publisher: IARIA

ISBN (Electronic): 978-1-61208-488-6

URLs:

https://www.thinkmind.org/index.php?view=article&articleid=biotechno_2016_2_10_60012

Research output: Chapter in Book/Report/Conference proceeding › Conference contribution › Scientific › peer-review

Biocaced nanofibrilated films and yarns via ionic liquids

General information

Publication status: Published

MoE publication type: A1 Journal article-refereed

Organisations: Materials Science and Environmental Engineering

Contributors: Reyes, G., Lundahl, M., Borghei, M., King, A., Lahti, J., Rojas, O.

Number of pages: 3

Pages: 18-20

Publication date: 2019

Peer-reviewed: Yes

Publication information

Journal: Celulosa Y Papel

Volume: 35

Issue number: 4

ISSN (Print): 0716-2308

Ratings:

Scopus rating (2019): CiteScore 0 SJR 0.101 SNIP 0

Original language: English

Source: Bibtex

Source ID: Reyes201918

Research output: Contribution to journal › Article › Scientific › peer-review

Human Factor in Time Management

Abstract Time is the most important resource for leaders. Resources such as personnel, capital or facilities are crucial for leaders, but time is imperative. People's productivity, and hence organizations performance are heavily related to their time usage. Therefore, especially leaders should have conscious awareness towards their time personality. Time, however, is not an easy concept to handle for leader or even understand it. It has many different faces towards people. The challenge is that chronological time, where the business and management are done, is not nearly suitable when human relations and leadership are handled. Individuals experiences towards time differentiates to one another and different situations are constantly changing the experience of individual. Therefore, quite often, leaders recognize that it is hard to have schedules to match or plans to actualize within an agreed time. Some people fit more easily to same time reality with leader than others. Consequently, it is crucial for leaders also to understand how organization's members experience their time and how conscious their awareness is. Before it is possible to manage one's own time usage, personal time orientation, biases towards time, situation has to be understood consciously. This article handles research regarding time ontology in leadership and management environment and regarding peoples conscious awareness towards time and differences in their time reality. Research is done by developing and utilizing application called Chronos & Kairos which main purpose is to give possibility for thorough research for peoples' differences when experiencing time. Time ontology for leadership and management environment is presented as well as research and results of differences of people's time reality. Article argues that people's conscious awareness towards time differentiates and this issues should be recognized especially in leadership positions. Future research aspects and recommendations are also issued in this paper.

General information

Publication status: Published

MoE publication type: A1 Journal article-refereed

Organisations: Pori Department
Contributors: Reunanen, T.
Number of pages: 8
Pages: 709-716
Publication date: 2015
Peer-reviewed: Yes

Publication information

Journal: Procedia Manufacturing
Volume: 3
ISSN (Print): 2351-9789
Original language: English
Keywords: Time, Management, Human factor, Leadership, Situationality
DOIs:
10.1016/j.promfg.2015.07.311
URLs:
<http://www.sciencedirect.com/science/article/pii/S2351978915003121>

Bibliographical note

INT=pla,"Reunanen, Tero"
Source: RIS
Source ID: urn:6D4C24C5CCDB54B2E73B8973CD08FBFE
Research output: Contribution to journal > Article > Scientific > peer-review

Implementing of Activating Learning Strategy for a Course on Electric Drives

Effective teaching of electric drives is highly important for the electrical engineers, because almost half of the global produced electrical energy is consumed by electric motor drives. Electric drives are a key technology for reducing energy consumption of industrial processes, for wind power generation and for electric transportation. The pedagogical premise is to improve the educational methods of an Electrical Drives course by activating students to work on their own. The paper describes the educational strategy and course objectives. Student feedback was collected at the end of the course and the results of the evaluation are summarized.

General information

Publication status: Published
MoE publication type: A4 Article in a conference publication
Organisations: Department of Electrical Engineering, Research area: Power engineering
Contributors: Rekola, J., Suntio, T.
Number of pages: 8
Pages: 1-8
Publication date: 14 Sep 2016

Host publication information

Title of host publication: SEFI 2016 Annual Conference Proceedings : Implementing of Activating Learning Strategy for a Course on Electric Drives
Publisher: European Society for Engineering Education SEFI
ISBN (Electronic): 9782873520144
Keywords: Electrical engineering education , variable speed drives , simulation, laboratory
Electronic versions:
sefi_final_paper
URLs:
<http://urn.fi/URN:NBN:fi:tty-201709201900>
<http://sefibenvwh.cluster023.hosting.ovh.net/wp-content/uploads/2017/09/rekola-implementing-of-activating-learning-strategy-for-a-course-28.pdf>
Research output: Chapter in Book/Report/Conference proceeding > Conference contribution > Scientific > peer-review

Control of Electric Vehicle Charging in Domestic Real Estates as Part of Demand Response Functionality

The paper discusses an electric vehicle (EV) charging control method enabling flexible high-power charging in domestic real estates. In the method, the charging current(s) of an EV is adjusted in accordance of the free capacity between maximum current limit and the non-EV load current(s). This kind of harging is simulated using long-lasting electricity consumption measurements and is also demonstrated with a real commercial charging station and an EV. The simulations and the real world demonstration show that the method works well and is very flexible. However, if it is widely used, its impacts on distribution grids are not favorable from distribution system operator (DSO) point-of-view. Power based distribution tariffs, which are nowadays under active consideration by Finnish DSOs, could cope with this problem.

General information

Publication status: Published

MoE publication type: A4 Article in a conference publication

Organisations: Department of Electrical Engineering, Research area: Power engineering, Lappeenranta University of Technology

Contributors: Rautiainen, A., Lummi, K., Järventausta, P., Tikka, V., Lana, A.

Publication date: 2016

Host publication information

Title of host publication: Cired Workshop 2016

Article number: 0240

ISBN (Electronic): 978-1-78561-202-2

URLs:

http://www.cired.net/publications/workshop2016/pdfs/CIRED2016_0240_final.pdf

Research output: Chapter in Book/Report/Conference proceeding > Conference contribution > Scientific > peer-review

Optimal operation of a three camera system on a four-wheel robot

At present the automated moving of a robot is made possible by a complete measurement system including GPS, laser scanners, radars and static cameras. Such approach is reliable but rather expensive. In this paper the optimal operation of a three camera system on a four-wheel robot is studied. The benefit of the dynamic camera system over the complete static measurement system is the reasonable price and the possibility to focus at certain directions.

General information

Publication status: Published

MoE publication type: A4 Article in a conference publication

Organisations: Department of Automation Science and Engineering, Research area: Measurement Technology and Process Control, Research area: Dynamic Systems

Contributors: Raunio, J., Ritala, R., Välimäki, T.

Pages: 968-973

Publication date: 2015

Host publication information

Title of host publication: IMEKO XXI World Congress, Fundamental and Applied Metrology, Proceedings, August 31-September 4, 2015, Prague, Czech Republic

ISBN (Print): 978-80-01-05793-3

Bibliographical note

Contribution: organisation=ase ,FACT1=1

Research output: Chapter in Book/Report/Conference proceeding > Conference contribution > Scientific > peer-review

Optimal operation of a QCS scanner in a paper machine based on the information of QCS and WIS measurements

The scanner is a measuring device which travels over the running paper web in the paper machine. The device simply travels back and forth despite of the stability of the paper making process. However, the back and forth policy is not necessarily the optimal one when the best control performance is required. This paper introduces an optimal operation method for QCS scanner based on the information gathered from both QCS and WIS devices. The optimal operation is based on the optimal path finding algorithm which predicts web quality uncertainties several time steps ahead. The uncertainty estimation is based on the Kalman filter approach which combines the current measurements (QCS and WIS) and the previous estimates. It was noticed that the regular zig-zag scanning is an optimal solution in several cases however the irregular scanning provides more information especially in the highly unstable situations. The developed method could be utilized in scanner control and it would not require major modification to the current systems.

General information

Publication status: Published

MoE publication type: A4 Article in a conference publication

Organisations: Department of Automation Science and Engineering, Research area: Dynamic Systems, Research area: Measurement Technology and Process Control

Contributors: Raunio, J., Ritala, R.

Number of pages: 11

Pages: 1-11

Publication date: 14 May 2016

Host publication information

Title of host publication: PaperCon 2016 Conference Proceedings -TAPPI

Place of publication: Cincinnati, USA

Publisher: TAPPI

ISBN (Print): 9781510818873

Research output: Chapter in Book/Report/Conference proceeding › Conference contribution › Scientific › peer-review

Evaluating the contrast of planar periodic patterns on paper

Certain paper products contain functional or decorative periodic patterns. Such patterns can be e.g. the 3 D structure variations in tissue paper or the decorative structure in tobacco paper. At present, the contrast of such patterns is not measured online and thus the uniformity of the end-products may vary. This paper introduces two contrast estimation methods based on Fourier and histogram analysis. The performance of the estimation methods was evaluated with the reference results made by the human panel. It was noticed that both methods estimate the contrast rather reliably. However, if the wavelength of the pattern was close to the size of the image, the Fourier method was not working appropriately. The image data available in this work was collected online at the tobacco and tissue paper machines. The tobacco paper was measured with light transmittance imaging system and the tissue paper was measured with photometric stereo imaging system that estimates the 3 D surface of the paper. It was noticed that the present imaging systems can be utilized as such in the estimation of contrast.

General information

Publication status: Published

MoE publication type: A4 Article in a conference publication

Organisations: Automation and Hydraulic Engineering, Valmet Automation Oy

Contributors: Raunio, J., Makela, I., Mäntylä, M., Ritala, R.

Number of pages: 9

Pages: 294-302

Publication date: 2018

Host publication information

Title of host publication: Paper Conference and Trade Show, PaperCon 2018

Publisher: TAPPI Press

ISBN (Electronic): 9781510871892

ASJC Scopus subject areas: Forestry, Plant Science, Industrial and Manufacturing Engineering

Source: Scopus

Source ID: 85060386224

Research output: Chapter in Book/Report/Conference proceeding › Conference contribution › Scientific › peer-review

Quantitative structure tree models from terrestrial laser scanner data

General information

Publication status: Published

MoE publication type: D3 Professional conference proceedings

Organisations: Department of Mathematics, Research group: MAT Inverse Problems

Contributors: Raunonen, P. A.

Number of pages: 3

Pages: 32-34

Publication date: 2015

Host publication information

Title of host publication: Proceedings of SilviLaser 2015 : 14th conference on Lidar Applications for Assessing and Managing Forest Ecosystems

URLs:

https://silvilaser2015.teledetection.fr/files/Proceedings_Silvilaser_22_09_2015_2.pdf (Conference proceedings)

Research output: Chapter in Book/Report/Conference proceeding › Conference contribution › Professional

Beyond ic 4.0 : the future potential of bi-tool utilization in the private healthcare

General information

Publication status: Published

MoE publication type: B3 Non-refereed article in conference proceedings

Organisations: Information and Knowledge Management, Research group: Business Data Research Group

Contributors: Ratia, M., Myllärniemi, J.

Publication date: 2018

Host publication information

Title of host publication: 13th International Forum on Knowledge Asset Dynamics, IFKAD 2018 : Delft, Netherlands, 4-6 July 2018

ISBN (Electronic): 978-88-96687-11-6

Publication series

Name: Proceedings IFKAD

ISSN (Electronic): 2280-787X

Research output: Chapter in Book/Report/Conference proceeding > Conference contribution > Scientific

Business analytics enabling future insights in the private healthcare

General information

Publication status: Published

MoE publication type: A4 Article in a conference publication

Organisations: Information and Knowledge Management, Research group: Business Data Research Group

Contributors: Ratia, M., Myllärniemi, J.

Publication date: 2019

Host publication information

Title of host publication: Proceedings of 14th IFKAD 2019 conference : Matera, Italy, 5-7 June, 2019

Publisher: IKAM Centro Studi & Ricerche

ISBN (Electronic): 978-88-96687-12-3

Publication series

Name: Proceedings IFKAD

Publisher: IKAM Centro Studi & Ricerche

ISSN (Print): 2280-787X

Research output: Chapter in Book/Report/Conference proceeding > Conference contribution > Scientific > peer-review

Multiaxial magneto-mechanical modelling of electrical machines with hysteresis

General information

Publication status: Published

MoE publication type: A4 Article in a conference publication

Organisations: Department of Electrical Engineering, Research area: Power engineering, Department of Mechanical Engineering and Industrial Systems, Research area: Applied Mechanics, Aalto University

Contributors: Rasilo, P., Aydin, U., Singh, D., Martin, F., Kouhia, R., Belahcen, A., Arkkio, A.

Publication date: 2016

Host publication information

Title of host publication: Proceedings of the 8th IET International Conference on Power Electronics, Machines and Drives, PEMD 2016

Publisher: IET, The Institution of Engineering and Technology

ISBN (Print): 978-1-78561-188-9

Electronic versions:

Rasilo2016

DOIs:

10.1049/cp.2016.0183

URLs:

<http://urn.fi/URN:NBN:fi:ty-201612204886>

Research output: Chapter in Book/Report/Conference proceeding > Conference contribution > Scientific > peer-review

Systemic Sustainability and Emerging Diversity of Shopping Concepts in Urban Multi-Agent Networks

General information

Publication status: Published

MoE publication type: A4 Article in a conference publication

Organisations: Institute of Society and Space (SOCIS), School of Architecture, Research group: EDGE

Contributors: Rantanen, A., Iltanen, S., Joutsiniemi, A.

Pages: 510-517

Publication date: 2014

Host publication information

Title of host publication: New Urban Configurations

Publisher: Delft University Press

Editors: Cavallo, R., Komossa, S., Marzot, N., Berghauser Pont, M., Kuijper, J.

ISBN (Print): 978-1-61499-365-0

ISBN (Electronic): 978-1-61499-366-7

DOIs:

10.3233/978-1-61499-365-0-517

Bibliographical note

Contribution: organisation=ark,FACT1=1
Portfolio EDEND: 2015-03-20

Source: researchoutputwizard

Source ID: 1352

Research output: Chapter in Book/Report/Conference proceeding › Conference contribution › Scientific › peer-review

Strategic planning and epistemology of change: Probing the fitness of urban and planning systems with resilient spatial strategies

The aim of this paper is to question the fitness of our state-of-the-art urban planning and urban systems to adapt to continuous changes and disturbances in operating environment. We argue that in an attempt to help cities adapt to uncertain futures, strategic planning should be better informed by the epistemology of complex adaptive systems and better recognise recursive emergent processes between urban metabolism and morphology.

General information

Publication status: Published

MoE publication type: A4 Article in a conference publication

Organisations: School of Architecture, Research group: EDGE

Contributors: Rantanen, A., Joutsiniemi, A.

Number of pages: 12

Pages: 336-347

Publication date: 2015

Host publication information

Title of host publication: Sustainable Futures in a Changing Climate : Proceedings of the Conference "Sustainable Futures in a Changing Climate", 11–12 June 2014, Helsinki, Finland

Volume: 2/2015

Place of publication: Turku

Publisher: Finland Futures Research Centre, University of Turku

Editors: Hatakka, A., Vehmas, J.

ISBN (Print): 978-952-249-303-3

Publication series

Name: FFRC eBOOK 2/2015

Publisher: Finland Futures Research Centre, University of Turku

ISSN (Electronic): 1797-1322

Keywords: Strategic planning, Resilience, Complex adaptive system

URLs:

[http://www.researchgate.net/profile/Jari_Kaivo-](http://www.researchgate.net/profile/Jari_Kaivo-oja/publication/280941248_Assessing_Sustainability_of_Economic_Growth_with_Sustainability_Window/links/55cd87ae08aeeab209b543e.pdf)

[oja/publication/280941248_Assessing_Sustainability_of_Economic_Growth_with_Sustainability_Window/links/55cd87ae08aeeab209b543e.pdf](http://www.researchgate.net/profile/Jari_Kaivo-oja/publication/280941248_Assessing_Sustainability_of_Economic_Growth_with_Sustainability_Window/links/55cd87ae08aeeab209b543e.pdf)

Research output: Chapter in Book/Report/Conference proceeding › Conference contribution › Scientific › peer-review

Tag suggestions from social media profiles

General information

Publication status: Published

MoE publication type: A4 Article in a conference publication

Organisations: Pori Department, Research group: Software Engineering and Intelligent Systems

Contributors: Rantanen, P., Sillberg, P., Soini, J., Jaakkola, H.

Number of pages: 8

Pages: 387-394

Publication date: 2016

Host publication information

Title of host publication: Proceedings of the 26th International Conference on Information Modelling and Knowledge Bases - EJC 2016. : June 6-10, 2016, Tampere, Finland.

Volume: 18

Place of publication: Tampere

Publisher: Tampere University of Technology

Editors: Jaakkola, H., Thalheim, B., Kiyoki, Y., Yoshida, N.

ISBN (Electronic): 978-952-15-3747-9

Publication series

Name: Tampere University of Technology Pori Department Publications

Publisher: Tampere University of Technology

ISSN (Electronic): 2323-8976

Electronic versions:

25_p606_Rantanen

URLs:

<http://urn.fi/URN:NBN:fi:tty-201712012298>

URLs:

<http://www.tut.fi/en/ejc/ejc-2016/>

Research output: Chapter in Book/Report/Conference proceeding > Conference contribution > Scientific > peer-review

Towards high power flip-chip long-wavelength semiconductor disk lasers

General information

Publication status: Published

MoE publication type: A4 Article in a conference publication

Organisations: Optoelectronics Research Centre, Research group: Ultrafast and intense lasers, Research group: Surface Science, Frontier Photonics

Contributors: Rantamäki, A., Saarinen, E., Lyytikäinen, J., Heikkinen, J., Lahtonen, K., Valden, M., Okhotnikov, O.

Publication date: 2015

Host publication information

Title of host publication: Proceedings of SPIE

Volume: 9349

Publisher: SPIE

ISBN (Electronic): 9781628414394

DOIs:

10.1117/12.2076795

Research output: Chapter in Book/Report/Conference proceeding > Conference contribution > Scientific > peer-review

Kävelystä elinvoimaa

General information

Publication status: Published

MoE publication type: D4 Published development or research report or study

Organisations: Department of Information Management and Logistics

Contributors: Rantala, T., Luukkonen, T., Karhula, K., Vaismaa, K., Mäntynen, J., Metsäpuro, P.

Number of pages: 142

Publication date: 2014

Publication information

Place of publication: Tampere

Publisher: Tampereen teknillinen yliopisto. Liikenteen tutkimuskeskus Verne.

ISBN (Print): 978-952-15-3231-3

ISBN (Electronic): 978-952-15-3232-0

Original language: Finnish

URLs:

http://www.tut.fi/verne/wp-content/uploads/Kavelysta_elinvoimaa.pdf

Research output: Book/Report > Commissioned report > Professional

Business models in the circular economy: a structured multiple-case analysis

General information

Publication status: Published

MoE publication type: A4 Article in a conference publication

Organisations: Department of Industrial Management, Research group: Center for Innovation and Technology Research

Contributors: Ranta, V., Aarikka-Stenroos, L., Mäkinen, S.

Publication date: Dec 2016

Host publication information

Title of host publication: Proceedings of ISPIM Innovation Summit, Kuala Lumpur, Malaysia. The International Society for Professional Innovation Management (ISPIM) : 4-7 December 2016

ISBN (Electronic): 978-952-265-931-6

URLs:

<http://summit.ispim.org/>

Research output: Chapter in Book/Report/Conference proceeding › Conference contribution › Scientific › peer-review

Classification of Knowledge Representation Implementations in the Manufacturing Systems Domain

Ontologies are presented as a powerful mechanism for integration of components that are located in different levels of the ISA-95 automation pyramid, which is widely known in the industrial automation domain. Hence, the development of systems that use knowledge representation is a feasible manner for the reduction of efforts, e.g. in vertical communication implementation. This kind of research is challenging because of the quantity of cross-layer information exchange. In fact, as industrial automation systems are, by nature, dynamic, process control components must be capable of adapting fast to changes. Furthermore, reconfiguration of scalable systems can be automated through ontology modeling. This chapter presents an investigation on how representation of knowledge is utilized in different industrial automation developments. In addition, main concepts and requirements for designing knowledge representation implementations are identified and described. Finally, according to this description, a classification of distinct implementations is also presented.

General information

Publication status: Published

MoE publication type: A3 Part of a book or another research book

Organisations: Department of Automation Science and Engineering, Research group: Factory automation systems technology

Contributors: Ramis Ferrer, B.

Number of pages: 10

Pages: 235-244

Publication date: 2015

Host publication information

Title of host publication: Open Knowledge-Driven Manufacturing & Logistics : The eScop Approach

Publisher: Warsaw University of Technology Publishing House

Editors: Strzelczak, S., Balda, P., Garetti, M., Lobov, A.

ISBN (Print): 978-83-7814-440-3

Research output: Chapter in Book/Report/Conference proceeding › Chapter › Scientific › peer-review

An approval of MPPT based on pv cell's simplified equivalent circuit during fast-shading conditions

The partial shading conditions significantly affect the functionality of solar power plants despite the presence of multiple maximum power point tracking systems. The primary cause of this problem is the presence of local maxima in the power-current and/or power-voltage characteristic curves that restrict the functionality of the conventional maximum power point tracking systems. The present article proposes a modified algorithm based on the simplified equivalent circuit of solar cells to improve the functionality of traditional maximum power point tracking systems. This algorithm provides a method for regularly monitoring the photo-current of each solar module. The upper and lower boundaries of the regulating parameter such as current or voltage are decided very precisely, which is helpful to find the location of the global maximum. During a sequential search, the control system accurately determines the lower and upper boundaries of the global maximum. Simultaneously, the maximum power point tracking system increases the photovoltaic current up to one of these boundaries and applies one of the conventional algorithms. Additionally, the control system regularly monitors the photovoltaic characteristics and changes the limits of regulating parameter concerning any change in global maximum location. This proposed method is fast and precise to locate the global maximum boundaries and to track global maximum even under fast-changing partial shading conditions. The improved performance and overall efficiency are validated by simulation study for variable solar irradiance.

General information

Publication status: Published

MoE publication type: A1 Journal article-refereed

Organisations: Automation Technology and Mechanical Engineering, Ariel University Center of Samaria

Contributors: Rajput, S., Averbukh, M., Yahalom, A., Minav, T.

Number of pages: 14

Publication date: 1 Sep 2019

Peer-reviewed: Yes

Publication information

Journal: Electronics (Switzerland)

Volume: 8

Issue number: 9

Article number: 1060

ISSN (Print): 2079-9292

Ratings:

Scopus rating (2019): CiteScore 1.9 SJR 0.303 SNIP 1.088

Original language: English

ASJC Scopus subject areas: Control and Systems Engineering, Signal Processing, Hardware and Architecture, Computer Networks and Communications, Electrical and Electronic Engineering

Keywords: Equivalent circuit, Global maximum, Maximum power point tracking, Partial shading, Photovoltaic system, Solar module

Electronic versions:

electronics-08-01060-v2

DOIs:

10.3390/electronics8091060

URLs:

<http://urn.fi/URN:NBN:fi:tuni-201912126797>

Source: Scopus

Source ID: 85075081647

Research output: Contribution to journal > Article > Scientific > peer-review

Kangasalan Lamminrahka. Yhdyskuntasuunnittelun ammattikurssi 1 2015

General information

Publication status: Published

MoE publication type: D4 Published development or research report or study

Organisations: School of Architecture, Research group: Urban Planning

Contributors: Rajaniemi, J. (ed.), Thureson, J. (ed.), Chudoba, M. (ed.)

Number of pages: 92

Publication date: Jun 2015

Publication information

Place of publication: Tampere

Publisher: Tampere University of Technology, School of Architecture

ISBN (Print): 978-952-15-3540-6

ISBN (Electronic): 978-952-15-3541-3

Original language: Finnish

Electronic versions:

Kangasalan_Lamminrahka-TTY_YSAK1_2015

URLs:

<http://urn.fi/URN:NBN:fi:tty-201603183718>

Research output: Book/Report > Commissioned report > Professional

Infant respiration and heart rate monitoring with EMFi sensor

General information

Publication status: Published

MoE publication type: A4 Article in a conference publication

Organisations: Department of Automation Science and Engineering, Research area: Microsystems, Research area: Measurement Technology and Process Control, Integrated Technologies for Tissue Engineering Research (ITTE)

Contributors: Rajala, S., Lekkala, J.

Number of pages: 5

Publication date: 2015

Host publication information

Title of host publication: IMEKO XXI World Congress, Proceedings, August 30 - September 4, 2015, Prague, Czech Republic

Editor: Holub, J.

ISBN (Electronic): 978-80-01-05793-3

Research output: Chapter in Book/Report/Conference proceeding > Conference contribution > Scientific > peer-review

Piezoelectric sensitivity measurements of cellulose nanofibril sensors

Piezoelectric sensitivity of cellulose nanofibril (CNF) film sensors was measured using a mechanical shaker and charge amplifier setup. In-house fabricated CNF

film sensors showed 5-7 pC/N sensitivity in ambient conditions. The CNF film used here contained randomly oriented fibrils, and the piezoelectric response is expected to increase remarkably after film polarization and fibril alignment. The results obtained in this study suggest that nanocellulose film is a suitable sensor material for applications in various fields such as material sciences, electronics and biomedical diagnostics.

General information

Publication status: Published

MoE publication type: A4 Article in a conference publication

Organisations: Department of Automation Science and Engineering, Research area: Microsystems, Research area: Measurement Technology and Process Control, Integrated Technologies for Tissue Engineering Research (ITTE), Aalto Univ, Aalto University, Sch Chem Technol, Dept Forest Prod Technol, Aalto University

Contributors: Rajala, S., Vuoriluoto, M., Rojas, O., Franssila, S., Tuukkanen, S.

Number of pages: 5

Publication date: 2015

Host publication information

Title of host publication: IMEKO XXI World Congress, Proceedings, August 30 - September 4, 2015, Prague, Czech Republic

Editor: Holub, J.

ISBN (Electronic): 978-80-01-05793-3

Bibliographical note

xoa ei tarkistettu

Research output: Chapter in Book/Report/Conference proceeding > Conference contribution > Scientific > peer-review

Genesis of Water supply and sanitation services in Finland

General information

Publication status: Published

MoE publication type: A1 Journal article-refereed

Organisations: Civil Engineering, Research group: Capacity Development of Water and Environmental Services CADWES

Contributors: Rajala, R. P., Juuti, P. S., Katko, T. S.

Number of pages: 11

Pages: 18-28

Publication date: Apr 2019

Peer-reviewed: Yes

Publication information

Journal: Ympäristöhistoria: Finnish Journal of Environmental History

Volume: 8

Issue number: 1

ISSN (Print): 1799-6953

Original language: Finnish

Electronic versions:

YFJEH-1_2019_low Copy

URLs:

http://www.cadwes.com/wp-content/uploads/2019/04/YFJEH-1_2019_low.pdf

Research output: Contribution to journal > Article > Scientific > peer-review

Observation of local electroluminescent cooling and identifying the remaining challenges

The cooling of a light emitting diode (LED) by photons carrying out more energy than was used to electrically bias the device, has been predicted decades ago.^{1, 2} While this effect, known as electroluminescent cooling (ELC), may allow e.g. fabricating thermophotonic heat pumps (THP) providing higher efficiencies than the existing solid state coolers,³ ELC at powers sufficient for practical applications is still not demonstrated. To study high-power ELC we use double diode structures (DDSs), which consist of a double heterojunction (DHJ) LED and a photodiode (PD) grown within a single technological process and, thus, enclosed in a cavity with a homogeneous refractive index.^{4, 5} The presence of the PD in the structure allows to more directly probe the efficiency of the LED, without the need for light extraction from the system, reducing undesirable losses. Our analysis of experimentally measured I - V curves for both the LED and the PD suggests that the local efficiency of the high-performance LEDs we have fabricated is approximately 110%, exceeding unity over a wide range of injection current densities of up to about 100A/cm². At present the efficiency of the full DDS, however, still falls short of unity, not allowing direct evidence of the extraction of thermal energy from the LED. Here we review our previous studies of DDS for high-power EL cooling and discuss in more detail the remaining bottlenecks for demonstrating high-power ELC in the DDS context: the LED surface states, resistive and photodetection losses. In particular we report our first surface passivation measurements. Further optimization therefore mainly involves reducing the influence of the surface states, e.g. using more efficient surface passivation techniques and optimizing the PD. This combined with the optimization of the DDS layer thicknesses and contact metallization schemes is expected to finally allow purely experimental observation of high-power ELC.

General information

Publication status: Published

MoE publication type: A4 Article in a conference publication

Organisations: Physics, Aalto University

Contributors: Radevici, I., Sadi, T., Tripurari, T., Tiira, J., Ranta, S., Tukiainen, A., Guina, M., Oksanen, J.

Publication date: 2019

Host publication information

Title of host publication: Photonic Heat Engines : Science and Applications

Publisher: SPIE, IEEE

Editors: Seletskiy, D. V., Epstein, R. I., Sheik-Bahae, M.

Article number: 109360A

ISBN (Electronic): 9781510625143

Publication series

Name: Proceedings of SPIE - The International Society for Optical Engineering

Volume: 10936

ISSN (Print): 0277-786X

ISSN (Electronic): 1996-756X

ASJC Scopus subject areas: Electronic, Optical and Magnetic Materials, Condensed Matter Physics, Computer Science Applications, Applied Mathematics, Electrical and Electronic Engineering

Keywords: Double diode structures, Electroluminescent cooling, III-V semiconductors, Quantum efficiency, Surface states

DOIs:

10.1117/12.2505814

Bibliographical note

jufoid=71479

Source: Scopus

Source ID: 85065604697

Research output: Chapter in Book/Report/Conference proceeding › Conference contribution › Scientific › peer-review

Referenced backscattering compression level indicator based on passive UHF RFID tags

We establish a passive UHF RFID tag as a sensor with a referenced readout to compression. We introduce the sensor tag design, which is based on a two-part split ring resonator antenna, and present the compression sensor platform with a reference tag. We analyze the achieved wireless measurement results and evaluate the performance of the compression sensing platform. Based on these initial measurements, passive RFID-based sensors could provide a maintenance-free wirelessly readable option for compression sensing, for example for structural health monitoring.

General information

Publication status: Published

MoE publication type: A4 Article in a conference publication

Organisations: Faculty of Biomedical Sciences and Engineering, Research group: Wireless Identification and Sensing Systems Research Group, BioMediTech

Contributors: Qureshi, S., Björninen, T., Virkki, J.

Number of pages: 3

Publication date: 26 Sep 2018

Host publication information

Title of host publication: 2018 IEEE International Conference on RFID Technology & Application (RFID-TA)

Publisher: IEEE

ISBN (Electronic): 978-1-5386-5057-8

DOIs:

10.1109/RFID-TA.2018.8552830

Bibliographical note

JUFOID=72031

Research output: Chapter in Book/Report/Conference proceeding › Conference contribution › Scientific › peer-review

Revisiting gray pixel for statistical illumination estimation

We present a statistical color constancy method that relies on novel gray pixel detection and mean shift clustering. The method, called Mean Shifted Grey Pixel – MSGP, is based on the observation: true-gray pixels are aligned towards one single direction. Our solution is compact, easy to compute and requires no training. Experiments on two real-world benchmarks show that the proposed approach outperforms state-of-the-art methods in the camera-agnostic scenario. In the setting where the camera is known, MSGP outperforms all statistical methods.

General information

Publication status: Published

MoE publication type: A4 Article in a conference publication
Organisations: Computing Sciences, Czech Technical University in Prague, Intel Finland
Contributors: Qian, Y., Pertuz, S., Nikkanen, J., Kämäräinen, J., Matas, J.
Number of pages: 11
Pages: 36-46
Publication date: 2019

Host publication information

Title of host publication: VISIGRAPP 2019 - Proceedings of the 14th International Joint Conference on Computer Vision, Imaging and Computer Graphics Theory and Applications
Publisher: SCITEPRESS
Editors: Kerren, A., Hurter, C., Braz, J.
ISBN (Electronic): 9789897583544
ASJC Scopus subject areas: Computer Science Applications, Computer Vision and Pattern Recognition, Computer Graphics and Computer-Aided Design
Keywords: Color Constancy, Gray Pixel, Illumination Estimation
Electronic versions:
VISAPP_2019_201
DOIs:
10.5220/0007406900360046
URLs:
<http://urn.fi/URN:NBN:fi:tty-201908282042>
Research output: Chapter in Book/Report/Conference proceeding > Conference contribution > Scientific > peer-review

On improvement of transient stage of composite nonlinear feedback control using arbitrary order set point filters

This paper studies the generalization of composite nonlinear feedback (CNF) control using arbitrary order set point filters, which focus on the initial stage of the transient response. The set point filters can be used to provide more performance by shortening the rise and settling times of the control system. Furthermore, the filters operate outside the feedback loop, and hence, they do not sacrifice loop robustness. The new method is illustrated by a benchmark problem found in an open literature. The simulation results show that the proposed method improves the set point response more than 10% in terms of settling time.

General information

Publication status: Published
MoE publication type: A4 Article in a conference publication
Organisations: Research area: Information Systems in Automation, Research area: Dynamic Systems, Department of Automation Science and Engineering, Smart Energy Systems (SES)
Contributors: Pyrhönen, V., Koivisto, H.
Number of pages: 6
Pages: 147 - 152
Publication date: 1 Apr 2015

Host publication information

Title of host publication: 2014 IEEE International Conference on Control System, Computing and Engineering (ICCSCE)
Publisher: Institute of Electrical and Electronics Engineers IEEE
ISBN (Print): 978-1-4799-5685-2
Keywords: Composite nonlinear feedback, actuator saturation, high performance, robust control, set point filter, control system synthesis, feedback, nonlinear control systems, transient response
Electronic versions:
On Improvement of Transient Stage of Composite Nonlinear Feedback Control Using Arbitrary Order Set Point Filters
2015
DOIs:
10.1109/ICCSCE.2014.7072705
URLs:
<http://urn.fi/URN:NBN:fi:tuni-201912307143>
<http://ieeexplore.ieee.org/stamp/stamp.jsp?tp=&arnumber=7072705>
Research output: Chapter in Book/Report/Conference proceeding > Conference contribution > Scientific > peer-review

Composite Nonlinear Feedback Control of a Chemical Reactor

This paper studies the application of composite nonlinear feedback (CNF) control for a continuous time stirred tank reactor. Inside the reactor, an exothermic chemical reaction occurs, which requires cooling when concentration is commanded from low to high conversion rate to prevent a thermal runaway. A full-state CNF controller is designed for adjusting the temperature of the cooling jacket using concentration and temperature measurements. A continuous time gain-scheduled cascade controller, as well as a model predictive controller (MPC) is also fabricated for comparison. The

gain-scheduled cascade controller has a proportional-integral (PI) controller as a primary loop controller, and a P-controller as a secondary loop controller. The simulation results show that the CNF controller is able to offer the best overall tracking performance as measured by the integral-of-absolute-error (IAE) criterion. In addition, the CNF controller does not need gain-scheduling for tuning purposes; the CNF controller is capable of changing its tuning as a function of control error only.

General information

Publication status: Published

MoE publication type: A4 Article in a conference publication

Organisations: Research area: Information Systems in Automation, Research area: Dynamic Systems, Department of Automation Science and Engineering

Contributors: Pyrhönen, V., Koivisto, H.

Publication date: 18 Mar 2015

Host publication information

Title of host publication: Proceedings of AutomaatioXXI, The Industrial Revolution of Internet – From Intelligent Devices to Networked Intelligence

Place of publication: Helsinki, Finland

Publisher: Suomen Automaatioseura ry

ISBN (Electronic): 978-952-5183-46-7

Publication series

Name: SAS julkaisusarja

Publisher: Finnish Society of Automation

Volume: 44

Keywords: exothermic reaction, nonlinear control, nonlinear dynamics, cascade control

Research output: Chapter in Book/Report/Conference proceeding › Conference contribution › Scientific › peer-review

Enhancing old laboratory experiment using flipped learning: Towards self-regulating collaborative groups in blended learning environment

This paper demonstrates how learning outcome of a traditional student laboratory has been improved using blended and flipped learnings in a cost-effective way. The innovation process was based on four important elements: the subject matter, educational theory, redefinition of the roles of teacher and students, and technology-driven utilities intended for education. Also, prelab activities were refurbished in order to better prepare students for the actual experiments. Teaching and learning relationship was redesigned to support learner-centred model of education, and on-site activities occurring in the laboratory room were reformulated to advance self-regulation and learner autonomy. As a consequence, the role of teacher is steered towards mentor-like activity, and hence, a teacher-mentor can use his own expertise to strengthen the knowledge level of students via on-site professional facilitation.

To be more specific, prelab activities were delivered using a virtual laboratory and a teaser video. The main role of the teaser video is to allow a remote visit to the physical laboratory room before students actually enter there. The teaser video delivers interesting visual information of the laboratory equipment when it is fully operational, and hence, students can identify causal connections of all devices affecting the physical system from anyplace at any time. The virtual laboratory, on the other hand, enables students to observe several physical quantities and their curvatures which cannot be observed nor displayed by the physical devices in the laboratory room. Furthermore, the open-ended nature of the virtual laboratory also enables students to use it as a subject for their own active research. The teaser video and virtual laboratory help students to develop intuition, and they also strengthen students' preparation in a timely fashion manner. As a result, more time is released for active on-site student collaboration and teacher facilitated intellectual discussion. Interestingly, the virtual laboratory is key to establish highly collaborative and activity-based learning environment inside the laboratory room. Finally, it is shown that the new implementation of the laboratory work significantly reduces implementation costs.

General information

Publication status: Published

MoE publication type: A4 Article in a conference publication

Organisations: Department of Automation Science and Engineering, Research area: Information Systems in Automation, Research area: Dynamic Systems

Contributors: Pyrhönen, V.

Number of pages: 9

Publication date: 2016

Host publication information

Title of host publication: SEFI conference 2016 : Engineering Education on Top of the World: Industry University Cooperation

ISBN (Electronic): 9782873520144

ASJC Scopus subject areas: Education

Keywords: Blended Learning, Cost Reduction, Flipped Learning, Laboratory

Electronic versions:

Enhancing old laboratory experiment using flipped learning

URLs:

<http://sefibenvwh.cluster023.hosting.ovh.net/wp-content/uploads/2017/09/pyrhonen-enhancing-old-laboratory-experiment-using-flipped-learning-towards-self-regulating-collaborative-.pdf>

<http://urn.fi/URN:NBN:fi:tuni-201912106720>

Research output: Chapter in Book/Report/Conference proceeding > Conference contribution > Scientific > peer-review

Computer-supported collaborative learning: Praxes in new cell-oriented configurable PC-classroom

Currently, technology-enhanced learning environments are a research hotspot in engineering education. Universities invest in modern environments equipped with the newest audiovisual hardware, computers and web-technologies. These environments support learner-centred model of education, which highlights active role of learners, learning-by-doing, and collaborative learner autonomy in a democratic atmosphere. Therefore, traditional teacher-led classrooms can be transformed to more diverse and more creative environments in which teachers and learners have relatively different roles compared with the traditional classroom.

In this paper, we present layout, construction and hardware of our newly developed technology-mediated, configurable, and cell-oriented PC-classroom, which play a key role in our teaching development. We exemplify how the classroom has helped us to improve our automation science and control engineering education. To be more specific, we have adopted the well-known concept of computer-supported collaborative learning (CSCL), which concerns how students can learn together with the help of computers. We also demonstrate how redefining and redesigning the nature of activities occurring in modern learning environments can improve the effectiveness of contact teaching, and hence, allow learning episodes to be more impactful compared with the traditional teacher-led classroom. We would like to pinpoint that redefinition and redesign have allowed us, as teachers, to take the position of a facilitating guide, or mentor, which work in close cooperation with students, and thereby, is able to strengthen the knowledge level of students through intellectual face-to-face discussion as well as through technology-supported communication.

Furthermore, our new classroom has enabled hands-on, competitive, cyber-physical attack-defence events to be conducted, which improve our automation security training. The events have invited participants from industry and academia, but most importantly, they have involved students. During the events, we have offered opportunities for students to make demonstration-of-skills to the participants from business. As a consequence, the new environment has enabled acts of openings for university-business cooperation in terms of education and recruit, free of charge. To our experience and according to student feedback, our redefined ways of conducting teaching has improved student motivation as well as increased their timely investment towards learning activities, which has eventually translated to better grades and overall satisfaction.

General information

Publication status: Published

MoE publication type: A4 Article in a conference publication

Organisations: Department of Automation Science and Engineering, Research area: Information Systems in Automation

Contributors: Pyrhönen, V., Seppälä, J., Salmenperä, M.

Number of pages: 9

Publication date: 2016

Host publication information

Title of host publication: SEFI conference 2016 : Engineering Education on Top of the World: Industry University Cooperation

ISBN (Electronic): 9782873520144

ASJC Scopus subject areas: Education

Keywords: Computer-Supported Collaborative Learning, Learner-Centred Learning, Learning Environment, Teaching Technology

Electronic versions:

[computer_supported_collaborative_learning_2016](#)

URLs:

<http://sefibenvwh.cluster023.hosting.ovh.net/wp-content/uploads/2017/09/pyrhonen-computer-supported-collaborative-learning-praxes-223.pdf>

<http://urn.fi/URN:NBN:fi:tuni-201912307142>

Research output: Chapter in Book/Report/Conference proceeding > Conference contribution > Scientific > peer-review

Protective Spinel Coatings for Solid Oxide Fuel Cell Interconnectors by Thermal Spray Processes: From Conventional Dry Powder to Novel Solution Precursor Thermal Spraying

Protective coatings are used on ferritic stainless steel interconnectors to prevent the transport of the harmful $\text{CrO}_3(\text{g})$ and $\text{CrO}_2(\text{OH})_2(\text{g})$ compounds in solid oxide fuel cells. These compounds are transported on the triple-phase boundary of the cathode, and electrically reduce back to Cr_2O_3 causing degradation of the cell. The most promising materials to be used

as protective coatings are (Mn,Co)3O4 spinels. However, in order to provide good protectiveness in long-term use (5 years or more), these coatings should have a dense microstructure, good adhesion with the substrate and good chemical stability at high temperature in an oxidizing atmosphere. Several deposition techniques have been studied, for example various wet-ceramic processes and thin film techniques. However, the studies have shown that the coatings produced with these methods are not dense, and therefore their long-term protectiveness is questionable.

In this study, protective (Mn,Co)3O4 and (Mn,Co,Fe)3O4 spinel coatings were manufactured with conventional atmospheric plasma spraying (APS) and novel high velocity solution precursor flame spraying (HVSPFS). The aim was to obtain a dense microstructure. Since the HVSPFS process is a novel deposition method, the coating build-up mechanism and materials synthesis were studied more closely. The as-sprayed coatings were oxidized in order to obtain more detailed information about the Cr barrier and electrical properties during the oxidation cycles.

The spinel coatings with a dense microstructure were sprayed using the APS and the HVSPFS processes. The deposition methods caused the as-sprayed coatings to sinter during the oxidation cycles. The sintering was a consequence of the metastable phase structure and the small particle and crystallite size. Due to the dense microstructure and fully recovered spinel phases, the coatings provided a good Cr barrier and electrical properties, even in a relatively harsh environment. It can be stated that Mn1.5Co1.5O4 and MnCo1.9Fe0.1O4 spinel coatings, manufactured either by conventional thermal spraying using agglomerated cermet powder, or by solution precursor thermal spraying, are good candidates for use as protective coatings on metallic interconnectors.

General information

Publication status: Published

MoE publication type: G5 Doctoral dissertation (article)

Organisations: Department of Materials Science, Research group: Surface Engineering

Contributors: Puranen, J.

Number of pages: 81

Publication date: 18 Sep 2015

Publication information

Place of publication: Tampere

Publisher: Tampere University of Technology

ISBN (Print): 978-952-15-3569-7

ISBN (Electronic): 978-952-15-3587-1

Original language: English

Publication series

Name: Tampere University of Technology. Publication

Publisher: Tampere University of Technology

Volume: 1322

ISSN (Print): 1459-2045

Electronic versions:

puranen_1322

URLs:

<http://URN.fi/URN:ISBN:978-952-15-3587-1>

Bibliographical note

Awarding institution: Tampere University of Technology

Versio ok 16.12.2015

Research output: Book/Report > Doctoral thesis > Collection of Articles

Challenges Facing BIM Education: Development of Appropriate Teaching and Learning Resources

Building Information Modelling (BIM) is becoming the new norm in the AEC industry and also part of many construction project management (CPM) programmes. In terms of teaching BIM there is the need for specific resources in explaining the theoretical principles of BIM, BIM tools (authoring, audit and analysis) and building models themselves. Theoretical resources that are available for education in the form of books, articles and websites are easy and straightforward to locate. Likewise a good share of various tools are available for educational purposes. On the other hand, actual building models represent a challenge in terms of preparing and optimising usage of the model for high quality educational purposes. This paper addresses the difficulty in walking the narrow line between an industry ready BIM versus a BIM that is good for student learning and offers a realistic and practical, but simultaneously achievable learning environment. Conducting a case study in an undergraduate CPM education setting, three approaches for obtaining BIM resources were identified with various challenges and benefits. A combination of internally developed models for early exposure and industry models for later courses is proposed.

General information

Publication status: Published

MoE publication type: A4 Article in a conference publication

Organisations: Department of Civil Engineering, Research group: Digitalization in the real estate and construction sector, Research group: Capacity Development of Water and Environmental Services CADWES, Research group: Real estate development

Contributors: Puolitaival, T., Forsythe, P., Kähkönen, K.

Publication date: 2015

Host publication information

Title of host publication: RICS COBRA AUBEA 2015 : The Construction, Building and Real Estate Research Conference of the Royal Institution of Chartered Surveyors

Place of publication: London

Publisher: Royal Institution of Chartered Surveyors

ISBN (Print): 978-1-78321-071-8

URLs:

<http://www.rics.org/fi/knowledge/research/conference-papers/challenges-facing-bim-education-development-of-appropriate-teaching-and-learning-resources/>

Research output: Chapter in Book/Report/Conference proceeding › Conference contribution › Scientific › peer-review

Characterising the industrial context of engineering change management

Engineering changes (EC) and their management (ECM) can be categorized from several points of view. In this paper an EC is mainly considered from the position in lifecycle of the object of change: NPD vs. serial production. The performance aspects of engineering change processes emphasize the balancing of speed of the processes and the communication and assessment of consequent changes. ECM practices are studied by comparing two case companies. The cases indicate ECM is highly related to the organization, history and strategy of a company. The increased efficiency in engineering changes is aspired by streamlined ECM in new product development, while enhanced ECM processes apparently batch ECs for increased overall effectivity. The mutual challenge for the studied companies is that the NPD projects result with a set of change requests for serial production.

General information

Publication status: Published

MoE publication type: A4 Article in a conference publication

Organisations: Department of Mechanical Engineering and Industrial Systems, VTT Technical Research Centre of Finland

Contributors: Pulkkinen, A., Huhtala, P., Leino, S., Anttila, J. P., Vainio, V. V.

Number of pages: 10

Pages: 618-627

Publication date: 2016

Host publication information

Title of host publication: Product Lifecycle Management in the Era of Internet of Things : 12th IFIP WG 5.1 International Conference, PLM 2015, Doha, Qatar, October 19-21, 2015, Revised Selected Papers

Publisher: Springer New York LLC

ISBN (Print): 9783319331102

Publication series

Name: IFIP Advances in Information and Communication Technology

Volume: 467

ISSN (Print): 1868-4238

ASJC Scopus subject areas: Information Systems and Management

Keywords: Case study, Comparison, ECM

DOIs:

10.1007/978-3-319-33111-9_56

Bibliographical note

EXT="Leino, Simo-Pekka"

Source: Scopus

Source ID: 84964894186

Research output: Chapter in Book/Report/Conference proceeding › Conference contribution › Scientific › peer-review

Gas and particle composition and properties of photochemically aged ship plumes using chemical ionization and aerosol mass spectrometry

General information

Publication status: Published

MoE publication type: D3 Professional conference proceedings

Organisations: Department of Physics, Research area: Aerosol Physics, University of Gothenburg
Contributors: Psichoudaki, M., Faxon, C., Kuuluvainen, H., Thomson, E. S., Eriksson, A., Mallqvist, J., Pettersson, J., Hallquist, Å., Kristensson, A., Hallquist, M.
Publication date: 2015

Host publication information

Title of host publication: EAC 2015, European Aerosol Conference, 6-11 September, 2015, Milan, Italy

Bibliographical note

ISBN kysytty, HO.

Ei ole, HO.

Research output: Chapter in Book/Report/Conference proceeding > Conference contribution > Professional

A trial of yoking-proof protocol in RFID-based smart-home environment

Owing to significant progress in the Internet of Things (IoT) within both academia and industry, this breakthrough technology is increasingly penetrating our everyday lives. However, the levels of user adoption and business revenue are still lagging behind the original expectations. The reasons include strong security and privacy concerns behind the IoT, which become critically important in the smart home environment. Our envisioned smart home scenario comprises a variety of sensors, actuators, and end-user devices interacting and sharing data securely. Correspondingly, we aim at investigating and verifying in practice the Yoking-proof protocol, which is a multi-factor authentication solution for smart home systems with an emphasis on data confidentiality and mutual authentication. Our international team conducted a large trial featuring the Yoking-proof protocol, RFID technology, as well as various sensors and user terminals. This paper outlines the essentials of this trial, reports on our practical experience, and summarizes the main lessons learned.

General information

Publication status: Published

MoE publication type: A4 Article in a conference publication

Organisations: Electronics and Communications Engineering, Research group: Emerging Technologies for Nano-Bio-Info-Cogno, St. Petersburg State University of Aerospace Instrumentation, Brno University of Technology

Contributors: Prudanov, A., Tkachev, S., Golos, N., Masek, P., Hosek, J., Fujdiak, R., Zeman, K., Ometov, A., Bezzateev, S., Voloshina, N., Andreev, S., Misurec, J.

Number of pages: 10

Pages: 25-34

Publication date: 2016

Host publication information

Title of host publication: Distributed Computer and Communication Networks - 19th International Conference, DCCN 2016, Revised Selected Papers

Volume: 678

Publisher: Springer Verlag

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Publication series

Name: Communications in Computer and Information Science

Volume: 678

ISSN (Print): 1865-0929

ASJC Scopus subject areas: Computer Science(all)

Keywords: Authentication, IoT, RFID, Smart-Home, Yoking-proof protocol

Electronic versions:

A trial of yoking-proof protocol in RFID-based smart-home environment

DOIs:

10.1007/978-3-319-51917-3_3

URLs:

<http://urn.fi/URN:NBN:fi:tuni-202001241513>

Source: Scopus

Source ID: 85013436263

Research output: Chapter in Book/Report/Conference proceeding > Conference contribution > Scientific > peer-review

Uudet arkkitehtoniset ratkaisumallit muuttavat kampuksien ilmettä

Uudet pedagogiset oivallukset sekä tekniset innovaatiot ovat radikaalisti muokanneet yliopisto-oppimista, mikä asettaa merkittäviä kehitystarpeita myös oppimistiloille. Uudenlaiset oppimistavat vaativat uudenlaisia tiloja ja paikkoja, jotka tukevat oppimista parhaalla mahdollisella tavalla. Artikkelissa pohditaan kuinka kampuksia voidaan elävöittää arkkitehtuurin keinoin? Miten eri mittakaavalliset ratkaisut tukevat oppimista, vuorovaikutusta sekä luovuutta?

Kampusten uudistamista voidaan tarkastella erilaisista tilallisista ja arkkitehtonisista näkökulmista. Tässä artikkelissa

esitetään kolmen tarkastelutason ideoita kampus-, rakennus- ja tilamittakaavoissa. Kokonaisvaltaiset ratkaisut, joissa rakennuksen tilat ja toiminta uudistuvat täysin, omaavat valtavan potentiaalin muuttaa ihmisten välistä vuorovaikutusta sekä tilojen käyttöä. Tällaiset ratkaisut saattavat olla kuitenkin kalliita ja hitaita toteuttaa. Pienemmän mittakaavan ratkaisut vaikuttavat pienemmällä alueella, mutta ovat toteutukseltaan edullisempia ja nopeampia. Esimerkiksi kampusten vajaakäyttöisten tilojen, kuten käytävien ja aulatilojen ottaminen hyötykäyttöön voisi tehostaa merkittävästi kampusten tilarakennetta. Täysin uusien toimintojen sijoittaminen näihin vajaakäyttöisiin tiloihin voisi lisäksi luoda kampuksista eläviä urbaaneja ympäristöjä, joissa on toimintaa vuorokauden ympäri. Olemassa olevat rakennukset voivat täten toimia alustoina uusille arkkitehtonisille ratkaisuille, jotka viestivät opetuksen ja tutkimuksen ajankohtaisuudesta. Tutkimuksen tuloksia voidaan soveltaa joustavasti erilaisten kampusympäristöjen muutosten suunnittelussa. Artikkelit toimii keskustelun avauksena suunnittelijoiden, kampuskehittäjien sekä käyttäjien välisessä vuoropuhelussa. Esitetyt ratkaisumallit paljastavat, että olemassa olevissa kampuksissa ja niiden tilarakenteessa on paljon kehityspotentiaalia. Artikkelissa esitetyt visiot herättelevät lukijoita katsomaan olemassa olevia kampuksia uudesta näkökulmasta uusien innovatiivisten esimerkkien ja tilaratkaisujen kautta.

General information

Publication status: Published

MoE publication type: D2 Article in professional manuals or guides or professional information systems or text book material

Organisations: School of Architecture, Research group: Public Buildings

Contributors: Poutanen, J., Peltoniemi, S., Pihlajarinne, N.

Number of pages: 22

Pages: 72-93

Publication date: Mar 2015

Host publication information

Title of host publication: Oppiva kampus : How to co-create campus?

Place of publication: Tampere

Publisher: Suomen Yliopistokiinteistöt Oy

Editors: Nenonen, S., Kärnä, S., Junnonen, J., Tähtinen, S., Sandström, N.

ISBN (Print): 978-952-15-3478-2

ISBN (Electronic): 978-952-15-3479-9

URLs:

http://sykoy.fi/wp-content/uploads/oppiva-kampus_valmis_pieni.pdf

Research output: Chapter in Book/Report/Conference proceeding › Chapter › Professional

The target reliability of the eurocodes

The target reliability of the Eurocodes is given clearly: One-year reliability is 4.7 and 50-year reliability 3.8 correspondingly. However, the implementation of the direction is unclear in many ways: The reliability calculations for the Eurocodes are made sometimes by using one-year reliability 4.45 or 4.2. The Eurocodes does not instruct for which reference time the reliability is calculated. Normally, the reliability is calculated for the service time, 50 years, but sometimes for one year. The paper concludes that the reliability must be calculated for the service time. The independent versus the dependent load combination results in different reliability. The independent load combination results in higher reliability with fixed safety factors and up to about 10 % less safety factors with fixed target reliability when two loads are combined and with three loads even less. The loads are combined in the Eurocodes sometimes independently and sometimes dependently. Arguments are given here that the loads must be combined dependently. The variable load distribution is generally assumed Gumbel. However, this distribution is excessively safe as it has a robust upper tail which unrealistically affects the reliability. Normal distribution is one possible alternative, however obviously somewhat unsafe. In the paper, the safety factors are given based on Gumbel and normal distribution. The combination of 20 % Gumbel and 80 % normal distribution is one feasible option. In the current reliability calculation 50-year return load, i.e. 0.98 fractile of the load distribution is usually set at the characteristic load with the target reliability of the service time. This means that one-year loads are only considered in the reliability calculation. For this reason the variable load safety factors are unrealistically low as the target reliability corresponds to the service time loads. Gumbel distribution partly counterbalances the unsafe error but the overall effect is unsafe. The material factors of the Eurocodes are given based on the current calculation and modified calculation. The paper concludes that the reliability should be calculated for the service time loads with the distributions set at the service time location and the reference reliability should be 3.8. The issue of partial factors and design values is shortly addressed and concluded that the design value code is simple with better reliability accuracy than the current partial factor code when the characteristic variable load is made variable.

General information

Publication status: Published

MoE publication type: A4 Article in a conference publication

Organisations: Department of Civil Engineering

Contributors: Poutanen, T.

Number of pages: 7

Pages: 202-208

Publication date: 2015

Host publication information

Title of host publication: Safety, Robustness and Condition Assessment of Structures
Publisher: International Association for Bridge and Structural Engineering (IABSE)

Publication series

Name: IABSE Symposium Report

ISSN (Print): 2221-3783

ASJC Scopus subject areas: Civil and Structural Engineering, Building and Construction, Safety, Risk, Reliability and Quality

Keywords: Code, Design value, Gumbel distribution, Normal distribution, Partial factor, Reliability

DOIs:

10.2749/222137815815622816

URLs:

<http://www.scopus.com/inward/record.url?scp=84929340776&partnerID=8YFLogxK> (Link to publication in Scopus)

Source: Scopus

Source ID: 84929340776

Research output: Chapter in Book/Report/Conference proceeding › Conference contribution › Scientific › peer-review

RF energy harvesting system with RFID-enabled charge storage monitoring

Radio frequency (RF) energy scavenging is a compelling approach to energize the low-power wireless devices. We present an energy harvesting system consists of a low-power RF switch circuitry and a passive UHF RFID tag. When the voltage at the storage capacitor terminals exceeds 0.58 V, RF switch connects the UHF RFID microchip to a dipole-type tag antenna. This way, an RFID reader can detect the charge storage level wirelessly with minimal power consumption at the harvester. In this paper, we detail the development of the system and present results from both simulations and measurement. Overall, we were able to achieve 0.58 V at the storage capacitor and detect the storage level indicator tag at the distance of 5.1 m in an experiment where regular 8.7 dBi patch antennas were connected to the harvester input and output of an RFID reader emitting 2.5 W EIRP.

General information

Publication status: Published

MoE publication type: A4 Article in a conference publication

Organisations: Faculty of Biomedical Sciences and Engineering, Research group: Wireless Identification and Sensing Systems Research Group, Research group: Wireless Identification and Sensing Systems Research Group

Contributors: Pournoori, N., Khan, W., Ukkonen, L., Björninen, T.

Number of pages: 4

Publication date: 26 Sep 2018

Host publication information

Title of host publication: 2018 IEEE International Conference on RFID Technology & Application (RFID-TA)

Publisher: IEEE

ISBN (Electronic): 978-1-5386-5057-8

Electronic versions:

RFID paper

DOIs:

10.1109/RFID-TA.2018.8552826

URLs:

<http://urn.fi/URN:NBN:fi:tty-201812192865>

Research output: Chapter in Book/Report/Conference proceeding › Conference contribution › Scientific › peer-review

Personal constructs concerning safety and atmosphere

General information

Publication status: Published

MoE publication type: A4 Article in a conference publication

Organisations: Pori Department, Department of Industrial Management, Research group: Safety Management and Engineering

Contributors: Porkka, P., Laukkanen, I., Kivistö-Rahnasto, J.

Publication date: Sep 2015

Host publication information

Title of host publication: WOS 8th international conference - Book of Abstracts

ISBN (Print): 978-989-98203-5-7

URLs:

Functional model for organisational and safety culture

Cultures are usually defined as shared values, attitudes and behaviour of certain group. The core of culture is inside person's mind. Only through behaviour or other actions of persons the culture becomes visible and shareable. Cultural artefacts and all other perceptible signs of culture are formed through action. From this perspective culture requires functionality. It does not exist nor spread without activity of individuals. In systems theory there is a methodological distinction between theoretical system and empirical system. Theoretical system "is a complex of concepts, suppositions, and propositions having both logical integration and empirical reference". Empirical system is "a set of phenomena in the observable world that is amenable to description and analysis by means of a theoretical system". However, in cultural context, theoretical models usually describe only properties of the empirical system. Usually the functionality of the culture is left undefined. Therefore theoretical models may have flaws in their ability to describe the functionality of the culture, which is essential part of the culture. In this paper we use a novel functional model to explore the functionality of the most commonly used culture models. We inspect Schein's organizational culture model, Cooper's reciprocal safety culture model and Johnson's cultural web. We study them and their functionality with our own functional model, which integrates person to sociotechnical system and shows person-sociotechnical system interaction. This study clearly shows that if culture's basis is in shared mental models, then the question whether organization is or has culture is absurd. As Antonsen has pointed out certain mandatory organizational features are clearly structural and not cultural. We also emphasize the behavioural aspect when defining cultural issues. The shared mental model alone is not sufficient requirement to define a feature as a cultural artefact, nor is the behaviour all employees share. Behaviour or action is cultural artefact only when the members of the culture have truly free will to choose their behaviour.

General information

Publication status: Published

MoE publication type: A3 Part of a book or another research book

Organisations: Pori Department

Contributors: Porkka, P. L.

Number of pages: 6

Pages: 907-912

Publication date: 2016

Host publication information

Title of host publication: Chemical Engineering Transactions

Publisher: Italian Association of Chemical Engineering AIDIC

ISBN (Print): 9788895608396

Publication series

Name: Chemical Engineering Transactions

Volume: 48

ISSN (Electronic): 2283-9216

ASJC Scopus subject areas: Chemical Engineering(all)

DOIs:

10.3303/CET1648152

Bibliographical note

JUFOID=70222

Source: Scopus

Source ID: 84976878615

Research output: Chapter in Book/Report/Conference proceeding › Chapter › Scientific › peer-review

Automated driving and the key megatrends of future

Road transport is facing several changes that derive from the operational environment. Technological progress supporting advances in automated driving is one of these. Alongside e.g. globalisation, urbanisation, aging, climate change and digitalisation are challenging the transport needs and solutions of today. This paper discusses how automated driving is related to the factors of change. Based on the analysis, the progress towards more automated driving is supporting and is supported by the changes deriving from the key megatrends even though also some conflicting issues are recognised.

General information

Publication status: Published

MoE publication type: D3 Professional conference proceedings

Organisations: Department of Information Management and Logistics

Contributors: Pöllänen, M., Nykänen, L.

Publication date: 2014

Host publication information

Title of host publication: ITS European Congress : 10th ITS EUROPEAN CONGRESS, Helsinki, Finland 16-19 June 2014

Article number: TP0067

ASJC Scopus subject areas: Engineering(all)

Keywords: automated driving, megatrends, FUTURE-RESEARCH

URLs:

<http://www.itsineurope.com/its10/>

Research output: Chapter in Book/Report/Conference proceeding › Conference contribution › Professional

Challenges in the paradigm change from mobility as a self-service to mobility as a service

The predominant paradigm of everyday mobility in Finland is mobility as a self-service where most of the mobility needs are taken care with passenger cars. The 'Mobility as a Service' (MaaS) model is a new paradigm that challenges the current mobility practises. The purpose of this paper is to describe the current state of mobility and analyse the potential and challenges of MaaS against current situation in demographics, mobility and mobility related consumption in Finland. It would require a big shift in the current mobility practises for MaaS to become mainstream. In this paper, on one hand potential and one the other more challenging customer segments are recognised and the possibilities of MaaS to address these are discussed.

General information

Publication status: Published

MoE publication type: D3 Professional conference proceedings

Organisations: Civil Engineering

Contributors: Pöllänen, M., Utriainen, R., Viri, R.

Number of pages: 20

Pages: 246-265

Publication date: 2017

Host publication information

Title of host publication: Conference Proceedings 1st International Conference of Mobility as a Service : ICoMaaS, Tampere 28.-29.11.2017

Publisher: Tampere University of Technology

Keywords: Mobility as a Service, MaaS, challenges, potential

URLs:

<http://www.tut.fi/verne/icomaas/download/>

http://www.tut.fi/verne/aineisto/ICoMaaS_Proceedings_S8.pdf

Research output: Chapter in Book/Report/Conference proceeding › Conference contribution › Professional

Standardizing the service delivery system for repetitive industrial services

Manufacturers need to develop efficient service deliveries that can be used for multiple customers with different equipment. The service delivery system can support service repetitiveness through standardization. The objective is to increase understanding on features and requirements of standardization in the service delivery system and identify means for efficient service delivery in triadic settings. The qualitative multiple-case study with three manufacturing firms reveals different relevant factors for standardization for reactive and proactive services and highlights certain practices in triadic customer participation. Equipment and remote technologies both challenge and enable standardization and require new competences.

General information

Publication status: Published

MoE publication type: B3 Non-refereed article in conference proceedings

Organisations: Department of Industrial Management, Research group: Center for Research on Operations Projects and Services, Tampere University of Technology

Contributors: Poikonen, E., Martinsuo, M., Nenonen, S.

Number of pages: 20

Publication date: Sep 2015

Host publication information

Title of host publication: RESER 2015 : 25th Annual RESER Conference

Publisher: RESER European Association for Research on Services

ISBN (Electronic): 978-87-7349-921-4

Keywords: service delivery, industrial services

URLs:

<http://www.reser.net/conference/past-conferences/2015-copenhagen-denmark>

Bibliographical note

AUX=ttt,"Poikonen, Elina"

Research output: Chapter in Book/Report/Conference proceeding › Conference contribution › Scientific

Probabilistic Framework for Modelling the Evolution of Geomorphic Features in 10,000-Year Time Scale: The Eurajoki River Case

In this paper the long-term evolution of the catchment area of Eurajoki River, situated in Western Finland, is studied. The modelling area, nearly 1000 km² in size, is at present mostly covered by sea. Probabilistic digital elevation model and land uplift model form the basis for the future catchment area modelling. A land uplift model is required due to the ongoing post-glacial rebound especially in the western parts of Finland. The maximum rate of land uplift in Finland is 1 cm per year while in the modelling area the land uplift rate is about 6 mm per year. The digital elevation model and land uplift model have been calculated using Monte Carlo simulation where the uncertainties in the source data have been taken into account. The probabilistic nature of these models enables also the river catchment area and river network analyses probabilistically. The analyses are done for the next 10,000 years in 1000-year intervals and 100 realizations are estimated for each time point. The results show that the catchment area expands towards the west as the land rises. An alternative river branch flowing northwards from the main course will form with a significant probability. Also, a delta area with multiple river branches is expected to form at about 7000 years after present.

General information

Publication status: Published

MoE publication type: A3 Part of a book or another research book

Organisations: Pori Department, Research group: Data-analytics and Optimization

Contributors: Pohjola, J., Turunen, J., Lipping, T., Ikonen, A. T.

Pages: 369-382

Publication date: 2016

Host publication information

Title of host publication: Geospatial Data in a Changing World : Selected papers of the 19th AGILE Conference on Geographic Information Science

Publisher: Springer Verlag

ISBN (Print): 978-3-319-33782-1

ISBN (Electronic): 978-3-319-33783-8

Publication series

Name: Lecture Notes in Geoinformation and Cartography

ISSN (Print): 1863-2246

DOIs:

10.1007/978-3-319-33783-8

Bibliographical note

JUFOID=82325

Research output: Chapter in Book/Report/Conference proceeding › Chapter › Scientific › peer-review

Functionalizing Surface Electrical Potential of Hydroxyapatite Coatings

General information

Publication status: Published

MoE publication type: A4 Article in a conference publication

Organisations: Department of Materials Science, Research group: Surface Engineering, Riga Technical University, University of Adelaide

Contributors: Pluduma, L., Freimanis, E., Gross, K., Koivuluoto, H., Algate, K., Haynes, D., Vuoristo, P.

Number of pages: 6

Pages: 12-17

Publication date: 2016

Host publication information

Title of host publication: 11th International Conference Medical Applications of Novel Biomaterials and Nanotechnology

Volume: 102

ISBN (Print): 978-3-0357-1125-7

Publication series

Name: Advances in Science and Technology

Volume: 102

ISSN (Print): 1661-819X

Bibliographical note

JUFOID=75599

Research output: Chapter in Book/Report/Conference proceeding › Conference contribution › Scientific › peer-review

Physical and chemical properties of real exhaust particle emissions from city buses

General information

Publication status: Published

MoE publication type: D3 Professional conference proceedings

Organisations: Department of Physics, Research area: Aerosol Physics, Metropolia University of Applied Science, Metropolia University of Applied Sciences, Helsinki University, Helsinki Region Environmental Services Authority (HSY), Department of Environmental Sciences, Atmospheric Composition Research, Finnish Meteorological Institute

Contributors: Pirjola, L., Dittrich, A., Niemi, J. V., Saarikoski, S., Malinen, A., Kuuluvainen, H., Wihersaari, H., Timonen, H., Kousa, A., Rönkkö, T., Hillamo, R.

Publication date: 2015

Host publication information

Title of host publication: EAC 2015, European Aerosol Conference, 6-11 September, 2015, Milan, Italy

Bibliographical note

AUX=fys,"Wihersaari, Hugo"

Ei ISBN-numeroa

Research output: Chapter in Book/Report/Conference proceeding › Conference contribution › Professional

Using context overlays to analyse the role of a priori information with Process Mining

Notwithstanding the significant advances in context-aware computing in pervasive computing and self-adaptive systems, there is still much more to be desired in providing better context services. The number of sensors deployed world-wide increases very rapidly. The Internet of Things, amongst others, generates vast amounts of data of many different data types. How data are used is essential to improve user experience and efficiencies of the systems in which they occur. We explain how familiar concepts of Process Mining strengthen generalised sensor context services. We present a laboratory case to explain the approach. By way of a real-world example, we confirm the viability of using Process Mining to strengthen context-aware computing.

General information

Publication status: Published

MoE publication type: A4 Article in a conference publication

Organisations: Department of Mathematics, Research group: MAT Intelligent Information Systems Laboratory

Contributors: Pileggi, P., Rivero Rodriguez, A., Nykänen, O.

Number of pages: 6

Pages: 639-644

Publication date: 2015

Host publication information

Title of host publication: 2015 IEEE International Systems Conference (SysCon 2015) Proceedings

Place of publication: Vancouver, BC, Canada

Publisher: IEEE

ISBN (Print): 978-1-4799-5927-3

Keywords: Context-aware computing, Process mining, Self-adaptive systems, Pervasive computing

DOIs:

10.1109/SYSCON.2015.7116823

URLs:

<http://ieeexplore.ieee.org/xpl/articleDetails.jsp?arnumber=7116823>

Research output: Chapter in Book/Report/Conference proceeding › Conference contribution › Scientific › peer-review

Towards Traditional Simulation Models of Context Using Process Mining

Context (sensor) systems are hard to model: they require constant updating and insightful approaches, especially considering the increasing data volume, variety, and generation rate of contemporary networking paradigms, like the Internet of Things. In this paper, we argue that intelligent process models can be mined to look at the actual system activity from alternative context perspectives, i.e., perspectives observable from the sensor attributes themselves. We explain how the close relationship between the models derived using Process Mining, and Event-Driven Simulation can be exploited to help not only better understand what is happening in such systems but also provide alternative models for the intelligent solutions they support, such as context inference. We demonstrate this using a real-world example and discuss the feasibility of extending these alternative process models to be viewed as simulation. We envision automated steps that would result in traditional simulation models of context using Process Mining.

General information

Publication status: Published
MoE publication type: A4 Article in a conference publication
Organisations: Department of Mathematics, Research group: MAT Intelligent Information Systems Laboratory
Contributors: Pileggi, P., Rivero-Rodriguez, A., Nykänen, O.
Number of pages: 6
Pages: 70-75
Publication date: 2015

Host publication information

Title of host publication: Computational Intelligence, Communication Systems and Networks (CICSyN), 2015 7th International Conference on
Publisher: IEEE
ISBN (Print): 9781467370165
Electronic versions:
CICSyN2015-ProcessMining
DOIs:
10.1109/CICSyN.2015.23
URLs:
<http://urn.fi/URN:NBN:fi:tty-201605043939>
<http://www.mendeley.com/research/towards-traditional-simulation-models-context-using-process-mining>
Source: Mendeley
Source ID: 3b5a7052-83aa-3c38-ba30-f4290873ae25
Research output: Chapter in Book/Report/Conference proceeding > Conference contribution > Scientific > peer-review

Raudoitetun betonirakenteen taivutuksen mallintaminen Ansys-ohjelmalla

General information

Publication status: Published
MoE publication type: B3 Non-refereed article in conference proceedings
Organisations: Department of Civil Engineering, Research group: Metal and Light-wight structures, Research group: Structural Mechanics
Contributors: Pietilä, J., Mäkinen, J.
Number of pages: 7
Pages: 91-96
Publication date: Jun 2015

Host publication information

Title of host publication: Proceedings of the XII Finnish Mechanics Days
Place of publication: Helsinki
Publisher: Rakenteiden Mekaniikan Seura ry
Editors: Kouhia, R., Mäkinen, J., Pajunen, S., Saksala, T.
ISBN (Print): 978-952-93-5608-9
ISBN (Electronic): 978-952-93-5609-6
URLs:
http://rmseura.tkk.fi/smp_proceedings/SMP12_Proceedings.pdf
Research output: Chapter in Book/Report/Conference proceeding > Conference contribution > Scientific

Role of Water Cooperatives in Water Service Production - Lessons from Finland and Denmark

General information

Publication status: Published
MoE publication type: A4 Article in a conference publication
Organisations: Department of Civil Engineering
Contributors: Pietilä, P., Arvonen, V., Katko, T.
Pages: 1152-1161
Publication date: 2016

Host publication information

Title of host publication: Proceedings of the 20th CIB World Building Congress 2016 : May 30 – June 3, 2016 Tampere Finland
Volume: V
Publisher: Tampere University of Technology
Editor: Achour, N.

ISBN (Electronic): 978-952-15-3745-5

URLs:

<http://urn.fi/URN:ISBN:978-952-15-3745-5>

Research output: Chapter in Book/Report/Conference proceeding > Conference contribution > Scientific > peer-review

Mezhdunarodnaya konferencia po pozicionirovaniyu i navigacii vnutri pomeshhenij

General information

Publication status: Published

MoE publication type: B1 Article in a scientific magazine

Organisations: Department of Automation Science and Engineering, Research area: Dynamic Systems, Research group:

Positioning

Contributors: Piche, R. A.

Pages: 122-124

Publication date: 2015

Peer-reviewed: No

Publication information

Journal: Giroskopiya I Navigatsiya

Volume: 88

Issue number: 1

ISSN (Print): 0869-7035

Original language: Russian

Research output: Contribution to journal > Article > Scientific

Random lasing control with optical spatial solitons in nematic liquid crystals

We discuss the synergy of reorientational self-focusing and random lasing in a dye-doped nematic liquid crystalline material. The laser emission resulting from amplification and multiple scattering inside the medium can be either modulated or triggered depending on the energy of the visible pump beam and the power of the near-infrared spatial soliton, respectively exciting the two nonlinear responses. Moreover, the presence of the self-induced waveguide improves the properties of the emitted beam, i. e., directionality and profile. Finally, the laser light can be re-directed by steering the spatial soliton with the aid of an external low-frequency electric field.

General information

Publication status: Published

MoE publication type: A4 Article in a conference publication

Organisations: Physics, Research group: Nonlinear Optics, University "Roma Tre", Case Western Reserve University, Univ Roma Tre, Roma Tre University, Dept Elect Engr, NooEL

Contributors: Piccardi, A., Perumbilavil, S., Kauranen, M., Strangi, G., Assanto, G.

Number of pages: 5

Pages: 289-293

Publication date: 2019

Host publication information

Title of host publication: PHOTOPTICS 2019 - Proceedings of the 7th International Conference on Photonics, Optics and Laser Technology

Publisher: SCITEPRESS

Editors: Ribeiro, P., Raposo, M., Andrews, D.

ISBN (Electronic): 9789897583643

ASJC Scopus subject areas: Atomic and Molecular Physics, and Optics

Keywords: Nematic Liquid Crystals, Optical Spatial Solitons, Random Laser

DOIs:

10.5220/0007575102890293

Bibliographical note

EXT="Assanto, Gaetano"

Source: Scopus

Source ID: 85064602881

Research output: Chapter in Book/Report/Conference proceeding > Conference contribution > Scientific > peer-review

A membrane external-cavity surface-emitting laser (MECSEL) with emission around 825 nm

A MECSEL emitting around 825nm is reported. With a tuning range from 807nm to 840 nm, the MECSEL extends the coverage of high beam quality semiconductor based lasers in the short 8XXnm region and opens new perspectives for scanning ground-based water-vapor differential absorption lidar. 1.4W maximum output power has been achieved at room temperature operation and at 12.5W absorbed power using a 532 nm emitting pump laser. The beam quality has been

investigated by M^2 measurements at different pump power. The effect from a growing pump mode and thermal lensing has been observed as the beam divergence angle decreases and the beam waist radius enlargens with increasing pump power.

General information

Publication status: Published

MoE publication type: A4 Article in a conference publication

Organisations: Physics, Research group: ORC

Contributors: Phung, H. M., Kahle, H., Penttinen, J., Rajala, P., Ranta, S., Guina, M.

Publication date: 2020

Host publication information

Title of host publication: Vertical External Cavity Surface Emitting Lasers (VECSELs) X

Publisher: SPIE

Editor: Hastie, J. E.

Article number: 112630H

ISBN (Print): 9781510632899

ISBN (Electronic): 9781510632905

Publication series

Name: Proceedings of SPIE - The International Society for Optical Engineering

Volume: 11263

ISSN (Print): 0277-786X

ISSN (Electronic): 1996-756X

ASJC Scopus subject areas: Electronic, Optical and Magnetic Materials, Condensed Matter Physics, Computer Science Applications, Applied Mathematics, Electrical and Electronic Engineering

Keywords: GaInAsP, MECSEL, Semiconductor laser, Short 8XXnm region, SiC heatspreaders, Thermal lensing, VECSEL
DOIs:

10.1117/12.2545980

Bibliographical note

INT=phys,"Rajala, Patrik"

jufoid=71479

Source: Scopus

Source ID: 85082694209

Research output: Chapter in Book/Report/Conference proceeding › Conference contribution › Scientific › peer-review

Education and Materials Joining Research methods at Tampere University of Technology

At Tampere University of Technology (TUT), education and research related to joining technologies are performed by two university departments, the Department of Materials Science (DMS) and the Department of Mechanical Engineering and Industrial Systems (MEI). Many of the research activities are conducted via close collaboration between these two units.

General information

Publication status: Published

MoE publication type: D1 Article in a trade journal

Organisations: Department of Materials Science, Research group: Metals Technology, Research group: Surface Engineering, Department of Mechanical Engineering and Industrial Systems, Research group: Laser

Contributors: Peura, P., Vuoristo, P., Vihinen, J.

Number of pages: 4

Pages: 73-76

Publication date: Jun 2015

Peer-reviewed: Unknown

Publication information

Journal: Hitsaustekniikka

Volume: 65

Issue number: 2-3/2015

ISSN (Print): 0437-6056

Original language: English

Bibliographical note

ORG=mol,0.5

ORG=mei,0.5

Research output: Contribution to journal › Article › Professional

Towards responsive workspaces - identification of service paths for time-and-place independent work

General information

Publication status: Published
MoE publication type: A4 Article in a conference publication
Organisations: Department of Civil Engineering
Contributors: Petrulaitiene, V., Rytönen, E., Nenonen, S.
Number of pages: 11
Pages: 1141-1151
Publication date: 2016

Host publication information

Title of host publication: Proceedings of the 20th CIB World Building Congress 2016 : May 30 – June 3, 2016 Tampere Finland

Volume: V

Publisher: Tampere University of Technology

Editor: Achour, N.

ISBN (Electronic): 978-952-15-3745-5

Keywords: workspace, services, framework, time-and-place independent work

URLs:

<http://urn.fi/URN:ISBN:978-952-15-3745-5>

Source: Bibtex

Source ID: urn:1d05ebdd695106100b0dcf2f1e35f399

Research output: Chapter in Book/Report/Conference proceeding > Conference contribution > Scientific > peer-review

Feasibility study of the THz band for communications between wearable electronics

Emerging wearable nano sensor networks enable a set of valuable applications in biomedical and environmental fields. At the same time, the current state of communication technologies significantly limits the processing capabilities of prospective nanomachines. Consequently, implying that all the analysis of collected data needs to be performed on a macro device. Therefore, to effectively enable long-awaited applications of nanonetworks their seamless integration into existing networking infrastructure is required, leading to the concept of Internet of Nano Things. In this paper, the interoperability between already deployed macro networks and emerging nano networks is preliminary investigated. The solution for this problem is nontrivial, as the existing macro wireless networks use primarily the carrier-based electromagnetic communications, while nanomachines must rely on ultra-low-power pulse-based EM radiation or inherently mobile objects as information carriers. Thus, the direct interaction between macro and nano networks is currently not feasible, forcing using special gateway nodes. Moreover, the modern solutions for nano communications have to be rapidly improved to enable construction of large-scale networks on top of existing link level techniques. Numerous theoretical questions are to be addressed to achieve this goal, ranging from the design of a proper modulation and coding technique to mitigation of noise and interference effects.

General information

Publication status: Published
MoE publication type: A4 Article in a conference publication
Organisations: Department of Electronics and Communications Engineering, Research group: Emerging Technologies for Nano-Bio-Info-Cogno
Contributors: Petrov, V.
Number of pages: 6
Pages: 157-162
Publication date: 3 Jun 2015

Host publication information

Title of host publication: 2015 17th Conference of Open Innovations Association (FRUCT), 20-24 April 2015, Yaroslavl.
Publisher: IEEE

Publication series

Name: Conference of Open Innovations Association (FRUCT)
ISSN (Print): 2305-7254
ASJC Scopus subject areas: Computer Science(all), Electrical and Electronic Engineering
DOIs:
10.1109/FRUCT.2015.7117987
Source: Scopus
Source ID: 84936947872
Research output: Chapter in Book/Report/Conference proceeding > Conference contribution > Scientific > peer-review

Wireless Authentication using OPACITY Protocol

Authentication using wireless keys simplifies the user daily life and opens the door to a number of promising applications in the area of pervasive computing, Internet of Things and Tactile Internet. However, this approach raises several research challenges, including but not limited to: which communication technology to use, how to guarantee the relevant security level, and, last but not the least, how to integrate the wireless authentication systems into already deployed authorization solutions. In this paper, we address the above mentioned questions by proposing a wireless authentication solution based on the NFC-capable smartphone and using OPACITY authentication protocol that is compatible with existing access control mechanisms in OS Windows 8. We start with qualitative comparison of Bluetooth, RFID and NFC technologies in terms of applicability for wireless authentication. We then describe the OPACITY protocol in general, and its adaptation to wireless authentication scenario. We finally present the high-level architecture of our solution and highlight some Windows OS specifics we faced during the reference implementation. We believe that demonstrated interoperability between wireless authentication solution and existing access control mechanisms in modern OS provides an important step towards further development of advanced authentication methods, based on wireless keys.

General information

Publication status: Published

MoE publication type: A4 Article in a conference publication

Organisations: Department of Electronics and Communications Engineering, Research group: Emerging Technologies for Nano-Bio-Info-Cogno

Contributors: Petrov, V., Bezzateev, S., Zybin, V.

Pages: 253-258

Publication date: 2015

Host publication information

Title of host publication: 2015 7th International Congress on Ultra Modern Telecommunications and Control Systems and Workshops (ICUMT)

Publisher: IEEE

ISBN (Print): 978-1-4673-9282-2

DOIs:

10.1109/ICUMT.2015.7382438

Research output: Chapter in Book/Report/Conference proceeding > Conference contribution > Scientific > peer-review

Terahertz band communications: Applications, research challenges, and standardization activities

Terahertz frequency band, 0.1–10THz, is envisioned as one of the possible resources to be utilized for wireless communications in networks beyond 5G. Communications over this band will be feature a number of attractive properties, including potentially terabit-per-second link capacities, miniature transceivers and, potentially, high energy efficiency. Meanwhile, a number of specific research challenges have to be addressed to convert the theoretical estimations into commercially attractive solutions. Due to the diversity of the challenges, the research on THz communications at its early stages was mostly performed by independent communities from different areas. Therefore, the existing knowledge in the field is substantially fragmented. In this paper, an attempt to address this issue and provide a clear and easy to follow introduction to the THz communications is performed. A review on the state-of-the-art in THz communications research is given by identifying the target applications and major open research challenges as well as the recent achievements by industry, academia, and the standardization bodies. The potential of the THz communications is presented by illustrating the basic tradeoffs in typical use cases. Based on the given summary, certain prospective research directions in the field are identified.

General information

Publication status: Published

MoE publication type: A4 Article in a conference publication

Organisations: Department of Electronics and Communications Engineering, Research group: Emerging Technologies for Nano-Bio-Info-Cogno

Contributors: Petrov, V., Pyattaev, A., Moltchanov, D., Koucheryavy, Y.

Number of pages: 8

Pages: 1-8

Publication date: 20 Oct 2016

Host publication information

Title of host publication: 2016 8th International Congress on Ultra Modern Telecommunications and Control Systems and Workshops (ICUMT)

Publisher: IEEE

ISBN (Electronic): 978-1-4673-8818-4

ASJC Scopus subject areas: Electrical and Electronic Engineering

Electronic versions:

Terahertz band communications

DOIs:

10.1109/ICUMT.2016.7765354

URLs:

<http://urn.fi/URN:NBN:fi:tty-201612294926>

Research output: Chapter in Book/Report/Conference proceeding › Conference contribution › Scientific › peer-review

Micro-parenchymal patterns for breast cancer risk assessment

We evaluated small radiological regions of the parenchymal tissue in mammograms-micro-parenchymal (MP) patterns-for breast cancer risk assessment. We adapted path based analysis, a computer vision technique, in order to build a model of the distribution of MP patterns in mammograms from a training population sample. Subsequently, the model was utilized to infer the level of risk of individual women based on the distribution of MP patterns in test mammograms. We validated our method using a pilot case/control study with 114 women diagnosed with cancer and 114 healthy controls matched by age, screening year and mammographic system. Experiments with 5-fold cross validation showed a statistically significant positive association between the MP-based risk scores and breast cancer risk with an OPERA (odds per standard deviation of the risk score) value of 1.66 (p-value <0.001) and an area under the receiver operating characteristic curve (AUC) of 0.653. Results retain their statistical significance after adjusting for visual and quantitative breast densities, widely known imaging biomarkers for breast cancer risk. This work provides experimental evidence that there are specific MP patterns identifiable as cues of breast cancer and prompt the validation of these results in larger datasets.

General information

Publication status: Published

MoE publication type: A1 Journal article-refereed

Organisations: Computing Sciences, Research group: Vision, Universidad Industrial de Santander

Contributors: Pertuz, S., Sassi, A., Karivaara-Makela, M., Holli-Helenius, K., Laaperi, A., Rinta-Kiikka, I., Arponen, O., Kämäräinen, J.

Number of pages: 11

Publication date: Oct 2019

Peer-reviewed: Yes

Publication information

Journal: Biomedical Physics & Engineering Express

Volume: 5

Issue number: 6

Article number: 065008

ISSN (Print): 2057-1976

Ratings:

Scopus rating (2019): CiteScore 1.5 SJR 0.317 SNIP 0.648

Original language: English

Keywords: breast cancer, mammography, risk assessment, texture analysis, parenchymal patterns, MAMMOGRAPHIC DENSITY, TEXTURE ANALYSIS, CLASSIFICATION

DOIs:

10.1088/2057-1976/ab42f4

Bibliographical note

EXT="Pertuz, Said"

Source: WOS

Source ID: 000487561400008

Research output: Contribution to journal › Article › Scientific › peer-review

Gamification at School

Traditional teacher-oriented teaching methods in a lecture style are no longer viewed as effective enough for learning and are therefore criticized. It is generally agreed that the modern education should engage students, stimulate interests and maintain a positive attitude. In other words, there should be a way to further learning for example by combining it with playing. This is why many educators and researchers devise new strategies, tools, methods and techniques of novel and engaging activities in order to gamify education. Gamification is often defined as the use of game mechanics and game design techniques in non-game contexts. The present study focuses on investigating possibilities of gamification at school and in a classroom setting. In this study, to complement current research knowledge in the field of classroom and education gamification, students and teachers (n = 120) provided their point of view how to utilize gamification for learning and teaching purposes. As a result, several perfectible and creative concepts were figured out. Implications of the findings for future research are discussed and research based recommendations are presented.

General information

Publication status: Published

MoE publication type: A4 Article in a conference publication
Organisations: Research group: TUT Game Lab, Pervasive Computing
Contributors: Perttula, A., Tuomi, P.
Pages: 9334-9340
Publication date: 2017

Host publication information

Title of host publication: EDULEARN17 : The 9th International Conference on Education and New Learning Technologies
ISBN (Electronic): 978-84-697-3777-4
DOIs:
10.21125/edulearn.2017.0756
Research output: Chapter in Book/Report/Conference proceeding > Conference contribution > Scientific > peer-review

Eye tracking studies focusing on mathematics: a literature review

It is generally agreed that mathematics is a critical skill for all. To support learning of mathematics, eye tracking can reveal why do students struggle with it. The method can be utilized to investigate different phases in the processing of mathematical representations. For example, the number of fixations and gaze points can inform about the amount of processing devoted to specific mathematical components. The scan path might be particularly informative with regard to viewing and comparison strategy. Altogether, based on the literature review eye tracking studies focusing on mathematics include topics such as arithmetic, word problems, dyscalculia, geometry, algebraic expressions and the role of representations in learning. However, despite of conducted research and promising results, recent eye tracking technology could be used at greater degree in studying ways to improve mathematical skills and detect misconceptions. This paper reviews published eye tracking studies focusing on mathematics, identifies directions for further research, and makes research based recommendations for ways to improve learning of mathematics.

General information

Publication status: Published
MoE publication type: A4 Article in a conference publication
Organisations: Research group: TUT Game Lab, Pervasive Computing
Contributors: Perttula, A.
Publication date: 2017

Host publication information

Title of host publication: INTED2017. The 11th annual International Technology, Education and Development Conference : Valencia, 6th - 8th of March, 2017.
Publisher: IATED Academy
Article number: 2166-2173
ISBN (Electronic): 978-84-617-8491-2
DOIs:
10.21125/inted.2017.0639

Bibliographical note

jufoid=85044
Research output: Chapter in Book/Report/Conference proceeding > Conference contribution > Scientific > peer-review

Contact analysis included in a 3D FEA of tube splices

General information

Publication status: Published
MoE publication type: A4 Article in a conference publication
Organisations: Department of Civil Engineering, Research group: Metal and Light-wight structures
Contributors: Perttola, H., Ronni, H., Heinisuo, M.
Publication date: 2014

Host publication information

Title of host publication: Eurosteel 2014 7th European conference on steel and composite structures
ISBN (Print): 978-92-9147-121-8
Research output: Chapter in Book/Report/Conference proceeding > Conference contribution > Scientific > peer-review

Increasing the environment-awareness of rake beamforming for directive acoustic sources

Speech signals captured by distant microphones in enclosures are typically deteriorated by reverberation and background noise. Commonly, the quality of the signals is enhanced applying delay and sum beamforming (or variants) to a microphone array. However, under particular conditions, the multi-path acoustic propagation leading to reverberation is not completely detrimental and can be used in a constructive way. In this direction, mirrored (virtual) microphones have been successfully applied in various research areas. In addition, the majority of naturally occurring sound sources, such as the

human speaker, presents a certain degree of radiation directivity, which, coupled with data-independent beamforming, has been shown to slightly increase the captured speech quality.

Building upon the concepts of environment awareness and the acoustic rake receiver, this paper investigates the use of mirrored microphones, associated to isolated and strong reflections, in combination with source directivity, to further improve the captured speech quality. Real-data gathered with a linear nested array, as well as simulated data, are used to test the proposed scheme, showing superior performance with respect to similar state of the art solutions.

General information

Publication status: Published

MoE publication type: A4 Article in a conference publication

Organisations: Department of Signal Processing, Research group: Audio research group, Fondazione Brune Kessler

Contributors: Pertilä, P., Brutti, A.

Publication date: 1 Sep 2016

Host publication information

Title of host publication: 15th International Workshop on Acoustic Signal Enhancement (IWAENC)

ISBN (Print): 978-1-5090-2007-2

URLs:

<http://www.iwaenc2016.org/>

Research output: Chapter in Book/Report/Conference proceeding › Conference contribution › Scientific › peer-review

Performance analysis of JPEG Pleno light field coding

Light fields can nowadays be acquired by several methods and devices in the form of light field images, which are at the core of new forms of media technologies. Many research challenges are still open in light field imaging, such as data representation formats, data compression tools, communication protocols, subjective and objective quality of experience measurement metrics and methods. This paper presents a brief overview of the current architecture of the JPEG Pleno light field coding standard under development within the JPEG committee (ISO/IEC JTC1/SC29/WG1). Thereafter, a comparative analysis between the performance of the JPEG Pleno Light Field codec under various modes and configurations and the performance of the considered anchor codecs is reported and discussed.

General information

Publication status: Published

MoE publication type: A4 Article in a conference publication

Organisations: Computing Sciences

Contributors: Perra, C., Astola, P., da Silva, E. A., Khanmohammad, H., Pagliari, C., Schelkens, P., Tabus, I.

Publication date: 6 Sep 2019

Host publication information

Title of host publication: Applications of Digital Image Processing XLII

Publisher: SPIE

ISBN (Electronic): 9781510629677

Publication series

Name: Proceedings of SPIE - The International Society for Optical Engineering

Volume: 11137

ISSN (Print): 0277-786X

ISSN (Electronic): 1996-756X

DOIs:

10.1117/12.2528391

Bibliographical note

jufoid=71479

Research output: Chapter in Book/Report/Conference proceeding › Conference contribution › Scientific › peer-review

High power GaInNAs VECSEL emitting at 1230/615 nm

We report a frequency-doubled VECSEL operating at 1230/615 nm. The gain chip was grown by plasma-assisted MBE and comprised 10 GaInNAs quantum wells. Preliminary experiments show an output power of >8 W at 615 nm.

General information

Publication status: Published

MoE publication type: A4 Article in a conference publication

Organisations: Optoelectronics Research Centre, Research group: Semiconductor Technology and Applications

Contributors: Penttinen, J., Leinonen, T., Korpijärvi, V., Kantola, E., Guina, M.

Publication date: 22 Jun 2015

Host publication information

Title of host publication: The European Conference on Lasers and Electro-Optics 2015

Publisher: OSA

ISBN (Print): 978-1-4673-7475-0

URLs:

https://www.osapublishing.org/abstract.cfm?uri=cleo_europe-2015-CB_P_1&origin=search

Research output: Chapter in Book/Report/Conference proceeding › Conference contribution › Scientific › peer-review

Analysis of Crowdsensed WiFi Fingerprints for Indoor Localization

Crowdsensing is more and more used nowadays for indoor localization based on Received Signal Strength (RSS) fingerprinting. It is a fast and efficient solution to maintain fingerprinting databases and to keep them up-to-date. There are however several challenges involved in crowdsensing RSS fingerprinting data, and these have been little investigated so far in the current literature. Our goal is to analyse the impact of various error sources in the crowdsensing process for the purpose of indoor localization. We rely our findings on a heavy measurement campaign involving 21 measurement devices and more than 6800 fingerprints. We show that crowdsensed databases are more robust to erroneous RSS reports than to malicious fingerprint position reports. We also evaluate the positioning accuracy achievable with crowdsensed databases in the absence of any available calibration.

General information

Publication status: Published

MoE publication type: A4 Article in a conference publication

Organisations: Electronics and Communications Engineering, Research group: Wireless Communications and Positioning, Automation and Hydraulic Engineering, Research group: Positioning, Tampere University of Technology

Contributors: Peng, Z., Richter, P., Leppäkoski, H., Lohan, E.

Number of pages: 10

Pages: 268-277

Publication date: Nov 2017

Host publication information

Title of host publication: Proceedings of the 21st Conference of Open Innovations Association FRUCT

Place of publication: Helsinki, Finland

Publisher: FRUCT

ISBN (Electronic): 978-952-68653-2-4

Electronic versions:

CrowdsensedFingerprintsV03

URLs:

<http://urn.fi/URN:NBN:fi:tty-2018011711105>

<https://www.fruct.org/publications/fruct21/files/Pen.pdf>

Bibliographical note

INT=elt,"Peng, Zhe"

Research output: Chapter in Book/Report/Conference proceeding › Conference contribution › Scientific › peer-review

Identifying critical technology actors in waste flow management

Waste flow business ecosystems include numerous actors ranging from regulatory bodies actively involved in numerous business and non-governmental actors. High amount of actors can be considered as an entry barrier for new technological actors. Yet, business potential that relates on waste flow management is enormous globally but without conceptualizing the ecosystem in detail level, the business potential might not be fully discovered. In the present study we followed existent insights in literature and applied business ecosystem theories into Brazilian waste flow business. Based on our framework, critical technology actors can be identified in the waste flow management and possibilities they enable may be revealed. We also discuss fruitful avenues to continue the research further.

General information

Publication status: Published

MoE publication type: A4 Article in a conference publication

Organisations: Department of Industrial Management, Research group: Center for Innovation and Technology Research, Managing digital industrial transformation (mDIT)

Contributors: Peltola, T., Mäkinen, S.

Number of pages: 5

Pages: 2027-2031

Publication date: 1 Aug 2015

Host publication information

Title of host publication: PICMET'15 Conference, Management of the Technology Age : August 2-6, 2015, Hilton Portland and Executive Tower, Portland, Oregon, USA

Place of publication: United States

Publisher: Portland International Center for Management of Engineering and Technology

ISBN (Electronic): 978-1-890843-32-8

Keywords: waste management, Brazilian waste flow business ecosystem, critical technology actor identification, regulatory bodies, technological actors, waste flow management, Biological system modeling, Business, Ecosystems, Recycling, Sorting, Technological innovation, Waste management

DOIs:

10.1109/PICMET.2015.7273123

URLs:

<http://www.picmet.org/new/conferences/2015/>

Source: Bibtext

Source ID: urn:b11223303bbc0bbd3eb69fadff81ef94

Research output: Chapter in Book/Report/Conference proceeding › Conference contribution › Scientific › peer-review

Sustainability and our professional environment - design validation and collaboration to create relevant architecture

General information

Publication status: Published

MoE publication type: D2 Article in professional manuals or guides or professional information systems or text book material

Organisations: Architecture, University of Sheffield

Contributors: Pelsmakers, S., Hoggard, A.

Number of pages: 2

Publication date: 2019

Host publication information

Title of host publication: in Jones, A., Hyde, R., "Defining Contemporary Professionalism - for architects in practice and education"

Publisher: RIBA Publishing

ISBN (Print): 9781859468470

Research output: Chapter in Book/Report/Conference proceeding › Chapter › Professional

Enterprise architecture as strategy, practice, or approach

General information

Publication status: Published

MoE publication type: D3 Professional conference proceedings

Organisations: Department of Information Management and Logistics, Research group: Novi

Contributors: Pekkola, S.

Publication date: 13 Oct 2015

Host publication information

Title of host publication: 4th Innovation in Information Infrastructures (III) Workshop

Place of publication: Warwick, UK

Publisher: University of Warwick

URLs:

<http://www.wbs.ac.uk/events/view/4751>

Research output: Chapter in Book/Report/Conference proceeding › Conference contribution › Professional

Taskinen yksissä kansissa

General information

Publication status: Published

MoE publication type: D1 Article in a trade journal

Organisations: School of Architecture, Research group: History of Architecture

Contributors: Passinmäki, P.

Number of pages: 2

Pages: 89-90

Publication date: 2015

Peer-reviewed: Unknown

Publication information

Journal: Arkkitehti

Issue number: 2
ISSN (Print): 0783-3660
Original language: Finnish
Research output: Contribution to journal › Article › Professional

Architecture beyond signs and symbols : Zumthor's response to the problems of aesthetics

General information

Publication status: Published
MoE publication type: A1 Journal article-refereed
Organisations: School of Architecture, Research group: History of Architecture
Contributors: Passinmäki, P.
Number of pages: 4
Pages: 325-328
Publication date: 12 May 2016
Peer-reviewed: Yes

Publication information

Journal: ARQ-Architectural Research Quarterly
Volume: 19
Issue number: 4
ISSN (Print): 1359-1355
Ratings:
Scopus rating (2016): CiteScore 0.2 SJR 0.127 SNIP 0.249
Original language: English
DOIs:
10.1017/S1359135516000038
Research output: Contribution to journal › Article › Scientific › peer-review

Complexity and Digitalisation of Cities - Challenges for Urban Planning and Design: Conference Proceedings of 13th AESOP Complexity and Planning Thematic Group Meeting 15th-16th January 2015, Tampere, Finland

General information

Publication status: Published
MoE publication type: C2 Edited books
Organisations: School of Architecture, Research group: Urban Planning Theory
Contributors: Partanen, J. (ed.)
Number of pages: 226
Publication date: 2015

Publication information

Publisher: Tampere University of Technology. School of Architecture
ISBN (Electronic): 978-952-15-3711-0
Original language: English
Electronic versions:
AESOP_PC2015_PROCEEDINGS
URLs:
<http://urn.fi/URN:ISBN:978-952-15-3711-0>
Research output: Book/Report › Anthology › Scientific › peer-review

Educating Computer Science Educators Online - A Racket MOOC for Elementary Math Teachers of Finland

Many countries all over the world are in the process of introducing programming into their K-12 curricula. New Finnish Curriculum includes programming mentioned especially in accordance with mathematics and crafts. Consequently, Finland needs to train teachers to teach programming at elementary school level. In this paper, we describe how elementary math teachers were educated online to teach programming using the Racket programming language. The aim of the course was to increase both content knowledge (CK) and technological pedagogical content knowledge (TPACK). By analyzing the course feedback, questionnaires and exercise data, we present the teachers' views on the course and effects on their professional development (TPD). Finally, we describe development ideas for future online courses.

General information

Publication status: Published
MoE publication type: A4 Article in a conference publication
Organisations: Pervasive Computing, Research area: Software engineering

Contributors: Partanen, T., Niemelä, P., Mannila, L., Poranen, T.
Pages: 47-58
Publication date: 2017

Host publication information

Title of host publication: Proceedings of the 9th International Conference on Computer Supported Education
Publisher: SCITEPRESS - Science and Technology Publications
ISBN (Electronic): 978-989-758-239-4
DOIs:

10.5220/0006257800470058

Source: Bibtex

Source ID: urn:d6146dd9d542d5c0a85f938eb99499e9

Research output: Chapter in Book/Report/Conference proceeding > Conference contribution > Scientific > peer-review

InGaAs-QW VECSEL emitting >1.300-nm via intracavity Raman conversion

We report intracavity Raman conversion of a long-wavelength InGaAs-QW VECSEL to ~1320 nm, the longest wavelength yet achieved by a VECSEL-pumped Raman laser. The setup consisted of a VECSEL capable of emitting >17W at 1180nm and tunable from 1141-1203nm and a 30-mm-long KGd(WO₄)₂ (KGW) Raman crystal in a coupled-cavity Raman resonator. The Raman cavity was separated from the VECSEL resonator by a tilted dichroic mirror, which steers the Raman beam to an output coupler external to the VECSEL. The spectral emission of the VECSEL, and consequently of the Raman laser, was set by a 4-mm-thick quartz birefringent filter in the VECSEL cavity. The KGW Raman laser was capable of emitting 2.5W at 1315 nm, with M²~2.7 and >4% diode-to-Stokes conversion efficiency. The Raman laser emission was tunable from 1295-1340 nm, limited by the free spectral range of the birefringent filter. Spectral broadening of the fundamental emission was observed during Raman conversion. At the maximum Raman laser output power, the total linewidth of the VECSEL spectrum was ~0.7nm FWHM. As a consequence, the Raman laser emission was also relatively broad (~0.9nm FWHM). Narrow (<0.2nm FWHM) Raman emission was obtained by inserting an additional 100 μm etalon within the VECSEL cavity. With this configuration the fundamental intracavity power clamped at its value at the Raman threshold, suggesting an enhanced effective Raman gain, but the maximum output power of the Raman laser was 1.8 W.

General information

Publication status: Published

MoE publication type: A4 Article in a conference publication

Organisations: Optoelectronics Research Centre, Research group: Semiconductor Technology and Applications, University of Strathclyde

Contributors: Parrotta, D., Casula, R., Penttinen, J., Leinonen, T., Kemp, A., Guina, M., Hastie, J.

Publication date: 12 Mar 2016

Host publication information

Title of host publication: Vertical External Cavity Surface Emitting Lasers (VECSELs) VI
ISBN (Print): 9781628419696

Publication series

Name: Proceedings of SPIE

ISSN (Print): 0277-786X

DOIs:

10.1117/12.2217593

Bibliographical note

JUF0ID=71479

Research output: Chapter in Book/Report/Conference proceeding > Conference contribution > Scientific > peer-review

Diffraction compensation of finite beams in hyperbolic metamaterials

The propagation of finite size beams in a hyperbolic metamaterial is modeled as a moving particle of negative mass. We show the occurrence of anomalous diffraction, diffraction compensation and profile recovery for any input excitation.

General information

Publication status: Published

MoE publication type: A4 Article in a conference publication

Organisations: Department of Physics, Research group: Nonlinear Optics, Research area: Optics, Univ Porto, Universidade do Porto, Fac Ciencias, Ctr Fis Porto

Contributors: Pannian, J. C., Alberucci, A., Boardman, A., Assanto, G.

Publication date: 2016

Host publication information

Title of host publication: Laser science 2016

Publisher: Optical Society of America (OSA)

Article number: JW4A.10

ISBN (Print): 978-1-943580-19-4

URLs:

<https://www.osapublishing.org/abstract.cfm?uri=LS-2016-JW4A.10>

Research output: Chapter in Book/Report/Conference proceeding > Conference contribution > Scientific > peer-review

Knowledge transfer and work productivity

General information

Publication status: Published

MoE publication type: B3 Non-refereed article in conference proceedings

Organisations: Industrial and Information Management, Research group: Knowledge and Learning Research Center

Contributors: Palvalin, M., Vuori, V., Helander, N.

Number of pages: 15

Pages: 1120-1134

Publication date: 15 Jun 2017

Host publication information

Title of host publication: Proceedings of 12th International Forum on Knowledge Asset Dynamics : St. Petersburg, Russia 7-9 June 2017

Editors: Spender, J., Schiuma, G., Gavrilova, T.

ISBN (Electronic): 978-88-96687-10-9

Publication series

Name: Proceedings IFKAD

ISSN (Print): 2280-787X

URLs:

<http://www.ifkad.org/>

Research output: Chapter in Book/Report/Conference proceeding > Conference contribution > Scientific

Durability study on high speed water hydraulic miniature on/off-valve

General information

Publication status: Published

MoE publication type: A4 Article in a conference publication

Organisations: Department of Intelligent Hydraulics and Automation, Research group: Digital hydraulics

Contributors: Paloniitty, M.

Number of pages: 11

Pages: 201-211

Publication date: 24 May 2016

Host publication information

Title of host publication: DFP16, Proceedings of the eighth workshop on digital fluid power, May 24-25, 2016, Tampere, Finland

Place of publication: Tampere

ISBN (Print): 978-952-15-3755-4

ISBN (Electronic): 978-952-15-3756-1, 978-952-15-3757-8

URLs:

<http://urn.fi/URN:ISBN:978-952-15-3757-8>

Research output: Chapter in Book/Report/Conference proceeding > Conference contribution > Scientific > peer-review

In vitro characterization of arylhydrazones of active methylene derivatives

Arylhydrazones of active methylene compounds (AHAMCs) are potent chemotherapy agents for the cancer treatment. AHAMCs enhance the apoptotic cell death and antiproliferation properties in cancer cells. In this study, a series of AHAMCs, 13 compounds, was assayed for cytotoxicity, apoptosis, externalization of phosphatidylserine, heterogeneity and cellular calcium level changes. The in vitro cytotoxicity study against HEK293T cells suggests that AHAMCs have significant cytotoxic effect over the concentrations. Top 5 compounds, 5-(2-(2-hydroxyphenyl) hydrazono)pyrimidine-2,4,6(1H,3H,5H)-trione (5), 4-hydroxy-5-(2-(2,4,6-trioxo-tetrahydro-pyrimidin-5(6H) ylidene)hydrazinyl)benzene-1,3-disulfonic acid (6), 5-chloro-3-(2-(4,4-dimethyl-2,6-dioxocyclohexylidene)hydrazinyl)-2-hydroxybenzenesulfonic acid (8), 5-(2-(4,4-dimethyl-2,6-dioxocyclohexylidene)hydrazinyl)-4-hydroxybenzene-1,3-disulfonic acid (9) and 2-(2-sulfophenylhydrazo)malononitrile (10) were chosen for the pharmacodynamics study. Among these, compound 5 exhibited the better cytotoxic effect with the IC_{50} of 50.86 ± 2.5 mM. DNA cleavage study revealed that 5 induces cell

death through apoptosis and shows more effects after 24 and/or 48 h. Independent validation of apoptosis by following the externalization of phosphatidylserine using Annexin-V is also in agreement with the potential activity of 5. Single cell image analysis of Annexin-V bound cells confirms the presence of mixture of early, mid and late apoptotic cells in the population of the cells treated with 5 and a decreased trend in cell-to-cell variation over the phase was also identified. Additionally, intracellular calcium level measurements identified the Ca^{2+} up-regulation in compound treated cells. A brief inspection of the effect of the compound 5 against multiple human brain astrocytoma cells showed a better cell growth inhibitory effect at micro molar level. These systematic studies provide insights in the development of novel AHAMACs compounds as potential cell growth inhibitors for cancer treatment.

General information

Publication status: Published

MoE publication type: A1 Journal article-refereed

Organisations: Faculty of Biomedical Sciences and Engineering, Research group: Computational Systems Biology, Peoples' Friendship University of Russia, Baku State University, Centro de Quimica Estrutural at Instituto Superior Tecnico

Contributors: Palanivel, S., Zhurina, A., Doan, P., Chandraseelan, J. G., Khandelwal, V. K. M., Zubkov, F. I., Mahmudov, K. T., Pombeiro, A. J., Yli-Harja, O., Kandhavelu, M.

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Peer-reviewed: Yes

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ASJC Scopus subject areas: Pharmacology, Pharmaceutical Science

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URLs:

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Source: Scopus

Source ID: 85039901326

Research output: Contribution to journal > Article > Scientific > peer-review

Anticancer activity of THMPP: Downregulation of PI3K/ S6K1 in breast cancer cell line

Breast cancer is the most common cancer that majorly affects female. The present study is focused on exploring the potential anticancer activity of 2-((1, 2, 3, 4-Tetrahydroquinolin-1-yl) (4 methoxyphenyl) methyl) phenol (THMPP), against human breast cancer. The mechanism of action, activation of specific signaling pathways, structural activity relationship and drug-likeness properties of THMPP remains elusive. Cell proliferation and viability assay, caspase enzyme activity, DNA fragmentation and FITC/Annexin V, AO/EtBr staining, RT-PCR, QSAR and ADME analysis were executed to understand the mode of action of the drug. The effect of THMPP on multiple breast cancer cell lines (MCF-7 and SkBr3), and non-tumorigenic cell line (H9C2) was assessed by MTT assay. THMPP at IC_{50} concentration of 83.23 μM and 113.94 μM , induced cell death in MCF-7 and SkBr3 cells, respectively. Increased level of caspase-3 and -9, fragmentation of DNA, translocation of phosphatidylserine membrane and morphological changes in the cells confirmed the effect of THMPP in inducing the apoptosis. Gene expression analysis has shown that THMPP was able to downregulate the expression of PI3K/S6K1 genes, possibly via EGFR signaling pathway in both the cell lines, MCF-7 and SkBr3. Further, molecular docking also confirms the potential binding of THMPP with EGFR. QSAR and ADME analysis proved THMPP as an effective anti-breast cancer drug, exhibiting important pharmacological properties. Overall, the results suggest that THMPP induced cell death might be regulated by EGFR signaling pathway which augments THMPP being developed as a potential candidate for treating breast cancer.

General information

Publication status: Published

MoE publication type: A1 Journal article-refereed

Organisations: BioMediTech, Research group: Molecular Signaling Lab, Department of Biotechnology, Lady Doak College, Institute for Systems Biology, Seattle, Washington, USA, Institute of Biosciences and Medical Technology

Contributors: Palanivel, S., Murugesan, A., Yli-Harja, O., Kandhavelu, M.

Number of pages: 9
Pages: 495-503
Publication date: 1 Apr 2020
Peer-reviewed: Yes

Publication information

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Volume: 28
Issue number: 4
ISSN (Print): 1319-0164
Original language: English
ASJC Scopus subject areas: Pharmacology, Pharmaceutical Science
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10.1016/j.jsps.2020.02.015
URLs:
<http://urn.fi/URN:NBN:fi:tuni-202006236194>
Source: Scopus
Source ID: 85082417780
Research output: Contribution to journal › Article › Scientific › peer-review

Brownfield Process: A Method for the Rationalisation of Existing Product Variety towards a Modular Product Family

The purpose of the research is to define what kind of design information is needed when existing non-modular product elements are designed towards a modular product family that enables product configuration — and what kinds of steps facilitate this kind of design. Thus this thesis poses two research questions: RQ1. How to structure the design information needed in the designing of modular product families? RQ2. How to create the design information needed in the rationalisation of existing product variety towards a modular product family? The research approach includes application of Design Research Methodology (DRM) as originated by Blessing & Chakrabarti (2009). This research includes four main stages (Research Clarification, Descriptive Study I, Prescriptive Study and Descriptive Study II), all focusing on the defining of influencing factors and their impacts, as DRM suggests. This thesis considers that design reuse, product variety, standardisation, modularisation, product platforms, product families and product configuration are all main product structuring topics when an existing product assortment should be rationalised. Consideration of these topics makes up an effective tactic for the enabling of product variants to be provided for customers, without forgetting the benefits of design reuse and commonality in an industrial environment. The contribution of the research suggests that there are five key factors from a design information perspective that are essential in modular product family development aimed at product configuration. These elements are also the answer to RQ1: - Partitioning logic defines viewpoints that affect product structuring decisions from both a business and customer perspective. - A set of modules includes building blocks of product variants of a product family. - Interfaces (standardised) enable efficient defining of product variants in the order/sales-delivery process. - Architecture describes how modules and their interfaces are related to each other. Architecture also considers layout issues such as space reservations. - Configuration knowledge describes the relations between product family elements and customer needs that create a need for variety. Configuration knowledge can also present compatibilities of product elements or customer needs. The thesis also suggests a design process known as the Brownfield Process (the BfP), and includes ten steps in which design information related to the above key factors is defined. This is the suggested answer to RQ2. - Step 1: Target setting based on business environment - Step 2: Generic element model of the Module System - Step 3: Architecture: generic elements and interfaces - Step 4: Target setting based on customer environment - Step 5: Preliminary product family description - Step 6: Configuration knowledge: generic elements and customer needs - Step 7: Modular architecture: modules and interfaces - Step 8: Configuration knowledge: module variants and customer needs - Step 9: Product family documentation - Step 10: Business impact analysis The role of the BfP within the context of design research is discussed. From an academic viewpoint, there is a lack of these kinds of modularisation methods that aim at configurable products, although single aspects and key factors of the proposed method have been often discussed and their benefits and importance are emphasised separately in the literature. From an industrial viewpoint, the steps of the method can be applied in a real life environment based on the case studies. Thus contribution of the thesis can be considered worthwhile and an important addition in this research field.

General information

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MoE publication type: G4 Doctoral dissertation (monograph)
Organisations: Department of Mechanical Engineering and Industrial Systems, Research area: Design, Development and LCM
Contributors: Pakkanen, J.
Number of pages: 283
Publication date: 29 May 2015

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Original language: English

Publication series

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Publisher: Tampere University of Technology
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Electronic versions:
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URLs:
<http://URN.fi/URN:ISBN:978-952-15-3537-6>

Bibliographical note

Awarding institution: Tampere University of Technology
Versio ok 16.12.2015
Research output: Book/Report > Doctoral thesis > Monograph

Ilmastonmuutoksen vaikutus betonijulkisivujen vaurioitumisen etenemiseen

General information

Publication status: Published
MoE publication type: B3 Non-refereed article in conference proceedings
Organisations: Department of Civil Engineering, Research group: Service Life Engineering of Structures, Tampere University of Technology
Contributors: Pakkala, T., Lemberg, A., Köliö, A., Lahdensivu, J.
Number of pages: 8
Pages: 203-210
Publication date: Oct 2015

Host publication information

Title of host publication: Rakennusfysiikka 2015 : Uusimmat tutkimustulokset ja hyvät käytännön ratkaisut, 20.-22.10.2015, Tampere
Place of publication: Tampere
Publisher: Tampereen teknillinen yliopisto, rakennustekniikan laitos, rakennetekniikka
Editors: Vinha, J., Ruuska, T.
ISBN (Print): 978-952-15-3580-2
URLs:
<http://www.tut.fi/cs/groups/public/@!912/@web/@p/documents/liit/x124266.pdf>

Bibliographical note

AUX=rak,"Lemberg, Antti-Matti"
Research output: Chapter in Book/Report/Conference proceeding > Conference contribution > Scientific

The effect of climate change on the amount of wind driven rain on concrete facades

Private and public buildings built of concrete make up 34% of the whole building stock in Finland, of which almost 40% is now 30-50 years old. The financial and functional impact on Finnish society of this aged building stock is critical because one third of the country's population lives in these apartment blocks. There is a rising national concern on increasing maintenance needs of Finnish building stock. It has been concluded that new conceptual approaches to tackle the problem are acutely needed. The main reasons for facade degradation in the Finnish climate are freeze-thaw weathering of concrete and corrosion of reinforcement induced by carbonation of the surrounding concrete. A common denominator in every mechanism is water in varying forms. It can either work as a passage for harmful substances, e.g. chlorides, cause damage by its phase changes (freeze-thaw) or cause dissolution of substances in concrete. Two recent projects conducted by Finnish Meteorological Institute and Tampere University of Technology, have shown that future climate conditions in Finland are likely to get worse in terms of durability of structures exposed to climate. Precipitation during the winter season is going to increase while the form of precipitation is going to be increasingly water and sleet. At the same time, the conditions for drying are going to get worse. Thus, the deterioration rate of structures will accelerate in the most of Finland if maintenance and protection actions are neglected. To simulate the effect of changing climate conditions, it has been studied how the amount of wind-driven rain (WDR) on facades may change in future climate based on a greenhouse gas scenario. The study was conducted by comparing typical Finnish suburban concrete block build in 1970's in two different locations (coastal area and inland) at current climate and in 2050 and 2100. Based on the study the amount of WDR will increase more in coastal areas than in inland and will be more focused on south and south-west

directions. The total increase in WDR will be approx. 15%, while the greatest increase (50%) will be faced by the westward facades in coastal area.

General information

Publication status: Published

MoE publication type: A4 Article in a conference publication

Organisations: Department of Civil Engineering, Research group: Service Life Engineering of Structures, Tampere University of Technology

Contributors: Pakkala, T., Lemberg, A., Lahdensivu, J.

Number of pages: 13

Pages: 153-165

Publication date: May 2016

Host publication information

Title of host publication: Proceedings of the CIB World Building Congress 2016 : Vol 2 : Environmental opportunities and challenges, Constructing commitment and acknowledging human experiences

Volume: 2

Place of publication: Tampere

Publisher: Tampere University of Technology. Department of Civil Engineering

Editors: Prins, M., Wamelink, H., Giddings, B., Ku, K., Feenstra, M.

ISBN (Print): 978-952-15-3742-4

ASJC Scopus subject areas: Civil and Structural Engineering

Keywords: Climate change, Wind-driven rain, Concrete, Modelling

URLs:

https://tutcris.tut.fi/portal/files/6186797/WBC16_Vol_2.pdf

URLs:

<http://www.wbc16.com/wbc16.html>

Research output: Chapter in Book/Report/Conference proceeding > Conference contribution > Scientific > peer-review

Julkisivujen ja parvekkeiden talvikorjausohje

General information

Publication status: Published

MoE publication type: B3 Non-refereed article in conference proceedings

Organisations: Civil Engineering, Research group: Service Life Engineering of Structures

Contributors: Pakkala, T., Lahdensivu, J., Köliö, A., Annala, P.

Number of pages: 6

Pages: 179-184

Publication date: Oct 2017

Host publication information

Title of host publication: Rakennusfysiikka 2017 : Uusimmat tutkimustulokset ja hyvät käytännön ratkaisut, 24-26.10.2017, Tampere

Place of publication: Tampere

Publisher: Tampereen teknillinen yliopisto, Rakennustekniikka, Rakennusfysiikka

Editors: Vinha, J., Kivioja, H.

ISBN (Print): 978-952-15-4022-6

Publication series

Name: Tampereen teknillinen yliopisto. Rakennustekniikka. Rakennusfysiikka.

ASJC Scopus subject areas: Civil and Structural Engineering

URLs:

http://www.tut.fi/cs/groups/public_news/@1102/@web/@p/documents/liit/x229155.pdf

Research output: Chapter in Book/Report/Conference proceeding > Conference contribution > Scientific

Modelling the stressed skin effect by using shell elements with meta-material model

It is a well-known fact that the so-called stressed skin design results in ca. 10-20 % mass and cost savings in a typical steel hall structures. The potential of this design method is however, too often disregarded due to e.g. rather complex and limited existing design rules and instructions. In this paper, a method for determination of generalized elastic parameters is proposed, so that the stressed skin can be modelled in the general finite element software using existing elements and material parameters. With the proposed method, structural designer can take advantage of the stressed skin design in the context of basic design tools as Autodesk Robot or RFEM.

General information

Publication status: Published
MoE publication type: A1 Journal article-refereed
Organisations: Civil Engineering, Sorvimo Optimointipalvelut Oy
Contributors: Pajunen, S., Hautala, J., Heinisuo, M.
Number of pages: 10
Pages: 20-29
Publication date: 2019
Peer-reviewed: Yes

Publication information

Journal: Magazine of Civil Engineering
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Bibliographical note

EXT="Heinisuo, M."
Source: Scopus
Source ID: 85068566348
Research output: [Contribution to journal](#) › [Article](#) › [Scientific](#) › [peer-review](#)

Quantification of the ionic current contributions to alterations in the action potential repolarization by means of piecewise-linear approximation

General information

Publication status: Published
MoE publication type: A4 Article in a conference publication
Organisations: Research group: Computational Biophysics and Imaging Group, Department of Electronics and Communications Engineering, BioMediTech
Contributors: Paci, M., Hyttinen, J., Severi, S.
Number of pages: 4
Pages: 145-148
Publication date: 2015

Host publication information

Title of host publication: Computing in cardiology 2015

Publication series

Name: Computing in Cardiology
Publisher: Long Beach, Calif : IEEEComputer Society
Volume: 42
ISSN (Print): 0276-6574
ISSN (Electronic): 0276-6574
URLs:
<http://www.cinc.org/archives/2015/pdf/0145.pdf>
Research output: [Chapter in Book/Report/Conference proceeding](#) › [Conference contribution](#) › [Scientific](#) › [peer-review](#)

Constrained Long-Horizon Direct Model Predictive Control for Synchronous Reluctance Motor Drives

A finite control set model predictive control strategy for the control of the stator currents of a synchronous reluctance motor driven by a three-level neutral point clamped inverter is presented in this paper. The presented algorithm minimizes the stator current distortions while operating the drive system at switching frequencies of a few hundred Hertz. Moreover, the power electronic converter is protected by overcurrents and/or overvoltages owing to a hard constraint imposed on the stator currents. To efficiently solve the underlying integer nonlinear optimization problem a sphere decoding algorithm serves as optimizer. To this end, a numerical calculation of the unconstrained solution of the optimization problem is

proposed, along with modifications in the algorithm proposed in [1] so as to meet the above-mentioned control objectives. Simulation results show the effectiveness of the proposed control algorithm.

General information

Publication status: Published

MoE publication type: A4 Article in a conference publication

Organisations: Electrical Energy Engineering, Research group: Power electronics, Universita degli Studi di Padova, Italy, Technische Universitat Munchen

Contributors: Ortombina, L., Liegmann, E., Karamanakos, P., Tinazzi, F., Zigliotto, M., Kennel, R.

Number of pages: 8

Publication date: 10 Sep 2018

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Publisher: IEEE

Article number: 8460173

ISBN (Print): 9781538655412

ASJC Scopus subject areas: Modelling and Simulation, Energy Engineering and Power Technology, Electrical and Electronic Engineering, Control and Optimization

DOIs:

10.1109/COMPEL.2018.8460173

Bibliographical note

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Source: Scopus

Source ID: 85054503298

Research output: Chapter in Book/Report/Conference proceeding > Conference contribution > Scientific > peer-review

Validating information security framework for offloading from LTE onto D2D links

D2D communications is one of the key technologies to enable aggressive spatial frequency reuse in future evolution of cellular systems. While the standardization efforts are far from their final stage there is clear understanding that security is one of the major concerns for proximity services. This is especially the case when one or more communicating stations in a logical cluster do not have an active connection to the serving base station. In this paper we propose a solution for secure throughput optimized communications in D2D-assisted cellular system. In order to provide additional throughput, a game-theoretic optimization approach is considered by taking into account social relationships and devices proximity. The proposed solution is agnostic to the chosen D2D communications technology (i.e., WiFi or LTE) and suitable for any possible cluster combination in full and partial cellular coverage. Performance evaluation of the proposed security framework show that social proximity information available at the D2D devices may substantially improves the system performance in term of throughput with respect to the standard security procedures. Finally, for sake of completeness, the effect of mobility for the reference scenario is evaluated.

General information

Publication status: Published

MoE publication type: A4 Article in a conference publication

Organisations: Department of Electronics and Communications Engineering, Universita degli Studi di Reggio Calabria

Contributors: Orsino, A., Ometov, A.

Number of pages: 7

Pages: 241-247

Publication date: 6 Sep 2016

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Title of host publication: Proceedings of the 18th Conference of Open Innovations Association FRUCT and Seminar on Information Security and Protection of Information Technolog, FRUCT-ISPIT 2016

Publisher: IEEE COMPUTER SOCIETY PRESS

ISBN (Electronic): 9789526839721

ASJC Scopus subject areas: Computer Science(all), Electrical and Electronic Engineering

DOIs:

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Source: Scopus

Source ID: 84989166036

Research output: Chapter in Book/Report/Conference proceeding > Conference contribution > Scientific > peer-review

Radical programmes for developing the EU residential building sectors as exemplified by Finland and the Netherlands

The economic recession has hit especially hard the residential building sector in the EU region, e.g., the number of the housing completions has decreased -49% and the total residential output has been squeezed down by -24% between 2007 and 2014 (Euroconstruct, 2015). In turn, the aim of our paper is to suggest a set of radical, novel programmes for

developing the national residential building sectors within EU member countries up to 2025. We have applied the framework of strategic niche management (SNM) to the diagnoses of the current portfolios of the innovation, R&D programs in our two member country contexts. In the case of the Northern Finland, the prime example is Hiukkavaara, the largest district to be built in the City of Oulu. Homes will be constructed for 20,000 new residents. Hiukkavaara is a model for climate-conscious design in the northern hemisphere. Energy and materials are conserved, nature is valued and human beings adapt to their environment. One sub-programme involves Future Buildings and Renewable Energy Project. In the case of the Netherlands, the prime example is Energiesprong (Energy Leap), i.e., the innovation programme commissioned by the Dutch Ministry of the Interior. The aim is to make buildings energy-neutral and boost large-scale initiatives. The sub-programmes are targeting homes owned by housing associations, privately owned homes, office buildings, shops and care institutions. This programme is about ensuring new supply by encouraging companies to package a variety of technical sub-solutions, full services and financing options as well as about asking clients to put out tenders and ask for quotes in novel ways, with the government making changes to the rules and the regulations. Experiences on which the Dutch case in this paper focuses are sub-programmes for residential buildings which includes Rapids, All Lights on Green and Our Home Deserves It. Based on the emerging Finnish and Dutch evidence, we are suggesting key elements to be incorporated into future national residential programmes within EU member countries on: (1) radical direction with balanced stakeholder groups, trustworthy advocates, contextual goal-setting and barriers management, (2) radical networking with entrepreneurial roles and causal links, novel expertise, transparent choices and digital platforms and (3) radical learning processes to arrive at better informed markets on user preferences, co-innovating, new rules and regulations, higher performance/price ratios, higher quality, new roles and responsibilities assignments.

General information

Publication status: Published

MoE publication type: A4 Article in a conference publication

Organisations: Department of Civil Engineering, Research group: Digitalization in the real estate and construction sector, Hanse University of Applied Sciences, Saxion University of Applied Sciences

Contributors: Oostra, M., Huovinen, P.

Number of pages: 12

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Publication date: 28 May 2016

Host publication information

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Volume: I

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Publisher: Tampere University of Technology. Department of Civil Engineering

ISBN (Print): 978-952-15-3741-7

ASJC Scopus subject areas: Engineering(all)

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<http://www.wbc16.com/wbc16/welcome.html>

Research output: Chapter in Book/Report/Conference proceeding › Conference contribution › Scientific › peer-review

Feasibility characterization of cryptographic primitives for constrained (wearable) IoT devices

The Internet of Things (IoT) employs smart devices as its building blocks for developing a ubiquitous communication framework. It thus supports a wide variety of application domains, including public safety, healthcare, education, and public transportation. While offering a novel communication paradigm, IoT finds its requirements closely connected to the security issues. The role of security following the fact that a new type of devices known as wearables constitute an emerging area. This paper delivers an applicability study of the state-of-the-art cryptographic primitives for wearable IoT devices, including the pairing-based cryptography. Pairing-based schemes are well-recognized as fundamental enablers for many advanced cryptographic applications, such as privacy protection and identity-based encryption. To deliver a comprehensive view on the computational power of modern wearable devices (smart phones, watches, and embedded devices), we perform an evaluation of a variety of them utilizing bilinear pairing for real-time communication. In order to deliver a complete picture, the obtained bilinear pairing results are complemented with performance figures for classical cryptography (such as block ciphers, digital signatures, and hash functions). Our findings show that wearable devices of today have the needed potential to efficiently operate with cryptographic primitives in real time. Therefore, we believe that the data provided during this research would shed light on what devices are more suitable for certain cryptographic operations.

General information

Publication status: Published

MoE publication type: A4 Article in a conference publication

Organisations: Department of Electronics and Communications Engineering, Research group: Emerging Technologies for Nano-Bio-Info-Cogno

Contributors: Ometov, A., Masek, P., Malina, L., Florea, R., Hosek, J., Andreev, S., Hajny, J., Niutanen, J., Koucheryavy, Y.

Publication date: 19 Apr 2016

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Publisher: IEEE

ISBN (Print): 9781509019410

ASJC Scopus subject areas: Computer Science Applications, Computer Networks and Communications, Human-Computer Interaction

Keywords: Bilinear Pairing, Cryptography, Group Signatures, IoT, Performance evaluation, Wearables

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10.1109/PERCOMW.2016.7457161

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<http://urn.fi/URN:NBN:fi:tuni-202003092613>

Bibliographical note

INT=elt,"Florea, Roman"

EXT="Niutanen, Jussi"

Source: Scopus

Source ID: 84966546696

Research output: Chapter in Book/Report/Conference proceeding > Conference contribution > Scientific > peer-review

Multi-factor authentication: A survey and challenges in V2X applications

Today, the digitalization strides tremendously on all the sides of the modern society. One of the enablers to keep this process secure is the authentication. It touches many different areas of the connected world including payments, communications, and access right management. This manuscript attempts to shed the light on the authentication systems' evolution towards Multi-factor Authentication (MFA) from Singlefactor Authentication (SFA) and through Two-factor Authentication (2FA). Particularly, MFA is expected to be utilized for the user and vehicle-to-everything (V2X) interaction which is selected as descriptive scenario. The manuscript is focused on already available and potentially integrated sensors (factor providers) to authenticate the occupant from inside the vehicle. The survey on existing vehicular systems suitable for MFA is given. Finally, the MFA system based on reversed Lagrange polynomial, utilized in Shamir's Secret Sharing (SSS), was proposed to enable flexible in-car authentication. The solution was further extended covering the cases of authenticating the user even if some of the factors are mismatched or absent. The framework allows to qualify the missing factor and authenticate the user without providing the sensitive biometric data to the verification entity. The proposed is finally compared to conventional SSS.

General information

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MoE publication type: A4 Article in a conference publication

Organisations: Electronics and Communications Engineering

Contributors: Ometov, A., Bezzateev, S.

Number of pages: 8

Pages: 129-136

Publication date: 1 Nov 2017

Host publication information

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Research output: Chapter in Book/Report/Conference proceeding › Conference contribution › Scientific › peer-review

Lean Software Design, Lean Education? Lessons from a Collaborative University-Industry Seminar

In a rapidly developing field like software engineering, what is taught at the universities can fall behind from what is the status quo in the industry. Particularly in the professional activities related to user experience (UX) design, the students should gain experience in wide diversity of practical skills, ranging from fluent interaction with the customer and empathizing with the end users to creatively solving ill-defined problems and rapid prototyping. Even though the problem-based learning approach, hackathons, and other types of hands-on activities have become increasingly common in universities, educating user experience professionals demands specific practices.

This paper presents a case study of collaborative teaching (Design Weekend) between a university and industry, focusing on learning from the practices in the industry in an authentic project context. Design Weekend was an intensive 2-day hands-on seminar in which groups of students closely followed a Lean methodology that the collaborating digital agency has iteratively developed. The goals of the seminar were to provide a possibility for more hands-on learning of Lean and Design Thinking, including a customer organization with an authentic case, and to explore how well this kind of industry-oriented approach would fit in the curriculum of master and doctoral programs on UX.

The learning students' post-hoc learning diaries bring up rich insights about what was learned (ranging from personal development needs to various collaboration aspects and methodological insights) and how they perceive the applicability of the used methodology. The assessments of the seminar demonstrate interesting benefits compared to traditional project- and problem-based learning, such as realism and active customer involvement. Overall, based on this case study and subjective evaluations of the seminar, our teaching exploration can be concluded to show much promise. We report the students' and teachers' perceived benefits as well as important aspects to consider in future implementations of similar seminars.

General information

Publication status: Published

MoE publication type: A4 Article in a conference publication

Organisations: Department of Pervasive Computing, Research area: User experience, Futurice Ltd., Pelastakaa Lapset ry - Save the Children Finland

Contributors: Olsson, T., Väättäjä, H., Ihamäki, H., Jaana, O., Länsisalo, M., Veera, U., Lehto-Lunden, T.

Publication date: 2016

Host publication information

Title of host publication: SEFI'16 - 44th Annual Conference of the European Society for Engineering Education

Publisher: European Society for Engineering Education SEFI

ISBN (Electronic): 9782873520144

Keywords: Learning outside the classroom, Problem-based learning, Informal learning,, University-Industry collaboration, , Problem-based learning

Electronic versions:

Olsson et al. SEFI 2016

URLs:

<http://urn.fi/URN:NBN:fi:tty-201709151887>

http://sefibenvvh.cluster023.hosting.ovh.net/wp-content/uploads/2017/09/olsson-lean-software-design-lean-education-lessons-from-a-collaborative-university-industry-seminar-145_a.pdf

Research output: Chapter in Book/Report/Conference proceeding › Conference contribution › Scientific › peer-review

Towards better knowledge work experiences with new Ambient workspace: Concept and prototype

This paper presents a conceptual design of a dynamic and personalizable knowledge workspace suitable for collaboration in academic contexts. The concept of such workspace is aimed to cater the needs of students-As knowledge workers-for flexibility in various types of group and individual knowledge tasks. The research is focused on revealing challenges and obstacles faced by students who perform their daily knowledge work in current workspaces at various premises of Finnish campus. We propose solution that utilizes information technology and interior design. Based on literature on Ambient Intelligence and knowledge work, as well as our empirical user research, we designed a concept of flexible, transformable and user-friendly campus workspace with various features and functionalities. The concept is presented through visualizations and a semi-functional three-dimensional cardboard prototype. The workspace design itself is the main contribution of the current research. Dynamism, flexibility, personalization as well as features of the physical and mental engagement are principal novelties of proposed workspace for university students.

General information

Publication status: Published

MoE publication type: A4 Article in a conference publication

Organisations: Pervasive Computing, Electronics and Communications Engineering

Contributors: Olshannikova, E., Ometov, A., Anagnostaki, T., Hasan, N., Kuketaeva, A., Ahtinen, A., Olsson, T., Koucheryavy, Y.

Number of pages: 9

Pages: 173-181

Publication date: 4 Apr 2017

Host publication information

Title of host publication: Proceedings of the 19th Conference of Open Innovations Association, FRUCT 2016

Publisher: IEEE COMPUTER SOCIETY PRESS

ISBN (Electronic): 9789526839752

ASJC Scopus subject areas: Computer Science(all), Electrical and Electronic Engineering

Electronic versions:

Towards better knowledge work experiences 2017

DOIs:

10.23919/FRUCT.2016.7892198

URLs:

<http://urn.fi/URN:NBN:fi:tuni-202002262387>

Source: Scopus

Source ID: 85018626230

Research output: Chapter in Book/Report/Conference proceeding › Conference contribution › Scientific › peer-review

Modelling new particle formation and growth using combined power law and log-normal distribution model

General information

Publication status: Published

MoE publication type: D3 Professional conference proceedings

Organisations: Department of Physics, Research area: Aerosol Physics

Contributors: Olin, M., Dal Maso, M.

Publication date: 8 Sep 2015

Host publication information

Title of host publication: EAC 2015, European Aerosol Conference

Place of publication: Milan, Italy

Publisher: Italian Aerosol Society

ASJC Scopus subject areas: Pollution

URLs:

<http://www.eac2015.it/> (Conference website)

Research output: Chapter in Book/Report/Conference proceeding › Conference contribution › Professional

Influence of environmental conditions on EMF levels in a span of overhead transmission lines

The paper is devoted to the investigation of electromagnetic field distribution in the vicinity of overhead transmission lines under different environmental conditions, taking into account the wire sag curve in a span. A wire state equation is utilized, which allows one to calculate stresses in the wire and sags based on the known stresses and temperatures in the initial state. The results of the electric and magnetic field distribution on sample 330 kV and 110 kV transmission lines are presented. We show that the highest electromagnetic field levels are associated with the most severe environmental conditions, resulting in the highest sag.

General information

Publication status: Published

MoE publication type: A1 Journal article-refereed

Organisations: Department of Electronics and Communications Engineering, Research group: Environmental Health, LLC Soyuzenergooproekt

Contributors: Okun, O., Kravchenko, Y., Korpinen, L.

Number of pages: 9

Pages: 163-171

Publication date: 2016

Peer-reviewed: Yes

Publication information

Journal: Progress in Electromagnetics Research C

Volume: 63
ISSN (Print): 1937-8718
Ratings:
Scopus rating (2016): CiteScore 1.6 SJR 0.221 SNIP 0.597
Original language: English
ASJC Scopus subject areas: Electronic, Optical and Magnetic Materials
DOIs:
10.2528/PIERC16021106
Source: Scopus
Source ID: 84971219955
Research output: Contribution to journal › Article › Scientific › peer-review

Perspectives on tools and applications supporting co-creation in knowledge work

General information

Publication status: Published
MoE publication type: A4 Article in a conference publication
Organisations: Industrial and Information Management, Research group: Knowledge and Learning Research Center, University of Tampere
Contributors: Okkonen, J., Vuori, V.
Number of pages: 8
Pages: 369-376
Publication date: 2017

Host publication information

Title of host publication: Proceedings of the 12th International Forum on Knowledge Asset Dynamics 2017 : 7-9 Jun. 2017, St. Petersburg, Russia
ISBN (Electronic): 978-88-96687-10-9

Publication series

Name: Proceedings IFKAD
ISSN (Print): 2280-787X
URLs:
http://gsom.spbu.ru/en/events/event2017_06_09/
Research output: Chapter in Book/Report/Conference proceeding › Conference contribution › Scientific › peer-review

Simulointi nopeuttaa käyttöiän määrittystä

General information

Publication status: Published
MoE publication type: D1 Article in a trade journal
Organisations: Department of Materials Science, Research group: Tribology and Machine Elements, Department of Mechanical Engineering and Industrial Systems, Research group: Kokeellinen virtaustekniikka, Research area: Applied Mechanics, Department of Intelligent Hydraulics and Automation, Research group: Fluid power automation in mobile machines, Department of Electrical Engineering, Research area: Reliability
Contributors: Ojala, P., Saarenrinne, P., Miettinen, J., Multanen, P., Kiilunen, J., Hietala, J., Kolu, A., Pippola, J., Mostofizadeh, M., Ylönen, M.
Number of pages: 4
Pages: 24-27
Publication date: 2015
Peer-reviewed: Unknown

Publication information

Journal: Promaint
Volume: 2
ISSN (Print): 1797-2000
Original language: Finnish

Bibliographical note

ORG=mol,0.25
ORG=mei,0.25
ORG=iha,0.25
ORG=dee,0.25
Research output: Contribution to journal › Article › Professional

Benefits of digitally guided buying in B2B markets

General information

Publication status: Published

MoE publication type: D3 Professional conference proceedings

Organisations: Department of Industrial Management, Research group: Cost Management Center

Contributors: Ojala, M., Mahlamäki, T.

Publication date: 2016

Host publication information

Title of host publication: 25th annual IPSERA Conference : Dortmund, Sunday 20 March - Wednesday 23 March 2016

Place of publication: Dortmund

URLs:

<http://www.ipsera.com/event-1902575>

<http://www.ipsera2016.lfo.tu-dortmund.de/welcome-to-ipsera-2016/>

Research output: Chapter in Book/Report/Conference proceeding › Conference contribution › Professional

Theory driven design and real prototyping of biomass pyrolytic stove

This article introduces a design approach integrating early design phase and model based engineering in order to develop innovative biomass gasifier system for rural communities in Africa. The need for such a systemic perspective is imposed by the imbrication of technical, ecological and cultural issues that cannot be ignored while designing new technology. The article proposes an integrated generic design theory approaches to discover and rank by order of importance system's variables and to single out most desired design parameters. A pre-design user requirement assessment was carried out to identify detailed stove's functions. Causal-ordering diagrams sketched for system's modelling. System functions were described graphically and synthesized through simple linear algebraic matrices. Contradictions in system functions were solved using Theory of Inventive Thinking (TRIZ 40). And system's optimization was done through simple Taguchi experimentation method. A two level L8 degree of freedom Taguchi table was used in the experimentation and optimization of the pyrolytic stove. The design approach was exemplified using the case of the "AKIBA" biomass stove.

General information

Publication status: Published

MoE publication type: A4 Article in a conference publication

Organisations: Kenya Ind Res & Dev Inst, Aalto Univ, Aalto University, Aalto Univ Finland, Dept Engr Design & Prod, Sch Engr, Aalto Univ, Aalto University, Sch Sci & Technol, Dept Chem

Contributors: Ogeya, M. C., Coatanea, E., Medyna, G.

Number of pages: 10

Pages: 69-78

Publication date: 2013

Host publication information

Title of host publication: Design for Harmonies, Vol.9: Design Methods and Tools

Publisher: DESIGN SOC

Editors: Lindemann, U., Srinivasan, Kim, Y., Lee, S., Papalambros, P., Chen, W.

Publication series

Name: International Conference on Engineering Design

Publisher: DESIGN SOC

ISSN (Print): 2220-4334

Keywords: design theory, innovation, optimisation, early design phase, systems engineering

Source: WOS

Source ID: 000361026600008

Research output: Chapter in Book/Report/Conference proceeding › Conference contribution › Scientific › peer-review

Theory driven design and real proto typing of biomass pyrolytic stove

This article introduces a design approach integrating early design phase and model based engineering in order to develop innovative biomass gasifier system for rural communities in Africa. The need for such a systemic perspective is imposed by the imbrication of technical, ecological and cultural issues that cannot be ignored while designing new technology. The article proposes an integrated generic design theory approaches to discover and rank by order of importance system's variables and to single out most desired design parameters. A pre-design user requirement assessment was carried out to identify detailed stove's functions. Causal-ordering diagrams sketched for system's modelling. System functions were described graphically and synthesized through simple linear algebraic matrices. Contradictions in system functions were solved using Theory of Inventive Thinking (TRIZ 40). And system's optimization was done through simple Taguchi experimentation method. A two level L8 degree of freedom Taguchi table was used in the experimentation and optimization of the pyrolytic stove. The design approach was exemplified using the case of the "AKIBA" biomass stove.

General information

Publication status: Published

MoE publication type: A4 Article in a conference publication

Organisations: Kenya Industrial Research and Development Institute (KIRDI), Aalto University School of Engineering, Department of Engineering Design and Production, Aalto University

Contributors: Ogeya, M. C., Coatanéa, E., Medyna, G.

Number of pages: 10

Pages: 69-78

Publication date: 2013

Host publication information

Title of host publication: Proceedings of the International Conference on Engineering Design, ICED

Volume: 9 DS75-09

ISBN (Print): 9781904670520

ASJC Scopus subject areas: Engineering (miscellaneous), Industrial and Manufacturing Engineering, Modelling and Simulation

Keywords: Design theory, Early design phase, Innovation, Optimisation, Systems engineering

URLs:

<http://www.scopus.com/inward/record.url?scp=84897650359&partnerID=8YFLogxK> (Link to publication in Scopus)

Source: Scopus

Source ID: 84897650359

Research output: Chapter in Book/Report/Conference proceeding › Conference contribution › Scientific › peer-review

Use of equipment lifecycle data in industrial services

Manufacturing firms can use equipment lifecycle data to enable industrial services. With the increased centrality of information technology, they may need cooperation with software providers, and this cooperation is still poorly understood. This study pursues increased understanding on the use of equipment lifecycle data in industrial services. An exploratory study with four software providers and two manufacturing firms reveals unexploited opportunities for industrial services through intensified triadic cooperation and clarifies the task division between manufacturing firms and software providers. A framework is suggested, on the conditions enabling and promoting success in the services based on equipment lifecycle data.

General information

Publication status: Published

MoE publication type: B3 Non-refereed article in conference proceedings

Organisations: Department of Industrial Management, Research group: Center for Research on Operations Projects and Services, Tampere University of Technology

Contributors: Ocaña Flores, M., Martinsuo, M.

Number of pages: 20

Publication date: Sep 2015

Host publication information

Title of host publication: RESER 2015 : 25th Annual RESER Conference

Place of publication: Copenhagen

Publisher: RESER European Association for Research on Services

ISBN (Electronic): 978-87-7349-921-4

Keywords: equipment lifecycle, lifecycle data, industrial services

URLs:

<http://www.reser.net/conference/past-conferences/2015-copenhagen-denmark>

Bibliographical note

AUX=tt,"Ocaña Flores, Moramay"

Research output: Chapter in Book/Report/Conference proceeding › Conference contribution › Scientific

Visual narratives in the value chain of new management accounting knowledge

General information

Publication status: Published

MoE publication type: A4 Article in a conference publication

Organisations: Department of Industrial Management, Research group: Cost Management Center

Contributors: Nyuppieva, E., Laine, T., Lyly-Yrjänäinen, J.

Publication date: 2016

Host publication information

Title of host publication: 10th Conference On New Directions In Management Accounting : Brussels, Belgium, December 14-16, 2016

URLs:

http://www.eiasm.org/frontoffice/event_announcement.asp?event_id=1162#4483

Research output: Chapter in Book/Report/Conference proceeding › Conference contribution › Scientific › peer-review

Älykäs kaupunkilogistiikka – CityLog

During the spring of 2014 Transport Research Centre Verne from the Tampere University of Technology carried out an urban logistics study, where the current challenges and future development needs of city logistics was studied. In the study, this problem is approached from the perspective of shops and services located into the city centre. A part of the inner city centre of Tampere was chosen as a case area of the study. The main research methods were survey and expert interviews.

According to the results, the biggest challenges in the city logistics from the perspective of shop and service office owners are narrow loading and unloading areas, problems related on delivery time schedules and minor possibilities to affect logistics actions. In general, lack of communication and the sharing of information are seen be poorly used in the city logistics. However, retailers and service carries do not see logistics as their weakness nor their main business area. According to the findings, in future the development of city logistics should be done more with a close relationship with transportation companies and the public sector. The future research and development needs should focus on communication between transport companies and their customers, optimization of loading and unloading areas and the impacts of rapidly increasing e-commerce. Highly automated and real-time communication solutions could offer significant benefits for unconsciousness in delivery times for example. Also the potential of underground logistics connections should be studied together with loading and unloading optimization.

General information

Publication status: Published

MoE publication type: D4 Published development or research report or study

Organisations: Department of Information Management and Logistics

Contributors: Nykänen, L., Kallionpää, E., Liimatainen, H.

Number of pages: 20

Publication date: Sep 2015

Publication information

Publisher: Tampereen teknillinen yliopisto. Liikenteen tutkimuskeskus Verne.

ISBN (Electronic): 978-952-15-3588-8

Original language: Finnish

Publication series

Name: Tampereen teknillinen yliopisto. Liikenteen tutkimuskeskus Verne. Tutkimusraportti

ISSN (Print): 2242-3486

ASJC Scopus subject areas: Engineering(all)

Keywords: city logistics, urban logistics, intelligent transport system, e-commerce, future transport system

Electronic versions:

alykas_kaupunkilogistiikka_citylog

URLs:

<http://URN.fi/URN:ISBN:978-952-15-3588-8>

Bibliographical note

Lupa ja versio kunnossa 12.1.2016 /KK

Research output: Book/Report › Commissioned report › Professional

Sustainable and responsible freight transport through public-private collaboration: Finnish road freight responsibility model

Purpose

In aviation, maritime and rail transport safety management systems are well adapted and they are fixed part of daily practices and the minimum requirements for systems are set in European regulations. However, this does not apply a road freight sector. In 2013, Finnish Transport Safety Agency (Trafi) started to develop a road freight responsibility model, which was intended to enhance safety, quality and environmental management in the Finnish road freight transport sector. The aim of this paper is to introduce the Finnish model and to summarize the main findings from the responsibility model.

Approach

This paper includes data and knowledge from two separate but related projects which studied responsibility and sustainability in the Finnish road freight sector. The paper combines information from several methods, but the main research method was a case

study with transport companies. Complementary methods used in this paper are workshop and online survey.

Findings

Transport companies have different practises and attitudes related to the responsible business and the size of the company or the main service sector of the company do not always explain the differences. According to the results, this kind of new voluntary basis approach has a demand in the road freight sector and it will provide help for transport companies to develop their business.

Value

The paper represents a new approach of the national transport agency to develop the road freight sector. With the responsibility model Trafi aims to promote sustainable and responsible business of all sizes of transport companies with a voluntary basis approach.

General information

Publication status: Published

MoE publication type: A4 Article in a conference publication

Organisations: Department of Information Management and Logistics

Contributors: Nykänen, L., Rantala, J., Liimatainen, H.

Number of pages: 15

Pages: 238-252

Publication date: 2015

Host publication information

Title of host publication: NOFOMA 2015 : Post Conference Proceedings, Molde, 3-5 June 2015, Nordic Logistics Research Network

Publisher: Nordic Logistics Research Network Publisher

ISBN (Electronic): 978-82-7962-207-9

ASJC Scopus subject areas: Engineering(all)

Keywords: Heavy road freight, sustainability, transport management, transport agency, Finland, Safety, quality, environment, responsibility

URLs:

<http://brage.bibsys.no/xmlui/bitstream/handle/11250/2359479/1/NOFOMA%202015%20PCP.pdf> (pp. 238-252)

Research output: Chapter in Book/Report/Conference proceeding › Conference contribution › Scientific › peer-review

A NLOS-robust TOA positioning filter based on a skew-t measurement noise model

A skew-t variational Bayes filter (STVBF) is applied to indoor positioning with time-of-arrival (TOA) based distance measurements and pedestrian dead reckoning (PDR). The proposed filter accommodates large positive outliers caused by occasional non-line-of-sight (NLOS) conditions by using a skew-t model of measurement errors. Real-data tests using the fusion of inertial sensors based PDR and ultra-wideband based TOA ranging show that the STVBF clearly outperforms the extended Kalman filter (EKF) in positioning accuracy with the computational complexity about three times that of the EKF.

General information

Publication status: Published

MoE publication type: A4 Article in a conference publication

Organisations: Department of Automation Science and Engineering, Research group: Positioning, Wireless Communications and Positioning (WICO)

Contributors: Nurminen, H., Ardeshiri, T., Piche, R., Gustafsson, F.

Number of pages: 7

Pages: 1-7

Publication date: 1 Oct 2015

Host publication information

Title of host publication: 2015 International Conference on Indoor Positioning and Indoor Navigation (IPIN)

Publisher: IEEE

ISBN (Print): 978-1-4673-8402-5

Keywords: Approximation methods, Computational modeling, Distance measurement, Gaussian distribution, Measurement errors, Noise measurement, Position measurement, NLOS, TOA, UWB, indoor positioning, robust filtering, skew t, skewness, variational Bayes

Electronic versions:

IPIN2015_postprint

DOIs:

10.1109/IPIN.2015.7346786

URLs:

<http://urn.fi/URN:NBN:fi:tty-201603183702>

Source: Bibtex

Source ID: urn:e960458d3c3e7f01508ed799f1fbe96d

Research output: Chapter in Book/Report/Conference proceeding › Conference contribution › Scientific › peer-review

Observing Hidden Service Directory Spying with a Private Hidden Service Honeynet

Tor's location hidden services (HS) are a tool for anonymous publishing, with the feature that the sites cannot be brought down without taking down the whole Tor network. People run HSs for a multitude of reasons. Some like them to be public, but others want to keep their existence as private. We have run private unannounced HSs to detect whether the HS directory is spied on. Our results show that the hidden service directory is monitored for new addresses. This paper details the observations made from the scanning activity.

General information

Publication status: Published

MoE publication type: A4 Article in a conference publication

Organisations: Department of Pervasive Computing, Research area: Information security

Contributors: Nurmi, J., Kannisto, J., Vajaranta, M.

Pages: 55-59

Publication date: 4 Aug 2016

Host publication information

Title of host publication: Proceedings of the 11th Asia Joint Conference on Information Security (AsiaJCIS 2016), Fukuoka, Japan, August 4-5, 2016

ISBN (Electronic): 978-1-5090-2285-4

DOIs:

10.1109/AsiaJCIS.2016.31

Research output: Chapter in Book/Report/Conference proceeding › Conference contribution › Scientific › peer-review

New routes from cellulose to textile fiber and ready products

General information

Publication status: Published

MoE publication type: A4 Article in a conference publication

Organisations: Department of Materials Science, Research group: Fibre Materials, Aalto University, VTT Tech Res Ctr Finland, VTT Technical Research Center Finland

Contributors: Nousiainen, P., Rissanen, M., Michud, A., Sixta, H., Hummel, M., Setälä, H.

Publication date: 2015

Host publication information

Title of host publication: Proceedings of 15th Autex World Textile Conference, June 10-12, 2015, Bucharest, Romania

ISBN (Print): 9786066852760

Research output: Chapter in Book/Report/Conference proceeding › Conference contribution › Scientific › peer-review

Ultra-large mode area single frequency anisotropic MOPA with double clad Yb-doped tapered fiber

We demonstrate all-fiber master oscillator - power amplifier delivered 70W output power at 1033.33nm with 8 kHz FWHM linewidth without any problems with SBS. The anisotropic ytterbium doped tapered double clad amplifier with 50 μ m MFD and polarization extinction ratio about 30 dB is developed as a burst stage. The output radiation demonstrated perfect beam quality ($M^2=1.03/1.08$).

General information

Publication status: Published

MoE publication type: A4 Article in a conference publication

Organisations: Ampliconyx Ltd, Institute of Radio Engineering and Electronics of the Russian Academy of Sciences, St. Petersburg State Polytechnical University

Contributors: Noronen, T., Fedotov, A., Rissanen, J., Gumenyuk, R., Butov, O., Chamorovskii, Y., Golant, K., Odnoblyudov, M., Filippov, V.

Number of pages: 6

Publication date: 1 Jan 2018

Host publication information

Title of host publication: Fiber Lasers XV : Technology and Systems

Publisher: SPIE, IEEE

Article number: 105121T

ISBN (Electronic): 9781510615090

Publication series

Name: Proceedings of SPIE

Publisher: SPIE

Volume: 10512

ISSN (Print): 0277-786X

ISSN (Electronic): 1996-756X

ASJC Scopus subject areas: Electronic, Optical and Magnetic Materials, Condensed Matter Physics, Computer Science Applications, Applied Mathematics, Electrical and Electronic Engineering

Keywords: active fiber, fiber amplifier, Fiber laser

Electronic versions:

Noronen T. Ultra-large mode area single frequency anisotropic MOPA with double clad Yb-doped tapered fiber
DOIs:

10.1117/12.2288942

URLs:

<http://urn.fi/URN:NBN:fi:tty-201908211995>

Bibliographical note

EXT="Noronen, Teppo"

EXT="Fedotov, Andrei"

INT=fot, "Rissanen, Joonas"

EXT="Gumenyuk, Regina"

EXT="Filippov, Valery"

Source: Scopus

Source ID: 85045656071

Research output: Chapter in Book/Report/Conference proceeding › Conference contribution › Scientific › peer-review

Model-Based Approach for Change Propagation Analysis in Requirements

The need for support related to the complexity management of systems engineering problems, specifically for requirements management and changes is especially necessary during the early stages of the systems engineering process. Indeed, these stages have a tremendous impact on the overall outcome of a project. If not anticipated at early stages, changes in requirements are leading to changes in the design and in the later implementation stages, resulting in an unexpected increase in costs (monetary, time, etc.). The framework proposed in this article for requirements change prediction consists of a three steps process. First, requirements are modeled using SysML with predefined relationships. Second, all the relationships between requirements in the SysML model are transformed into an adjacency matrix also named DSM. A higher order Dependency Structure Matrix is applied; this matrix-based methodology allows support in the prediction of which requirements will be affected after a change in a specific requirement. Third, the change propagation path is visualized. Using this framework, it is possible to predict the possible propagation of changes in requirements. In addition, it is also possible to identify the requirements that can be reused. This can help to save the time and cost for developing a new system.

General information

Publication status: Published

MoE publication type: A4 Article in a conference publication

Organisations: Aalto Univ, Aalto University, Sch Engn, Dept Engn Design & Prod, Aalto Univ, Aalto University, Aalto Univ Finland, Dept Engn Design & Prod, Sch Engn

Contributors: Nonsiri, S., Coatanea, E., Bakhouya, M., Mokammel, F.

Number of pages: 7

Pages: 497-503

Publication date: 2013

Host publication information

Title of host publication: 2013 IEEE International Systems Conference (SysCon)

Publisher: IEEE

ISBN (Print): 978-1-4673-3107-4

Publication series

Name: Systems Conference (SysCon), 2013 IEEE International

Keywords: Requirements management, Change propagation, SysML, higher order DSM

DOIs:

10.1109/SysCon.2013.6549928

URLs:

<http://ieeexplore.ieee.org/lpdocs/epic03/wrapper.htm?arnumber=6549928>

<http://www.mendeley.com/research/modelbased-approach-change-propagation-analysis-requirements>

Source: WOS

Source ID: 000326754400078

Research output: Chapter in Book/Report/Conference proceeding › Conference contribution › Scientific › peer-review

Glass and Glass-Ceramic Scaffolds: Manufacturing Methods and the Impact of Crystallization on In-Vitro Dissolution

General information

Publication status: Published

MoE publication type: A3 Part of a book or another research book

Organisations: Faculty of Biomedical Sciences and Engineering, Research group: Biomaterials and Tissue Engineering Group

Contributors: Nommeots-Nomm, A., Massera, J.

Number of pages: 19

Publication date: 2017

Host publication information

Title of host publication: Scaffolds in Tissue Engineering - Materials, Technologies and Clinical Applications

Publisher: InTech Open Access Publisher

ISBN (Electronic): 978-953-51-3642-2

Electronic versions:

56625

DOIs:

10.5772/intechopen.70242

URLs:

<http://urn.fi/URN:NBN:fi:tty-201801091057>

Research output: Chapter in Book/Report/Conference proceeding › Chapter › Scientific › peer-review

Aluetehokkuuden kustannusvaikutukset

General information

Publication status: Published

MoE publication type: A3 Part of a book or another research book

Organisations: Department of Civil Engineering, Aalto University

Contributors: Nisula, J., Saari, A.

Number of pages: 6

Pages: 102-107

Publication date: 2015

Host publication information

Title of host publication: Nollaa parempi – Townhouse energiatehokkaassa asuinrakentamisessa

Publisher: Aalto-yliopisto

ISBN (Print): 978-952-60-6409-3

ISBN (Electronic): 978-952-60-6410-9

Publication series

Name: Aalto University publication series Crossover

No.: 9/2015

ISSN (Print): 1799-4950

ISSN (Electronic): 1799-4969

Research output: Chapter in Book/Report/Conference proceeding › Chapter › Scientific › peer-review

Assessing business learning by analysing ERP simulation log files

General information

Publication status: Published

MoE publication type: A4 Article in a conference publication

Organisations: Department of Information Management and Logistics, Research group: Novi

Contributors: Nisula, K., Pekkola, S.

Publication date: 10 Dec 2016

Host publication information

Title of host publication: AIS SIGED 2016 Conference on IS education and Research. : Dublin, Ireland, December 10-11, 2016

Place of publication: Dublin

ISBN (Print): 978-0-692-81119-1

URLs:

<http://icis2016.aisnet.org/ais-siged-international-conference-education-research/>

Research output: Chapter in Book/Report/Conference proceeding > Conference contribution > Scientific > peer-review

High repetition rate 1.34 μm Nd:YVO₄ microchip laser Q-switched with GaInNAs SESAM

We demonstrate 1.34- μm Nd:YVO₄ microchip laser Q-switched with a GaInNAs/GaAs-based SESAM. The laser produced 204 ps long pulses with 24 mW average power and 2.3-MHz repetition rate.

General information

Publication status: Published

MoE publication type: A4 Article in a conference publication

Organisations: Optoelectronics Research Centre, Research group: Semiconductor Technology and Applications

Contributors: Nikkinen, J., Korpijärvi, V., Leino, I., Härkönen, A., Guina, M.

Publication date: 22 Jun 2015

Host publication information

Title of host publication: The European Conference on Lasers and Electro-Optics 2015

Publisher: OSA

Article number: CA_5b_1

ISBN (Electronic): 978-1-4673-7475-0

URLs:

https://www.osapublishing.org/abstract.cfm?uri=CLEO_Europe-2015-CA_5b_1

Research output: Chapter in Book/Report/Conference proceeding > Conference contribution > Scientific > peer-review

Comparison of Sintering Methods and Conductive Adhesives for Interconnections in Inkjet-Printed Flexible Electronics

Increasing demands for flexibility and stretchability for electronic devices are driving the research for novel fabrication technologies. Inkjet-printing is one of these novel electronics fabrication techniques studied and developed globally in recent years and it has some interesting benefits over traditional lithography-based techniques, mainly its additive and digital nature. Traditional manufacturing methods are mature techniques and the processes are well defined and optimized for large scale manufacturing and inkjet-printing is not going to replace the lithography as such for large scale manufacturing. Inkjet-printing does, however, enable whole new ways of electronics fabrication, such as high part-to-part customization and 3D processability, which have previously been either very challenging or even impossible.

So far research has focused mainly on inkjet-printing itself and the jetting process is understood fairly well. However, at the moment printed semiconductor materials are far inferior to traditional semiconductor components and can not enable the same level of functionality or connectivity. Hybrid systems, combining the high performance of traditional semiconductor components and benefits of inkjet-printing, are studied as a solution for fabricating high performance devices with novel fabrication techniques. Hybrid systems require the ability to attach external components to the printed structures and this integration was chosen as one of the main topic for this thesis work as it had not been studied previously and the knowledge was required for developing inkjet-printing.

This thesis analyzes inkjet-printed hybrid systems and focuses on system level integration. The work is done on interconnections including both the sintering of metallic nanoparticles as well as external component interconnections and circuit board to circuit board connections. Sintering research is focused on alternative sintering methods to traditional thermal sintering and evaluation of their usability in electronics fabrication. Electrically conductive adhesives are studied as the main method of forming external connection to components and to other circuit boards.

In the research related to this thesis alternative sintering methods were found to be suitable replacements for traditional thermal sintering with the advantages and disadvantages varying between different technologies. Laser and intense pulsed lighting were generally found to be the most promising techniques for inkjet-printed structures. External connections to traditional surface mounted components as well as other printed circuit boards were also successfully demonstrated in the related publications using electrically conductive adhesive materials. Both the electrical performance and long term reliability of the conductive adhesives were found to be inferior to solder-based interconnections but observations show that the difference is caused by the adhesive material itself, not by the use of inkjet-printing. Thus adhesives can be considered as a viable method for forming external interconnections on inkjet-printed structures.

General information

Publication status: Published

MoE publication type: G5 Doctoral dissertation (article)

Organisations: Department of Electronics and Communications Engineering, Research group: Laboratory for Future Electronics

Contributors: Niittynen, J.

Number of pages: 62

Publication date: 24 Apr 2015

Publication information

Publisher: Tampere University of Technology
ISBN (Print): 978-952-15-3505-5
ISBN (Electronic): 978-952-15-3515-4
Original language: English

Publication series

Name: Tampere University of Technology. Publication
Publisher: Tampere University of Technology
Volume: 1291
ISSN (Print): 1459-2045
Electronic versions:
niittynen_1291
URLs:
<http://URN.fi/URN:ISBN:978-952-15-3515-4>

Bibliographical note

Awarding institution: Tampere University of Technology
Versio ok 16.12.2015
Research output: Book/Report > Doctoral thesis > Collection of Articles

1800-luvun Helsingin kadonneiden konserttitilojen akustiikan mallintaminen

General information

Publication status: Published
MoE publication type: B3 Non-refereed article in conference proceedings
Organisations: Department of Civil Engineering, Research group: Building Acoustics, A-Insinöörit Suunnittelu Oy, Helsinki City Museum
Contributors: Niemi, H., Kylliäinen, M., Jäppinen, J., Lindqvist, M.
Number of pages: 6
Pages: 77-82
Publication date: 1 Sep 2015

Host publication information

Title of host publication: Akustiikkapäivät 2015
Place of publication: Kuopio

Publication series

Name: Akustiikkapäivät
ISSN (Print): 1236-8202
ASJC Scopus subject areas: Acoustics and Ultrasonics
URLs:
http://www.akustinenseura.fi/wp-content/uploads/2015/09/AP2015_Paperin_palautus_8.pdf
Research output: Chapter in Book/Report/Conference proceeding > Conference contribution > Scientific

Concentration and composition gradients of exhaust and non-exhaust particles near a major road

General information

Publication status: Published
MoE publication type: D3 Professional conference proceedings
Organisations: Department of Physics, Research area: Aerosol Physics, Helsinki Region Environmental Services Authority (HSY), Department of Environmental Sciences, Helsinki University, Metropolia University of Applied Science, Metropolia University of Applied Sciences, Atmospheric Composition Research, Finnish Meteorological Institute
Contributors: Niemi, J. V., Saarikoski, S., Pirjola, L., Taimisto, P., Pulkkinen, A., Yli-Tuomi, T., Lanki, T., Kousa, A., Enroth, J., Kuuluvainen, H., Rönkkö, T., Hillamo, R.
Publication date: 2015

Host publication information

Title of host publication: EAC 2015, European Aerosol Conference, 6-11 September, 2015, Milan, Italy

Bibliographical note

ISBN kysytty, HO.
Ei ole, HO.
Research output: Chapter in Book/Report/Conference proceeding > Conference contribution > Professional

Crossing Boundaries for Learning – through Technology and Human Efforts

General information

Publication status: Published
MoE publication type: C1 Separate scientific books
Organisations: University of Helsinki
Contributors: Niemi, H., Multisilta, J., Löfström, E.
Publication date: 2014

Publication information

Publisher: CICERO Learning Network, University of Helsinki
ISBN (Print): 978-952-10-9878-9
Original language: Undefined/Unknown
Keywords: 516 Educational sciences
Source: Bibtex
Source ID: urn:8ca22e584c9a353efda0aea3cc9fbf1d
Research output: Book/Report › Book › Scientific › peer-review

Educating future coders with a holistic ICT curriculum and new learning solutions

Technology-orientation and coding are gaining momentum in Finnish curriculum planning for primary and secondary school. However, according to the existing plans, the scope of ICT teaching is limited to practical topics, e.g., how to drill basic control structures (if-then-else, for, while) without focusing on the high level epistemological view of ICT. This paper proposes some key extensions to such plans, targeted to highlight rather the epistemological factors of teaching than talk about concrete means of strengthening the craftsmanship of coding. The proposed approach stems from the qualitative data collected by interviewing ICT professionals (N=7, 4 males, 3 females), who have gained experience of the industry needs while working as ICT professionals (avg=11.3 y, s=3.9 y). This work illustrates a holistic model of ICT teaching as well as suggests a set of new methods and tools.

General information

Publication status: Published
MoE publication type: A4 Article in a conference publication
Organisations: Pervasive Computing, Research area: Software engineering, Rovio, Jyväskylän yliopisto
Contributors: Niemelä, P., Di Flora, C., Helevirta, M., Isomöttönen, V.
Number of pages: 5
Pages: 132-136
Publication date: 2016

Host publication information

Title of host publication: 7th International Multi-Conference on Complexity, Informatics and Cybernetics, IMCIC 2016 and 7th International Conference on Society and Information Technologies, ICSIT 2016
Volume: 2
Publisher: IIS
ISBN (Electronic): 9781941763384
ASJC Scopus subject areas: Artificial Intelligence, Information Systems, Computer Networks and Communications
Keywords: Concept maps, Holistic ICT model, ICT curriculum, Modelling, Teaching ICT in primary and secondary school
URLs:
<http://www.iis.org/CDs2016/CD2016Spring/papers/EB259QT.pdf>
Source: Scopus
Source ID: 85032963441
Research output: Chapter in Book/Report/Conference proceeding › Conference contribution › Scientific › peer-review

Elementary math to close the digital skills gap

All-encompassing digitalization and the digital skills gap pressure the current school system to change. Accordingly, to 'digi-jump', the Finnish National Curriculum 2014 (FNC-2014) adds programming to K-12 math. However, we claim that the anticipated addition remains too vague and subtle. Instead, we should take into account education recommendations set by computer science organizations, such as ACM, and define clear learning targets for programming. Correspondingly, the whole math syllabus should be critically viewed in the light of these changes and the feedback collected from SW professionals and educators. These findings reveal an imbalance between supply and demand, i.e., what is over-taught versus under-taught, from the point of view of professional requirements. Critics claim an unnecessary surplus of calculus and differential equations, i.e., continuous mathematics. In contrast, the emphasis should shift more towards algorithms and data structures, flexibility in handling multiple data representations, logic; in summary - discrete mathematics.

General information

Publication status: Published
MoE publication type: A4 Article in a conference publication
Organisations: Pervasive Computing, Jyväskylän yliopisto
Contributors: Niemelä, P., Valmari, A.
Number of pages: 12
Pages: 154-165
Publication date: 2018

Host publication information

Title of host publication: CSEDU 2018 - Proceedings of the 10th International Conference on Computer Supported Education
Volume: 2
Publisher: SCITEPRESS
ISBN (Electronic): 9789897582912
ASJC Scopus subject areas: Computer Science Applications, Information Systems, Education
Keywords: Computing in math syllabus, Continuous vs. discrete math, Digital skills gap, Effectiveness of education, K-12 computer science education, Professional development of software professionals
DOIs:
10.5220/0006800201540165

Bibliographical note

EXT="Valmari, Antti"
Source: Scopus
Source ID: 85047771637
Research output: Chapter in Book/Report/Conference proceeding > Conference contribution > Scientific > peer-review

LTE indoor MIMO performances field measurements

Long-term evolution (LTE) and multiple input multiple output (MIMO) have earned reputations to be a cutting-edge technology, which can boost significantly wireless communication performances. The paper aims at providing LTE MIMO performances in indoor environments and, therefore, guidelines for network operators can be proposed. Medium access control throughput (MAC TP) and some system parameters in LTE network that are linked with MAC TP, such as Channel Quality Indicator (CQI), Modulation and Coding Scheme (MCS), Ranking Indicator (RI), Pre-coding Matrix Indicator (PMI), as well as MIMO utilization, are analysed. Effects of indoor propagation, Line of Sight (LoS), No-line of Sight (NLoS), strong and weak signal levels on Signal to Noise Ratio (SNR) strength and MIMO utilization are clarified. In this paper, the performances of MIMO transmission mode over transmit diversity (TxDiv, Multiple Input-Single Output-MISO) and single antenna (Single Input Multiple Output-SIMO) modes are also analyzed and compared at overall manner and at channel-specific manners.

General information

Publication status: Published
MoE publication type: A4 Article in a conference publication
Organisations: Tampere University of Technology, Department of Electronics and Communications Engineering, Department of Electronics and Communication Engineering, Electrical and Electronics Engineering Department, Department of Electric-Electronics Engineering, Ho Chi Minh City University of Technology, Industrial University of Ho Chi Minh City, Ho Chi Minh City University of Food Industry
Contributors: Nguyen-Thanh, D., Le-Tien, T., Bui-Thu, C., Le-Thanh, T.
Number of pages: 6
Pages: 84-89
Publication date: 17 Feb 2015

Host publication information

Title of host publication: International Conference on Advanced Technologies for Communications
Publisher: IEEE
ISBN (Print): 9781479969555
ASJC Scopus subject areas: Computer Networks and Communications, Hardware and Architecture, Software
Keywords: Field measurements, LTE, MIMO, MISO, OFDM, Rayleigh channel, Rician channel
DOIs:
10.1109/ATC.2014.7043361

Bibliographical note

INT=elt,"Nguyen-Thanh, Duc"
Research output: Chapter in Book/Report/Conference proceeding > Conference contribution > Scientific > peer-review

The role of product retailers' service adoption in services introduction - A case of services supplementing consumer durables.

Retailers marketing manufacturers' services have a significant role in service success and therefore their adoption of the service and commitment to its sales needs to be ensured. However, this topic has gained only limited attention in the scientific literature while majority of the adoption literature has focused on products. This paper discusses retailer adoption of service meant for end customers by reviewing the antecedents of adoption and effect of retailer's background to service adoption. The focus is on a complementary product-related guarantee service. The data was collected by a survey among retailers of a consumer durables manufacturer in three countries. The results revealed that retailers had mainly positive attitudes towards the reviewed service indicating also service adoption. However, the adoption of the service did not ensure that the service was marketed for all the potential customers. Noteworthy is that retailers' attitudes were positively related with their own service deployment. Thus, manufacturers utilizing retailers in service distribution need to invest in retailers' service adoption but also ensure trialability and possibilities for fluent marketing of the service.

General information

Publication status: Published

MoE publication type: A4 Article in a conference publication

Organisations: Department of Industrial Management, Research group: Center for Research on Operations Projects and Services

Contributors: Nenonen, S., Vaittinen, E.

Number of pages: 10

Pages: 762-771

Publication date: 2015

Host publication information

Title of host publication: The 14th International Research Symposium on Service Excellence in Management : QUIS14

Place of publication: Shanghai

Editors: Zhao, X., Zhang, J. J., Han, H. J.

ISBN (Electronic): 978-0-692-46156-3

URLs:

<http://www.quis14.com/agenda/>

Research output: Chapter in Book/Report/Conference proceeding > Conference contribution > Scientific > peer-review

Proceedings of the CIB World Building Congress 2016: Volume IV - Understanding Impacts and Functioning of Different Solutions

General information

Publication status: Published

MoE publication type: C2 Edited books

Organisations: Department of Civil Engineering, Research group: Capacity Development of Water and Environmental Services CADWES

Contributors: Nenonen, S. (ed.), Junnonen, J. (ed.)

Number of pages: 718

Publication date: 27 May 2016

Publication information

Publisher: Tampere University of Technology. Department of Civil Engineering

Volume: 4

ISBN (Electronic): 978-952-15-3744-8

Original language: English

Publication series

Name: Tampere University of Technology. Department of Civil Engineering. Construction Management and Economics. Report

Volume: 18

ISSN (Print): 1797-8904

Electronic versions:

WBC16 Vol 4

URLs:

<http://urn.fi/URN:ISBN:978-952-15-3744-8>

Incremental service innovations in a manufacturing firm's delivery chain

Manufacturing companies that provide services for consumers deliver service offerings through a retailer network. In such cases, the engagement of the various actors in the delivery chain provides multidimensional information required for successful development of services and innovations. Although the need to use delivery chain actors' differing potential in innovation has been widely recognized, the different actors' contribution to generating ideas to improve existing services is missing. This paper contributes to the literature by discussing the potential for creating these types of incremental service innovations in different parts of the delivery chain. The data were collected by interviews and questionnaires among customers, retailers and sales persons who are part of a product-related service delivery chain in three countries. The study shows that ideas for improvement were expressed infrequently by all the actors, but particularly by consumers, even though the service users' role in developing services has been emphasized in the literature. The different actors provided recurring but also some different improvement ideas. The consumers' typical ideas were general and rather self-evident, whereas the salespeople focused more on improving the service promotion and service process and retailers, in turn, took a broader approach. As the different stakeholders in the delivery chain offer different improvement idea contents for the manufacturing firm and cover service innovation dimensions only partly, manufacturing firms need a holistic strategy for incremental service innovations.

General information

Publication status: Published

MoE publication type: A4 Article in a conference publication

Organisations: Department of Industrial Management, Research group: Center for Research on Operations Projects and Services

Contributors: Nenonen, S., Vaittinen, E., Martinsuo, M.

Publication date: Jun 2016

Host publication information

Title of host publication: 23rd Innovation and Product Development Management Conference (IPDMC) : Glasgow, U. K. June 12-14, 2016

Publication series

Name: Innovation and Product Development Management Conference

ISSN (Print): 1998-7374

Electronic versions:

IPDM2016 Nenonen, Vaittinen & Martinsuo

URLs:

<http://urn.fi/URN:NBN:fi:ty-201708211692>

URLs:

http://www.eiasm.org/frontoffice/event_announcement.asp?event_id=1164#4418

Research output: Chapter in Book/Report/Conference proceeding › Conference contribution › Scientific › peer-review

Third places and user preferences – affordances in the cities

General information

Publication status: Published

MoE publication type: A4 Article in a conference publication

Organisations: Department of Civil Engineering

Contributors: Nenonen, S., Rahtola, R., Kojo, I.

Number of pages: 9

Pages: 17-25

Publication date: 1 Aug 2016

Host publication information

Title of host publication: Proceedings of CFM's Second Nordic Conference: Facilities Management Research and Practice; : 29-30 AUGUST 2016, Denmark

Editor: Jensen, P. A.

ISBN (Print): 9788750211044

Keywords: workspace management, new ways of working, discourse, typologies, spatial transformation

URLs:

<http://www.cfm.dtu.dk/english/CFM-SECOND-NORDIC-CONFERENCE-2016>

Source: Bibtex

Source ID: urn:cdf1ee83af90706e85ce79e70d9e4a36

Research output: Chapter in Book/Report/Conference proceeding › Conference contribution › Scientific › peer-review

Campus retrofitting (CARE) methodology: a way to co-create future learning environments

General information

Publication status: Published

MoE publication type: A4 Article in a conference publication

Organisations: Department of Civil Engineering, Research group: Digitalization in the real estate and construction sector

Contributors: Nenonen, S., Eriksson, R., Niemi, O., Junghans, A., Nielsen, S. B., Lindahl, G.

Number of pages: 12

Pages: 738-749

Publication date: 2016

Host publication information

Title of host publication: Proceedings of the 20th CIB World Building Congress 2016 : May 30-June 3, 2016, Tampere, Finland

ISBN (Electronic): 978-952-15-3742-4

Keywords: Universities, Space management, Facilities management, Space design

URLs:

http://orbit.dtu.dk/files/124058228/Nenonen_Eriksson_Niemi_Junghans_Nielsen_Lindahl.pdf

<http://www.wbc16.com/wbc16/welcome.html>

Source: Bibtex

Source ID: urn:3d581eee21d4292b781da57acb1ad288

Research output: Chapter in Book/Report/Conference proceeding > Conference contribution > Scientific > peer-review

Proceedings of the 1st Transdisciplinary Workplace Research Conference

General information

Publication status: Published

MoE publication type: C2 Edited books

Organisations: Research group: Responsible Construction, Civil Engineering

Contributors: Nenonen, S. (ed.), Salmisto, A. (ed.), Petrulaitiene, V. (ed.)

Number of pages: 64

Publication date: 2018

Publication information

Publisher: Tampere University of Technology. Department of Civil Engineering

ISBN (Print): 978-952-15-4200-9

ISBN (Electronic): 978-952-15-4201-5

Original language: English

Publication series

Name: Tampereen teknillinen yliopisto. Rakennustekniikan laboratorio. Rakennustuotanto ja -talous. Raportti

No.: 26

ISSN (Print): 2489-5717

URLs:

<http://www.twrnetwork.org/wp-content/uploads/2018/10/TWR2018-Proceedings.pdf>

Research output: Book/Report > Anthology > Scientific > peer-review

Towards low carbon economy - Green bond and asset development

Green Bonds are an instrument for driving the environmentally friendly and low-carbon economy. Green Bonds are bonds whose proceeds are earmarked for and transparently channelled to environmentally-friendly projects and activities. The real estate industry has a multi-decade track record of addressing environmental impacts through the use of rating systems certified by independent third parties. Green building certification systems address multiple environmental impacts and measure outcomes across all asset lifecycle phases. Using bonds for such investments is not new but in an effort to improve transparency and increase opportunities both for issuers and investors it can take a more active role in combating climate change. The goal of this paper is to describe how property developer can use Green Bond as one instrument in sustainable life cycle management and continuous development of properties. The method used is a case study of Finnish property owner company, which commits to invest the funds raised in certified, environmentally responsible and energy-efficient projects. The single case study method employed in this study captured the process of case organization towards Green Bond initiative. More precisely the data was gathered by qualitative document analysis (QDA). The results show that company begin the process with focusing on environmental sustainability especially putting the effort in the first phase to energy efficiency. The Green Bond initiative provided a new avenue towards economic sustainability. Additionally, issues like shared use of facilities was discussed from social sustainability perspective. The results are interesting for property owners who are interested in systematic development towards regenerative built

environment.

General information

Publication status: Published
MoE publication type: A1 Journal article-refereed
Organisations: Civil Engineering, University Properties of Finland Ltd
Contributors: Nenonen, S., Koski, A., Lassila, A. P., Lehtikainen, S.
Publication date: 2019
Peer-reviewed: Yes

Publication information

Journal: IOP Conference Series: Earth and Environmental Science
Volume: 352
Issue number: 1
Article number: 012028
ISSN (Print): 1755-1307
Ratings:
Scopus rating (2019): CiteScore 0.4 SJR 0.175 SNIP 0.514
Original language: English
ASJC Scopus subject areas: Environmental Science(all), Earth and Planetary Sciences(all)
Electronic versions:
Nenonen_2019_IOP_Conf._Ser._Earth_Environ._Sci._352_012028
DOIs:
10.1088/1755-1315/352/1/012028
URLs:
<http://urn.fi/URN:NBN:fi:tuni-201912126832>

Bibliographical note

EXT="Lassila, A. P."
Source: Scopus
Source ID: 85075015413
Research output: Contribution to journal > Conference article > Scientific > peer-review

Towards digital campus – improving usability of learning environments

Purpose: Digital learning environments provide new possibilities for organizing education. Additionally, these developments are transforming the existing and future learning environments. This research is based on a national project called DigiCampus in Finland. The project develops e.g. physical-digital learning landscapes for campuses.
Design/methodology/approach: The approach is qualitative, more specifically descriptive and explorative. The approach was chosen to identify the functional and structural layers of retrofitted, digitally enriched learning environments. Three case studies are conducted in different universities. The first case study investigates the maturity level of the digital learning environments of existing buildings. The second case study introduces a multi-location classroom in two different campuses. The third case study presents a learning environment which is enriched by using different kind of smart tools which gather data for different purposes about the use of the learning environment. The chosen cases had similar intentions to use digitalization to update the existing spaces according to new ways of learning and teaching. The emphasis in each case was in the increase of collaboration and widening diversity in the campus environment. The data used in the analysis was comprised of the documentation of project plans for the retrofitting and other written material.
Findings: Cross-case analysis indicates that both the digital and the physical architecture can be understood as layers for different functions and different stakeholders. Such structure provides a framework for developing usable digital learning environments.
Practical implications: The outcome of the research is a checklist for usable digital learning environments, which points out the topics to be co-created among different stakeholders in developing the digital campus.
Originality/value: The research provides an evidence-based overview of usability of digital learning environments emphasizing especially the retrofitting challenges in the process of developing both physical and digital usability simultaneously.

Keywords: learning landscape, digital, physical, usability, campus

General information

Publication status: Published
MoE publication type: A4 Article in a conference publication
Organisations: Civil Engineering, Research group: Responsible Construction, Information and Knowledge Management, University of Helsinki, Helsinki University
Contributors: Nenonen, S., Sandström, N., Nevgi, A., Danivska, V., Jalo, H.
Number of pages: 11
Publication date: 2019

Host publication information

Title of host publication: CIB World Building Congress 2019 : 17-21, June, 2019, The Hong Kong Polytechnic University, Hong Kong, China

Place of publication: Hong Kong

Publisher: INTERNATIONAL COUNCIL FOR RESEARCH AND INNOVATION IN BUILDING AND CONSTRUCTION (CIB)

ISBN (Electronic): 978-962-367-821-6

URLs:

<http://urn.fi/URN:NBN:fi:tuni-202001211438>

<https://site.cibworld.nl/db/publication/browserecord.php?-action=browse&-recid=1651>

Research output: Chapter in Book/Report/Conference proceeding > Conference contribution > Scientific > peer-review

Cyclic quantum walks: Photonic realization and decoherence analysis

Quantum walks serve as novel tools for performing efficient quantum computation and simulation. In a recent experimental demonstration [1] we have realized photonic quantum walks for simulating cyclic quantum systems, such as hexagonal lattices or aromatic molecules like benzene. In that experiment we explored the wave function dynamics and the probability distribution of a quantum particle located on a six-site system (with periodic boundary conditions), alongside with simpler demonstration of three- and four-site systems, under various initial conditions. Localization and revival of the wave function were demonstrated. After revisiting that experiment we will theoretically analyze the case of noisy quantum walks by implementing the bit-phase flip channel. This will allow us to draw conclusions regarding the performance of our photonic quantum simulation in noisy environments. Finally, we will briefly outline some future directions.

General information

Publication status: Published

MoE publication type: A4 Article in a conference publication

Organisations: Physics, University of Ottawa, Canada, National Research Council, Bar Ilan University, Massachusetts Institute of Technology

Contributors: Nejadsattari, F., Zhang, Y., Jayakody, M. N., Bouchard, F., Larocque, H., Sit, A., Fickler, R., Cohen, E., Karimi, E.

Publication date: 2020

Host publication information

Title of host publication: Advanced Optical Techniques for Quantum Information, Sensing, and Metrology

Publisher: SPIE

Editors: Hemmer, P. R., Migdall, A. L., Hasan, Z. U.

Article number: 1129503

ISBN (Print): 9781510633537

ISBN (Electronic): 9781510633544

Publication series

Name: Proceedings of SPIE - The International Society for Optical Engineering

Volume: 11295

ISSN (Print): 0277-786X

ISSN (Electronic): 1996-756X

ASJC Scopus subject areas: Electronic, Optical and Magnetic Materials, Condensed Matter Physics, Computer Science Applications, Applied Mathematics, Electrical and Electronic Engineering

Keywords: Decoherence, Photonic quantum walks, Quantum simulation

DOIs:

10.1117/12.2546566

Bibliographical note

jufoid=71479

Source: Scopus

Source ID: 85084182226

Research output: Chapter in Book/Report/Conference proceeding > Conference contribution > Scientific > peer-review

LTE Performance Analysis Using Queuing Systems with Finite Resources and Random Requirements

Heavy traffic load in current LTE networks calls for effective radio resource allocation methods and tools for performance evaluation. In this work, we provide an analytical framework for LTE resource allocation in terms of queuing theory. We consider a multiservice queuing system with a finite amount of resources of several types, and allow the customers occupy a random amount of resources upon their arrival. Random resource requirements lead to more accurate performance evaluation compared to conventional multiservice models. For the considered model, we prove that the stationary probability distribution has a multiplicative form. Our findings are illustrated with a numerical example.

General information

Publication status: Published

MoE publication type: A4 Article in a conference publication

Organisations: Department of Electronics and Communications Engineering, Research group: Emerging Technologies for Nano-Bio-Info-Cogno

Contributors: Naumov, V., Samouylov, K., Yarkina, N., Sopin, E., Andreev, S., Samuylov, A.

Number of pages: 4

Pages: 100-103

Publication date: 2015

Host publication information

Title of host publication: 2015 7th International Congress on Ultra Modern Telecommunications and Control Systems and Workshops (ICUMT)

Publisher: IEEE

ISBN (Print): 978-1-4673-9282-2

DOIs:

10.1109/ICUMT.2015.7382412

Research output: Chapter in Book/Report/Conference proceeding > Conference contribution > Scientific > peer-review

Experimental study of bispectrum-based encoding in radio communication system

This paper is devoted to a novel multi-frequency and bispectrum-based encoding technique designed for radio communication systems. An experimental study of an interference resistance in digital communication is performed using a novel bispectrum-based strategy. Test statistics evaluated in the form of peak values of magnitude bispectrum estimates are proposed for triplet-signals discrimination. Bit error rates assessed experimentally in a radio communication link contaminated by additive Gaussian noise and fading are studied within a wide range of input signal-to-noise ratio (SNR). Advantages of the proposed bispectral-based signal processing as compared with common phase and frequency shift keying are demonstrated and discussed.

General information

Publication status: Published

MoE publication type: A4 Article in a conference publication

Organisations: Department of Signal Processing, Research group: Algebraic and Algorithmic Methods in Signal Processing AAMSP, Signal Processing Research Community (SPRC), National Aerospace University

Contributors: Naumenko, V. V., Solodovnik, V. F., Totsky, A. V., Zelensky, A. A., Astola, J. T.

Number of pages: 3

Publication date: 25 Jun 2015

Host publication information

Title of host publication: 2015 International Conference on Antenna Theory and Techniques: Dedicated to 95 Year Jubilee of Prof. Yakov S. Shifrin, ICATT 2015 - Proceedings

Publisher: The Institute of Electrical and Electronics Engineers, Inc.

ISBN (Print): 9781479985579

ASJC Scopus subject areas: Electrical and Electronic Engineering, Computer Science Applications

Keywords: bispectrum, digital communication system, fading, interference immunity, phase coupling, triplet-signal

DOIs:

10.1109/ICATT.2015.7136853

Source: Scopus

Source ID: 84939448255

Research output: Chapter in Book/Report/Conference proceeding > Conference contribution > Scientific > peer-review

Bispectrum-based demodulation technique using triple-channel heterodyning of triplet-signal

Paper is dedicated to novel bispectrum-based demodulation technique by using triple-channel heterodyning of triplet-signals. Test statistics used for triplet-signals detection and discrimination are evaluated in the form of the bimagnitude peak values. Experimental study of noise immunity in bispectrum-based digital communication system is performed for suggested triple-channel heterodyning technique. Bit error rate (BER) values are computed under additive Gaussian noise influence in radio communication link for wide variations of input signal-to-noise ratio (SNR).

General information

Publication status: Published

MoE publication type: A4 Article in a conference publication

Organisations: Department of Signal Processing, Research group: Algebraic and Algorithmic Methods in Signal Processing AAMSP, Signal Processing Research Community (SPRC), National Aerospace University

Contributors: Naumenko, V., Solodovnik, V., Totsky, A., Zelensky, A., Astola, J.

Number of pages: 3

Pages: 224-226
Publication date: 14 Dec 2015

Host publication information

Title of host publication: 2015 Second International Scientific-Practical Conference Problems of Infocommunications Science and Technology (PIC S&T)

Publisher: IEEE

ISBN (Print): 9789669751928

ASJC Scopus subject areas: Computer Science (miscellaneous), Computer Science Applications

Keywords: bispectrum, digital communication system, noise immunity, three-channel heterodyning, triplet-signal

DOIs:

10.1109/INFOCOMMST.2015.7357319

Source: Scopus

Source ID: 84962840376

Research output: Chapter in Book/Report/Conference proceeding > Conference contribution > Scientific > peer-review

What Engineering Scientists Know and How They Know It: Towards Understanding the Philosophy of Engineering Science in Finland

Knowledge, research and science are all concepts into which every member of the scientific community must have some kind of insight. Although nowadays there appears to be a general consensus that engineering science is a scientific enterprise in and of its own, this has not been the case for very long. As a scientific discipline, engineering science has been somewhat neglected from the standpoint of epistemology and philosophy.

This study aims at understanding the prevailing philosophy of engineering science in Finland. It strives to comprehend the essence and challenges of knowledge and knowledge-creation processes in the field. It is hoped that the resulting comprehension will improve the research community's possibilities 1) to reflect critically upon its procedures, 2) to discuss what should be studied and how, and 3) to determine on what bases the processes and results should be evaluated. It is also expected to assist in developing doctoral education and to result in better supervision by providing a framework and vocabulary for philosophical and methodological discussion.

The cognitive interest in this study is practical, and the orientation hermeneutic. The process follows the general lines of qualitative research and applies the method of qualitative content analysis. As an empirical inquiry, this study belongs to the realm of science and technology studies. The phenomenon was studied in the context of Finland in the guise of a single-case study, with Tampere University of Technology as the case.

The final results support the view that engineering science certainly is a scientific discipline in and of its own, characterised by its own technical matrix. Most engineering science research can be classified as design science. Scientific inquiry in engineering science often requires building conceptual—but also material—constructs, as well as developing new methods for different purposes (analyses, design, implementation, evaluation). Consequently, the contributions recognised in research are of many types (artefacts, methods, declarative knowledge, proposals), but they are not always the kind of knowledge adhering to technical norms. Arriving at new theories or linking knowledge to existing theories seems to be even rarer than arriving at technical norms.

Engineering science is a discipline of considerable diversity. The objectives, methods, empirical processes and results pertaining to one type of inquiry can be very different from those found in other types of investigation. This study uncovered five distinct research profiles, but there may well be more to discover.

At the moment, the philosophy of engineering science has not raised significant interest, as it appears not to have many direct consequences; yet, there are challenges that engineering scientists face that may well be rooted in the lack of common understanding about the epistemic, ontological and methodological issues of the topic.

General information

Publication status: Published

MoE publication type: G4 Doctoral dissertation (monograph)

Organisations: Department of Information Management and Logistics

Contributors: Naukkarinen, J.

Number of pages: 205

Publication date: 20 Nov 2015

Publication information

Publisher: Tampere University of Technology

ISBN (Print): 978-952-15-3619-9

ISBN (Electronic): 978-952-15-3641-0

Original language: English

Publication series

Name: Tampere University of Technology. Publication
Publisher: Tampere University of Technology
Volume: 1344
ISSN (Print): 1459-2045
Electronic versions:
naukkarinen_1344
URLs:
<http://URN.fi/URN:ISBN:978-952-15-3641-0>

Bibliographical note

Awarding institution: Tampere University of Technology
Research output: [Book/Report](#) › [Doctoral thesis](#) › [Monograph](#)

Constrained PSK: Energy-efficient modulation for Sub-THz systems

Deploying sub-THz frequencies for mobile communications is one timely research area, due to the availability of very wide and contiguous chunks of the radio spectrum. However, at such extremely high frequencies, there are large challenges related to, e.g., phase noise, propagation losses as well as to energy-efficiency, since generating and radiating power with reasonable efficiency is known to be far more difficult than at lower frequencies. To address the energy-efficiency and power amplifier (PA) nonlinear distortion related challenges, modulation methods and waveforms with low peak-to-average-power ratio (PAPR) are needed. To this end, a new modulation approach is formulated and proposed in this paper, referred to as constrained phase-shift keying (CPSK). The CPSK concept builds on the traditional PSK constellations, while additional constraints are applied to the time domain symbol transitions in order to control and reduce the PAPR of the resulting waveform. This new modulation is then compared with pulse-shaped $\pi/2$ -BPSK and ordinary QPSK, in the discrete Fourier transform (DFT) spread orthogonal frequency division multiplexing (DFT-s-OFDM) context, in terms of the resulting PAPR distributions and the achievable maximum PA output power, subject to constraints in the passband waveform quality and out-of-band emissions. The obtained results show that the proposed CPSK approach allows for reducing the PAPR and thereon for achieving higher PA output powers, compared to QPSK, while still offering the same spectral efficiency. Overall, the CPSK concept offers a flexible modulation solution with controlled PAPR for the future sub-THz networks.

General information

Publication status: Published
MoE publication type: A4 Article in a conference publication
Organisations: Electrical Engineering, Research group: Wireless Communications and Positioning
Contributors: Nasarre, I. P., Levanen, T., Valkama, M.
Number of pages: 7
Publication date: 2020

Host publication information

Title of host publication: 2020 IEEE International Conference on Communications Workshops, ICC Workshops 2020 - Proceedings
Publisher: IEEE
ISBN (Print): 978-1-7281-7441-9
ISBN (Electronic): 9781728174402

Publication series

Name: IEEE/CIC international conference on communications in China - workshops
ISSN (Print): 2474-9133
ISSN (Electronic): 2474-9141
ASJC Scopus subject areas: Artificial Intelligence, Computer Networks and Communications, Signal Processing, Information Systems and Management, Control and Optimization
Keywords: 5G New Radio (NR) evolution, DFT-s-OFDM, Energy-efficiency, Modulation, PAPR, Power amplifiers, Sub-THz communications
DOIs:
[10.1109/ICCWorkshops49005.2020.9145132](https://doi.org/10.1109/ICCWorkshops49005.2020.9145132)

Bibliographical note

JUFID=88220
Source: Scopus
Source ID: 85090293993
Research output: [Chapter in Book/Report/Conference proceeding](#) › [Conference contribution](#) › [Scientific](#) › [peer-review](#)

Measurement of the Temporal Coherence of Supercontinuum Light

We experimentally measure, for the first time, the second-order temporal coherence of supercontinuum pulses from the time-resolved interference fringes observed at the output of a Michelson interferometer using cross-correlation frequency-

resolved optical gating.

General information

Publication status: Published

MoE publication type: A4 Article in a conference publication

Organisations: Department of Physics, Research area: Optics, Research group: Nonlinear Fiber Optics, Institute of Photonics, Institut FEMTO-ST, Université de Franche-Comté, Institut FEMTO-ST, UMR 6174 CNRS-Université de Franche-Comté

Contributors: Närhi, M., Genty, G., Amiot, C., Dutta, R., Friberg, A. T., Dudley, J. M., Turunen, J.

Publication date: 2015

Host publication information

Title of host publication: 2015 European Conference on Lasers and Electro-Optics - European Quantum Electronics Conference

Publisher: OSA

Article number: EE_3_1

ISBN (Print): 978-1-4673-7475-0

Keywords: supercontinuum, coherence

URLs:

https://www.osapublishing.org/abstract.cfm?uri=EQEC-2015-EE_3_1

Research output: Chapter in Book/Report/Conference proceeding › Conference contribution › Scientific › peer-review

Extreme Nonlinear Signal Amplification

Using the extreme sensitivity of supercontinuum generation to input pulse power fluctuations, we demonstrate experimentally the regeneration and amplification of a weak signal by up to 46 dB.

General information

Publication status: Published

MoE publication type: A4 Article in a conference publication

Organisations: Department of Physics, Research area: Optics, Research group: Nonlinear Fiber Optics, Optoelectronics Research Centre

Contributors: Närhi, M., Genty, G., Steinmeyer, G., Sand, J., Orsila, L.

Publication date: 2015

Host publication information

Title of host publication: 2015 European Conference on Lasers and Electro-Optics - European Quantum Electronics Conference

Publisher: OSA

ISBN (Print): 978-1-4673-7475-0

Keywords: supercontinuum, signal amplification

URLs:

https://www.osapublishing.org/abstract.cfm?uri=CLEO_Europe-2015-CD_1_2

Research output: Chapter in Book/Report/Conference proceeding › Conference contribution › Scientific › peer-review

High Dynamic Range Single-Shot Spectral Measurements of Spontaneous Modulation Instability

We demonstrate a mechanical streak camera capturing single-shot spectra with 40 dB dynamic range. We use the technique to identify for the first time breather collisions from spectra of spontaneous modulation instability in a fiber.

General information

Publication status: Published

MoE publication type: A4 Article in a conference publication

Organisations: Department of Physics, Research area: Optics, Research group: Nonlinear Fiber Optics, Research group: Applied Optics, Institut FEMTO-ST, Université de Franche-Comté, Institut FEMTO-ST, UMR 6174 CNRS-Université de Franche-Comté

Contributors: Närhi, M., Tengvall, M., Toivonen, J., Dudley, J. M., Genty, G.

Publication date: 2016

Host publication information

Title of host publication: Frontiers in Optics 2016

Publisher: Optical Society of America (OSA)

Article number: FF2B.1

ISBN (Print): 978-1-943580-19-4

URLs:

<https://www.osapublishing.org/abstract.cfm?uri=FiO-2016-FF2B.1>

Bibliographical note

INT=mat,"Tengvall, Mira"

Research output: Chapter in Book/Report/Conference proceeding > Conference contribution > Scientific > peer-review

Real Time Measurements of Temporal Rogue Waves and Spontaneous Modulation Instability in Optical Fiber

We report the first real-time study of temporal rogue waves from spontaneous modulation instability. Time-lens magnification enables the direct capture of transient breather pulses and statistics, with measured intensity profiles in agreement with theory.

General information

Publication status: Published

MoE publication type: A4 Article in a conference publication

Organisations: Department of Physics

Contributors: Narhi, M., Wetzal, B., Billet, C., Merolla, J., Toenger, S., Sylvestre, T., Morandotti, R., Genty, G., Dias, F., Dudley, J. M.

Number of pages: 2

Publication date: 2016

Host publication information

Title of host publication: CLEO: QELS_Fundamental Science 2016

Publisher: Optical Society of America

Article number: FF2A.7

ISBN (Print): 978-1-943580-11-8

Keywords: Pulse propagation and temporal solitons, Nonlinear optics, fibers, Ultrafast measurements

DOIs:

10.1364/CLEO_QELS.2016.FF2A.7

URLs:

http://www.osapublishing.org/abstract.cfm?URI=CLEO_QELS-2016-FF2A.7

Source: Bibtex

Source ID: urn:031dc5c9ecd136bcf8278ec95dc470ce

Research output: Chapter in Book/Report/Conference proceeding > Conference contribution > Scientific > peer-review

Direct Measurement of Temporal Rogue Waves Generated by Spontaneous Modulation Instability

We measure the real time intensity profiles of localized structures emerging from spontaneous modulation instability. We show that the results can be interpreted in terms of analytical solutions of the nonlinear Schrödinger equation.

General information

Publication status: Published

MoE publication type: A4 Article in a conference publication

Organisations: Department of Physics, Research area: Optics, Research group: Nonlinear Fiber Optics, Institut FEMTO-ST, Institut FEMTO-ST, Université de Franche-Comté, School of Mathematical Sciences, University College Dublin, Institut FEMTO-ST, UMR 6174 CNRS-Université de Franche-Comté

Contributors: Narhi, M., Wetzal, B., Billet, C., Merolla, J., Toenger, S., Sylvestre, T., Morandotti, R., Dias, F., Genty, G., Dudley, J. M.

Publication date: 2016

Host publication information

Title of host publication: Frontiers in Optics 2016

Publisher: Optical Society of America

Article number: FTu3I.4

ISBN (Print): 978-1-943580-19-4

URLs:

<https://www.osapublishing.org/abstract.cfm?uri=fio-2016-FTu3I.4>

Bibliographical note

EXT="Toenger, Shanti"

Research output: Chapter in Book/Report/Conference proceeding > Conference contribution > Scientific > peer-review

Role of Power and Sense Making in the Briefing of a Small Renovation Project

General information

Publication status: Published

MoE publication type: A4 Article in a conference publication

Organisations: Department of Civil Engineering, Research area: Construction Management and Economics, Research group: Digitalization in the real estate and construction sector
Contributors: Naaranoja, M., Kähkönen, K., Keinänen, M.
Pages: 611-621
Publication date: 2016

Host publication information

Title of host publication: Proceedings of the CIB World Building Congress 2016: Volume I - Creating built environments of new opportunities
Publisher: Tampere University of Technology. Department of Civil Engineering
ISBN (Electronic): 978-952-15-3741-7
URLs:
<http://urn.fi/URN:ISBN:978-952-15-3741-7>
Research output: Chapter in Book/Report/Conference proceeding › Conference contribution › Scientific › peer-review

Students' Use of Learning Tools and Tool Types: Solving Self-Study Assignments on an Online Platform

Since 2002, a test titled Mathematics Basic Skills Test (BST) has been organized annually at Tampere University of Technology. In order to pass the Basic Skills Test, a student should be able to complete a set amount out of the 16 assignments within 45 minutes (in fall of 2015, the passing limit was 6 for engineering students, 8 for science and mathematics students). Students who failed the test were directed to the Remedial Instruction (RI). The Remedial Instruction is a set of 71 high school mathematics problems designed to brush up the skills of engineering students.

TUT students have, since 2006, been divided into different learner profile groups. This paper is the summary of studies on the behaviour of these different learner profile groups in the Remedial Instruction regarding their use of time and learning tools when solving their assignments.

Different types of learners indicate that their self-study habits on an online platform are very different. Students that are surface oriented in their studies use a lot of different learning tools, but do not produce good examination results. Skillful students seem to do well even without using a lot of tools. Thus, the current way at TUT, where students work on their remedial mathematics problems on their own could be developed further. Some change is needed, and one suggestion is using testing to ensure that the remedial training has had the desired effect.

General information

Publication status: Published
MoE publication type: A4 Article in a conference publication
Organisations: Department of Mathematics, Research group: MAT Intelligent Information Systems Laboratory, Research group: MAT Positioning
Contributors: Myllykoski, T., Pohjolainen, S., Ali-Löytty, S.
Publication date: 16 Sep 2016

Host publication information

Title of host publication: SEFI 2016 Annual Conference Proceedings : Engineering Education on Top of the World: Industry University Cooperation
Publisher: European Society for Engineering Education SEFI
ISBN (Electronic): 9782873520144
Keywords: math-bridge, mathematics teaching, e-learning
Electronic versions:
Students' Use of Learning Tools 2016
URLs:
http://sefibenvwh.cluster023.hosting.ovh.net/wp-content/uploads/2017/09/myllykoski-students-use-of-learning-tools-and-tool-types-in-solving-self-study-assignments-93_a.pdf
<http://urn.fi/URN:NBN:fi:tuni-202005225575>
Research output: Chapter in Book/Report/Conference proceeding › Conference contribution › Scientific › peer-review

Yliopistomatematiikan sähköisten tehtävien ja matemaattisen ajattelun kehittäminen

General information

Publication status: Published
MoE publication type: A1 Journal article-refereed
Organisations: Mathematics, Research group: Positioning, Research group: Computer Science and Applied Logics
Contributors: Myllykoski, T. J., Mattila, P., Ali-Löytty, S., Kaarakka, T., Viro, E.
Number of pages: 11
Pages: 46-56
Publication date: 2018

Peer-reviewed: Yes

Publication information

Journal: FMSERA Journal

Volume: 2

Issue number: 1

ISSN (Print): 2489-4583

Original language: Finnish

URLs:

<https://journal.fi/fmsera/article/view/69887/38422>

Additional files:

Mylykoski_et_al

Research output: Contribution to journal › Article › Scientific › peer-review

Lessons for data-based value creation

General information

Publication status: Published

MoE publication type: B3 Non-refereed article in conference proceedings

Organisations: Industrial and Information Management, Research group: Business Data Research Group, Research group: Knowledge and Learning Research Center

Contributors: Myllärniemi, J., Pekkola, S., Helander, N.

Number of pages: 10

Pages: 398-407

Publication date: 7 Jun 2017

Host publication information

Title of host publication: 12th International Forum on Knowledge Asset Dynamics, IFKAD 2017

ISBN (Print): 978-88-96687-10-9

Publication series

Name: Proceedings IFKAD

ISSN (Print): 2280-787X

URLs:

<https://www.ifkad.org/previous-editions/ifkad-2017/>

Research output: Chapter in Book/Report/Conference proceeding › Conference contribution › Scientific

Business intelligence approach – a practical tool for competence based curriculum development

General information

Publication status: Published

MoE publication type: A4 Article in a conference publication

Organisations: Industrial and Information Management, Research group: Knowledge and Learning Research Center, Research group: Business Data Research Group, Research group: Cost Management Center, Research group: Center for Research on Operations Projects and Services, Research group: Center for Innovation and Technology Research

Contributors: Myllärniemi, J., Helander, N., Hellsten, P., Mahlamäki, T., Repo, S.

Number of pages: 17

Pages: 6387-6393

Publication date: 2017

Host publication information

Title of host publication: EDULEARN17 Proceedings. 9th International Conference on Education and New Learning Technologies : 3-5 July, 2017, Barcelona, Spain

Publisher: IATED

ISBN (Print): 978-84-697-3777-4

DOIs:

10.21125/edulearn.2017.2451

Research output: Chapter in Book/Report/Conference proceeding › Conference contribution › Scientific › peer-review

Challenges in developing data-based value creation

Understanding data-based value creation helps organizations to enhance its decision-making and to renew their business operations. However, organizations aiming to use modern data analytics face several severe challenges that are not usually so evident or visible beforehand. In this paper we study a Finnish manufacturing company's data empowerment and information and knowledge management practices in order to identify the potential challenges related to modern data-

based value creation within industrial context. The empirical data is consisted of group discussions, relevant data sets acquired from the case company's information systems, and lastly, 12 thematic interviews of the key actors in the company in relation to service development. The study provides valuable insights for managing service development and decision-making and creates understanding on data-based value creation. Achieved understanding provides meaningful knowledge for organizations utilizing or having plans to utilize, for example, data analytic methods in their businesses.

General information

Publication status: Published
MoE publication type: A4 Article in a conference publication
Organisations: Information and Knowledge Management
Contributors: Myllärniemi, J., Helander, N., Pekkola, S.
Number of pages: 7
Pages: 370-376
Publication date: 2019

Host publication information

Title of host publication: IC3K 2019 - Proceedings of the 11th International Joint Conference on Knowledge Discovery, Knowledge Engineering and Knowledge Management
Publisher: SCITEPRESS
Editors: Bernardino, J., Salgado, A., Filipe, J.
ISBN (Electronic): 9789897583827

Publication series

Name: IC3K 2019 - Proceedings of the 11th International Joint Conference on Knowledge Discovery, Knowledge Engineering and Knowledge Management
Volume: 3
ASJC Scopus subject areas: Software
Keywords: Case Study, Data-based Value Creation, Information Management Process, Knowledge Management
Research output: Chapter in Book/Report/Conference proceeding › Conference contribution › Scientific › peer-review

Mining smart meter data - Case Finland

Smart meters collect a lot of data on customer level electricity consumption and this, together with other data sources e.g. environmental information and public open data, provides an excellent basis for data mining. As a part of a recent smart grid project conducted in Finland, several different ways of mining smart meter data were studied. The project brought advances in customer classification and clustering, load profiling, spatial load analytics, behaviour change detection and load forecasting.

General information

Publication status: Published
MoE publication type: A4 Article in a conference publication
Organisations: Department of Electrical Engineering, Research area: Power engineering, Ita-Suomen yliopisto
Contributors: Mutanen, A., Niska, H., Järventausta, P.
Publication date: 2016

Host publication information

Title of host publication: CIRED Workshop 2016
Publisher: Institution of Engineering and Technology
ISBN (Print): 978-1-78561-202-2
ASJC Scopus subject areas: Electrical and Electronic Engineering
Electronic versions:
CIRED2016_0120_final
DOIs:
10.1049/cp.2016.0776
URLs:
<http://urn.fi/URN:NBN:fi:tty-201809252340>
Source: Scopus
Source ID: 85007521225
Research output: Chapter in Book/Report/Conference proceeding › Conference contribution › Scientific › peer-review

Color-distribution similarity by information theoretic divergence for color images

The divergence similarity between two color images is presented based on the Jensen-Shannon divergence to measure the color-distribution similarity. Subjective assessment experiments were developed to obtain mean opinion scores (MOS) of test images. It was found that the divergence similarity and MOS values showed statistically significant correlations.

General information

Publication status: Published

MoE publication type: A4 Article in a conference publication

Organisations: Signal Processing, Research group: Vision, University of Niigata, KLab, Japan, K-JIST, Dongguk University, Seoul

Contributors: Murayama, M., Oguro, D., Kikuchi, H., Huttunen, H., Ho, Y. S., Shin, J.

Publication date: 17 Jan 2017

Host publication information

Title of host publication: 2016 Asia-Pacific Signal and Information Processing Association Annual Summit and Conference, APSIPA 2016

Publisher: IEEE

ISBN (Electronic): 9789881476821

ASJC Scopus subject areas: Artificial Intelligence, Computer Science Applications, Information Systems, Signal Processing

DOIs:

10.1109/APSIPA.2016.7820681

Bibliographical note

JUFID=72850

Source: Scopus

Source ID: 85013813769

Research output: Chapter in Book/Report/Conference proceeding > Conference contribution > Scientific > peer-review

Effects of Social Media on Consumers' Sports Brand Experiences and Loyalty

Brand experience has been noted as a key attribute affecting buying behavior. Although research into the determinants of brand loyalty in sport context has grown in recent years, the focus has predominantly been on brand experience, brand personality and satisfaction, not on social media variables. In addition, we lack empirically verified evidence of the brand experience and brand loyalty relationship mediated through brand identification. In this research the authors address the role of four different social media platforms and how they drive brand loyalty through different types of brand experiences, brand identification and satisfaction to the brand experience. Structural equation modelling is used to test the model based on data from a survey of 815 ice hockey fans of a particular ice hockey team. The results show that brand experience is positively affected by brand engagement in social media and the relationship is strengthened when more different social media platforms are used for following the brand. Brand experience affects brand loyalty mainly indirectly through brand identification and satisfaction constructs.

General information

Publication status: Published

MoE publication type: A3 Part of a book or another research book

Organisations: Industrial and Information Management

Contributors: Munnukka, J., Karjaluoto, H., Mahlamäki, T., Hokkanen, V.

Number of pages: 14

Pages: 1051-1064

Publication date: 2017

Host publication information

Title of host publication: Creating Marketing Magic and Innovative Future Marketing Trends : Proceedings of the 2016 Academy of Marketing Science (AMS) Annual Conference

Publisher: Springer International Publishing

Editor: Stieler, M.

ISBN (Print): 978-3-319-45596-9

Publication series

Name: Developments in Marketing Science: Proceedings of the Academy of Marketing Science

ISSN (Print): 2363-6165

DOIs:

10.1007/978-3-319-45596-9_194

Bibliographical note

jufid=85075

Source: Bibtex

Source ID: urn:531c45abc12e7076a1ecfdb73d8ebcbb

Research output: Chapter in Book/Report/Conference proceeding > Chapter > Scientific > peer-review

Comparative investigation of remote tracking devices for aging care

Tracking devices help the elderly patients to remain safe, secure and traceable in case of getting lost or in an emergency. This research work was conducted to evaluate the appropriateness of few commercially available tracking devices for aging people, by identifying their usefulness, efficiency, limitations and further improvements. Research involved two steps; literature review about two existing tracking devices simply termed device A and device B, followed by a performance and comparative analysis of the aforementioned devices by applying basic statistics on the results obtained from a questionnaire survey. Devices were used by two groups of people: aging (>70 year old) and middle-aged patients (less than 70 years old) who reported their satisfaction levels about the said devices on a scale of one to five. These devices were found helpful in reducing the dependency of the elderly on others and raised their privacy values. However, these were not recommended for severe memory loss or later stage of critical staged dementia patients because learning and memorizing the process of handling these devices can be difficult for them. Overall, the performance of device B outplayed device A while comparing all considered device parameters. The calling feature of device B appeared to be an appealing characteristic with mean satisfaction levels of 4.9 textpm 0.32 and 4.7 textpm 0.48 as reported by the middle-aged and aging groups, respectively. These devices will be helpful in decreasing unnecessary rush at health care centers or lost person reporting in police. In upcoming years, these devices can be developed to remotely monitor the movement of the patient.

General information

Publication status: Published

MoE publication type: A1 Journal article-refereed

Organisations: Faculty of Biomedical Sciences and Engineering

Contributors: Munir, M. W., Shahid, N., Omair, S. M., Munir, G., Ul Haque, M. Z.

Number of pages: 6

Pages: 261-266

Publication date: 1 Sep 2017

Peer-reviewed: Yes

Publication information

Journal: INTERNATIONAL JOURNAL OF INFORMATION TECHNOLOGY

Volume: 9

Issue number: 3

ISSN (Print): 2511-2112

Original language: English

DOIs:

10.1007/s41870-017-0034-7

Source: Bibtex

Source ID: urn:3fb5001f93a07dc83f4e1bd74b4d0420

Research output: Contribution to journal > Article > Scientific > peer-review

Tools, pedagogical models, and best practices for digital storytelling

Sharing photos and short videos with others has become increasingly popular among youth. Although sharing videos is a common activity among youth, schools are not using digital videos for learning. There is a need to study the pedagogical models that could be used in designing classroom activities involving the use of digital videos. In this chapter, digital video storytelling will be discussed in the context of learning. In this chapter, pedagogical models, examples, best practices, and outcomes that illustrate how students become engaged and motivated when using digital storytelling in knowledge creation in cross-cultural settings will be presented. The pedagogical models discussed in this chapter are Global Sharing Pedagogy (GSP) and Video Inquiry Learning (VIL). A review of existing tools and practices for digital video storytelling will be presented. The results show that students can become highly engaged in learning through digital storytelling.

General information

Publication status: Published

MoE publication type: A3 Part of a book or another research book

Organisations: Research group: TUT Game Lab, Pervasive Computing, University of Helsinki

Contributors: Multisilta, J., Niemi, H.

Publication date: Jul 2017

Host publication information

Title of host publication: Encyclopedia of information science and technology

Publisher: IGI Global

Editor: Khosrow-Pour, M.

Edition: 4th

ISBN (Electronic): 9781591405535

Research output: Chapter in Book/Report/Conference proceeding > Chapter > Scientific > peer-review

Обзор параметрических методов позиционирования на основе концепции отпечатка пальца

General information

Publication status: Published

MoE publication type: A2 Review article in a scientific journal

Organisations: Department of Automation Science and Engineering, Research area: Dynamic Systems, Department of Mathematics, Research group: MAT Positioning, Research group: Positioning

Contributors: Müller, P., Raitoharju, M., Ali-Löyty, S., Wirola, L., Piche, R.

Pages: 3-35

Publication date: 2016

Peer-reviewed: Yes

Publication information

Journal: Giroskopiya I Navigatsiya

Volume: 24

Issue number: 1

ISSN (Print): 0869-7035

Original language: Russian

Electronic versions:

Survey_2016_01_01

DOIs:

10.17285/0869-7035.2016.24.1.003-035

URLs:

<http://urn.fi/URN:NBN:fi:tty-201609234547>

Bibliographical note

Translation of "A Survey of Parametric Fingerprint-Positioning Methods", Gyroscopy and Navigation, vol 7, issue 2, 2016, pp. 107-127.

Research output: Contribution to journal > Review Article > Scientific > peer-review

Indoor Localisation using Aroma Fingerprints: A First Sniff

Electronic noses (eNoses) can detect and classify a large variety of smells. They are, in general, much more sensitive than the human nose. Could they identify different indoor locations based on the locations' characteristic combinations of airborne chemicals? We study in this paper how well location can be determined in an indoor environment using only measurements from an ion mobility spectrometry eNose and a K nearest neighbour (KNN) classifier. Based on the results of test with real-world data eNose-based localisation seems to have potential but there are several questions and issues that still have to be addressed. This paper provides therefore a discussion of questions and issues that have to be studied in the future, and proposes potential solutions.

General information

Publication status: Published

MoE publication type: A4 Article in a conference publication

Organisations: Faculty of Biomedical Sciences and Engineering, Mathematics, Research area: Microsystems, Research group: Sensor Technology and Biomeasurements (STB), Automation and Hydraulic Engineering

Contributors: Müller, P., Lekkala, J., Ali-Löyty, S., Piche, R.

Publication date: Oct 2017

Host publication information

Title of host publication: 2017 14th Workshop on Positioning, Navigation and Communications (WPNC)

Place of publication: Bremen, Germany

Publisher: IEEE

ISBN (Electronic): 978-1-5386-3089-1

Electronic versions:

Muller_et_al--Aroma_FPs--accepted_final_manuscript_2

DOIs:

10.1109/WPNC.2017.8250046

URLs:

<http://urn.fi/URN:NBN:fi:tty-201711162161>

Research output: Chapter in Book/Report/Conference proceeding > Conference contribution > Scientific > peer-review

OSS-TMM: Guidelines for improving the testing process of open source software

Open Source Software (OSS) products do not usually follow traditional software engineering development paradigms. Specifically, testing activities in OSS development may be quite different from those carried out in Closed Source Software (CSS) development. As testing and verification require a good deal of resources in OSS, it is necessary to have ways to assess and improve OSS testing processes. This paper provides a set of testing guidelines and issues that OSS

developers can use to decide which testing techniques make most sense for their OSS products. This paper 1) provides a checklist that helps OSS developers identify the most useful testing techniques according to the main characteristics of their products, and 2) outlines a proposal for a method that helps assess the maturity of OSS testing processes. The method is a proposal of a Maturity Model for testing processes (called OSS-TMM). To show its usefulness, the authors apply the method to seven real-life projects. Specifically, the authors apply the method to BusyBox, Apache Httpd, and Eclipse Test and Performance Tools Platform to show how the checklist supports and guides the testing process of these OSS products.

General information

Publication status: Published

MoE publication type: A3 Part of a book or another research book

Organisations: Università degli Studi Dell'Insubria, Former organisation of the author

Contributors: Morasca, S., Taibi, D., Tosi, D.

Number of pages: 20

Pages: 59-78

Publication date: 28 Feb 2013

Host publication information

Title of host publication: Open Source Software Dynamics, Processes, and Applications

Publisher: IGI Global

ISBN (Print): 1466629371, 9781466629370

ISBN (Electronic): 9781466629387

ASJC Scopus subject areas: Computer Science(all)

DOIs:

10.4018/978-1-4666-2937-0.ch004

URLs:

<http://www.scopus.com/inward/record.url?scp=84944882361&partnerID=8YFLogxK> (Link to publication in Scopus)

Source: Scopus

Source ID: 84944882361

Research output: Chapter in Book/Report/Conference proceeding › Chapter › Scientific › peer-review

Analysis of User Exploration Patterns during Scene Cuts in Omnidirectional Videos

Omnidirectional video can be comprised of several scenes joined together. A scene in a video can change within the same semantic content due to switching to a different camera position (e.g., in a multi-camera sport event), referred to as intra-scene transition; in other situations, a scene in a video can change between different semantic content, referred to as inter-scene transition (e.g., a scene cut from a movie). — In this paper an attempt is made to 1) find the user exploration behavior in terms of the exploration range, angular speed and acceleration metrics; 2) Investigate whether there is any exploration behavioral change in the watching patterns between intra- and inter-scene transitions. — We find that there is an increase in the exploratory behavior for all the above-mentioned metrics, and show that there is a delay (reaction time) between the scene transition and the start of the exploration. Finally, we also show that the exploratory behavior is higher in inter-scene transitions compared to intra-scene transitions.

General information

Publication status: Published

MoE publication type: A4 Article in a conference publication

Organisations: Signal Processing, Research group: Multimedia Research Group - MRG, Nokia Technologies

Contributors: Monakhov, D., Naik, D., Curcio, I. D. D., Toukoma, H.

Number of pages: 20

Publication date: Oct 2018

Host publication information

Title of host publication: SMPTE 2018

Publisher: SMPTE

ISBN (Print): 978-1-61482-960-7

Keywords: Omnidirectional video, 360 Degrees video, Exploration range, Scene transitions, Watching patterns, Scene cuts, Viewport dependent streaming

DOIs:

10.5594/M001845

Source: Bibtex

Source ID: urn:c98a31d3ee60d03894118df511ce8868

Research output: Chapter in Book/Report/Conference proceeding › Conference contribution › Scientific › peer-review

Remote monitoring systems as enablers for project-related services

Project-based firms complement their system deliveries with services. Remote monitoring assists these firms in monitoring the use of the installed base of equipment and offering services that meet the customers' needs. This paper analyses how

remote monitoring systems can enable project-related services. A qualitative study was conducted at three engineering firms that provide technology-based solutions and services for a global installed base of equipment. The paper demonstrates different value drivers for using remote monitoring systems, discusses opportunities for utilizing remote data to improve project-related services and enablers, and describes barriers in implementing remote monitoring systems. Ultimately, the research highlights the role of remote monitoring systems in enabling services during the project lifecycle. Project-based firms complement their system deliveries with services. Remote monitoring assists these firms in monitoring the use of the installed base of equipment and offering services that meet the customers' needs. This paper analyses how remote monitoring systems can enable project-related services. A qualitative study was conducted at three engineering firms that provide technology-based solutions and services for a global installed base of equipment. The paper demonstrates different value drivers for using remote monitoring systems, discusses opportunities for utilizing remote data to improve project-related services and enablers, and describes barriers in implementing remote monitoring systems. Ultimately, the research highlights the role of remote monitoring systems in enabling services during the project lifecycle.

General information

Publication status: Published

MoE publication type: D3 Professional conference proceedings

Organisations: Department of Industrial Management, Research group: Center for Research on Operations Projects and Services

Contributors: Momeni, K., Martinsuo, M.

Number of pages: 23

Publication date: Jun 2015

Host publication information

Title of host publication: IRNOP 2015 : International Research Network on Organizing by Projects Conference

Publisher: IRNOP

Keywords: Project business, Services , Remote monitoring systems

URLs:

<https://www.bartlett.ucl.ac.uk/cpm/irnop-2015>

Research output: Chapter in Book/Report/Conference proceeding › Conference contribution › Professional

Moving toward integrated solutions in project-based firms: Changes in sales practices

Effective solution sales is one prerequisite for successful solution business in project-based firms. Little is known about how sales practices should be developed, particularly at the operational level. The purpose of this study is to identify changes in sales practices when firms move towards integrated solutions. A qualitative case study was conducted in two project-based manufacturing firms, using data from interviews with sales and service managers. Five main change categories were identified including changes in the organizational structure, complexity of offering, customer-orientation, sales network and sales routines. The study shows that sales practices should change at all stages of project marketing from detecting the potential projects to finalizing the contract. The study proposes a more extended role for sales and service personnel during project marketing and the project life cycle. The identified changes help project-based firms to develop their sales models and to promote their solution business.

General information

Publication status: Published

MoE publication type: A4 Article in a conference publication

Organisations: Industrial and Information Management, Research group: Center for Research on Operations Projects and Services

Contributors: Momeni, K., Martinsuo, M.

Number of pages: 30

Publication date: 21 Jun 2018

Host publication information

Title of host publication: Proceedings of EURAM18 European Academy of Management conference 2018

Publisher: European Academy of Management, EURAM

ISBN (Electronic): 978-2-9602195-0-0

Publication series

Name: EURAM conference

ISSN (Print): 2466-7498

Keywords: Project business, solution selling, project sales, project-based firm

Research output: Chapter in Book/Report/Conference proceeding › Conference contribution › Scientific › peer-review

Identification of fundamental requirements for ideal metamodeling framework in additive manufacturing

General information

Publication status: Published

MoE publication type: D3 Professional conference proceedings
Organisations: Mechanical Engineering and Industrial Systems, Research area: Manufacturing and Automation
Contributors: Mokhtarian, H., Coatanea, E., Paris, H., Vihinen, J.
Number of pages: 3
Pages: 29-31
Publication date: 2017

Host publication information

Title of host publication: Proceedings of the 2nd Annual SMACC Research Seminar 2017
Editors: Aaltonen, J., Virkkunen, R., Koskinen, K. T., Kuivanen, R.
ISBN (Print): 978-952-15-4040-0
Electronic versions:

Identification of fundamental requirement for ideal metamodeling framework in additive manufacturing_abstract
URLs:

<http://urn.fi/URN:NBN:fi:tty-201712222491>

<http://urn.fi/URN:NBN:fi:tty-201902051217>

Research output: Chapter in Book/Report/Conference proceeding › Conference contribution › Professional

Impact analysis of graph-based requirements models using PageRank algorithm

Managing requirements changes of complex systems and the potential impact of such changes represents a big issue for companies. Currently, commercial modelers propose tools for analyzing the direct impact of requirements changes on system design or code but the analysis of requirement change on other requirements remains seldom studied. This paper proposes an approach for the impact analysis of changes in requirements combined with a ranking of importance of requirements in graph based requirements network. Warshall algorithm is used in this paper for performing the impact analysis. Along with this approach, PageRank algorithm is used for ranking requirements according to their importance. Requirements hierarchy and their textual description of importance are considered as input for calculating their impact as well as their importance within the network of requirements. This combination of Warshall and PageRank algorithms provide significant results for helping designers in decision-making process of modifying requirements for future design versions.

General information

Publication status: Published
MoE publication type: A3 Part of a book or another research book
Organisations: Intelligent dexterity for secure networked infrastructure and applications (IDSNIA), Aalto Univ, Aalto University, Aalto Univ Finland, Dept Engn Design & Prod, Sch Engn
Contributors: Mokammel, F., Coatanea, E., Bakhouya, M., Christophe, F., Nonsiri, S.
Number of pages: 6
Pages: 731-736
Publication date: Apr 2013

Host publication information

Title of host publication: 2013 IEEE International Systems Conference (SysCon)
Publisher: IEEE
ISBN (Print): 978-1-4673-3108-1

Publication series

Name: 2013 IEEE International Systems Conference (SysCon)
Keywords: Complex system, Graph theory PageRank algorithm, Impact changes analysis, PageRank algorithm, Requirements management, Warshall algorithm, complex systems, decision making, decision-making process, design engineering, formal specification, graph based requirements network, graph theory, graph-based requirements models, impact analysis, importance textual description, large-scale systems, requirement change management, requirements hierarchy, system design

DOIs:

10.1109/SysCon.2013.6549964

URLs:

<http://ieeexplore.ieee.org/lpdocs/epic03/wrapper.htm?arnumber=6549964>

<http://www.mendeley.com/research/impact-analysis-graphbased-requirements-models-using-pagerank-algorithm>

Source: Mendeley

Source ID: bd838215-a552-3824-ba9b-f763eec0af4f

Research output: Chapter in Book/Report/Conference proceeding › Chapter › Scientific › peer-review

Wood compression model for radial compression of earlywood and latewood

General information

Publication status: Published

MoE publication type: B3 Non-refereed article in conference proceedings

Organisations: Department of Mechanical Engineering and Industrial Systems, Research group: Kokeellinen virtaustekniikka, Research area: Applied Mechanics, Department of Automation Science and Engineering, Research area: Dynamic Systems, Research area: Measurement Technology and Process Control

Contributors: Moilanen, C., Björkqvist, T., Saarenrinne, P.

Number of pages: 6

Pages: 261-266

Publication date: 2015

Host publication information

Title of host publication: Proceedings of the XII Finnish Mechanics Days

Publisher: Rakenteiden Mekaniikan Seura ry

ISBN (Print): 978-952-93-5608-9

ISBN (Electronic): 978-952-93-5609-6

URLs:

http://rmseura.tkk.fi/smp_proceedings/SMP12_Proceedings.pdf

Bibliographical note

ORG=mei,0.5

ORG=ase,0.5

Research output: Chapter in Book/Report/Conference proceeding › Conference contribution › Scientific

Modelling and Simulation of Radial Spruce Compression to Optimize Energy Efficiency in Mechanical Pulping

General information

Publication status: Published

MoE publication type: A4 Article in a conference publication

Organisations: Department of Mechanical Engineering and Industrial Systems, Department of Automation Science and Engineering, Research area: Dynamic Systems, Research area: Measurement Technology and Process Control

Contributors: Moilanen, C., Björkqvist, T., Ovaska, M., Koivisto, J., Miksic, A., Engberg, B., Salminen, L., Saarenrinne, P., Alava, M.

Number of pages: 18

Pages: 53-70

Publication date: 26 Sep 2016

Host publication information

Title of host publication: 2016 International Mechanical Pulping (IMPC) Conference Proceedings, Monday, September 26 - Wednesday, September 28, Jacksonville, Florida, USA

Place of publication: USA

Publisher: TAPPI

Article number: 1.3

ISBN (Print): 978-1-59510-250-7

ISBN (Electronic): 978-1-59510-250-7

Electronic versions:

Modelling and simulation of radial spruce compression

URLs:

<http://urn.fi/URN:NBN:fi:tyy-201708281835>

Research output: Chapter in Book/Report/Conference proceeding › Conference contribution › Scientific › peer-review

Tuning extrinsic noise effects on a small genetic circuit

Measurements at the single cell level showed that monoclonal Escherichia coli cells differ widely in the numbers of components affecting gene expression dynamics. Using a stochastic model of a 2-genes symmetric toggle switch with realistic multi-step promoter initiation kinetics and empirically validated parameter values, we investigate the role of transcription initiation kinetics on the degree with which cell-to-cell variability in cellular components generates cell-to-cell diversity in switch dynamics. We find that while the mean switching frequency is determined by the promoter kinetics, the cell to cell diversity of this frequency depends both on promoter kinetics and diversity in RNA polymerase numbers. At a microscale level, the main regulator of the cell to cell variability in protein numbers (of both genes in ON and OFF states) is the promoters kinetics, not the diversity in RNA polymerase numbers. We conclude that the promoters kinetics is a critical regulator of the toggle switch dynamics and that can be used as a regulatable filter of extrinsic noise.

General information

Publication status: Published

MoE publication type: A4 Article in a conference publication

Organisations: Faculty of Biomedical Sciences and Engineering, Research group: Laboratory of Biosystem Dynamics-LBD
Contributors: Mohamed Bahrudeen, M., S. Ribeiro, A.
Publication date: 4 Sep 2017

Host publication information

Title of host publication: Proceedings of ECAL 2017 : 14th European Conference on Artificial Life

Publisher: Massachusetts Institute of Technology

ISBN (Electronic): 978-0-262-34633-7

Electronic versions:

Tuning extrinsic noise effects on small genetic circuit

DOIs:

10.7551/ecal_a_075

URLs:

<http://urn.fi/URN:NBN:fi:tty-201711232256>

Research output: Chapter in Book/Report/Conference proceeding > Conference contribution > Scientific > peer-review

Profile extraction and deep autoencoder feature extraction for elevator fault detection

In this paper, we propose a new algorithm for data extraction from time series signal data, and furthermore automatic calculation of highly informative deep features to be used in fault detection. In data extraction elevator start and stop events are extracted from sensor data, and a generic deep autoencoder model is also developed for automated feature extraction from the extracted profiles. After this, extracted deep features are classified with random forest algorithm for fault detection. Sensor data are labelled as healthy and faulty based on the maintenance actions recorded. The remaining healthy data are used for validation of the model to prove its efficacy in terms of avoiding false positives. We have achieved 100% accuracy in fault detection along with avoiding false positives based on new extracted deep features, which outperforms results using existing features. Existing features are also classified with random forest to compare results. Our developed algorithm provides better results due to the new deep features extracted from the dataset compared to existing features. This research will help various predictive maintenance systems to detect false alarms, which will in turn reduce unnecessary visits of service technicians to installation sites.

General information

Publication status: Published

MoE publication type: A4 Article in a conference publication

Organisations: Automation Technology and Mechanical Engineering, Research group: Innovative Hydraulic Automation

Contributors: Mishra, K., Krogerus, T., Huhtala, K.

Number of pages: 8

Pages: 313-320

Publication date: 28 Jul 2019

Host publication information

Title of host publication: 16th International Conference on Signal Processing and Multimedia Applications : SIGMAP 2019, 26-28 July, 2019, Prague, Czech Republic

Volume: 16

Place of publication: Prague, Czech Republic

Publisher: SCITEPRESS

Editor: Callegari, C.

Edition: 2019

ISBN (Print): 978-989-758-378-0

ISBN (Electronic): 978-989-758-378-0

ASJC Scopus subject areas: Computer Science(all)

DOIs:

10.5220/0007802003130320

URLs:

<https://www.scitepress.org/ProceedingsDetails.aspx?ID=0N9+1/B4ih0=&t=1>

<http://www.wikicfp.com/cfp/servlet/event.showcfp?eventid=82467©ownerid=45217>

<http://www.sigmap.icete.org/?y=2019>

Research output: Chapter in Book/Report/Conference proceeding > Conference contribution > Scientific > peer-review

Comprehensive survey of similarity measures for ranked based location fingerprinting algorithm

Ranked Based Fingerprinting uses only ordering indices instead of actual Wi-Fi RSS values in order to make the algorithm insensitive to devices. A key component of the RBF algorithm is a similarity measure which is used to compare and find the closest ranked fingerprints. Previous papers study a few similarity measures; here we study 49 similarity measures in a test with a benchmark with publicly available indoor positioning database. For different similarity measures the positioning accuracy varies from 15.80 m to 55.22 m. The top 3 similarity measures are Lorentzian, Hamming and Jaccard. Hamming and Jaccard similarity measures have been studied in other papers while Lorentzian had not been

studied with that kind of problems.

General information

Publication status: Published

MoE publication type: A4 Article in a conference publication

Organisations: Automation and Hydraulic Engineering, Signal Processing, Research group: Positioning

Contributors: Minaev, G., Visa, A., Piche, R.

Number of pages: 4

Publication date: 2017

Host publication information

Title of host publication: Indoor Positioning and Indoor Navigation (IPIN), 2017 International Conference on

Publisher: IEEE

ISBN (Electronic): 978-1-5090-6299-7

Electronic versions:

MinaevCamera

DOIs:

10.1109/IPIN.2017.8115922

URLs:

<http://urn.fi/URN:NBN:fi:tty-201711292281>

Bibliographical note

JUF0ID=72210

Research output: Chapter in Book/Report/Conference proceeding › Conference contribution › Scientific › peer-review

Automated Tonal Balance Enhancement for Audio Mastering Applications

Modern audio mastering procedures are involved with the selective enhancement or attenuation of specific frequency bands. The main reason is the tonal enhancement of the original / unmastered audio material. The aforementioned process is mostly based on the musical information and the mode of the audio material. This information can be retrieved from a listening procedure of the original stimuli, or the correspondent musical key notes. The current work presents an adaptive and automated equalization system that performs the aforementioned mastering procedure, based on a novel method of fundamental frequency tracking. In addition to this, the overall system is being evaluated with objective PEAQ analysis and subjective listening tests in real mastering audio conditions.

General information

Publication status: Published

MoE publication type: B3 Non-refereed article in conference proceedings

Organisations: Signal Processing Research Community (SPRC), Technological Educational Institute of Ionian Islands, Ionian University

Contributors: Mimilakis, S. - I., Drossos, K., Floros, A., Katerelos, D.

Number of pages: 7

Publication date: May 2013

Host publication information

Title of host publication: Audio Engineering Society Convention 134

Publisher: AES Audio Engineering Society

URLs:

<http://www.aes.org/e-lib/browse.cfm?elib=16737>

Research output: Chapter in Book/Report/Conference proceeding › Conference contribution › Scientific

NB-IoT for D2D-enhanced content uploading with social trustworthiness in 5G systems

Future fifth-generation (5G) cellular systems are set to give a strong boost to the large-scale deployment of Internet of things (IoT). In the view of a future converged 5G-IoT infrastructure, cellular IoT solutions such as narrowband IoT (NB-IoT) and device-to-device (D2D) communications are key technologies for supporting IoT scenarios and applications. However, some open issues still need careful investigation. An example is the risk of threats to privacy and security when IoT mobile services rely on D2D communications. To guarantee efficient and secure connections to IoT services involving exchange of sensitive data, reputation-based mechanisms to identify and avoid malicious devices are fast gaining ground. In order to tackle the presence of malicious nodes in the network, this paper introduces reliability and reputation notions to model the level of trust among devices engaged in an opportunistic hop-by-hop D2D-based content uploading scheme. To this end, social awareness of devices is considered as a means to enhance the identification of trustworthy nodes. A performance evaluation study shows that the negative effects due to malicious nodes can be drastically reduced by adopting the proposed solution. The performance metrics that proved to benefit from the proposed solution are data loss, energy consumption, and content uploading time.

General information

Publication status: Published

MoE publication type: A1 Journal article-refereed

Organisations: Electronics and Communications Engineering, Università degli Studi di Reggio Calabria, Peoples' Friendship University of Russia

Contributors: Militano, L., Orsino, A., Araniti, G., Iera, A.

Publication date: 8 Jul 2017

Peer-reviewed: Yes

Publication information

Journal: Future Internet

Volume: 9

Issue number: 3

Article number: 31

ISSN (Print): 1999-5903

Ratings:

Scopus rating (2017): CiteScore 1 SJR 0.219 SNIP 0.684

Original language: English

ASJC Scopus subject areas: Computer Networks and Communications

Keywords: 5G systems, D2D communications, Internet of things, NB-IoT, Trustworthiness

Electronic versions:

NB-IoT for D2D-Enhanced Content Uploading with Social Trustworthiness in 5G Systems

DOIs:

10.3390/fi9030031

URLs:

<http://urn.fi/URN:NBN:fi:tty-201708041652>

Bibliographical note

INT=elt,"Orsino, Antonino"

Source: Scopus

Source ID: 85022204929

Research output: Contribution to journal > Article > Scientific > peer-review

The role of base substrate on barrier and convertability properties of Water based barrier coated (WBBC) paper and paperboard

Water based barrier coatings (WBBC) have been studied intensively during the past years in order to replace the traditional barrier materials such as polyethylene (PE), fluorochemicals and waxes. One of the largest challenges for these WBBC's has been a high risk for pinholes originating from the base substrate leading into discontinuity in the dispersion layer and poorer barrier properties. By increasing the coat weight, the amount of pinholes can be reduced but this may lead into economical and quality issues, thus optimization is needed. In this study, the role of base material in dispersion coverage and resulting barrier properties was investigated by characterizing different base materials. The barrier properties analyzed were grease and oil resistance and water and water vapour barrier, also convertability properties were examined. The results showed that base substrate plays a key role when WBBC's are used. If the structure of the base paper is very open or very rough, gaining good barrier properties is difficult and the amount of pinholes increases which affects most significantly grease resistance. With very porous and rough base material best possible barrier properties at certain total coat weight were reached by double coating and by using pigments with high aspect ratio.

General information

Publication status: Published

MoE publication type: A4 Article in a conference publication

Organisations: Materials Science, Research group: Paper Converting and Packaging, CH-Polymers Oy

Contributors: Miettinen, P., Ahokas, M., Engström, T., Heinonen, J., Auvinen, S.

Number of pages: 13

Pages: 220-232

Publication date: 2017

Host publication information

Title of host publication: Paper Conference and Trade Show, PaperCon 2017 : Renew, Rethink, Redefine the Future, Minneapolis, Minnesota, USA, 23-26 April 2017

Volume: 1

Publisher: TAPPI Press

ISBN (Electronic): 9781510847286

ASJC Scopus subject areas: Forestry, Plant Science, Industrial and Manufacturing Engineering

URLs:

<http://toc.proceedings.com/36006webtoc.pdf>

Source: Scopus

Source ID: 85041534325

Research output: Chapter in Book/Report/Conference proceeding › Conference contribution › Scientific › peer-review

Being a start-upper in Italy: Motivations, obstacles and success factors

General information

Publication status: Published

MoE publication type: A4 Article in a conference publication

Organisations: Pori Department, Research group: Business Ecosystems, Networks and Innovations, Department of Information Management and Logistics, Research group: Novi, Managing digital industrial transformation (mDIT), University of Calabria

Contributors: Michele Felicetti, A., Ammirato, S., Raso, C., Aramo-Immonen, H., Jussila, J.

Number of pages: 14

Pages: 1370-1383

Publication date: 15 Jun 2016

Host publication information

Title of host publication: Proceedings of the 11th forum on knowledge asset dynamics : Towards a new architecture of knowledge: big data, culture and creativity

Place of publication: Dresden

Article number: 182

ISBN (Electronic): 978-88-96687-09-3

Keywords: Start-up

URLs:

<http://www.knowledgeasset.org/>

Research output: Chapter in Book/Report/Conference proceeding › Conference contribution › Scientific › peer-review

Charlie and the CryptoFactory: Towards Secure and Trusted Manufacturing Environments

The modernization that stems from Industry 4.0 started populating the manufacturing sector with networked devices, complex sensors, and a significant proportion of physical actuation components. However, new capabilities in networked cyber-physical systems demand more complex infrastructure and algorithms and often lead to new security flaws and operational risks that increase the attack surface area exponentially. The interconnected nature of Industry 4.0-driven operations and the pace of digital transformation mean that cyberattacks can have far more extensive effects than ever before. Based on that, the core ideas of this paper are driven by the observation that cybersecurity is one of the key enablers of Industry 4.0. Having this in mind, we propose CryptoFactory - a forward-looking design of a layered-based architecture that can be used as a starting point for building secure and privacy-preserving smart factories. CryptoFactory aims to change the security outlook in smart manufacturing by discussing a set of fundamental requirements and functionality that modern factories should support in order to be resistant to both internal and external attacks. To this end, CryptoFactory first focuses on how to build trust relationships between the hardware devices in the factory. Then, we look on how to use several cryptographic approaches to allow IoT devices to securely collect, store and share their data while we also touch upon the emerging topic of secure and privacy-preserving communication and collaboration between manufacturing environments and value chains. Finally, we look into the problem of how to perform privacy-preserving analytics by leveraging Trusted Execution Environments and the promising concept of Functional Encryption.

General information

Publication status: Published

MoE publication type: A4 Article in a conference publication

Organisations: Computing Sciences, University of Westminster

Contributors: Michalakis, A., Kiss, T.

Number of pages: 6

Pages: 141-146

Publication date: 2020

Host publication information

Title of host publication: 20th IEEE Mediterranean Electrotechnical Conference, MELECON 2020 : Proceedings

Publisher: IEEE

ISBN (Print): 978-1-7281-5201-1

ISBN (Electronic): 9781728152004

Publication series

Name: IEEE Mediterranean Electrotechnical Conference

Publisher: Institute of Electrical and Electronics Engineers

ISSN (Print): 2158-8473

ISSN (Electronic): 2158-8481

ASJC Scopus subject areas: Control and Systems Engineering, Electrical and Electronic Engineering, Control and Optimization, Information Systems and Management, Energy Engineering and Power Technology
Keywords: Industry 4.0, Privacy, Security, Smart Factories

DOIs:

10.1109/MELECON48756.2020.9140712

Bibliographical note

JUF0ID=72875

Source: Scopus

Source ID: 85089274465

Research output: Chapter in Book/Report/Conference proceeding › Conference contribution › Scientific › peer-review

Photometric stereo system for detailed analysis of material surfaces

This paper describes a photometric stereo system for the measurement of surface topography. The system provides versatile experimental possibilities due to movable multicolor LEDs, movable camera, and a traveling (xy-)table for the sample. We introduce our measurement setup and present analysis of its performance. Our topography maps correlate well with the contact profilometry reference map, and reveal different details of the surfaces depending on the illumination wavelength and pixel size.

General information

Publication status: Published

MoE publication type: A4 Article in a conference publication

Organisations: Department of Automation Science and Engineering, Research area: Dynamic Systems, Research area: Measurement Technology and Process Control, Research area: Microsystems

Contributors: Mettänen, M., Melin, J., Ihalainen, H.

Number of pages: 6

Publication date: 2015

Host publication information

Title of host publication: IMEKO XXI World Congress, Measurement in Research and Industry, Proceedings, August 30 - September 4, 2015, Prague, Czech Republic

ISBN (Print): 978-80-01-05793-3

Electronic versions:

Mettanen_IMEKO_2015_preprint

URLs:

<http://urn.fi/URN:NBN:fi:tty-201705121384>

<https://www.imeko.org/publications/wc-2015/IMEKO-WC-2015-TC2-022.pdf>

Research output: Chapter in Book/Report/Conference proceeding › Conference contribution › Scientific › peer-review

Vaihdetta isommalle: Pyöräilyn potentiaalin hyödyntäminen

General information

Publication status: Published

MoE publication type: D4 Published development or research report or study

Organisations: Department of Information Management and Logistics

Contributors: Metsäpuro, P., Vaismaa, K., Karhula, K., Luukkonen, T., Mäntynen, J., Rantala, T.

Number of pages: 145

Publication date: 2014

Publication information

Place of publication: Tampere

Publisher: Tampereen teknillinen yliopisto. Liikenteen tutkimuskeskus Verne.

ISBN (Print): 978-952-15-3243-6

ISBN (Electronic): 978-952-15-3244-3

Original language: Finnish

URLs:

http://www.tut.fi/verne/wp-content/uploads/Vaihdetta_isommalle_-_Pyorailyn_potentiaalin_hyodyntaminen.pdf

Research output: Book/Report › Commissioned report › Professional

Generalized multivariable small-signal model of three-phase grid-connected inverter in DQ-domain

General information

Publication status: Published

MoE publication type: A4 Article in a conference publication
Organisations: Department of Electrical Engineering, Research area: Power engineering, Smart Energy Systems (SES)
Contributors: Messo, T., Aapro, A., Suntio, T.
Publication date: 2015

Host publication information

Title of host publication: IEEE 16th Workshop on Control and Modeling for Power Electronics (COMPEL)
Publisher: IEEE
ISBN (Print): 978-1-4673-6847-6
DOIs:

10.1109/COMPEL.2015.7236460

Research output: Chapter in Book/Report/Conference proceeding › Conference contribution › Scientific › peer-review

Real-Time Impedance-Based Stability Assessment of Grid Converter Interactions

General information

Publication status: Published

MoE publication type: A4 Article in a conference publication

Organisations: Automation and Hydraulic Engineering, Research area: Dynamic Systems, Research area: Measurement Technology and Process Control, Research area: Measurement Technology and Process Control, Electrical Energy Engineering, Aalborg University

Contributors: Messo, T., Luhtala, R., Roinila, T., Yang, D., Wang, X., Blaabjerg, F.

Number of pages: 8

Publication date: 2017

Host publication information

Title of host publication: IEEE Workshop on Control and Modeling for Power Electronics

ISBN (Electronic): 978-1-5090-5326-1

Electronic versions:

COMPEL_2017_final_version

DOIs:

10.1109/COMPEL.2017.8013384

URLs:

<http://urn.fi/URN:NBN:fi:tuni-202003032474>

Research output: Chapter in Book/Report/Conference proceeding › Conference contribution › Scientific › peer-review

Accurate impedance model of grid-connected inverter for small-signal stability assessment in high-impedance grid

General information

Publication status: Published

MoE publication type: A1 Journal article-refereed

Organisations: Electrical Engineering, Research area: Power engineering, Research group: Power electronics, Automation Technology and Mechanical Engineering, Research group: Automation and Systems Theory

Contributors: Messo, T., Roinila, T., Aapro, A., Luhtala, R.

Number of pages: 9

Pages: 488-496

Publication date: 2019

Peer-reviewed: Yes

Publication information

Journal: IEEJ JOURNAL OF INDUSTRY APPLICATIONS

Volume: 8

Issue number: 3

ISSN (Print): 2187-1094

Ratings:

Scopus rating (2019): CiteScore 3.1 SJR 0.43 SNIP 1.076

Original language: English

DOIs:

10.1541/ieejjia.8.488

Research output: Contribution to journal › Article › Scientific › peer-review

User-driven development with scientific applied research - RFID-controlled physiogame case study

The role of technology in health care is growing. One major challenge caused by the rapid evolvement of technologies, is the implementation and application of the latest technology advances into actual care practises. In this paper, we present

how combination of scientific research and multidisciplinary applied research activities can boost the development of need-based solutions to real-life challenges. The paper concentrates on the ideation phase of the development process. This paper presents a case study, in which a body movement-controlled physiotherapy game is developed in close collaboration of technology developers and physiotherapy professionals. Textile-integrated passive UHF RFID tags are used as game controllers to enable identification of certain movements. The results indicate the early stage prototype used in the study to enhance ideation and identification of application areas for the technology. In addition, the joint development process, in which the clients (rehabilitation professionals) are involved from the beginning, is also found to create commitment to continue collaboration, by helping the technology developers to meet the needs and to take user group-specific requirements into account in the development. This kind of process serves multidisciplinary projects well.

General information

Publication status: Published

MoE publication type: A4 Article in a conference publication

Organisations: BioMediTech, Research group: Wireless Identification and Sensing Systems Research Group

Contributors: Merilampi, S., Ihanakangas, V., Virkki, J.

Number of pages: 4

Pages: 167-170

Publication date: 1 Sep 2019

Host publication information

Title of host publication: 2019 IEEE International Conference on RFID Technology and Applications (RFID-TA)

Publisher: IEEE

ISBN (Print): 978-1-7281-0590-1

ISBN (Electronic): 978-1-7281-0589-5

Keywords: passive UHF RFID technology, research collaboration, self-managed rehabilitation, serious games, wearable electronics, women in RFID

DOIs:

10.1109/RFID-TA.2019.8892150

Bibliographical note

EXT="Merilampi, Sari"

Source: Bibtex

Source ID: 8892150

Research output: Chapter in Book/Report/Conference proceeding > Conference contribution > Scientific > peer-review

Inter-organizational knowledge sharing barriers within an sme network: a case study

SMEs often seek to supplement their scarce resources and limited knowledge base by networking. This calls for efficient knowledge sharing within the network, which is, however, often complicated by the existence of knowledge barriers. This paper seeks answers to the question "what are the knowledge barriers that hinder inter-organizational knowledge sharing in SME networks?" The issue is empirically examined through a case study that was carried out by the participative observation research method. The case is a network consisting of SMEs whose joint objective was to increase the companies' capabilities in digitalization by sharing knowledge within the network. The paper concludes that companies' ability in sharing knowledge within a network vary greatly due to, e.g. varying needs concerning the level of knowledge pursued from the network, imbalanced knowledge base, and cognitive proximity/shared interests of the network companies. Firstly, some companies' goals may be acquiring highly specialized knowledge from the network, while others are potentially interested in harnessing rather general level knowledge. Secondly, those companies that have a broader/deeper knowledge base than others may protect their knowledge more carefully. Thirdly, the lack of understanding the value of knowledge may also lead to unwillingness of sharing knowledge with others, or, vice versa, not being able to utilize the valuable knowledge shared by others. Based on the empirical findings we can conclude that companies that share the same information needs and do not settle for merely sharing knowledge with each other go beyond the typical knowledge sharing and proceed to develop the issues of mutual interest via deeper dialogue.

General information

Publication status: Published

MoE publication type: A4 Article in a conference publication

Organisations: Industrial and Information Management, Research group: Knowledge and Learning Research Center, Häme University of Applied Sciences

Contributors: Meriläinen, K., Vuori, V., Helander, N.

Number of pages: 8

Pages: 690-697

Publication date: 2017

Host publication information

Title of host publication: Proceedings of the 18th European Conference on Knowledge Management : Barcelona, Spain, 7-8 September 2017

Place of publication: Reading, UK

Publisher: Academic Conferences and Publishing International Limited

ISBN (Print): 978-1-911218-48-7

ISBN (Electronic): 978-1-911218-49-4

URLs:

<http://www.academic-conferences.org/conferences/eckm/future-past-conferences/>

Research output: Chapter in Book/Report/Conference proceeding > Conference contribution > Scientific > peer-review

1.55- μm wavelength wafer-fused OP-VECSELs in flip-chip configuration

Optically-pumped vertical external cavity surface emitting lasers (VECSELs) based on flip-chip gain mirrors emitting at the 1.55- μm wavelength range are reported. The gain mirrors employ wafer-fused InAlGaAs/InP quantum well heterostructures and GaAs/AlAs distributed Bragg reflectors, which were incorporated in a linear and a V-cavity configurations. A maximum output power of 3.65 W was achieved for a heatsink temperature of 11°C and employing a 2.2% output coupler. The laser exhibited circular beam profiles for the full emission power range. The demonstration represents more than 10-fold increase of the output power compared to state-of-the-art flip-chip VECSELs previously demonstrated at the 1.55- μm wavelength range, and opens a new perspective for developing practical VECSEL-based laser system for applications such as LIDAR, spectroscopy, communications and distributed sensing.

General information

Publication status: Published

MoE publication type: A4 Article in a conference publication

Organisations: Physics, CRPP, LakeDiamond SA

Contributors: Mereuta, A., Nechay, K., Caliman, A., Suruceanu, G., Gallo, P., Guina, M., Kapon, E.

Publication date: 2019

Host publication information

Title of host publication: Vertical External Cavity Surface Emitting Lasers (VECSELs) IX

Publisher: SPIE, IEEE

Editor: Keller, U.

Article number: 1090103

ISBN (Electronic): 9781510624443

Publication series

Name: Proceedings of SPIE - The International Society for Optical Engineering

Volume: 10901

ISSN (Print): 0277-786X

ISSN (Electronic): 1996-756X

ASJC Scopus subject areas: Electronic, Optical and Magnetic Materials, Condensed Matter Physics, Computer Science

Applications, Applied Mathematics, Electrical and Electronic Engineering

Keywords: Optically-pumped VECSELs, Semiconductor lasers, Wafer-Fusion

DOIs:

10.1117/12.2508342

Bibliographical note

jufoid=71479

Source: Scopus

Source ID: 85066636665

Research output: Chapter in Book/Report/Conference proceeding > Conference contribution > Scientific > peer-review

Evaluating the electrode measurement sensitivity of subdermal electroencephalography electrodes

General information

Publication status: Published

MoE publication type: A4 Article in a conference publication

Organisations: Department of Electronics and Communications Engineering, Research group: Wireless Identification and Sensing Systems Research Group

Contributors: Mendes, M. R., Subramaniam, N. P., Wendel-Mitoraj, K.

Number of pages: 4

Pages: 1092-1095

Publication date: 1 Jul 2015

Host publication information

Title of host publication: International IEEE/EMBS Conference on Neural Engineering, NER

Volume: 2015-July

Publisher: IEEE COMPUTER SOCIETY PRESS
ISBN (Print): 9781467363891
ASJC Scopus subject areas: Artificial Intelligence, Mechanical Engineering
DOIs:
10.1109/NER.2015.7146818

Bibliographical note

AUX=elt,"Mendes, Miguel Rodrigues"
Source: Scopus
Source ID: 84940367793

Research output: Chapter in Book/Report/Conference proceeding › Conference contribution › Scientific › peer-review

Novel Method For Online Stereo Self-Calibration

General information

Publication status: Published
MoE publication type: A4 Article in a conference publication
Organisations: Department of Automation Science and Engineering, Research area: Dynamic Systems, Research area: Measurement Technology and Process Control
Contributors: Melin, J., Ritala, R.
Publication date: 2015

Host publication information

Title of host publication: XXI IMEKO World Congress "Measurements In Research and Industry"
ISBN (Print): 978-80-01-05793-3
Research output: Chapter in Book/Report/Conference proceeding › Conference contribution › Scientific › peer-review

Economical utilization of high strength steel: Welded slim floor box beams

General information

Publication status: Published
MoE publication type: A4 Article in a conference publication
Organisations: Department of Civil Engineering, Research group: Metal and Light-wight structures
Contributors: Mela, K., Heinisuo, M.
Publication date: 2014

Host publication information

Title of host publication: Eurosteel 2014 7th European conference on steel and composite structures
ISBN (Print): 978-92-9147-121-8
Research output: Chapter in Book/Report/Conference proceeding › Conference contribution › Scientific › peer-review

Suunnittelutyökalu putkiristikoiden mitoitukseen ja optimointiin

General information

Publication status: Published
MoE publication type: A4 Article in a conference publication
Organisations: Department of Civil Engineering, Research group: Metal and Light-wight structures, SUBNIC Oy, Ruukki Construction Oy
Contributors: Mela, K., Alinikula, M., Tiainen, T., Heinisuo, M., Sorsa, I.
Number of pages: 6
Pages: 136-141
Publication date: 2015

Host publication information

Title of host publication: Proceedings of the XII Finnish Mechanics Days. Suomen XII Mekaniikkapäivien esitelmät
Publisher: Rakenteiden Mekaniikan Seura ry
ISBN (Print): 978-952-93-5608-9
ISBN (Electronic): 978-952-93-5609-6
Research output: Chapter in Book/Report/Conference proceeding › Conference contribution › Scientific › peer-review

Cost optimization of end-plate connections

Minimum cost beam-to-column end-plate joints are determined in this study. The goal is to achieve partial automation of the time-consuming joint design. The premise is that the joint is to be designed for target bending moment and shear force resistance and initial rotational stiffness. It is assumed that the designer has prescribed the beam and column profiles and

the initial rotational stiffness a priori. The joint design task is formulated as a mathematical optimization problem, where the total cost of the joint is minimized such that the resistance and stiffness requirements are satisfied. The component method described in the standard EN 1993-1-8 is used for evaluating the bending resistance and initial rotational stiffness of the joint. The end-plate dimensions and bolt positions are taken as the design variables of the optimization problem. The number of bolt rows, bolt sizes and bolt strength are incorporated as parameters with fixed values during optimization. The applicability and performance of the proposed approach for joint cost minimization is demonstrated on case studies, with a comparison to an alternative procedure found in the literature. The results indicate that mathematical optimization provides a useful tool for design automation of steel joints.

General information

Publication status: Published

MoE publication type: A4 Article in a conference publication

Organisations: Civil Engineering, Research group: Metal and Light-wight structures, AINS Group

Contributors: Mela, K., Hietaharju, L.

Number of pages: 6

Pages: 349-354

Publication date: 16 Sep 2019

Host publication information

Title of host publication: Proceedings of Nordic Steel 2019 : CE/papers Special Issue

Volume: 3

Publisher: Wilhelm Ernst und Sohn

Publication series

Name: CE/papers

ISSN (Electronic): 2509-7075

DOIs:

10.1002/cepa.1065

Research output: Chapter in Book/Report/Conference proceeding > Conference contribution > Scientific > peer-review

Advanced coatings by novel high-kinetic thermal spray processes

Thermal spraying includes a group of coating processes in which metallic and non-metallic materials are spray deposited as fine particles in a molten or semi-molten condition, or even in fully solid state to form a coating. Thermal spraying allows deposition of relatively thick coatings, from some tens of micrometers up to several millimeters in thickness. Thermally sprayed coatings are used in different applications including protective and functional coatings in mechanical engineering, energy technology, biomedical, steel, automotive and aerospace technologies and in many other industrial sectors. Novel high-kinetic spray processes, e.g., the high velocity air-fuel (HVOF) technology are the latest developments in the area and therefore they are actively studied in the framework of the Hybrid Materials research program in collaboration with Finnish industrial and research partners. Novel multifunctional coatings are under development for specific industrial applications.

General information

Publication status: Published

MoE publication type: D1 Article in a trade journal

Organisations: Department of Materials Science, Research group: Surface Engineering

Contributors: Matikainen, V., Koivuluoto, H., Milanti, A., Vuoristo, P.

Number of pages: 5

Pages: 46-50

Publication date: 9 Feb 2015

Peer-reviewed: Unknown

Publication information

Journal: Materia

Volume: 73

Issue number: 1

ISSN (Print): 1459-9694

Original language: English

ASJC Scopus subject areas: Surfaces, Coatings and Films

Keywords: thermal spraying, HVOF, HVOF

Electronic versions:

M1-15 s 46-50 Matikainen, Koivuluoto, Milanti, Vuoristo

URLs:

<http://urn.fi/URN:NBN:fi:tyy-201705191417>

<http://www.vuorimiesyhdistys.fi/sites/default/files/materia/pdf/Materia%201-2015.pdf>

Research output: Contribution to journal > Article > Professional

High-temperature sliding wear behaviour of thermally sprayed Cr₃C₂-based coatings

General information

Publication status: Published

MoE publication type: D3 Professional conference proceedings

Organisations: Materials Science, Research group: Surface Engineering, Univ Modena & Reggio Emilia, Università di Modena e Reggio Emilia, Dept Engn Enzo Ferrari, University of Modena and Reggio Emilia, Dipartimento di Ingegneria Enzo Ferrari

Contributors: Matikainen, V., Bolelli, G., Koivuluoto, H., Sassatelli, P., Lusvarghi, L., Vuoristo, P.

Number of pages: 10

Publication date: 2016

Host publication information

Title of host publication: Proceedings of The 17th Nordic Symposium on Tribology - NORDTRIB 2016

Keywords: Thermal spraying, sliding wear, Cr₃C₂, HVOF, HVAF

Electronic versions:

Matikainen et al_Nordtrib2016

URLs:

<http://urn.fi/URN:NBN:fi:tyy-201712082313>

Research output: Chapter in Book/Report/Conference proceeding > Conference contribution > Professional

Cavitation erosion, slurry erosion and solid particle erosion performance of metal matrix composite (MMC) coatings sprayed with modern high velocity thermal spray processes

Thermally sprayed metal-matrix composite (MMC) coatings are widely used to protect components and surfaces against wear in various applications. Hard and wear resistant coatings increase the component lifetime and allow the refurbishment of the worn components. This produces significant savings and promotes ecological manufacturing. The current state-of-the-art coatings are produced with high velocity oxygen-fuel (HVOF) spray processes, while modern high velocity air-fuel (HVAF) spray process has become increasingly available in production and research. The current study focuses on the performance of tungsten carbide (WC-10Co4Cr) and chromium carbide (Cr₃C₂-25NiCr) based MMC coatings sprayed with gaseous and liquid fuelled HVOF processes and a modern HVAF spray process. Two powder feedstock types, i.e. dense particles with fine carbides and porous particles with coarse carbides, were selected for both compositions. The results show significant improvements especially for WC-10Co4Cr coatings sprayed with HVAF when compared to HVOF sprayed coatings. In addition, Cr₃C₂-25NiCr coatings sprayed from the dense powder resulted in improved wear resistance compared to conventional feedstock powder.

General information

Publication status: Published

MoE publication type: A4 Article in a conference publication

Organisations: Materials Science, Research group: Surface Engineering, Research group: Materials Characterization, VZÚ Plzeň, University of West Bohemia

Contributors: Matikainen, V., Rubio, S., Ojala, N., Koivuluoto, H., Schubert, J., Houdková, S., Vuoristo, P.

Number of pages: 3

Pages: 1161-1163

Publication date: 1 Jan 2017

Host publication information

Title of host publication: Materials Science and Technology Conference and Exhibition 2017, MS and T 2017 : October 8-12, 2017, Pittsburgh, Pennsylvania USA

Volume: 2

Publisher: Association for Iron and Steel Technology, AISTECH

ISBN (Electronic): 9781510850583

ASJC Scopus subject areas: Mechanics of Materials, Materials Science (miscellaneous), Energy Engineering and Power Technology

Keywords: Cavitation erosion, Coating, Metal matrix composite, Slurry erosion, Thermal spray

URLs:

<http://toc.proceedings.com/36807webtoc.pdf>

Source: Scopus

Source ID: 85047650405

Research output: Chapter in Book/Report/Conference proceeding > Conference contribution > Scientific > peer-review

Highly-efficient Ho:KY(WO₄)₂ thin-disk lasers at 2.06 μm

The recent advances in the development of Holmium monoclinic double tungstate thin-disk lasers are reviewed. The thin-disk is based on a 250-μm-thick 3 at. % Ho:KY(WO₄)₂ active layer grown on a (010)-oriented KY(WO₄)₂ substrate. When

pumped by a Tm-fiber laser at 1960 nm with a single-bounce pump geometry, the continuous-wave Ho:KY(WO₄)₂ thin-disk laser generates an output power of 1.01 W at 2057 nm corresponding to a slope efficiency η of 60% and a laser threshold of only 0.15 W. The thin-disk laser is passively Q-switched with a GaSb-based quantum-well semiconductor saturable absorber mirror. In this regime, it generates an average output power of 0.551 W at ~2056 nm with $\eta = 44\%$. The best pulse characteristics are 4.1 $\mu\text{J}/201$ ns at a repetition rate of 135 kHz. The laser performance, beam quality and thermo-optic aberrations of such lasers are strongly affected by the Ho³⁺ doping concentration. For the 3 at.% Ho³⁺-doped thin-disk, the thermal lens is negative (the sensitivity factors for the two principal meridional planes are -1.7 and -0.6 m⁻¹/W) and astigmatic. The Ho:KY(WO₄)₂ epitaxial structures are promising as active elements in mode-locked thin-disk lasers at ~2060 nm.

General information

Publication status: Published

MoE publication type: A4 Article in a conference publication

Organisations: Photonics, Research group: ORC, Max Born Institute, Universitat Rovira i Virgili, LISA Laser Products OHG, ITMO University, Institute of Laser Physics of the Siberian Branch of the RAS

Contributors: Mateos, X., Loiko, P., Lamrini, S., Scholle, K., Fuhrberg, P., Suomalainen, S., Härkönen, A., Guina, M., Vatnik, S., Vedin, I., Aguiló, M., Díaz, F., Wang, Y., Griebner, U., Petrov, V.

Publication date: 2018

Host publication information

Title of host publication: Pacific-Rim Laser Damage 2018 : Optical Materials for High-Power Lasers

Publisher: SPIE, IEEE

Article number: 107130J

ISBN (Electronic): 9781510619920

Publication series

Name: Proceedings of SPIE

Volume: 10713

ISSN (Print): 0277-786X

ASJC Scopus subject areas: Electronic, Optical and Magnetic Materials, Condensed Matter Physics, Computer Science Applications, Applied Mathematics, Electrical and Electronic Engineering

Keywords: 2-micron lasers, Ho-lasers, monoclinic double tungstates, Q-switched lasers, thin-disk lasers

DOIs:

10.1117/12.2316822

Bibliographical note

jufoid=71479

Source: Scopus

Source ID: 85051249536

Research output: Chapter in Book/Report/Conference proceeding > Conference contribution > Scientific > peer-review

Valtion tukemien homekorjaushankkeiden arviointi (HKPro 2)

General information

Publication status: Published

MoE publication type: B3 Non-refereed article in conference proceedings

Organisations: Department of Civil Engineering, Research group: Service Life Engineering of Structures, Research area: Structural Engineering

Contributors: Marttila, T., Suonketo, J., Kero, P., Annala, P., Pentti, M.

Number of pages: 6

Pages: 101-106

Publication date: 11 Mar 2015

Host publication information

Title of host publication: Sisäilmastoseminaari 2015 SIY Raportti 33, Messukeskus, Helsinki 11.3.2015 :

Sisäilmastoseminaari

Volume: Sisäilmayhdistys raportti 33

Place of publication: Juva

Editors: Säteri, J., Ahola, M.

ISBN (Print): 978-952-5236-43-9

Research output: Chapter in Book/Report/Conference proceeding > Conference contribution > Scientific

Onnistumistekijät valtion tukemissa homekorjaushankkeissa

Kosteus- ja homevaurioiden sekä muiden sisäilmaongelmien korjaaminen on haastavaa. Monet kuntien korjaushankkeet ovat epäonnistuneet poistamaan käyttäjien kokemat sisäilmaongelmat. Usein syynä on, että korjaukset eivät ole riittävän kokonaisvaltaisia tai laadunvarmistus on puutteellista. Yleinen syy suppeisiin korjauksiin ja puutteelliseen

laadunvarmistukseen on, että hankkeen suunnittelua ei ole tehty riittävän perusteellisesti. Puutteellinen suunnittelu johtuu usein riittämättömistä kuntotutkimuksista tai siitä, etteivät niissä tehdyt havainnot saati puutteet ole olleet korjaussuunnittelijan tiedossa. Tyypillisesti kuntotutkimusten puuttumiseen, tiedon hukkumiseen ja puutteelliseen hankevalmisteluun on syynä tilaajan osaamattomuus tai joissakin tapauksissa myös poliittinen ja taloudellinen päätöksenteko, johon tässä artikkelissa ei kuitenkaan perehdytä. Väärin valittu toteutustapa, kosteusteknisiä riskejä sisältävä suunnitteluratkaisu, vakavat tietokatkokset, isot yllätykset purku-/korjausvaiheessa, rakentamisvirheet tai huoltotehtävien laiminlyönti tulevat kunnalle huomattavasti kalliimmiksi, kuin perusteellinen kuntotutkimus, huolellinen toteutustapojen vertailu, suunnitelmien ulkopuolinen tarkastus, toteutuksen laadunvarmistus, aktiivinen valvonta ja suunnitelmallinen kiinteistönpito.

General information

Publication status: Published

MoE publication type: B3 Non-refereed article in conference proceedings

Organisations: Department of Civil Engineering, Research group: Service Life Engineering of Structures

Contributors: Marttila, T., Suonketo, J., Kero, P., Annila, P.

Number of pages: 6

Pages: 253-258

Publication date: 20 Oct 2015

Host publication information

Title of host publication: Rakennusfysiikka 2015: Uusimmat tutkimustulokset ja hyvät käytännön ratkaisut, 20-22.10.2015, Tampere

Volume: 4

Place of publication: Tampere

Publisher: Tampereen teknillinen yliopisto, rakennustekniikan laitos, rakennetekniikka

Editors: Vinha, J., Ruuska, T.

Article number: 152

ISBN (Print): 978-952-15-3580-2

URLs:

<http://www.tut.fi/cs/groups/public/@912/@web/@p/documents/liit/x124266.pdf>

Research output: Chapter in Book/Report/Conference proceeding > Conference contribution > Scientific

HKPro3 - Valtion tukemien homekorjaushankkeiden arviointi: Jatkotutkimus

General information

Publication status: Published

MoE publication type: D4 Published development or research report or study

Organisations: Department of Civil Engineering, Research group: Service Life Engineering of Structures

Contributors: Marttila, T., Annila, P., Kero, P., Suonketo, J., Heino, S., Pentti, M.

Number of pages: 68

Publication date: 2015

Publication information

Publisher: Tampereen teknillinen yliopisto, rakennustekniikan laitos, rakennustekniikka

ISBN (Electronic): 978-952-15-3659-5

Original language: Finnish

Publication series

Name: Tampereen teknillinen yliopisto. Rakennustekniikan laitos. Rakennetekniikka; Tutkimusraportti

Publisher: Tampereen teknillinen yliopisto, rakennustekniikan laitos, rakennustekniikka

Volume: 163

ISSN (Print): 1797-9161

Electronic versions:

hkpro3_loppuraportti

URLs:

<http://URN.fi/URN:ISBN:978-952-15-3659-5>

Bibliographical note

pdf ok 11.1.2016 KK

Research output: Book/Report > Commissioned report > Professional

Securing the flow of information in renovation projects: Sustainable synergies from buildings to the urban scale

Continuous flow of information is a paramount importance for the success of a renovation project. This has been a clear statement in several researches, clearances, publications and press releases in Finland. Tampere University of Technology (TUT) studied Finnish state supported mold renovations in three independent researches between 2010 and

2016. First one brought out that the observations made in the condition investigation weren't always taken into account in the implementation of the renovation. Next two researches focused to study the additional state grant processes, where the external review procedures were helping the flow of information. However, the processes still had some shortcomings and therefore the research team developed a form based method that property owners and builders can utilize for a successful removal of the indoor air problems. This paper describes the outlines of the form as well as the principles and methods for securing the flow of information from condition investigations to the renovation design and quality assurance of the building project. Project planning and monitoring measurements are also taken into account in the method.

General information

Publication status: Published

MoE publication type: A1 Journal article-refereed

Organisations: Civil Engineering, Research area: Structural Engineering

Contributors: Marttila, T., Annala, P., Suonketo, J., Kero, P., Pentti, M.

Number of pages: 6

Pages: 228-233

Publication date: 2017

Peer-reviewed: Yes

Publication information

Journal: *PROCEDIA ENVIRONMENTAL SCIENCES*

Volume: 38

ISSN (Print): 1878-0296

Original language: English

Keywords: Moisture damage, Indoor air quality (IAQ), Condition investigation, Renovation design

DOIs:

10.1016/j.proenv.2017.03.109

Source: RIS

Source ID: urn:1E04A8F47620BCE57737681F0930D8DB

Research output: Contribution to journal › Article › Scientific › peer-review