

### **Growth of Urban Peripheries with Reference to Inconsistent Spatial Planning Policies: South-east Amman as case study**

The rapid random spatial growth of the urban peripheries of Amman calls for an immediate reconsideration of the enforced planning policies that govern the spatial growth of those settlements. However, an overall assessment of the current planning mechanisms is urgently needed.

The article addresses some spatial factors which are impacting the peripheral growth at the south-eastern edge of Amman. It includes the urban land policies that are generated by Greater Amman Municipality GAM. The adoption of decentralization as a prevailing framework for urban policy in the latter two GAM master plans forms a turning point at the planning level. Such concept has evolved through the application of rigid frameworks that culminated into complex urban superposition.

This study deals with a marginal settlement which lies at the south-eastern edge of the Greater Amman Municipality, i.e. Muwaqqaq. The analysis intends to explore how Muwaqqaq has expanded randomly, testing in the meantime the relationship between Amman city core and its peripheral settlements both spatially and functionally. Light shall also be shed on the two major master plans of GAM: The Greater Amman Comprehensive and Development Plan (GACDP) of 1986, and the Amman Master Plan:

Metropolitan Growth of 2008, tackling their impact on the peripheral district in question.

The study proposes some feasible planning measures to pave the way for better control of the rapid urban growth at the peripheral areas with the aim to mitigate the negative aspects which adversely affecting the urban structure of Amman. However, the paper also examines the urban transformation of the chosen settlement which further aggravates the multi-jurisdictional divisions that initially meant to sustain an urban uniformity for a modern Amman entity.

#### **General information**

Publication status: Published

MoE publication type: B1 Article in a scientific magazine

Organisations: University of Jordan, Architectural department, Hashemite University, Zarqa-Jordan

Contributors: Amr, A., Saad, M.

Number of pages: 15

Pages: 54-68

Publication date: Mar 2015

Peer-reviewed: No

#### **Publication information**

Journal: European International Journal of Science and Technology

Volume: 4

Issue number: 3

Article number: 3

ISSN (Print): 2304-9693

Original language: English

ASJC Scopus subject areas: Urban Studies, Geography, Planning and Development, Architecture

Keywords: urban planning, Urban areas, Urban development, regional development, timber construction, innovation network, development platform, Urban form, urban processes

Electronic versions:

Growth of Urban Peripheries with Reference to Inconsistent Spatial

Research output: Contribution to journal › Article › Scientific

### **Mezhdunarodnaya konferencia po pozicionirovaniyu i navigacii vntri 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

#### **Bibliographical note**

xoa ei tarkistettu

### 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. Narhi, 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

### Accurate impedance model of grid-connected inverter for small-signal stability assessment in high-impedance grid

#### General information

Publication status: Accepted/In press

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.

Publication date: 1 Feb 2019

Peer-reviewed: Yes

#### Publication information

Journal: IEEJ JOURNAL OF INDUSTRY APPLICATIONS

Volume: 8

Issue number: 3

Article number: 3

ISSN (Print): 2187-1094

Original language: English

DOIs:

10.23919/IPEC.2018.8507573

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

### A Co-creation Centre for University–Industry Collaboration – A Framework for Concept Development

Abstract It is argued in general that future success in effective innovation creation is built on the ability to connect and manage talent, partnerships and related practical innovation processes. This makes it challenging for a university to develop an ecosystem of knowledge creation. The full benefit from a university can only be obtained if the university and

society are organically linked together. The needs of society have to be at the centre of a university's activities, and flexible adjustment to changing needs is necessary but often lacking. Campus management has a major role in the facilitation of multidisciplinary interaction between students, scientists, entrepreneurs and other industry partners that inspire each other with different perspectives on the same subject. One significant tool to support open innovation with diverse stakeholders is to provide supportive spaces with relevant services. This paper aims to identify the requirements of a Co-creation Centre as a concept serving the third role of a university. The literature review was conducted and, based on the result, this paper proposes a conceptual framework for capturing the key requirements for developing a multiuser Co-creation Centre. The framework consists of the requirements on the demand and supply sides of campus management. The main findings in this paper are that different modes of knowledge conversion have different capabilities to support knowledge co-creation requirements. Knowledge co-creation process requirements in the multiuser Co-creation Centre for university–industry collaboration are best supported by originating “Ba”, which means the place where individuals share feelings, emotions, experiences, and mental models and the place where the knowledge-creation process begins. The results contribute to the concept development in campus management and provide a starting point for evaluating the success of multidisciplinary and multi-actor innovation environments.

#### **General information**

Publication status: Published  
MoE publication type: A1 Journal article-refereed  
Organisations: Department of Civil Engineering  
Contributors: Huhtelin, M., Nenonen, S.  
Pages: 137 - 145  
Publication date: 2015  
Peer-reviewed: Yes

#### **Publication information**

Journal: Procedia Economics and Finance  
Volume: 21  
ISSN (Print): 2212-5671  
Original language: English  
Keywords: spaces and services.  
DOIs:  
10.1016/S2212-5671(15)00160-4  
Source: Bibtex  
Source ID: urn:eaca1c4af451146bd5fea3acaaa20e86  
Research output: Contribution to journal › Article › 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 0.56 SJR 0.239 SNIP 0.566  
Original language: English  
DOIs:  
10.1016/j.proeng.2015.04.094  
Research output: Contribution to journal › Article › Scientific › peer-review

#### **A Cross-Cultural and Gender-Based Perspective for Online Security: Exploring Knowledge, Skills and Attitudes of Higher Education Students.**

#### **General information**

Publication status: Published

MoE publication type: A1 Journal article-refereed

Organisations: Department of Pervasive Computing, Research area: Information security, University of Tampere, Department of Computer Science and Information Systems, University of Jyväskylä, Department of Computer Engineering and Information Technology of College of Information and Communication Technology at the University of Dar Es Salaam, Beijing Institute of Petrochemical Technology, University of Patras

Contributors: Chaudhary, S., Zhao, Y., Berki, E., Valtanen, J., Li, L., Helenius, M., Mystakidis, S.

Pages: 57-71

Publication date: 2015

Peer-reviewed: Yes

### Publication information

Journal: IADIS International Journal on WWW/Internet

Volume: 13

Issue number: 1

ISSN (Print): 1645-7641

Original language: English

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

### Adaptive fuzzy inference system based directional median filter for impulse noise removal

Noise filtering in presence of important image detail information is considered as challenging task in imaging applications. Use of fuzzy logic based techniques is capturing more focus since last decade to deal with these challenges. In order to tackle conflicting issues of noise smoothing and detail preservation, this paper presents a novel approach using adaptive fuzzy inference system for random valued impulse noise detection and removal. The proposed filter uses the intensity based directional statistics to construct adaptive fuzzy membership functions which plays an important role in fuzzy inference system. Fuzzy inference system constructed in this way is used by the noise detector for accurate classification of noisy and noise-free pixels by differentiating them from edges and detailed information present in an image. After classification of pixels, noise adaptive filtering is performed based on median and directional median filter using the information provided by the noise detector. Simulation results based on well known quantitative measure i.e., peak-signal-to-noise ratio (PSNR) show the effectiveness of proposed filter.

### General information

Publication status: Published

MoE publication type: A1 Journal article-refereed

Organisations: Department of Electronics and Communications Engineering, International Islamic University Islamabad

Contributors: Habib, M., Hussain, A., Rasheed, S., Ali, M.

Number of pages: 9

Pages: 689-697

Publication date: 1 May 2016

Peer-reviewed: Yes

### Publication information

Journal: AEU International Journal of Electronics and Communication

Volume: 70

Issue number: 5

ISSN (Print): 1434-8411

Ratings:

Scopus rating (2016): CiteScore 1.49 SJR 0.32 SNIP 0.964

Original language: English

ASJC Scopus subject areas: Electrical and Electronic Engineering

Keywords: Adaptive threshold, Fuzzy inference system, Noise detection, Noise removal, Random-valued impulse noise

DOIs:

10.1016/j.aeue.2016.02.005

### Bibliographical note

INT=elt,"Ali, Mubashir"

Source: Scopus

Source ID: 84959549053

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

### Air pressure difference between indoor and outdoor or staircase in multi-family buildings with exhaust ventilation system in Finland

### General information

Publication status: Published

MoE publication type: A1 Journal article-refereed

Organisations: Life Cycle Effectiveness of the Built Environment (LCE@BE), Research group: Concrete and Bridge Structures, Research area: Structural Engineering, Department of Civil Engineering, Research group: Building Physics, Natl Inst Hlth & Welf, Finland National Institute for Health & Welfare, Dept Environm Hlth

Contributors: Leivo, V., Kiviste, M., Aaltonen, A., Turunen, M., Haverinen-Shaughnessy, U.

Number of pages: 6

Pages: 1218-1223

Publication date: 2015

Peer-reviewed: Yes

#### Publication information

Journal: Energy Procedia

Volume: 78C

Article number: 78C

ISSN (Print): 1876-6102

Ratings:

Scopus rating (2015): CiteScore 0.92 SJR 0.359 SNIP 0.562

Original language: English

Electronic versions:

Air pressure difference between indoor and outdoor

DOIs:

10.1016/j.egypro.2015.11.188

URLs:

<http://urn.fi/URN:NBN:fi:tty-201605023900>

Research output: Contribution to journal > Article > 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 (MoO<sub>3</sub>) 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

### **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

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

### **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 0.06 SJR 0.127 SNIP 0.244

Original language: English

DOIs:

10.1017/S1359135516000038

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

### **Assessing coupling dynamics from an ensemble of time series**

Finding interdependency relations between time series provides valuable knowledge about the processes that generated the signals. Information theory sets a natural framework for important classes of statistical dependencies. However, a reliable estimation from information-theoretic functionals is hampered when the dependency to be assessed is brief or evolves in time. Here, we show that these limitations can be partly alleviated when we have access to an ensemble of independent repetitions of the time series. In particular, we gear a data-efficient estimator of probability densities to make use of the full structure of trial-based measures. By doing so, we can obtain time-resolved estimates for a family of entropy combinations (including mutual information, transfer entropy and their conditional counterparts), which are more accurate than the simple average of individual estimates over trials. We show with simulated and real data generated by coupled electronic circuits that the proposed approach allows one to recover the time-resolved dynamics of the coupling between different subsystems.

#### **General information**

Publication status: Published

MoE publication type: A1 Journal article-refereed

Organisations: Department of Mathematics, University of Electronic Science and Technology of China, Institute of Computer Science (ICS) of the Foundation for Research and Technology - Hellas (FORTH), Lab of Neurophysics and Neurophysiology, Hefei National Laboratory for Physical Sciences at the Microscale, Instituto de Fisica Interdisciplinar y Sistemas Complejos (CSIC-UIB), Campus Universitat de les Illes Balears, Institut für Kognitionswissenschaft, University of Osnabrück, University of Tartu, Netherlands Institute for Neuroscience

Contributors: Gómez-Herrero, G., Wu, W., Rutanen, K., Soriano, M. C., Pipa, G., Vicente, R.

Number of pages: 13

Pages: 1958-1970

Publication date: 2015

Peer-reviewed: Yes

#### **Publication information**

Journal: Entropy

Volume: 17

Issue number: 4

ISSN (Print): 1099-4300

Ratings:

Scopus rating (2015): CiteScore 1.99 SJR 0.551 SNIP 1.116

Original language: English

ASJC Scopus subject areas: Physics and Astronomy(all)

Keywords: Ensemble, Entropy, Estimator, Time series, Transfer entropy, Trial

DOIs:

10.3390/e17041958

URLs:

<http://www.scopus.com/inward/record.url?scp=84930319366&partnerID=8YFLogxK> (Link to publication in Scopus)

#### **Bibliographical note**

EXT="Gómez-Herrero,Germán"

Source: Scopus

Source ID: 84930319366

Research output: Contribution to journal > Article > 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

#### Automatization and stress analysis data of CoCr laser weld fatigue tests

This work includes raw and analyzed test data when using a recently developed fatigue test method for miniature laser welds in cobalt-chromium (CoCr) alloy joints [1]: 10.1016/j.jmbbm.2019.07.004. The automatization of fatigue tests is crucial for saving costs and personnel resources and that is the reason why the automatization threshold and the resulting spectrum data related to CoCr welds are provided here. The finite element method based stress computation output is provided related to shearing-mode tests to support the dataset as a whole. In addition, the compositional data of the parent material and the laser weld are given.

#### General information

Publication status: Published  
MoE publication type: A1 Journal article-refereed  
Organisations: Materials Science and Environmental Engineering, Research group: Plastics and Elastomer Technology, Orton Orthopaedic Hospital, Surface and Corrosion Science  
Contributors: Kanerva, M., Besharat, Z., Pärnänen, T., Jokinen, J., Honkanen, M., Sarlin, E., Göthelid, M., Schlenzka, D.  
Publication date: 1 Oct 2019  
Peer-reviewed: Yes

#### Publication information

Journal: Data in Brief  
Volume: 26  
Article number: 104374  
ISSN (Print): 2352-3409  
Original language: English  
ASJC Scopus subject areas: General  
Keywords: Automatization, CoCr, Fatigue, Laser, Testing, Welding  
DOIs:  
10.1016/j.dib.2019.104374

#### Bibliographical note

EXT="Pärnänen, T."  
Source: Scopus  
Source ID: 85072173471  
Research output: Contribution to journal > Article > 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 1.63 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

#### 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 2.63 SJR 1.081

Original language: English

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

DOIs:

10.1186/s40880-015-0008-8

Source: WOS

Source ID: 000360225300001

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

### **Cold-formed RHS T joints with initial geometrical imperfections**

Generally, numerical simulations of structures are carried out in such a way as to most accurately repeat their real behavior. The current rules for finite element modeling of tubular joints oblige scientists and engineers to construct their numerical models considering initial imperfections. However, not all joints are sensitive to initial imperfections. Often consideration of initial imperfections brings no reasonable improvements in the accuracy of results, but severely complicates numerical simulations. In such cases, the effect of geometrical imperfections can be effectively replaced by a simple theoretical equation or neglected entirely. This paper evaluates the effect of initial geometrical imperfections on the structural behavior of cold-formed rectangular hollow section T joints. Imperfections are simulated using the conventional approach for thin-walled structures, applying corresponding buckling modes to the perfect geometry. The paper analyzes several buckling modes and their combinations to identify the most rational technique for simulation of imperfections under in-plane bending and axial loading. Based on the obtained results, parametric studies are conducted to investigate the effect of initial imperfections on joints with various geometry and material properties. The results demonstrate that initial imperfections reduce the resistance and initial stiffness of joints. However, the observed effect has been found sufficiently small to be safely ignored in computational analyses.

### **General information**

Publication status: Published

MoE publication type: A1 Journal article-refereed

Organisations: Civil Engineering, St. Petersburg State Polytechnical University

Contributors: Garifullin, M., Bronzova, M. K., Heinisuo, M., Mela, K., Pajunen, S.

Number of pages: 14

Pages: 81-94

Publication date: 2018

Peer-reviewed: Yes

### **Publication information**

Journal: Magazine of Civil Engineering

Volume: 80

Issue number: 4

ISSN (Print): 2071-4726

Ratings:

Scopus rating (2018): CiteScore 2.75 SJR 1.062 SNIP 2.28

Original language: English

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

Keywords: Finite element analysis, Hollow section joint, Imperfection, Initial stiffness, Resistance

Electronic versions:

[cold-formed\\_rhs\\_t\\_joints](#)

DOIs:

10.18720/MCE.80.8

URLs:

<http://urn.fi/URN:NBN:fi:tuni-201910033677>

Source: Scopus

Source ID: 85051540096

Research output: Contribution to journal › Article › 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:tty-201703231218>

Research output: Contribution to journal > Article > 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., UI 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

### **Comparison of Detection Techniques for Multipath Propagation of Pseudolite Signals Used in Dense Industrial Environments**

Modern industrial environments with automated production machinery often require special indoor positioning and localization techniques, due to the presence of objects and the infrastructure that may obstruct the line-of-sight propagation or interfere with the behaviour of electromagnetic waves. These challenges are difficult to overcome by the widely employed GNSS positioning system designed for use in outdoor areas. One of the existing indoor positioning systems are the pseudolites, which transmit positioning signals similar to the ones used by GNSS systems. One of the sources of errors for pseudolites is the multipath propagation. Our paper compares the performances of several multipath propagation detection techniques, using Binary Offset Carrier (BOC) navigation signal and determines that errors increase sharply when the receiver uses navigation signals that have multipath propagation. The techniques that we present improve the positioning accuracy, which leads to more precise industrial processes.

#### **General information**

Publication status: Published

MoE publication type: A1 Journal article-refereed

Organisations: Department of Electronics and Communications Engineering, Research group: Wireless Communications and Positioning, Ministry of National Education. University Politehnica of Bucharest

Contributors: Alexandru, R., Lohan, E.

Number of pages: 7

Pages: 1294-1300

Publication date: 2015

Peer-reviewed: Yes

#### **Publication information**

Journal: Procedia Engineering

Volume: 100

Issue number: C

ISSN (Print): 1877-7058

Ratings:

Scopus rating (2015): CiteScore 0.56 SJR 0.239 SNIP 0.566

Original language: English

ASJC Scopus subject areas: Energy(all)

Keywords: Binary Offset Carrier, GNSS, Indoor positioning, Multipath propagation, Pseudolite

DOIs:

10.1016/j.proeng.2015.01.496

Source: Scopus

Source ID: 84925047361

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

### **Core Project Team As a Management Entity for Construction Projects**

The complexity of constructed facilities and the high degree of specialisation in design and construction generates very fragmented working environment for the construction project. Construction project organisations are built up from the units of organisations and they have arranged rules and procedures about how practicalities are to be done. A current perception of construction management is widely built around power, authority, and task orientation. This is resulting from the traditional focus of the construction industry on the technical and managerial features of construction projects. Organisations of construction projects vary substantially in their structure and this structure has considerable consequences to outcomes. Therefore, project management professionals continuously seek and establish new organisational and management structures and linkages to facilitate imperative cooperation between people and project partners. New understanding and amendments are broadening the content of construction project management and have provided new insights for successful construction operations. This paper is based on research according to this continuum by having focus on the appearances of management entity of a new kind, its significance and roles as a part of construction project management. The paper sought to summarize this literature and the survey study by focusing on the project management entity "core project team", later "core team". Drawing from this inclusive, the phenomenon of core team, the authors approach the field through six attributes, which have been selected to describe the new way for organising project management.

#### **General information**

Publication status: Published

MoE publication type: A1 Journal article-refereed

Organisations: Civil Engineering, Research group: Digitalization in the real estate and construction sector

Contributors: Keinänen, M., Kähkönen, K.

Number of pages: 10

Pages: 208-217  
Publication date: 2018  
Peer-reviewed: Yes

#### Publication information

Journal: *In\_bo: Ricerche e progetti per il territorio, la città e l'architettura. Construction Management*  
Volume: 9  
Issue number: 13  
ISSN (Print): 2036-1602  
Original language: English  
ASJC Scopus subject areas: Civil and Structural Engineering  
Keywords: Core project team, Core team, Construction management, Construction project, Construction teams  
Electronic versions:

Core Project Team As a Management Entity for Construction Projects

URLs:

[https://in\\_bo.unibo.it/issue/view/751/showToc](https://in_bo.unibo.it/issue/view/751/showToc)

<http://urn.fi/URN:NBN:fi:tty-201901281176>

Research output: Contribution to journal > Article > 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

#### 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

#### Design: A Key Stage of Product Lifecycle

DESIGN appears to be a key and critical stage of product lifecycle. Different models have been introduced in previous research to describe the conceptual design process. The RFBS model is one of them extending and deepening the existing FBS models. A previous paper was presenting the model and assuming the possible execution of the process tasks automatically. The present paper provides an overview of the progresses that have been made in this direction during the past years. The model-driven engineering philosophy underlying the RFBS model of knowledge is concretely exemplified in this paper. The implementation through ontology and language such as SysML that was part of the model-driven engineering philosophy is concretely described in this paper in form of computer-aided tools dedicated to the conceptual design stages.

#### General information

Publication status: Published

MoE publication type: A1 Journal article-refereed

Organisations: Intelligent dexterity for secure networked infrastructure and applications (IDSNIA), Aalto Univ, Aalto University, Aalto Univ Finland, Dept Engr Design & Prod, Sch Engr

Contributors: Bernard, A., Coatanea, E., Christophe, F., Laroche, F.

Number of pages: 7

Pages: 3-9

Publication date: 2014

Peer-reviewed: Yes

#### Publication information

Journal: Procedia CIRP

Volume: 21

ISSN (Print): 2212-8271

Ratings:

Scopus rating (2014): SJR 0.755 SNIP 1.4

Original language: English

Keywords: Computer-aided tools, Design method, Knowledge based system, Modelling, RFBS

DOIs:

10.1016/j.procir.2014.06.146

URLs:

<http://www.sciencedirect.com/science/article/pii/S2212827114007641>

<http://www.mendeley.com/research/design-key-stage-product-lifecycle>

Source: Mendeley

Source ID: c917d102-f71c-324d-bf73-70ffe40d606b

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

### **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 0.01 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

### **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 0.01 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](#)

### Diffusion of innovation: Case of co-design of cabins in mobile work machine industry

This paper describes the development of using virtual reality for work content in one application area over a decade. Virtual reality technology has developed rapidly; from walk-in CAVE-like virtual environments to head-mounted displays within a decade. In this paper, the development is studied through the lens of diffusion of innovation theory, which focuses not only on innovation itself, but also on the social system. The development of virtual technology is studied by one case, which is cabin design in the mobile work machine industry. This design process has been especially suitable for using virtual reality technology.

### General information

Publication status: Published

MoE publication type: A1 Journal article-refereed

Organisations: Automation Technology and Mechanical Engineering, Tampere University

Contributors: Ellman, A., Tiainen, T.

Publication date: 1 Jun 2019

Peer-reviewed: Yes

### Publication information

Journal: Computers

Volume: 8

Issue number: 2

Article number: 39

ISSN (Print): 2073-431X

Original language: English

ASJC Scopus subject areas: Human-Computer Interaction, Computer Networks and Communications

Keywords: Cabin design, Diffusion of innovation, Virtual reality

Electronic versions:

computers-08-00039

DOIs:

10.3390/computers8020039

URLs:

<http://urn.fi/URN:NBN:fi:tty-201909062077>

Source: Scopus

Source ID: 85069801135

Research output: [Contribution to journal](#) › [Article](#) › [Scientific](#) › [peer-review](#)



### **Distributed power allocation over indoor multi-pico stations**

A low-complexity distributed power allocation algorithm is proposed to reduce the interference and improve the transmitting rate of edge users. Different scenarios are considered and user experience of indoor communication is promoted. The simulation results prove the effectiveness of our algorithm. The proposed power control scheme ensures that more users can achieve their required rate and the fairness of different users is improved. Besides, more than 50% energy can be saved without loss in outage ability, and energy efficiency is also promoted. In addition, the proposed algorithm can be extended to scenarios that the required rates of pico stations can be changed periodically.

#### **General information**

Publication status: Published

MoE publication type: A1 Journal article-refereed

Organisations: Department of Electronics and Communications Engineering, Research group: Wireless Communications and Positioning, Beijing Institute of Petrochemical Technology, School of Information and Electronics, Beijing Institute of Technology

Contributors: Fei, Z. S., Gao, Q., Fu, Y., Isotalo, T., Niemelä, J.

Number of pages: 6

Pages: 227-232

Publication date: 1 Jun 2015

Peer-reviewed: Yes

#### **Publication information**

Journal: Journal of the Beijing Institute of Technology

Volume: 24

Issue number: 2

ISSN (Print): 1004-0579

Ratings:

Scopus rating (2015): CiteScore 0.1 SJR 0.153 SNIP 0.163

Original language: English

ASJC Scopus subject areas: Engineering(all)

Keywords: Distributed power allocation, Indoor communication, Multi-pico stations

DOIs:

10.15918/j.jbit1004-0579.201524.0214

Source: Scopus

Source ID: 84940670650

Research output: [Contribution to journal](#) > [Article](#) > [Scientific](#) > [peer-review](#)

### **DroneRF dataset: A dataset of drones for RF-based detection, classification and identification**

Modern technology has pushed us into the information age, making it easier to generate and record vast quantities of new data. Datasets can help in analyzing the situation to give a better understanding, and more importantly, decision making. Consequently, datasets, and uses to which they can be put, have become increasingly valuable commodities. This article describes the DroneRF dataset: a radio frequency (RF) based dataset of drones functioning in different modes, including off, on and connected, hovering, flying, and video recording. The dataset contains recordings of RF activities, composed of 227 recorded segments collected from 3 different drones, as well as recordings of background RF activities with no drones. The data has been collected by RF receivers that intercepts the drone's communications with the flight control module. The receivers are connected to two laptops, via PCIe cables, that runs a program responsible for fetching, processing and storing the sensed RF data in a database. An example of how this dataset can be interpreted and used can be found in the related research article "RF-based drone detection and identification using deep learning approaches: an initiative towards a large open source drone database" (Al-Sa'd et al., 2019).

#### **General information**

Publication status: Published

MoE publication type: A1 Journal article-refereed

Organisations: Computing Sciences, Qatar University

Contributors: Allahham, M. S., Al-Sa'd, M. F., Al-Ali, A., Mohamed, A., Khattab, T., Erbad, A.

Publication date: 1 Oct 2019

Peer-reviewed: Yes

#### **Publication information**

Journal: Data in Brief

Volume: 26

Article number: 104313

ISSN (Print): 2352-3409

Original language: English

ASJC Scopus subject areas: General

Keywords: Anti-drone systems, Classification, Drone identification, UAV detection

DOIs:

10.1016/j.dib.2019.104313

Source: Scopus

Source ID: 85071552598

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 (SeO<sub>4</sub><sup>2-</sup>), nitrate (NO<sub>3</sub><sup>-</sup>) and sulfate (SO<sub>4</sub><sup>2-</sup>), typically present in Se-contaminated wastewaters, by Eerbeek anaerobic granular sludge, was investigated in batch and continuous bioreactor experiments. Batch experiments showed that SeO<sub>4</sub><sup>2-</sup> removal was enhanced to 91% in simulated wastewater with SeO<sub>4</sub><sup>2-</sup> + NO<sub>3</sub><sup>-</sup> + SO<sub>4</sub><sup>2-</sup> (1 : 40 : 100 SeO<sub>4</sub><sup>2-</sup> : NO<sub>3</sub><sup>-</sup> : SO<sub>4</sub><sup>2-</sup> molar ratios) compared to simulated wastewater with SeO<sub>4</sub><sup>2-</sup> alone (67%). SeO<sub>4</sub><sup>2-</sup> removal was severely impacted by high concentrations of SO<sub>4</sub><sup>2-</sup> (SeO<sub>4</sub><sup>2-</sup> : SO<sub>4</sub><sup>2-</sup> > 1 : 300). Removal of SeO<sub>4</sub><sup>2-</sup>, NO<sub>3</sub><sup>-</sup> and SO<sub>4</sub><sup>2-</sup> 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<sup>-1</sup> day<sup>-1</sup> organic loading rate using lactate as the electron donor. The removal efficiencies were stabilized at 100, 30 and 80% for NO<sub>3</sub><sup>-</sup>, SO<sub>4</sub><sup>2-</sup> 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, SO<sub>4</sub><sup>2-</sup> and NO<sub>3</sub><sup>-</sup> were sequentially excluded from the influent. Speciation of Se, particularly the microbial production of colloidal Se<sup>0</sup> levels, was influenced by both SO<sub>4</sub><sup>2-</sup> and NO<sub>3</sub><sup>-</sup>. The results presented here demonstrate that UASB reactors are capable of removing SeO<sub>4</sub><sup>2-</sup> in the presence of millimolar concentrations of NO<sub>3</sub><sup>-</sup> and SO<sub>4</sub><sup>2-</sup> 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 4.02 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

### **Effect of Laser Power on Yield of TiO<sub>2</sub> 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 32 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 1.4 SJR 0.374 SNIP 0.801

Original language: English

Keywords: Nanoparticles, synthesis yield, pulsed laser ablation in liquids, WAXS, laser fluence, WAVELENGTH, GOLD  
DOIs:

10.4416/JCST2016-00071

Source: WOS

Source ID: 000397702900008

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

#### **Effect of radiation inside square hollow section under moderate non-symmetric fire**

The temperature calculation of hollow steel sections at elevated temperatures is a well-documented and standard procedure. Through this standard procedure, the temperature can be calculated by assuming a uniform gas temperature all around the section, which is called a symmetric fire in this paper. Embedding in surrounding structures or connecting to another steel member results in non-symmetric heat distribution in the member. This non-symmetry of the surrounding temperature may cause surface-to-surface heat radiation inside the member, thus affecting the steel section temperature distribution. This effect is considered in this paper by adopting analytical and finite element method analysis.

#### **General information**

Publication status: Published

MoE publication type: A1 Journal article-refereed

Organisations: Civil Engineering, Research group: Metal and Light-wight structures, Research group: Metal and Light-wight structures

Contributors: Baczkiewicz, J., Pajunen, S., Heinisuo, M.

Number of pages: 6

Pages: 25-30

Publication date: 27 Jul 2018

Peer-reviewed: Yes

#### **Publication information**

Journal: Fire Research

Volume: 2

Issue number: 1

Article number: 2:42

ISSN (Print): 2532-4748

Original language: English

Keywords: Steel member, Hollow section, Heat transfer, Radiation

Electronic versions:

42-Article Text-486-2-10-20180822-1

DOIs:

10.4081/fire.2018.42

URLs:

<http://urn.fi/URN:NBN:fi:ty-201811192630>

Research output: Contribution to journal › Article › 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 2.63 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

#### Electro-optic steering of random laser emission in liquid crystals

Using an external low-frequency electric field applied to dye-doped nematic liquid crystals, we demonstrate that random lasing obtained by optical pumping can be steered in an angular direction by routing an all-optical waveguide able to collect the emitted light. By varying the applied voltage from 0 to 2 V, we reduce the walk-off and sweep the random laser guided beam over 7 degrees.

#### General information

Publication status: Published

MoE publication type: A1 Journal article-refereed

Organisations: Physics, Research group: Nonlinear Optics, University of Rome Roma Tre, University "Roma Tre"

Contributors: Assanto, G., Perumbilavil, S., Piccardi, A., Kauranen, M.

Number of pages: 3

Pages: 103-105

Publication date: 2018

Peer-reviewed: Yes

#### Publication information

Journal: Photonics Letters of Poland

Volume: 10

Issue number: 4

ISSN (Print): 2080-2242

Ratings:

Scopus rating (2018): CiteScore 0.52 SJR 0.214 SNIP 0.348

Original language: English

ASJC Scopus subject areas: Electronic, Optical and Magnetic Materials

DOIs:

10.4302/plp.v10i4.852

Source: Scopus

Source ID: 85062032353

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

#### Energy Retrofits in Multi-family Buildings in North-east Europe: The Impacts on Thermal Conditions

We have conducted a project to develop a common protocol for indoor environmental quality (IEQ) assessment and to assess the effects of energy retrofits on IEQ. This paper focuses on thermal comfort, which was first assessed based on 2-month continuous monitoring in 16 multi-family buildings (94 apartments) in Finland and 20 buildings (96 apartments) in Lithuania during heating season before retrofits. In addition, corresponding data after retrofits were available from three

buildings (17 apartments) from Finland and seven (30 apartments) from Lithuania. Two data loggers per apartment were placed to evaluate  $T_w$  and  $R_{Hw}$  (warm area), and  $T_c$  and  $R_{Hc}$  (coldest spot). Questionnaire data regarding housing quality and health were collected from the occupants. The results before retrofits indicated high  $T_w$  ( $>23$  °C) for a large proportion of time in Finnish apartments, whereas opposite trend was observed in Lithuania. After retrofits, proportion of time with high  $T_w$  was higher while proportion of apartments with low  $R_{Hw}$  was lower in Finland, whereas in Lithuania, about one fourth of the apartments had higher  $T_w$  and  $R_{Hw}$ , hence fulfilling the national guidelines. The average absolute humidity was higher after retrofits in both countries, especially in Lithuania (by 15%). Occupant responses indicated improved thermal comfort. Therefore, potential effects of energy retrofits on occupants' thermal environment and satisfaction were demonstrated, and simply adjusting indoor temperature could help to save energy. Further analysis is needed to include the effects of outdoor conditions, as well as overall IEQ to the assessment.

#### General information

Publication status: Published

MoE publication type: A1 Journal article-refereed

Organisations: Life Cycle Effectiveness of the Built Environment (LCE@BE), Research group: Concrete and Bridge Structures, Research area: Structural Engineering, Department of Civil Engineering, Research group: Building Physics, Natl Inst Hlth & Welf, Finland National Institute for Health & Welfare, Dept Hlth Protect, Kaunas Univ Technol, Kaunas University of Technology, Dept Environm Technol

Contributors: Du, L., Leivo, V., Prasauskas, T., Turunen, M., Kiviste, M., Martuzevicius, D., Haverinen-Shaughnessy, U.

Number of pages: 5

Pages: 860-864

Publication date: Nov 2015

Peer-reviewed: Yes

#### Publication information

Journal: Energy Procedia

Volume: 78

ISSN (Print): 1876-6102

Ratings:

Scopus rating (2015): CiteScore 0.92 SJR 0.359 SNIP 0.562

Original language: English

Keywords: retrofits;

Electronic versions:

Energy Retrofits in Multi-family Buildings in North-east Europe

DOIs:

[10.1016/j.egypro.2015.11.008](https://doi.org/10.1016/j.egypro.2015.11.008)

URLs:

<http://urn.fi/URN:NBN:fi:tyy-201605023901>

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

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

### Entropy of weighted graphs with Randić weights

Shannon entropies for networks have been widely introduced. However, entropies for weighted graphs have been little investigated. Inspired by the work due to Eagle et al., we introduce the concept of graph entropy for special weighted graphs. Furthermore, we prove extremal properties by using elementary methods of classes of weighted graphs, and in particular, the one due to Bollobás and Erdős, which is also called the Randić weight. As a result, we derived statements on dendrimers that have been proven useful for applications. Finally, some open problems are presented.

### General information

Publication status: Published

MoE publication type: A1 Journal article-refereed

Organisations: Department of Signal Processing, BioMediTech, Research Community on Data-to-Decision (D2D), Department of Computer Science & Information Systems, University of Limerick, Ireland, College of Computer and Control Engineering, Nankai University, Universität der Bundeswehr München, Department of Mechatronics and Biomedical Computer Science, UMIT, Center for Combinatorics and LPMC-TJKLC

Contributors: Chen, Z., Dehmer, M., Emmert-Streib, F., Shi, Y.

Number of pages: 14

Pages: 3710-3723

Publication date: 2015

Peer-reviewed: Yes

### Publication information

Journal: Entropy

Volume: 17

Issue number: 6

ISSN (Print): 1099-4300

Ratings:

Scopus rating (2015): CiteScore 1.99 SJR 0.551 SNIP 1.116

Original language: English

ASJC Scopus subject areas: Physics and Astronomy(all)

Keywords: Extremal value, Graph entropy, Randić weight, Shannon's entropy, Weighted graphs

DOIs:

10.3390/e17063710

Source: Scopus

Source ID: 84934300047

Research output: Contribution to journal > Article > 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

### Evolutionary multiobjective optimization for adaptive dataflow-based digital predistortion architectures

In wireless communication systems, high-power transmitters suffer from nonlinearities due to power amplifier (PA) characteristics, I/Q imbalance, and local oscillator (LO) leakage. Digital Predistortion (DPD) is an effective technique to counteract these impairments. To help maximize agility in cognitive radio systems, it is important to investigate dynamically reconfigurable DPD systems that are adaptive to changes in the employed modulation schemes and operational constraints. To help maximize effectiveness, such reconfiguration should be performed based on multidimensional operational criteria. With this motivation, we develop in this paper a novel evolutionary algorithm framework for multiobjective optimization of DPD systems. We demonstrate our framework by applying it to develop an adaptive DPD architecture, called the adaptive, dataflow-based DPD architecture (ADDA), where Pareto-optimized DPD parameters are derived subject to multidimensional constraints to support efficient predistortion across time-varying operational requirements and modulation schemes. Through extensive simulation results, we demonstrate the effectiveness of our proposed multiobjective optimization framework in deriving efficient DPD configurations for run-time adaptation.

### General information

Publication status: Published

MoE publication type: A1 Journal article-refereed

Organisations: Pervasive Computing, Electronics and Communications Engineering, Research group: Wireless

Communications and Positioning, Research area: Computer engineering, University of Oulu

Contributors: Li, L., Ghazi, A., Boutellier, J., Anttila, L., Valkama, M., Bhattacharyya, S. S.

Publication date: 23 Feb 2017

Peer-reviewed: Yes

### Publication information

Journal: EAI Endorsed Transactions on Cognitive Communications

Volume: 17

Issue number: 10

Article number: e3

ISSN (Print): 2313-4534

Original language: English

Electronic versions:

eai.23-2-2017.152187-1

DOIs:

10.4108/eai.23-2-2017.152187

URLs:

<http://urn.fi/URN:NBN:fi:tty-201907151962>

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

### 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 ( $\text{Ca}^{2+}$ ,  $\text{Ba}^{2+}$ ,  $\text{Sr}^{2+}$ ,  $\text{Cd}^{2+}$ ,  $\text{Pb}^{2+}$ , and  $\text{Hg}^{2+}$ ). 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 4.8 SJR 3.261 SNIP 2.124

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

#### First principles prediction of the solar cell efficiency of chalcopyrite materials $\text{AgMX}_2$ (M=In, Al; X=S, Se, Te)

Using the spectroscopic limited maximum efficiency, and Shockley and Queisser predictor models, we compute the solar efficiency of the chalcopyrites  $\text{AgMX}_2$  (M = In, Al; X = S, Se, Te). The results presented are based on the estimation of the electronic and optical properties obtained from first principles density functional theory as well as the many-body perturbation theory calculations. The results from this report were consistent with the experimental data. The optical bandgap was accurately estimated from the absorption spectra, obtained by solving the Bethe and Salpeter equation. Fitting the Tauc's plot on the absorption spectra, we also predicted that the materials studied have a direct allowed optical transition. The theoretical estimations of the solar cell performance showed that the efficiencies from the Shockley and Queisser model are higher than those from the spectroscopic limited maximum efficiency model. This improvement is attributed to the absorption, the recombination processes and the optical transition accounted in the calculation of the efficiency.

#### General information

Publication status: Published

MoE publication type: A1 Journal article-refereed

Organisations: Electrical Engineering, University of South Africa, University of Witwatersrand

Contributors: Dongho-Nguimdo, G. M., Igumbor, E., Zambou, S., Joubert, D. P.

Publication date: 1 Dec 2019

Peer-reviewed: Yes

#### Publication information

Journal: Computational Condensed Matter

Volume: 21

Article number: e00391

ISSN (Print): 2352-2143

Original language: English

ASJC Scopus subject areas: Electronic, Optical and Magnetic Materials, Materials Science (miscellaneous), Condensed Matter Physics, Materials Chemistry

Keywords: Chalcopyrites, First principles, Solar cell efficiency

DOIs:

10.1016/j.cocom.2019.e00391



Source: Scopus

Source ID: 85065198754

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

### **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  $\mu\text{m}$  thick polyethylene terephthalate (PET) substrate by sandwiching a thin layer of  $\text{TiO}_x$  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  $-1.5\text{ V}$  and  $1.5\text{ V}$ . 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:ty-201606134229>

Source: Bibtex

Source ID: urn:93364f0c9fc6d11e220f8d004617b3a2

Research output: Contribution to journal › Article › 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

#### 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 0.36 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

### **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

### **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 0.55 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

## Importance and challenges of sharing experiences among an international and interdisciplinary group of doctoral students

### General information

Publication status: Published

MoE publication type: A1 Journal article-refereed

Organisations: Department of Chemistry and Bioengineering, Research group: Industrial Bioengineering and Applied Organic Chemistry

Contributors: Kurki, V., Sidaraviciute, R., Sørensen, J., Kibocha, S. N., Retike, I., Ikobe, G., Tichonovas, M., Elijosiute, E., Rajala, R.

Number of pages: 7

Pages: 45-51

Publication date: 2015

Peer-reviewed: Yes

### Publication information

Journal: Ympäristöhistoria: Finnish Journal of Environmental History

Issue number: 1/2015

ISSN (Print): 1799-6953

Original language: English

URLs:

[http://www.uta.fi/yky/tutkimus/historia/projektit/iehg/Ymparistohistoria/No1\\_2015.html](http://www.uta.fi/yky/tutkimus/historia/projektit/iehg/Ymparistohistoria/No1_2015.html)

### Bibliographical note

EXT="Kibocha, Samuel Ngari"

EXT="Rajala, Riikka"

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

## 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 Soyuzenergoproekt

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 0.83 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

### 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 0.86 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

### Inkjet printed metallic micropillars for bare die flip-chip bonding

Inkjet printed metal micropillars have been developed to help meet the demands for novel and highly adaptable microelectronics fabrication processes. The digitally printed silver pillar arrays in this study have been utilized in place of wafer-level solder bump processes or chip-level wire-bonded stud bumps. These three-dimensional silver pillars were printed with a drop-on-demand piezoelectric inkjet printer utilizing silver nanoparticle ink. The inkjet printed micropillars were found to have 22  $\mu\text{m}$  diameters and a height equivalent to approximately 3  $\mu\text{m}$  per droplet. In our study, we chose pillars for further use as stud bumps with 8, 10, 12 and 14 droplets, with heights of approximately 20.9  $\mu\text{m}$ , 25.9  $\mu\text{m}$ , 33.3  $\mu\text{m}$  and 35.9  $\mu\text{m}$  respectively. After printing on the bare dies the bumps were subsequently used to increase the contact reliability of flip-chip bonded samples. It was found that the bumped chips dramatically improved the reliability of the I/O connection as compared to unbumped samples. In fact nearly 88% of the bumped pads had a resistance less than 2.5  $\Omega/\text{bump}$  (no noticeable variation between bump heights) as compared to 17% for the unbumped bare dies. This study clearly demonstrates the fabrication of inkjet printed silver micropillars for use in uniform stud bump arrays. Furthermore, the feasibility of incorporating inkjet printed silver stud bumps for use in flip-chip fabrication methods was demonstrated.

### General information

Publication status: Published

MoE publication type: A1 Journal article-refereed

Organisations: Electronics and Communications Engineering, Research group: Laboratory for Future Electronics

Contributors: Khorramdel, B., Kraft, T. M., Mäntysalo, M.

Pages: 045005

Publication date: 26 Oct 2017

Peer-reviewed: Yes

### Publication information

Journal: Flexible and Printed Electronics

Volume: 2

Issue number: 4

ISSN (Print): 2058-8585

Ratings:

Scopus rating (2017): CiteScore 2.68 SJR 0.779 SNIP 1.163

Original language: English

Electronic versions:

Khorramdel Kraft Mantysalo - 2017 - Inkjet printed metallic micropillars for bare-die flip-chip bonding

DOIs:

10.1088/2058-8585/aa9171

URLs:

<http://urn.fi/URN:NBN:fi:tty-201901291191>

Source: Bibtex

Source ID: urn:8f4049c2ab7f16fab13e340ca8b6ef9

Research output: Contribution to journal > Article > 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  $50.86 \pm 2.5$  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 AHAMCs 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.

Pages: 430-436

Publication date: 2018

Peer-reviewed: Yes

### Publication information

Journal: Saudi Pharmaceutical Journal

Volume: 26

Issue number: 3

ISSN (Print): 1319-0164

Ratings:

Scopus rating (2018): CiteScore 3.48 SJR 0.67 SNIP 1.925

Original language: English

ASJC Scopus subject areas: Pharmacology, Pharmaceutical Science

Keywords: Apoptosis, Arylhydrazones of active methylene compounds, Chemotherapy, Cytotoxic effect, Glioma, Immortal cells, Single cell analysis

Electronic versions:

1-s2.0-S1319016417302268-main

DOIs:

10.1016/j.jsps.2017.12.018

URLs:

<http://urn.fi/URN:NBN:fi:tty-201803161382>

Source: Scopus

Source ID: 85039901326

Research output: Contribution to journal › Article › 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:tty-201801051028>

### **Bibliographical note**

INT=tie,"Järvinen, Juho"

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

## **Kehittämistutkimus: vuorovaikuteisten Matlab-opetusohjelmien vaikutus minäpystyvyyteen ja oppimistuloksiin yliopistomatematiikassa**

### **General information**

Publication status: Published

MoE publication type: A1 Journal article-refereed

Organisations: Mathematics, Research group: Computer Science and Applied Logics, Research group: Positioning

Contributors: Kaarakka, T. E., Ali-Löytty, S., Huhtanen, M.

Number of pages: 11

Pages: 67-77

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/issue/view/5356>

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

## 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

## Kohti tasapuolisempaa tutkimuksen arviointia: Pääkirjoitus

### General information

Publication status: Published

MoE publication type: A1 Journal article-refereed

Organisations: Department of Civil Engineering

Contributors: Katko, T. S.

Number of pages: 2

Pages: 4-5

Publication date: 2015

Peer-reviewed: Yes

### Publication information

Journal: Ympäristöhistoria: Finnish Journal of Environmental History

Volume: 5

Issue number: 1

ISSN (Print): 1799-6953

Original language: Finnish

URLs:

[http://www.uta.fi/yky/tutkimus/historia/projektit/iehg/Ymparistohistoria/No1\\_2015.html](http://www.uta.fi/yky/tutkimus/historia/projektit/iehg/Ymparistohistoria/No1_2015.html)

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

## Lean-tuotanto ja sen johtaminen: onnistuminen, haasteet ja soveltuminen Suomen yrityksiin ja muihin organisaatioihin

The so-called Lean development methods are today commonly used in many types of workplaces. Many good success stories are reported but Lean-projects and the tools used in them do not always bring the desired results. The central idea in Lean thinking is the distinction of two types of efficiencies; resource efficiency and flow efficiency. Lean production systems aim at high flow efficiency but achieving it requires high resource flexibility and understanding of the uncertainty inherent in the production system. Lean-management is often related to certain methods and techniques, but they do not



alone bring improvement without a holistic managerial philosophy that supports improvement on several levels of the organization's activities. Successful application of Lean management implies strategic choices and long-term commitment to organizational learning and development. The popularity of Lean management in Finnish organizations indicates that there is generally room for improvement in the organizations' operational activities. Lean management provides a structured model for development. It can bring successful results if implemented holistically and with a long-term commitment.

#### **General information**

Publication status: Published

MoE publication type: A1 Journal article-refereed

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

Contributors: Heikkilä, J., Martinsuo, M.

Number of pages: 7

Pages: 18-24

Publication date: 2015

Peer-reviewed: Yes

#### **Publication information**

Journal: Työpoliittinen aikakauskirja

Issue number: 3

ISSN (Print): 0787-510X

Original language: Finnish

URLs:

<http://www.tem.fi/files/43902/tak32015.pdf>

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

#### **Linear and nonlinear light beam propagation in chiral nematic liquid crystal waveguides**

We employ a thick layer of chiral nematic liquid crystals to demonstrate the evolution of a one-dimensional (1D) higher-order guided mode into a beam self-confined in both transverse dimensions at various wavelengths. We also report the experimental observation of higher-order modes guided by soliton-induced waveguides in chiral nematic liquid crystals.

#### **General information**

Publication status: Published

MoE publication type: A1 Journal article-refereed

Organisations: Department of Physics, Politechnika Warszawska, University of Warsaw, Aerosol Physics Laboratory, Nonlinear Optics and OptoElectronics Lab, University "Roma Tre"

Contributors: Laudyn, U. A., Kwaśny, M., Jung, P. S., Trippenbach, M., Assanto, G., Karpierz, M. A.

Number of pages: 3

Pages: 11-13

Publication date: 2016

Peer-reviewed: Yes

#### **Publication information**

Journal: Photonics Letters of Poland

Volume: 8

Issue number: 1

ISSN (Print): 2080-2242

Ratings:

Scopus rating (2016): CiteScore 0.37 SJR 0.197 SNIP 0.272

Original language: English

ASJC Scopus subject areas: Electronic, Optical and Magnetic Materials

Electronic versions:

Linear and nonlinear light beam propagation in chiral nematic liquid crystal waveguides

DOIs:

[10.4302/plp.2016.1.05](https://doi.org/10.4302/plp.2016.1.05)

URLs:

<http://urn.fi/URN:NBN:fi:tty-201604253878>

Source: Scopus

Source ID: 84962158419

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

#### **LTCC-Based Multi-Electrode Arrays for 3D in Vitro Cell Cultures**

Current technologies to monitor neuronal cultures in vitro are based on 2-dimensional (2D) multi-electrode arrays and cell cultures. The complexity of actual high-level neurobiological systems requires 3-dimensional (3D) cultures and 3D

electrode arrays to improve our understanding of such systems. The realization calls for smart multilayer and packaging technology. Our approach uses low-temperature cofired ceramics (LTCC) for the design of a 3-dimensional multi-electrode array (3D MEA). An LTCC multilayer board with gold electrodes forms the basis of the system. The layout of the 3D MEA is designed to fit into widely used measurement adapters for 2D signal recordings, enabling data processing identical to that of established chips. Design and manufacturing of the new 3D device as a basic tool for the investigation of 3D cell cultures are described. Features of thick-film gold electrodes are characterized by means of microscopic and spectroscopic tools complemented with complex impedance measurements. Possible biological applications for in vitro electrophysiological measurements were evaluated based on cell cultures of primary neurons, seeded directly to the chip surface. It was shown that activity can be measured over six months.

#### **General information**

Publication status: Published

MoE publication type: A1 Journal article-refereed

Organisations: Department of Electronics and Communications Engineering, Research group: Computational Biophysics and Imaging Group, BioMediTech, Integrated Technologies for Tissue Engineering Research (ITTE), TU Ilmenau, Technische Universität Ilmenau, Inst Mikro & Nanotechnologien MacroNano, ETH, Swiss Federal Institute of Technology Zurich, Inst Biomed Engn, Lab Biosensors & Bioelect

Contributors: Bartsch, H., Himmerlich, M., Fischer, M., Demko, L., Hyttinen, J., Schober, A.

Number of pages: 10

Pages: 315-324

Publication date: Dec 2015

Peer-reviewed: Yes

#### **Publication information**

Journal: Journal of Ceramic Science and Technology

Volume: 6

Issue number: 4

ISSN (Print): 2190-9385

Ratings:

Scopus rating (2015): CiteScore 0.53 SJR 0.237 SNIP 0.434

Original language: English

Keywords: Low-temperature cofired ceramics (LTCC), three-dimensional hybrid multi-electrode array (3D MEA), in vitro cell culture, thick-film gold electrode, primary neuron culture, GROWTH

DOIs:

10.4416/JCST2015-00056

Source: WOS

Source ID: 000367422100010

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

#### **Management and Planning Under Complexities of Metro Construction**

Nowadays, the majority of construction projects can be considered as complex and ambiguous endeavours. Each kind of construction project has its own characteristics and complexities whereas then specific management approaches and solutions are needed. Regarding the rapid development of cities, underground constructions at urban regions, such as metro construction, have been largely used for extending daily human life into underground spaces. Therefore, the recognition of the complex elements of a metro construction can play a significant role in its management and planning. The aim of this study is to investigate these complexities in subway construction. This may develop the possibility of high predictability for these challenges. As metro projects are also urban underground projects, both internal and external issues are studied and their impacts on project management are discussed. It is concluded that exceptional differences in the managing and planning of these constructions is that combined internal and external complexities are carried out simultaneously.

#### **General information**

Publication status: Published

MoE publication type: A1 Journal article-refereed

Organisations: Department of Civil Engineering

Contributors: Khosravi, M., Kähkönen, K.

Number of pages: 7

Pages: 415-421

Publication date: 2015

Peer-reviewed: Yes

#### **Publication information**

Journal: Procedia Economics and Finance

Volume: 21

ISSN (Print): 2212-5671

Original language: English

Keywords: Complexities, construction management, construction planning, metro construction, underground construction.  
DOIs:

10.1016/S2212-5671(15)00194-X

#### **Bibliographical note**

EXT=" Khosravi, Mahdi"

Source: RIS

Source ID: urn:CC947509283DD701C463455CFB0539A5

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

#### **Manipulating Superparamagnetic Microparticles with an Electromagnetic Needle**

Selective, precise, and high-throughput manipulation of individual superparamagnetic microparticles has profound applications in performing location-tailored in vitro biomedical studies. The current techniques for manipulation of microparticles allow only a single particle in the manipulation workspace, or simultaneous transportation of multiple microparticles in batches. In this work, a method based on a robotized electromagnetic needle for manipulation of individual superparamagnetic microparticles within a microparticle population is introduced. By automatically controlling the highly localized magnetic field of the needle, a single microparticle is selectively picked when its neighboring particle is few micrometers away. Supported by the nanometer resolution of the robotic positioner, particles are placed at sub-micrometer precision. This manipulation technique allows the creating of arbitrary patterns, sorting of microparticles based on size and morphology, and transporting of individual microparticles in 3D space. Therefore, this approach has the potential to enable more deterministic and quantitative microanalysis and microsynthesis using superparamagnetic microparticles.

#### **General information**

Publication status: Published

MoE publication type: A1 Journal article-refereed

Organisations: Faculty of Biomedical Sciences and Engineering, Research group: Micro and Nanosystems Research Group, Research group: Bioinspired Materials and Robotics (BMR)

Contributors: Cenev, Z., Zhang, H., Sariola, V., Rahikkala, A., Liu, D., Santos, H. A., Zhou, Q.

Publication date: 2017

Peer-reviewed: Yes

#### **Publication information**

Journal: Advanced Materials Technologies

Volume: 3

Issue number: 1

Article number: 1700177

ISSN (Print): 2365-709X

Ratings:

Scopus rating (2017): CiteScore 3.85 SJR 1.241 SNIP 0.99

Original language: English

Electronic versions:

admt201700177

DOIs:

10.1002/admt.201700177

URLs:

<http://urn.fi/URN:NBN:fi:tty-201712212482>

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

#### **Microrobotic system for multi-rate measurement of bio-based fibres Z-directional bond strength**

The core content of this study is micro-testing of microscale objects - an emerging application area for microrobotics - where microrobotics has been used in paper industry for measuring properties at the single fibre level. Pulp and paper scientists are interested to have experimental data of single fibre-fibre bond strength distribution of paper/board products in different loading modes and rates. Meeting this demand is quite challenging since the system should be able to measure the bond strength i) in the individual fibre level, ii) in different loading modes, and iii) in different loading rates. The current methods of measurement do not satisfy all these three requirements. Among the four different loading modes, the Z-directional behaviour of paper/board products is a matter of high significance for papermaking and paper converting companies. The Z-directional properties influence compressive properties, and accordingly the performance of structural paper/board products. According to the literature, there is not any reported method to facilitate the measurement of Z-directional strength at the single fibre level in different loading rates. This paper reports an in-depth study of a measurement method for experimental evaluation of Z-directional individual fibre-fibre bond strength in multiple loading rates using microrobotics and a Polyvinylidene fluoride (PVDF) film microforce sensor. The results from the measurement system are promising. In summary, the first concept for multi-rate measurement of Z-directional bond strength at the individual fibre level is developed during this work which has a high practical impact on the fibre characterization research

field.

#### **General information**

Publication status: Published

MoE publication type: A1 Journal article-refereed

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

Contributors: Latifi, S. K., Saketi, P., Kallio, P.

Number of pages: 14

Pages: 13-26

Publication date: 24 May 2015

Peer-reviewed: Yes

#### **Publication information**

Journal: Journal of Micro-Bio Robotics

Volume: 10

Issue number: 1

Article number: 1

ISSN (Print): 2194-6418

Ratings:

Scopus rating (2015): CiteScore 1 SJR 0.423 SNIP 1.004

Original language: English

ASJC Scopus subject areas: Engineering(all)

Keywords: Microrobotics , Micro-testing , Multi-rate microforce sensing, Polyvinylidene fluoride (PVDF) , Z-directional strength

DOIs:

10.1007/s12213-015-0080-9

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

#### **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

Volume: 86

Issue number: 2

ISSN (Print): 2071-4726

Original language: English

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

Keywords: Corrugated sheet, Diaphragm, Stressed skin

Electronic versions:

03-1

DOIs:

10.18720/MCE.86.3

URLs:

<http://urn.fi/URN:NBN:fi:tty-201909022051>

#### **Bibliographical note**

EXT="Heinisuo, M."

Source: Scopus

Source ID: 85068566348

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

### **Monitoring urban air quality with a diffusion charger based electrical particle sensor**

Abstract Urban air contains considerable amounts of harmful gaseous substances and aerosol particles. In this study, a recently introduced diffusion charger based PPS-M particle sensor (Pegasor Oy, Tampere, Finland) was evaluated for outdoor air quality measurements in urban environment. The PPS-M particle sensor was used in two stationary air quality measurement stations, one located in the roadside environment and the other in residential area, and in a mobile laboratory. The sampling of urban aerosol to the PPS-M sensor was performed without any pre-conditioning of aerosol. The sensor response to PM<sub>2.5</sub> varied between the measurements, being between 7 and 30 fA/( $\mu\text{g}/\text{m}^3$ ) depending on the aerosol source. The highest PM<sub>2.5</sub> response was observed in the roadside study for exhaust particles while the lowest PM<sub>2.5</sub> response was observed for large long range transported aerosol particles having relatively large mean particle size. The sensor signal was found to produce very linear response, with only minimal deviation, to the lung deposited particle surface area concentration (from 4.5 to 6 fA/( $\mu\text{m}^2/\text{cm}^3$ )) and to the condensation sink of urban air particles (from  $1.0 \times 10^4$  to  $1.2 \times 10^4$  fA cm<sup>3</sup>). The sensor response to particle number concentration was defined to be 0.0044 fA/(1/cm<sup>3</sup>) in roadside environment. In this environment, the signal was found to correlate also with NO and NO<sub>2</sub> concentrations of roadside air due to the same origin of particulate and gaseous pollutants. Similar correlation between NO<sub>x</sub> and the PPS-M signal was not observed in residential area.

#### **General information**

Publication status: Published

MoE publication type: A1 Journal article-refereed

Organisations: Department of Physics, Department of Signal Processing, Research area: Aerosol Physics, Urban circular bioeconomy (UrCirBio)

Contributors: Järvinen, A., Kuuluvainen, H., Niemi, J., Saari, S., Dal Maso, M., Pirjola, L., Hillamo, R., Janka, K., Keskinen, J., Rönkkö, T.

Publication date: 2015

Peer-reviewed: Yes

Early online date: 2014

#### **Publication information**

Journal: Urban Climate

Volume: 14

Issue number: 3

ISSN (Print): 2212-0955

Ratings:

Scopus rating (2015): CiteScore 2.23 SJR 0.879 SNIP 1.032

Original language: English

Keywords: Particle sensor, Urban air quality, Traffic emissions, Instrument comparison

DOIs:

10.1016/j.uclim.2014.10.002

#### **Bibliographical note**

ORG=fys,0.5

ORG=sgn,0.5

Source: RIS

Source ID: urn:C09F5E550C75A3945CB60BFFC830456C

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

### **Natural Gas Engine Emission Reduction by Catalysts**

In order to meet stringent emission limits, after-treatment systems are increasingly utilized in natural gas engine applications. In this work, two catalyst systems were studied in order to clarify how the catalysts affect, e.g. hydrocarbons, NO<sub>x</sub> and particles present in natural gas engine exhaust. A passenger car engine modified to run with natural gas was used in a research facility with possibilities to modify the exhaust gas properties. High NO<sub>x</sub> reductions were observed when using selective catalytic reduction, although a clear decrease in the NO<sub>x</sub> reduction was recorded at higher temperatures. The relatively fresh methane oxidation catalyst was found to reach reductions greater than 50% when the exhaust temperature and the catalyst size were sufficient. Both the studied catalyst systems were found to have a significant effect on particulate emissions. The observed particle mass reduction was found to be due to a decrease in the amount of organics passing over the catalyst. However, especially at high exhaust temperatures, high nanoparticle concentrations were observed downstream of the catalysts together with higher sulphate concentrations in particles. This study contributes to understanding emissions from future natural gas engine applications with catalysts in use.

#### **General information**

Publication status: Published

MoE publication type: A1 Journal article-refereed

Organisations: Department of Physics, Research area: Aerosol Physics, Finnish Meteorological Institute, Helsinki, VTT Technical Research Centre of Finland, Atmospheric Composition Research, Finnish Meteorological Institute, Dinex Ecocat Oy, Dinex Ecocat Oy, Catalyst Res

Contributors: Lehtoranta, K., Murtonen, T., Vesala, H., Koponen, P., Alanen, J., Simonen, P., Rönkkö, T., Timonen, H., Saarikoski, S., Maunula, T., Kallinen, K., Korhonen, S.

Number of pages: 10

Pages: 142-152

Publication date: Jun 2017

Peer-reviewed: Yes

Early online date: 23 Dec 2016

### Publication information

Journal: Emission Control Science and Technology

Volume: 3

Issue number: 2

ISSN (Print): 2199-3629

Ratings:

Scopus rating (2017): CiteScore 1.98 SJR 0.731 SNIP 1.435

Original language: English

DOIs:

10.1007/s40825-016-0057-8

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

### 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 1.25 SJR 0.219 SNIP 0.906

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

### **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

DOIs:

10.3390/recycling1010166

URLs:

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

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

### **Preparation and antimicrobial characterization of silver-containing packaging materials for meat**

In food technology, antimicrobial packaging materials could inhibit or limit the growth of spoilage bacteria and thus improve the shelf life of packaged products. The present study provides new insights into the preparation and antimicrobial characterization of silver-containing packaging materials and their efficacy against typical meat spoilage bacteria. Antimicrobial efficacy of packaging films produced by coextrusion or liquid flame spray process was determined by bioluminescence imaging and conventional antimicrobial assay. Fresh pork sirloin was packaged in selected films and composition of meat microbiota was analyzed by 16S rRNA amplicon sequencing. Shelf life of meat was not affected by any of the silver-containing packaging films, even though meat microbiota mostly consisted of bacteria that were inhibited or retarded in vitro by nanoscale silver coating. This may be due to different release dynamics of silver ions on meat surfaces compared to the circumstances in the antimicrobial assay or interactions between silver and amino acids.

#### **General information**

Publication status: Published

MoE publication type: A1 Journal article-refereed

Organisations: Department of Materials Science, Research group: Paper Converting and Packaging, Department of Chemistry and Bioengineering, Engineering materials science and solutions (EMASS), Urban circular bioeconomy (UrCirBio), University of Helsinki, Department of Food Hygiene and Environmental Health

Contributors: Kuuliala, L., Pippuri, T., Hultman, J., Auvinen, S., Kolppo, K., Nieminen, T., Karp, M., Björkroth, J., Kuusipalo, J., Jääskeläinen, E.

Number of pages: 8

Pages: 53-60

Publication date: 1 Dec 2015

Peer-reviewed: Yes

#### **Publication information**

Journal: Food Packaging and Shelf Life

Volume: 6

Article number: 67

ISSN (Print): 2214-2894

Ratings:

Scopus rating (2015): CiteScore 2.21 SJR 0.695 SNIP 0.947

Original language: English

ASJC Scopus subject areas: Food Science, Safety, Risk, Reliability and Quality, Biomaterials, Polymers and Plastics, Microbiology (medical)

Keywords: Active packaging, Antimicrobial film, Bioluminescence, Lactic acid bacteria, Liquid flame spray, Silver nanoparticle

DOIs:

10.1016/j.fpsl.2015.09.004

URLs:

<http://www.scopus.com/inward/record.url?scp=84945244937&partnerID=8YFLogxK> (Link to publication in Scopus)

#### **Bibliographical note**

ORG=mol,0.5

ORG=keb,0.5

Source: Scopus

Source ID: 84945244937

Research output: Contribution to journal › Article › 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 1.448

Original language: English

Electronic versions:

frobt-04-00053

DOIs:

10.3389/frobt.2017.00053

URLs:

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

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

### **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 kehittämisohjelmia. Tutkimusaineistoa on kerätty kyselylomakkeilla ja havainnoinnilla LUMA Suomen Projektioppiminen-kehittämishankkeesta, StarT-projektikilpailusta ja Teknologiateollisuuden 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

### Reaction heat utilization in aluminosilicate-based ceramics synthesis and sintering

Self-propagating high-temperature synthesis (SHS) is a widely known and extensively studied highly exothermic reaction-utilizing technique for making certain advanced composites and intermetallic compounds. However, only few studies have been published about the SHS of pure aluminosilicate ceramics. In the current work, possibilities for aluminosilicate ceramic synthesis and sintering requiring less energy based on the utilization of SHS in air was studied. Kaolinite powder and exothermically reactive metallic aluminium powder were used as raw materials. Thermodynamic calculations for the possible reactions and reaction paths were performed to show the theoretical possibilities for SHS utilization. The chemical reactions, thermal expansion behaviour and formed phase- and microstructures after SHS were compared to the conventional reaction sintering of mullite. Results conclude that highly exothermic reactions above 900 °C relating mainly to aluminium oxidation can ignite the SHS reaction in air atmosphere. After initialization, the reaction proceeded in a self-sustaining manner through entire test pieces, resulting in the formation of an Al<sub>2</sub>O<sub>3</sub> - Si phase structure. Thermodynamic calculations showed the total energy balance for mullite formation from aluminium and kaolinite mixtures as highly exothermic in nature only if sufficient oxygen is available to complete the reactions. However, future research is needed to fully utilize SHS in aluminosilicate ceramics processing.

### General information

Publication status: Published

MoE publication type: A1 Journal article-refereed

Organisations: Materials Science, Research group: Ceramic materials, VTT Technical Research Centre of Finland

Contributors: Karhu, M., Lagerbom, J., Kivikytö-Reponen, P., Ismailov, A., Levänen, E.

Number of pages: 12

Pages: 101-112

Publication date: 1 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 1.4 SJR 0.374 SNIP 0.801

Original language: English

ASJC Scopus subject areas: Ceramics and Composites

Keywords: Aluminosilicate ceramics, Exothermic reactions, Self-propagating high-temperature synthesis, SHS, Sintering, Synthesis

DOIs:

10.4416/JCST2016-00094

### Bibliographical note

EXT="Lagerbom, J."

Source: Scopus

Source ID: 85017026033

Research output: Contribution to journal › Article › 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

### Resilient Asset Management and Governance Fordeteriorating Water Services Infrastructure

This paper argues that strategic asset management and a sound regulatory regime are required urgently if we want to change the current paradigm of aging and decaying water services infrastructure and expand the coverage of improved water services in the developing economies. In the OECD countries access to safe water supply and sanitation has largely been ensured through substantial investment over many decades. Yet, significant investments will still be required to rehabilitate the existing infrastructures, to bring them into conformity with more stringent environmental and health regulations, and to maintain service quality in the future. In the non-OECD countries the challenges are more daunting. Large parts of their population have no access and many suffer from unsatisfactory services. Nearly one billion people lack access to clean drinking water and 2.6 billion people lack access to improved sanitation services. Lack of sound economic regulatory frameworks and enforcement regimes, and poor asset management practices, in particular underpricing of water services is a common problem throughout the world.

### General information

Publication status: Published

MoE publication type: A1 Journal article-refereed

Organisations: Department of Civil Engineering, Department of Chemistry and Bioengineering

Contributors: Hukka, J. J., Katko, T. S.

Number of pages: 8

Pages: 112-119

Publication date: 2015

Peer-reviewed: Yes

### Publication information

Journal: Procedia Economics and Finance

Volume: 21

ISSN (Print): 2212-5671

Original language: English

Keywords: aging and deteriorating water services infrastructure, investment gap, strategic asset management, regulatory and enforcement framework, sustainability.

DOIs:

10.1016/S2212-5671(15)00157-4

Source: RIS

Source ID: urn:B63C341C3AC1323B613E64632E9D1135

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

### Safety, Space and Structure Quality Requirements in Construction Scheduling

Abstract Quality assessment of a construction project schedule can be a challenging task for project stakeholders. A little research work has addressed quality of schedules though a good project schedule can be considered as of the key factors of project success. The development of a reliable and easy to perform construction schedule quality assessment procedure seems to be a challenging task. Since Schedule Health Assessment of a construction project has to be strictly related to process requirements, it is used the 3 "S" rule as a starting point and framework for obtaining improved understanding of quality of construction schedules. The 3 "S" are Safety, Space and Structure, meaning that the planned process should provide a safe working environment to construction workers, sufficient space to perform construction

activities and the required sequence of construction operations and project phases. The aim of the study is to implement a schedule quality assessment method that takes into account the 3“S” rule of construction process. The 3“S” requirements can be successfully integrated in a Schedule Health Assessment method, but to facilitate their implementation and control a flow-line chart is needed, thus the schedule tool becomes a new requirement for construction schedule quality control.

#### **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,

Research group: Capacity Development of Water and Environmental Services CADWES, Research group: Real estate development

Contributors: Bragadin, M. A., Kähkönen, K.

Number of pages: 8

Pages: 407-414

Publication date: 2015

Peer-reviewed: Yes

#### **Publication information**

Journal: Procedia Economics and Finance

Volume: 21

ISSN (Print): 2212-5671

Original language: English

Keywords: Construction management, Project Control, Project Scheduling, Quality, Safety.

DOIs:

10.1016/S2212-5671(15)00193-8

URLs:

<http://www.sciencedirect.com/science/article/pii/S2212567115001938>

Source: RIS

Source ID: urn:F0EEB88647642A7A838E1B2E16C028A8

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

#### **Sata vuotta vesihuoltoa Suomessa**

##### **General information**

Publication status: Published

MoE publication type: A1 Journal article-refereed

Organisations: Civil Engineering

Contributors: Juuti, P., Katko, T. S., Rajala, R.

Number of pages: 3

Pages: 13-15

Publication date: Dec 2017

Peer-reviewed: Yes

##### **Publication information**

Journal: Vesitalous

Volume: 58

Issue number: 6

ISSN (Print): 0505-3838

Original language: Finnish

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

#### **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: PROEDIA 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

#### SimpleTree: An Efficient Open Source Tool to Build Tree Models from TLS Clouds

An open source tool named SimpleTree, capable of modelling highly accurate cylindrical tree models from terrestrial laser scan point clouds, is presented and evaluated. All important functionalities, accessible in the software via buttons and dialogues, are described including the explanation of all necessary input parameters. The method is validated utilizing 101 point clouds of six different tree species, in the main evergreen and coniferous trees. All scanned trees have been destructively harvested to get accurate estimates of above ground biomass with which we assess the accuracy of the SimpleTree-reconstructed cylinder models. The trees were grouped into four data sets and for each one a Concordance Correlation Coefficient of at least 0.92 (0.92, 0.97, 0.92, 0.94) and an total relative error at most ~8 % (2.42%, 3.59%, -4.59%, 8.27%) was achieved in the comparison of the model results to the ground truth data. A global statistical improvement of derived cylinder radii is presented as well as an efficient optimization approach to automatically improve user given input parameters. An additional check of the SimpleTree results is presented via comparison to the results of trees reconstructed using an alternative, published method.

#### General information

Publication status: Published  
MoE publication type: A1 Journal article-refereed  
Organisations: Department of Mathematics, Research group: MAT Inverse Problems, Mathematical modelling with wide societal impact (MathImpact)  
Contributors: Hackenberg, J., Spiecker, H., Calders, K., Disney, M., Raunonen, P.  
Number of pages: 50  
Pages: 4245-4294  
Publication date: 23 Nov 2015  
Peer-reviewed: Yes

#### Publication information

Journal: Forests: Open Access Journal  
Volume: 6  
Issue number: 11  
ISSN (Print): 1999-4907  
Ratings:  
Scopus rating (2015): CiteScore 1.76 SJR 0.633 SNIP 0.761  
Original language: English  
DOIs:  
10.3390/f6114245  
URLs:  
<http://www.mdpi.com/1999-4907/6/11/4245> (Webpage of the article)  
Research output: Contribution to journal > Article > Scientific > peer-review

#### Social and Economic Importance of Water Services in the Built Environment: Need for More Structured Thinking

Abstract Community water supply takes priority over other water use purposes worldwide. Investment in water and sanitation systems in developing economies brings a multitude of economic and social benefits. Water infrastructure systems across the world will deteriorate unless substantially more rehabilitation is done. This paper presents a structured and hierarchical framework for sustained water services development consisting of institutions, provision, water infrastructure and production of services that hopefully create better understanding of how to develop our systems and services as part of the built environment for more sustained futures.

### General information

Publication status: Published  
MoE publication type: A1 Journal article-refereed  
Organisations: Department of Civil Engineering  
Contributors: Katko, T. S., Hukka, J. J.  
Number of pages: 7  
Pages: 217-223  
Publication date: 2015  
Peer-reviewed: Yes

### Publication information

Journal: Procedia Economics and Finance  
Volume: 21  
ISSN (Print): 2212-5671  
Original language: English  
Keywords: ageing water infrastructure, institutional development, priorities, production, provision, special features.  
DOIs:  
10.1016/S2212-5671(15)00170-7  
Source: RIS  
Source ID: urn:E2D918716A9EA0A2093B36459CF62676  
Research output: Contribution to journal › Article › 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

## Suomen vesihuollon kehitys ja opit kansainvälisessä kontekstissa

### General information

Publication status: Published  
MoE publication type: A1 Journal article-refereed  
Organisations: Civil Engineering  
Contributors: Katko, T. S.  
Number of pages: 4  
Pages: 8-11  
Publication date: 2017  
Peer-reviewed: Yes

### Publication information

Journal: Vesitalous  
Volume: 58  
Issue number: 1  
ISSN (Print): 0505-3838  
Original language: Finnish  
URLs:

<http://www.vesitalous.fi/vesitalous-lehdet/vesien-historia/>  
Research output: Contribution to journal › Article › Scientific › peer-review

### Surrogate modeling for initial rotational stiffness of welded tubular joints

Recently, buildings and structures erected in Russia and abroad have to comply with stringent economic requirements. Buildings should not only be reliable and safe, have a beautiful architectural design, but also meet the criteria of rationality and energy efficiency. In practice, this usually means the need for additional comparative analysis in order to determine the optimal solution to the engineering task. Usually such an analysis is time-consuming and requires huge computational efforts. In this regard, surrogate modeling can be an effective tool for solving such problems. This article provides a brief description of surrogate models and the basic techniques of their construction, describes the construction process of a surrogate model to calculate initial rotational stiffness of welded RHS joints made of high strength steel (HSS).

### General information

Publication status: Published  
MoE publication type: A1 Journal article-refereed  
Organisations: Department of Civil Engineering, Research group: Metal and Light-wight structures, Peter the Great St. Petersburg Polytechnic University, Peter Great St Petersburg Polytech Univ  
Contributors: Garifullin, M. R., Barabash, A. V., Naumova, E. A., Zhuvak, O. V., Jokinen, T., Heinisuo, M.  
Number of pages: 24  
Pages: 53-76  
Publication date: 2016  
Peer-reviewed: Yes

### Publication information

Journal: Magazine of Civil Engineering  
Volume: 63  
Issue number: 3  
ISSN (Print): 2071-4726  
Ratings:

Scopus rating (2016): CiteScore 0.3 SJR 0.236 SNIP 0.755

Original language: English

ASJC Scopus subject areas: Civil and Structural Engineering

Keywords: Finite element analysis, Kriging, Plane bending, Square hollow section, Surrogate modeling

Electronic versions:

Surrogate modeling for initial rotational stiffness of welded tubular joints

DOIs:

10.5862/MCE.63.4

URLs:

<http://urn.fi/URN:NBN:fi:tty-201611284820>

URLs:

<http://www.scopus.com/inward/record.url?scp=84994045052&partnerID=8YFLogxK> (Link to publication in Scopus)

### Bibliographical note

EXT="Garifullin, M. R."

Source: Scopus

Source ID: 84994045052

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

### **Systematic Search and Ranking of Physical Contradictions Using Graph Theory Principles: Toward a Systematic Analysis of Design Strategies and their Impacts: TRIZ and Knowledge-Based Innovation in Science and Industry**

**Abstract** This paper presents three interconnected developments made during the course of a recent collective research work, the development of a systematic graph-based search tool for physical contradictions, a ranking approach for defining the order of criticality of the design contradictions and the associated analysis of the different design strategies that can be used to solve those contradictions or to enhance performance indicators. The systematic graph-based search for physical contradictions is using the set of elementary variables necessary to describe the system as basic input. The initial set is extracted based on taxonomy of variables combining classification work from NIST and classification of variables derived from the Bond Graph theory. The contradiction search method is in a second step classifying the set of variables into three categories: the constraint variables imposed to the designers by the context and the environment, the design variables on which the designer has the possibility to act and the performance variables that are used to evaluate the performance of the designed system. In a third step, interactions between variables are searched using two possibilities: a causal ordering algorithm developed during the course of the research or via a collective work of experts. The result of this step is a directed graph starting from the constraints variables and ending with the performance variables. In the fourth step objectives have to be assigned to the performance variables (minimal value, maximal value or target value). Those objectives are propagated back into the graph by analyzing the impact of the variables interacting with the performance variables. A physical contradiction is detected each time it is discovered that a design variable is associated with two contradictory objectives. Following this approach, a contradiction is represented as a node in the directed graph. It is possible to systematically map the different design strategies that can be used and to rank the possible impact of those design strategies. The article presents a concrete application of the approach on the case study of an air bearing and demonstrates the novelty of the approach to generate new viewpoints and insight in the analysis of the early stages of the development process. The potential impact of such type of design support is potentially very important. A future step will consist of developing a computer aided tool implementing the method.

#### **General information**

Publication status: Published

MoE publication type: A1 Journal article-refereed

Organisations: Department of Mechanical Engineering and Industrial Systems, Aalto University, Aalto Univ, Aalto University, Aalto Univ Finland, Dept Engr Design & Prod, Sch Engr

Contributors: Coatanéa, E., Rynänen, L., Calonius, O., Mokammel, F., Riitahuhta, A.

Number of pages: 18

Pages: 1165-1182

Publication date: 2015

Peer-reviewed: Yes

#### **Publication information**

Journal: Procedia Engineering

Volume: 131

ISSN (Print): 1877-7058

Ratings:

Scopus rating (2015): CiteScore 0.56 SJR 0.239 SNIP 0.566

Original language: English

Keywords: graph theory, TRIZ, physical contradiction, innovative principles, air bearing

DOIs:

10.1016/j.proeng.2015.12.441

#### **Bibliographical note**

EXT="Coatanéa, Eric"

EXT="Riitahuhta, Asko"

Source: RIS

Source ID: urn:4AB62BAC3A0A0D77B9BD9FDF1D977D4

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

#### **Target tracking via combination of particle filter and optimisation techniques**

Particle filters (PFs) have been used for the nonlinear estimation for a number of years. However, they suffer from the impoverishment phenomenon. It is brought by resampling which intends to prevent particle degradation, and therefore becomes the inherent weakness of this technique. To solve the problem of sample impoverishment and to improve the performance of the standard particle filter we propose a modification to this method by adding a sampling mechanism inspired by optimisation techniques, namely, the pattern search, particle swarm optimisation, differential evolution and Nelder-Mead algorithms. In the proposed methods, the true state of the target can be better expressed by the optimised particle set and the number of meaningful particles can be grown significantly. The efficiency of the proposed particle

filters is supported by a truck-trailer problem. Simulations show that the hybridised particle filter with Nelder-Mead search is better than other optimisation approaches in terms of particle diversity.

#### General information

Publication status: Published

MoE publication type: A1 Journal article-refereed

Organisations: Department of Signal Processing, University of Toledo, Bowling Green State University

Contributors: Hosseini, S. S. S., Jamali, M. M., Astola, J., Gorsevski, P. V.

Number of pages: 18

Pages: 212-229

Publication date: 2016

Peer-reviewed: Yes

#### Publication information

Journal: International Journal of Mathematical Modelling and Numerical Optimization

Volume: 7

Issue number: 2

ISSN (Print): 2040-3607

Ratings:

Scopus rating (2016): CiteScore 1.44 SJR 0.351 SNIP 0.935

Original language: English

ASJC Scopus subject areas: Numerical Analysis, Modelling and Simulation, Applied Mathematics

Keywords: Differential evolution, Nelder-Mead, Particle filter, Particle swarm optimisation, Pattern search, PSO, Target tracking

DOIs:

10.1504/IJMMNO.2016.077068

Source: Scopus

Source ID: 84990239582

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

#### Teoriaa ja kokemuksia arvioinnista MOOCien aikakaudella

##### General information

Publication status: Published

MoE publication type: A1 Journal article-refereed

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

Contributors: Helander, N., Myllylä, M.

Number of pages: 7

Pages: 70-77

Publication date: 11 Jul 2016

Peer-reviewed: Yes

##### Publication information

Journal: TAMPEREEN AMMATTIKORKEAKOULUN JULKAISUJA. SARJA B, RAPORTTEJA

ISSN (Print): 1456-002X

Original language: Finnish

URLs:

<http://julkaisut.tamk.fi/PDF-tiedostot-web/B/88-Floworks.pdf>

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

#### Testing the near field/far field model performance for prediction of particulate matter emissions in a paint factory

A Near Field/Far Field (NF/FF) model is a well-accepted tool for precautionary exposure assessment but its capability to estimate particulate matter (PM) concentrations is not well studied. The main concern is related to emission source characterization which is not as well defined for PM emitters compared to e.g. for solvents. One way to characterize PM emission source strength is by using the material dustiness index which is scaled to correspond to industrial use by using modifying factors, such as handling energy factors. In this study we investigate how well the NF/FF model predicts PM concentration levels in a paint factory. PM concentration levels were measured during big bag and small bag powder pouring. Rotating drum dustiness indices were determined for the specific powders used and applied in the NF/FF model to predict mass concentrations. Modeled process specific concentration levels were adjusted to be similar to the measured concentration levels by adjusting the handling energy factor. The handling energy factors were found to vary considerably depending on the material and process even-though they have the same values as modifying factors in the exposure models. This suggests that the PM source characteristics and process-specific handling energies should be studied in more detail to improve the model-based exposure assessment.



### General information

Publication status: Published

MoE publication type: A1 Journal article-refereed

Organisations: Department of Physics, Danmarks Tekniske Universitet, DTU Informatik, Denmark Technical University DTU, National Research Centre for the Working Environment, Department of Micro and Nanotechnology

Contributors: Koivisto, A. J., Jensen, A. C. Ø., Levin, M., Kling, K. I., Maso, M. D., Nielsen, S. H., Jensen, K. A., Koponen, I. K.

Number of pages: 12

Pages: 62-73

Publication date: 1 Jan 2015

Peer-reviewed: Yes

### Publication information

Journal: Environmental Sciences: Processes and Impacts

Volume: 17

Issue number: 1

ISSN (Print): 2050-7887

Ratings:

Scopus rating (2015): CiteScore 2.5 SJR 0.998 SNIP 0.923

Original language: English

ASJC Scopus subject areas: Environmental Chemistry, Public Health, Environmental and Occupational Health, Management, Monitoring, Policy and Law, Medicine(all)

DOIs:

10.1039/c4em00532e

URLs:

<http://www.scopus.com/inward/record.url?scp=84920000979&partnerID=8YFLogxK> (Link to publication in Scopus)

### Bibliographical note

EXT="Koivisto, A. J."

Source: Scopus

Source ID: 84920000979

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

### The effect of tungsten carbide particles content in a weld deposit on its abrasion resistance

This paper describes the study of a weld deposit which contains tungsten carbide particles. For testing the process of gas metal arc welding in a protective atmosphere of a mixed gas with two types of cored wires were used. The selected cored electrode of a "F-Durit G" type already contains the tungsten carbide particles. The second used option was a cored electrode of a "Megafil A 864M" type with an increased boron content. For the second variant tungsten carbide particles with a 1-2 mm size were added to the weld pool, and a composite material layer was thus created. For the mentioned test two different levels of welding parameters were selected and the final weld deposit properties, particularly their abrasion resistance, were examined.

### General information

Publication status: Published

MoE publication type: A1 Journal article-refereed

Organisations: Materials Science, VSB-Technical University Ostrava, Czech Republic, University of Osijek

Contributors: Hlavatý, I., Kozák, J., Krejci, L., Samardzic, I., Tuominen, J.

Number of pages: 5

Pages: 1345-1349

Publication date: Oct 2017

Peer-reviewed: Yes

### Publication information

Journal: Technical Gazette - Technicki vjesnik

Volume: 24

Issue number: 5

ISSN (Print): 1848-6339

Original language: English

Keywords: Hardfacing, Metal matrix composite, Gas metal arc welding, Abrasive wear

Electronic versions:

tv\_24\_2017\_5\_1345\_1349-1

DOIs:

10.17559/TV-20160503085356

URLs:

### **The effects of neuron morphology on graph theoretic measures of network connectivity: The analysis of a two-level statistical model**

We developed a two-level statistical model that addresses the question of how properties of neurite morphology shape the large-scale network connectivity. We adopted a low-dimensional statistical description of neurites. From the neurite model description we derived the expected number of synapses, node degree, and the effective radius, the maximal distance between two neurons expected to form at least one synapse. We related these quantities to the network connectivity described using standard measures from graph theory, such as motif counts, clustering coefficient, minimal path length, and small-world coefficient. These measures are used in a neuroscience context to study phenomena from synaptic connectivity in the small neuronal networks to large scale functional connectivity in the cortex. For these measures we provide analytical solutions that clearly relate different model properties. Neurites that sparsely cover space lead to a small effective radius. If the effective radius is small compared to the overall neuron size the obtained networks share similarities with the uniform random networks as each neuron connects to a small number of distant neurons. Large neurites with densely packed branches lead to a large effective radius. If this effective radius is large compared to the neuron size, the obtained networks have many local connections. In between these extremes, the networks maximize the variability of connection repertoires. The presented approach connects the properties of neuron morphology with large scale network properties without requiring heavy simulations with many model parameters. The two-steps procedure provides an easier interpretation of the role of each modeled parameter. The model is flexible and each of its components can be further expanded. We identified a range of model parameters that maximizes variability in network connectivity, the property that might affect network capacity to exhibit different dynamical regimes.

#### **General information**

Publication status: Published

MoE publication type: A1 Journal article-refereed

Organisations: Faculty of Biomedical Sciences and Engineering, Research group: Computational Neuro Science-CNS, University of Oslo

Contributors: Acimovic, J., Mäki-Marttunen, T., Linne, M.

Publication date: 10 Jun 2015

Peer-reviewed: Yes

#### **Publication information**

Journal: Frontiers in Neuroanatomy

Volume: 9

Issue number: June

Article number: 76

ISSN (Print): 1662-5129

Ratings:

Scopus rating (2015): CiteScore 2.73 SJR 1.852 SNIP 0.782

Original language: English

ASJC Scopus subject areas: Anatomy, Neuroscience (miscellaneous), Cellular and Molecular Neuroscience

Keywords: Graph theory, Motifs, Network connectivity, Neurite density field, Neuron morphology, Theoretical model

DOIs:

10.3389/fnana.2015.00076

Source: Scopus

Source ID: 84935865748

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

### **Theoretical 71-Concept Platform for Advancing Construction-related Business Management**

**Abstract** The aim is to advance business management (BM) in construction via the independent literature review. 71 construction-related BM concepts have been published between 1990 and 2013. Focal firms are based in the OECD countries. 34 (48%) concepts are related to construction management (CM), 14 (20%) concepts to industrial management and international marketing, 12 (17%) concepts to project management (PM) and 11 (15%) concepts to corporate real estate. The combined share of 16 Porterian, 16 dynamism-based, 15 organisation-based, and 10 knowledge-based concepts is 81%. The 71-concept platform is neither highly theoretically advanced, nor highly applicable. The propositions are defined for advancement.

#### **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

Contributors: Huovinen, P.

Number of pages: 8

Pages: 80-87  
Publication date: 2015  
Peer-reviewed: Yes

#### **Publication information**

Journal: Procedia Economics and Finance  
Volume: 21  
ISSN (Print): 2212-5671  
Original language: English  
ASJC Scopus subject areas: Business, Management and Accounting(all)  
Keywords: Applied research, business management, conceptualisation, construction, literature review, real estate, school of thought  
Electronic versions:  
CEO2015 Pekka Huovinen Theoretical 71-concept platform Procedia Economics and Finance 21 (2015) 80-87  
DOIs:  
10.1016/S2212-5671(15)00153-7  
URLs:  
<http://urn.fi/URN:NBN:fi:tty-201701031010>  
<http://www.sciencedirect.com/science/article/pii/S2212567115001537>  
Source: RIS  
Source ID: urn:2259E842B1A87C3870EDBE85F572BB11  
Research output: Contribution to journal > Article > Scientific > peer-review

#### **Three-color vector nematicon**

Light localization via reorientation in nematic liquid crystals supports multi-component optical spatial solitons, i.e., vector nematicons. By launching three optical beams of different wavelengths and the same input polarization in a bias-free planar cell, we demonstrate a three-color vector nematicon which is self-trapped thanks to its incoherent nature.

#### **General information**

Publication status: Published  
MoE publication type: A1 Journal article-refereed  
Organisations: Photonics, Politechnika Warszawska, Univ Roma Tre, Roma Tre University, Dept Elect Engn, NooEL, University "Roma Tre", Aerosol Physics Laboratory  
Contributors: Laudyn, U. A., Kwaśny, M., Karpierz, M. A., Assanto, G.  
Number of pages: 3  
Pages: 36-38  
Publication date: 2017  
Peer-reviewed: Yes

#### **Publication information**

Journal: Photonics Letters of Poland  
Volume: 9  
Issue number: 2  
ISSN (Print): 2080-2242  
Ratings:  
Scopus rating (2017): CiteScore 0.48 SJR 0.25 SNIP 0.36  
Original language: English  
ASJC Scopus subject areas: Electronic, Optical and Magnetic Materials  
Electronic versions:  
718-2839-1-PB  
DOIs:  
10.4302/plp.v9i2.718  
URLs:  
<http://urn.fi/URN:NBN:fi:tty-201708071660>  
Source: Scopus  
Source ID: 85021814168  
Research output: Contribution to journal > Article > Scientific > peer-review

#### **Time-resolved characterization of primary and secondary particle emissions of a modern gasoline passenger car**

Changes in traffic systems and vehicle emission reduction technologies significantly affect traffic-related emissions in urban areas. In many densely populated areas the amount of traffic is increasing, keeping the emission level high or even increasing. To understand the health effects of traffic related emissions, both primary and secondary particles that are formed in the atmosphere from gaseous exhaust emissions need to be characterized. In this study we used a comprehensive set of measurements to characterize both primary and secondary particulate emissions of a modern

gasoline passenger car. Our aerosol particle study covers the whole process chain in emission formation, from the engine to the atmosphere, and takes into account also differences in driving patterns. We observed that in mass terms, the amount of secondary particles was 13 times higher than the amount of primary particles. The formation, composition, number, and mass of secondary particles was significantly affected by driving patterns and engine conditions. The highest gaseous and particulate emissions were observed at the beginning of the test cycle when the performance of the engine and the catalyst was below optimal. The key parameter for secondary particle formation was the amount of gaseous hydrocarbons in primary emissions; however, also the primary particle population had an influence. Thus, in order to enhance human health and wellbeing in urban areas, our study strongly indicates that in future legislation, special attention should be directed into the reduction of gaseous hydrocarbons.

#### General information

Publication status: Published

MoE publication type: A1 Journal article-refereed

Organisations: Department of Physics, Research area: Aerosol Physics, Finnish Meteorological Institute, Helsinki, VTT Technical Research Centre of Finland, Pennsylvania State University, Atmospheric Composition Research, Finnish Meteorological Institute

Contributors: Karjalainen, P., Timonen, H., Saukko, E., Kuuluvainen, H., Saarikoski, S., Aakko-Saksa, P., Murtonen, T., Dal Maso, M., Ahlberg, E., Svenningsson, B., Brune, W. H., Hillamo, R., Keskinen, J., Rönkkö, T.

Number of pages: 29

Pages: 33253-33282

Publication date: 25 Nov 2015

Peer-reviewed: Yes

#### Publication information

Journal: Atmospheric Chemistry and Physics Discussions

Volume: 15

Issue number: 22

ISSN (Print): 1680-7367

Ratings:

Scopus rating (2015): SNIP 0.101

Original language: English

DOIs:

10.5194/acpd-15-33253-2015

URLs:

<http://www.atmos-chem-phys-discuss.net/15/33253/2015/>

Research output: Contribution to journal > Article > 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: 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

**Tutkimuskatsaus: Uusia menetelmiä haavan paranemisen arviointiin ja seurantaan**

### General information

Publication status: Published

MoE publication type: A1 Journal article-refereed

Organisations: Faculty of Biomedical Sciences and Engineering, Turku Univ Hosp, University of Turku, Åbo Akademi

Contributors: Kekonen, A., Bergelin, M., Viik, J.

Number of pages: 3

Pages: 30-32

Publication date: 20 Oct 2018

Peer-reviewed: Yes

### Publication information

Journal: HAAVA

Volume: 20

Issue number: 3

ISSN (Print): 1456-3037

Original language: Finnish

ASJC Scopus subject areas: Biomedical Engineering, Dermatology

Research output: Contribution to journal > Article > 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:

[Myllykoski\\_et\\_al](#)

Research output: Contribution to journal > Article > 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 0.58 SJR 0.198 SNIP 0.446

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

### **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:ty-201705191417>

<http://www.vuorimiesyhdistys.fi/sites/default/files/materia/pdf/Materia%201-2015.pdf>

Research output: Contribution to journal > Article > Professional

### **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

### 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

### Kangasala-talo: Vanhan kulttuuripitäjän uusi kulttuuritalo

#### General information

Publication status: Published  
MoE publication type: D1 Article in a trade journal  
Organisations: School of Architecture, Research group: History of Architecture  
Contributors: Koponen, O.  
Number of pages: 3  
Pages: 67-69  
Publication date: 2015  
Peer-reviewed: Unknown

#### Publication information

Journal: Arkkitehti  
Volume: 2015  
Issue number: 4/2015  
ISSN (Print): 0783-3660  
Original language: Finnish  
Research output: Contribution to journal › Article › Professional

### Kolloidisten suspensioiden online -analysointi: tutkimuksesta liiketoimintaa

#### General information

Publication status: Published  
MoE publication type: D1 Article in a trade journal  
Organisations: Department of Materials Science, Research group: Ceramic materials, Department of Automation Science and Engineering, Research area: Measurement Technology and Process Control, Research area: Microsystems, Research area: Dynamic Systems

Contributors: Järveläinen, M., Yli-Hallila, T., Salpavaara, T., Verho, J., Vilkkö, M., Levänen, E.  
Number of pages: 4  
Pages: 54-57  
Publication date: Oct 2015  
Peer-reviewed: Unknown

#### Publication information

Journal: Materia  
Issue number: 5/2015  
ISSN (Print): 1459-9694  
Original language: Finnish  
Electronic versions:  
Materia 5-2015\_kolloidisten  
URLs:  
<http://urn.fi/URN:NBN:fi:tty-201705191418>  
<http://www.vuorimiesyhdistys.fi/sites/default/files/materia/pdf/Materia%205-2015.pdf>

#### Bibliographical note

ORG=mol,0.5  
ORG=ase,0.5  
Research output: Contribution to journal › Article › Professional

#### Koteja ja kokonaistaideteoksia

##### General information

Publication status: Published  
MoE publication type: D1 Article in a trade journal  
Organisations: School of Architecture, Research group: Urban Planning  
Contributors: Chudoba, M.  
Number of pages: 3  
Pages: 76-78  
Publication date: 2015  
Peer-reviewed: Unknown

##### Publication information

Journal: Arkkitehti  
Issue number: 3  
ISSN (Print): 0783-3660  
Original language: Finnish  
Research output: Contribution to journal › Article › Professional

#### Lasitettujen parvekkeiden ja terassien käyttäytyminen tulipaloissa

##### General information

Publication status: Published  
MoE publication type: D1 Article in a trade journal  
Organisations: Department of Civil Engineering, Research group: Service Life Engineering of Structures, Palotekninen insinööritoimisto Markku Kauriala Oy, Lumon Oy  
Contributors: Hilliaho, K., Hietaniemi, J., Visa, P.  
Number of pages: 6  
Pages: 18-23  
Publication date: 24 Aug 2015  
Peer-reviewed: Unknown

##### Publication information

Journal: Palontorjuntatekniikka  
Issue number: Erikoisnumero  
Original language: Finnish  
URLs:  
[http://issuu.com/pelastustieto/docs/ptp\\_2015](http://issuu.com/pelastustieto/docs/ptp_2015)  
Research output: Contribution to journal › Article › Professional



## Muuttuvat ajotilanteet aiheuttavat uudentyyppisiä ajoneuvojen hiukkaspäästöjä

### General information

Publication status: Published  
MoE publication type: D1 Article in a trade journal  
Organisations: Department of Physics, Research area: Aerosol Physics  
Contributors: Karjalainen, P.  
Number of pages: 4  
Pages: 28-31  
Publication date: 12 Oct 2015  
Peer-reviewed: Unknown

### Publication information

Journal: Ympäristö ja terveys  
Volume: 46  
Issue number: 6  
ISSN (Print): 0358-3333  
Original language: Finnish  
Research output: Contribution to journal › Article › Professional

## Postmodernismi Suomen rakennusperinnössä

### General information

Publication status: Published  
MoE publication type: D1 Article in a trade journal  
Organisations: School of Architecture, Research group: History of Architecture  
Contributors: Koponen, O.  
Number of pages: 3  
Pages: 72-74  
Publication date: 2015  
Peer-reviewed: Unknown

### Publication information

Journal: Arkkitehti  
Volume: 2015  
Issue number: 2/2015  
ISSN (Print): 0783-3660  
Original language: Finnish  
Research output: Contribution to journal › Article › Professional

## 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  
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

## Simulointi nopeuttaa käyttöään määritystä

### 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

### Suomen keraaminen seura - Keramiska sällskapet i Finland

An Article about the history and present state of the Finnish ceramic society

### General information

Publication status: Published

MoE publication type: D1 Article in a trade journal

Organisations: Department of Materials Science, Research group: Ceramic materials

Contributors: Frankberg, E. J.

Number of pages: 1

Pages: 58-58

Publication date: Oct 2015

Peer-reviewed: Unknown

### Publication information

Journal: Materia

Volume: 5

ISSN (Print): 1459-9694

Original language: Finnish

Keywords: Ceramic, society, Finland

URLs:

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

Research output: Contribution to journal > Article > Professional

### Tampereelta valmistuneiden vesihuoltoalan diplomi-insinöörien sijoittuminen ja odotukset yliopisto-opetukselle

### General information

Publication status: Published

MoE publication type: D1 Article in a trade journal

Organisations: Department of Chemistry and Bioengineering, Department of Civil Engineering, Tampere University of Technology, University of Tampere

Contributors: Katko, T. S., Lukka, A., Rajala, R.

Number of pages: 3

Pages: 45-47

Publication date: 2015

Peer-reviewed: Unknown

### Publication information

Journal: Vesitalous

Issue number: 2  
ISSN (Print): 0505-3838  
Original language: Finnish

#### **Bibliographical note**

ORG=keb,1  
ORG=rak,0  
AUX=orc,"Lukka, Anna"

Research output: Contribution to journal › Article › Professional

#### **Tampereen matemaattisten aineiden aineenopettajakoulutus**

We present how the education of subject teachers is organized in mathematics, science and computer science in Tampere. It is based on the idea that both engineering students and students from mathematics and science may choose to become a subject teacher. Students are accepted either to the master's degree program in Science and Engineering of Tampere University of Technology or the master's program of Mathematics and Statistics of University of Tampere. Students from different universities are giving opportunities to learn from each other. They study physics and chemistry in Tampere University of Technology and do pedagogical studies in University of Tampere. Both universities have also developed special motivating courses based on the didactical research to their students. In mathematics, there is a joined course for the second or third year students motivating towards teaching carrier. In both universities there are possibilities to do the master or bachelor thesis in didactics of mathematics or science. Both universities have an important role in education of subject teachers in Finland. Tampere University of Technology is providing opportunities during studies to cooperate between schools and industry. It gives ideas how science and mathematics are applied in the modern society. University of Tampere also trains primary school teachers with specialization in mathematics.

#### **General information**

Publication status: Published  
MoE publication type: D1 Article in a trade journal  
Organisations: Department of Mathematics, Research group: MAT Clifford analysis, Department of Chemistry and Bioengineering, Research group: Supramolecular photochemistry  
Contributors: Eriksson, S., Haukkanen, P., Hukka, T. I., Lemmetyinen, H.  
Number of pages: 8  
Pages: 800-807  
Publication date: 11 Mar 2015  
Peer-reviewed: Unknown

#### **Publication information**

Journal: Lumat  
Volume: 3  
Issue number: 6  
ISSN (Print): 2323-7112  
Original language: Finnish  
URLs:  
<http://www.luma.fi/lumat/4105>

#### **Bibliographical note**

ORG=mat,0.7  
ORG=keb,0.3

Research output: Contribution to journal › Article › 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

### **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:ty-201708161684>  
Research output: Contribution to journal › Article › General public

### **A review study of photovoltaic array maximum power point tracking algorithms**

There are numerous maximum power point tracking (MPPT) algorithms for improving the energy efficiency of solar photovoltaic (PV) systems. The main differences between these algorithms are digital or analog implementation, simplicity of the design, sensor requirements, convergence speed, range of effectiveness, as well as hardware costs. Therefore, choosing the right algorithm is very important to the users, because it affects the electrical efficiency of PV system and reduces the costs by decreasing the number of solar panels needed to get the desired power. This paper provides the comparison of 62 different techniques used in tracking the maximum power based on literature survey. This paper is intended to be a reference for PV systems users.

#### **General information**

Publication status: Published  
MoE publication type: A2 Review article in a scientific journal  
Organisations: Department of Electrical Engineering, Research area: Power engineering, Islamic University of Gaza  
Contributors: El-Khozondar, H., El-Khozondar, R., Matter, K., Suntio, T.  
Number of pages: 8  
Publication date: 18 Feb 2016  
Peer-reviewed: Yes

#### **Publication information**

Journal: Renewables: Wind, Water, and Solar  
Volume: 3  
Issue number: 1  
ISSN (Print): 2198-994X  
Original language: English  
DOIs:  
[10.1186/s40807-016-0022-8](https://doi.org/10.1186/s40807-016-0022-8)

### **Future in wood? Timber construction in boosting local development.**

Large scale timber construction has been on the upswing for some time in many European countries. Besides the building cluster, also regions and cities have taken advantage of the ongoing timber boom in their economic and spatial development. In this article the focus is on the South Ostrobothnia region and the city of Seinäjoki in Western Finland, where the potential of the business is quite weakly exploited regardless of favourable preconditions. By studying the key actors of the innovation network we are able to better understand the premises of the local development platform that should aim at boosting timber construction.

#### **General information**

Publication status: Published

MoE publication type: A2 Review article in a scientific journal

Organisations: School of Architecture, Research group: Urban Laboratory

Contributors: Hynynen, A.

Number of pages: 13

Pages: 127-139

Publication date: 2016

Peer-reviewed: Yes

#### **Publication information**

Journal: European Spatial Research and Policy

Volume: 23

Issue number: 1

ISSN (Print): 1231-1952

Ratings:

Scopus rating (2016): CiteScore 0.28 SJR 0.152 SNIP 0.378

Original language: English

Keywords: Urban development, regional development, timber construction, innovation network, development platform

DOIs:

10.1515/esrp-2016-0007

Research output: Contribution to journal › Review 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](http://www.tidskriftenvatten.se/mag/tidskriftenvatten.se/dircode/docs/48_article_4763.pdf)

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

### **Local narratives in the long term water conflicts: Case of Turku Region in Finland**

#### **General information**

Publication status: Published

MoE publication type: A2 Review article in a scientific journal

Organisations: Civil Engineering

Contributors: Juuti, P. S., Kurki, V., Rajala, R.

Pages: 39-49  
Publication date: May 2017  
Peer-reviewed: Yes

#### Publication information

Journal: Ympäristöhistoria: Finnish Journal of Environmental History  
Volume: 2017  
Issue number: 1  
ISSN (Print): 1799-6953  
Original language: English  
URLs:  
[http://www.uta.fi/yky/tutkimus/historia/projektit/iehg/Ymparistohistoria/2017\\_1.html](http://www.uta.fi/yky/tutkimus/historia/projektit/iehg/Ymparistohistoria/2017_1.html)  
Research output: Contribution to journal › Review Article › Scientific › peer-review

#### Printed and organic diodes: devices, circuits and applications

We review the history and current state of the art of diodes fabricated with organic semiconductors and other printable materials. In particular, we look at the integration of printed diodes into circuits and systems for applications, with particular emphasis on rectification, energy harvesting, and negative differential resistance (e.g. tunnel diodes). An overview of solution processed and printable organic and inorganic materials utilised in diodes is provided with an in depth analysis of their physics of operation. Furthermore, it is explained how the diverse array in which printed diodes can be implemented demonstrates their potential in the printed electronics industry.

#### General information

Publication status: Published  
MoE publication type: A2 Review article in a scientific journal  
Organisations: Electronics and Communications Engineering, Research group: Laboratory for Future Electronics, Research group: Wireless Communications and Positioning  
Contributors: Kraft, T., Berger, P., Lupo, D.  
Number of pages: 19  
Publication date: 29 Sep 2017  
Peer-reviewed: Yes

#### Publication information

Journal: Flexible and Printed Electronics  
Volume: 2  
Issue number: 3  
Article number: 033001  
ISSN (Print): 2058-8585  
Ratings:  
Scopus rating (2017): CiteScore 2.68 SJR 0.779 SNIP 1.163  
Original language: English  
Keywords: printed diodes, Printed electronics, Organic electronics, Energy Harvesting, rectification, tunnel diodes  
DOIs:  
[10.1088/2058-8585/aa8ac3](https://doi.org/10.1088/2058-8585/aa8ac3)  
Research output: Contribution to journal › Review Article › Scientific › peer-review

#### Sata vuotta Suomen suurimmasta lavantautiepidemiasta

#### General information

Publication status: Published  
MoE publication type: A2 Review article in a scientific journal  
Organisations: Civil Engineering  
Contributors: Juuti, P., Rajala, R.  
Number of pages: 3  
Pages: 12-14  
Publication date: 2017  
Peer-reviewed: Yes

#### Publication information

Journal: Vesitalous  
Volume: 2017  
Issue number: 1  
ISSN (Print): 0505-3838  
Original language: Finnish

URLs:

<http://www.vesitalous.fi/vesitalous-lehdet/vesien-historia/>

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

### **Valkea kaupunki, mustat vedet**

#### **General information**

Publication status: Published

MoE publication type: A2 Review article in a scientific journal

Organisations: Civil Engineering

Contributors: Juuti, P., Rajala, R.

Number of pages: 3

Pages: 15-17

Publication date: 2017

Peer-reviewed: Yes

#### **Publication information**

Journal: Vesitalous

Volume: 2017

Issue number: 1

ISSN (Print): 0505-3838

Original language: English

URLs:

<http://www.vesitalous.fi/vesitalous-lehdet/vesien-historia/>

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

### **Vesi, ongelma ennen ja nyt?**

#### **General information**

Publication status: Published

MoE publication type: A2 Review article in a scientific journal

Organisations: Civil Engineering

Contributors: Juuti, P.

Pages: 54-65

Publication date: May 2017

Peer-reviewed: Yes

#### **Publication information**

Journal: Ympäristöhistoria: Finnish Journal of Environmental History

Volume: 2017

Issue number: 1

ISSN (Print): 1799-6953

Original language: Finnish

URLs:

[http://www.uta.fi/yky/tutkimus/historia/projektit/iehg/Ymparistohistoria/2017\\_1.html](http://www.uta.fi/yky/tutkimus/historia/projektit/iehg/Ymparistohistoria/2017_1.html)

Research output: Contribution to journal › Review Article › 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: Girokopiya 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

#### **Experimental moment resistance of rectangular hollow section T joints**

Resistance is the main property of tubular joints. The determination of the joint resistance from the experimental load-deformation curve always represents a challenging task. Currently there are two main methods to find the experimental resistance, which are called plastic and ultimate resistance. However, there is no single opinion on which one should be commonly used. Based on the experimental results, this paper directly compares the two existed approaches. The study is restricted to welded square hollow section T joints under in-plane bending moment. The paper considers only the joints with  $\beta < 0.85$ , i.e. when the behaviour of the joint is governed by chord face failure. The results show that plastic resistance leads to more conservative results than ultimate resistance, providing thus safer results. However, attention should be also paid to the difference between the labour intensity of the presented methods.

#### **General information**

Publication status: Published  
MoE publication type: A1 Journal article-refereed  
Organisations: Civil Engineering  
Contributors: Garifullin, M.  
Publication date: 5 Dec 2018  
Peer-reviewed: Yes

#### **Publication information**

Journal: MATEC Web of Conferences  
Volume: 245  
Article number: 08003  
ISSN (Print): 2274-7214  
Ratings:  
Scopus rating (2018): CiteScore 0.42 SJR 0.169 SNIP 0.548  
Original language: English  
ASJC Scopus subject areas: Chemistry(all), Materials Science(all), Engineering(all)  
Electronic versions:  
matecconf\_eece2018\_08003  
DOIs:  
10.1051/matecconf/201824508003  
URLs:  
<http://urn.fi/URN:NBN:fi:tty-201901091034>  
Source: Scopus  
Source ID: 85058463414  
Research output: Contribution to journal › Conference article › Scientific › peer-review

#### **Quenching nematicon fluctuations via photo-stabilization**

Light localization into optical spatial solitons can be achieved by launching optical beams in nonlocal nonlinear nematic liquid crystals. Such solitons often undergo undesired fluctuations of their trajectories. We demonstrate that partial polymerization in monoacrylate-doped nematic liquid crystals is effective in quenching such fluctuations in transverse space.

#### **General information**

Publication status: Published  
MoE publication type: A1 Journal article-refereed  
Organisations: Department of Physics, Research area: Optics, Research group: Nonlinear Optics, Department of Chemistry and Bioengineering, Research group: Supramolecular photochemistry  
Contributors: Karimi, N., Alberucci, A., Virkki, M., Priimägi, A., Kauranen, M., Assanto, G.



Number of pages: 3  
Pages: 2-4  
Publication date: 31 Mar 2016  
Peer-reviewed: Yes

#### **Publication information**

Journal: Photonics Letters of Poland  
Volume: 8

Issue number: 1  
ISSN (Print): 2080-2242

Ratings:

Scopus rating (2016): CiteScore 0.37 SJR 0.197 SNIP 0.272

Original language: English

Electronic versions:

626-2449-1-PB

DOIs:

10.4302/plp.2016.1.02

URLs:

<http://urn.fi/URN:NBN:fi:tty-201604253877>

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

#### **Kattavasti rivitaloista**

##### **General information**

Publication status: Published

MoE publication type: D1 Article in a trade journal

Organisations: School of Architecture, Research group: ASUTUT

Contributors: Helamaa, A.

Number of pages: 2

Pages: 80-81

Publication date: 2015

Peer-reviewed: Unknown

##### **Publication information**

Journal: Arkkitehti

Issue number: 3

ISSN (Print): 0783-3660

Original language: Finnish

Research output: Contribution to journal › Book/Film/Article review › Professional

#### **Editorial**

##### **General information**

Publication status: Published

MoE publication type: B1 Article in a scientific magazine

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: Kähkönen, K., Huovinen, P., Keinänen, M.

Pages: 1-5

Publication date: 2015

Peer-reviewed: No

##### **Publication information**

Journal: Procedia Economics and Finance

Volume: 21

ISSN (Print): 2212-5671

Original language: English

ASJC Scopus subject areas: Engineering(all)

Research output: Contribution to journal › Editorial › Scientific

**Editorial: Experiments in an Organisational Context**

### General information

Publication status: Published

MoE publication type: B1 Article in a scientific magazine

Organisations: Industrial and Information Management, Copenhagen Business School, Mines ParisTech, London Business School

Contributors: Christiansen, J., Birkinshaw, J., Le Masson, P., Mäkinen, S.

Number of pages: 2

Publication date: 2017

Peer-reviewed: No

### Publication information

Journal: CERN IdeaSquare Journal of Experimental Innovation

Volume: 1

Issue number: 2

ISSN (Print): 2413-9505

Original language: English

DOIs:

[10.23726/cij.2017.684](https://doi.org/10.23726/cij.2017.684)

Research output: Contribution to journal › Editorial › Scientific

### Editorial: Information to support decision-making

#### General information

Publication status: Published

MoE publication type: A1 Journal article-refereed

Organisations: Civil Engineering

Contributors: Juuti, P. S.

Pages: 5-6

Publication date: May 2017

Peer-reviewed: Yes

#### Publication information

Journal: Ympäristöhistoria: Finnish Journal of Environmental History

Volume: 2017

Issue number: 1

ISSN (Print): 1799-6953

Original language: English

URLs:

[http://www.uta.fi/yky/tutkimus/historia/projektit/iehg/Ymparistohistoria/2017\\_1.html](http://www.uta.fi/yky/tutkimus/historia/projektit/iehg/Ymparistohistoria/2017_1.html)

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

### 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

### 8th Nordic Conference on Construction Economics and Organization

#### General information

Publication status: Published

MoE publication type: C2 Edited books

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: Kähkönen, K. (ed.)  
Publication date: 2015  
Peer-reviewed: Yes

#### **Publication information**

Journal: Procedia Economics and Finance  
Volume: 21  
ISSN (Print): 2212-5671  
Original language: English  
Research output: Contribution to journal › Special issue › 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 1.329 SNIP 0.733  
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](http://www.frontiersin.org/10.3389/conf.fnins.2010.13.00061/event_abstract)  
Research output: Contribution to journal › Meeting Abstract › 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

#### Meeting of Vernacular and Modern Architecture in Urbino: Giancarlo De Carlo and reading of the context

##### General information

Publication status: Published  
MoE publication type: B2 Part of a book or another research book  
Organisations: School of Architecture, Research group: History of Architecture  
Contributors: Koponen, O.  
Number of pages: 4  
Pages: 26-29  
Publication date: 2015

##### Host publication information

Title of host publication: Italian Vernadoc 2015 – Amandola : Studying Italia and its architecture. The first 10 VERNADOC-years  
Place of publication: Helsinki  
Publisher: Suomen ICOMOS, kansanrakentamisen komitea  
Editor: Mattila, M.  
ISBN (Print): 978-952-67465-9-3  
Research output: Chapter in Book/Report/Conference proceeding › Chapter › Scientific

#### Ulkoseinien 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

#### 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

#### A Proposal of Decentralized Architecture for OKD-MES

Recent research work in the industrial automation field determines that the computational power of embedded devices, which is used for process control on the shop floor, is sufficient for handling new functionalities. Therefore, it becomes possible to manage knowledge that is encapsulated in embedded devices, demonstrating a decentralized solution for controlling processes at the lowest level of the ISA-95 automation pyramid. This chapter argues that part of the OKD-MES functionality can be lowered to the device level. Moreover, the presented chapter exhibits that OKD-MES representation and management of knowledge can be distributed and handled in the shop floor, where devices are capable of controlling processes that are later executed by machines. Hence, this chapter offers an alternative for the actual architecture of OKDMES, which is now centralized in terms of knowledge management. Furthermore, concepts, requirements and an early architecture for developing a decentralized OKD-MES are also shown and discussed

#### 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: Ferrer, B. R.

Number of pages: 10

Pages: 331-340

Publication date: 2015

#### Host publication information

Title of host publication: Open Knowledge-Driven Manufacturing & Logistics : The eScop Approach

Place of publication: Warsaw

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

#### 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

### **Crowdsourcing in Business-to-Business Markets: A Value Creation and Business Model Perspective**

The foundation for the analysis of this chapter builds on the value creation model of Amit and Zott (2001), where they studied the importance of sources of value creation in the field of electronic business. This model was chosen for the purposes of this study because it is developed from fundamental value creation models and dominates concerning value creation in e-business, of which crowdsourcing by utilizing social media tools represents also. Moreover, Amit and Zott's business model (2001, p. 511), which focuses on e-business for B2C companies, can be adapted for all virtual markets in general, and also applies to B2B companies (2006, p. 20). Most importantly, the model enables to analyze the relations between value creation and business model. In next, the theoretical background of value creation is opened up especially in the context of business-to-business markets, and furthermore, the model of Amit and Zott (2001) is presented. Lastly, crowdsourcing in business-to-business markets as the research context of the present study is discussed.

#### **General information**

Publication status: Published

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

Organisations: Department of Information Management and Logistics, Research group: Novi, Managing digital industrial transformation (mDIT)

Contributors: Bernhardt, J., Helander, N., Jussila, J., Kärkkäinen, H.

Number of pages: 11

Pages: 933-943

Publication date: Apr 2016

#### **Host publication information**

Title of host publication: Encyclopedia of E-Commerce Development, Implementation, and Management

Place of publication: United States

Publisher: IGI Global

Article number: 66

ISBN (Print): 978-1-4666-9787-4

Keywords: Crowdsourcing, value creation, business model

Electronic versions:

Crowdsourcing in Business-to-Business Markets

DOIs:

10.4018/978-1-4666-9787-4.ch066

URLs:

<http://urn.fi/URN:NBN:fi:tty-201608084397>

URLs:

<http://www.igi-global.com/chapter/crowdsourcing-in-business-to-business-markets/149014>

Research output: Chapter in Book/Report/Conference proceeding › Chapter › 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**

jufoid=85075  
Source: Bibtex  
Source ID: urn:531c45abc12e7076a1ecfdb73d8ebcbb  
Research output: Chapter in Book/Report/Conference proceeding > Chapter > Scientific > peer-review

#### **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

#### **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

### **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



### **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

### **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

## Jossakin vuoti öljy, muualla tihkuivat tiedot - etiikka katoavien rajojen ja suurten skandaalien aikakaudella

### General information

Publication status: Published

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

Organisations: Pori Department

Contributors: Lilja, K.

Number of pages: 16

Pages: 85-101

Publication date: 2015

### Host publication information

Title of host publication: Silmät auki It-etiikkaan

Publisher: EDUSKUNNAN TULEVAISUUSVALIOKUNTA

ISBN (Print): 978-951-53-3581-4

ISBN (Electronic): 978-951-53-3582-1

### Publication series

Name: Eduskunnan tulevaisuusvaliokunnan julkaisu

Publisher: Tulevaisuusvaliokunta

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ISSN (Electronic): 2342-6608

URLs:

[https://www.eduskunta.fi/FI/tietoeduskunnasta/julkaisut/Documents/tuvj\\_12+2014.pdf](https://www.eduskunta.fi/FI/tietoeduskunnasta/julkaisut/Documents/tuvj_12+2014.pdf)

### Bibliographical note

AUX=pla,"Lilja, Kari"

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

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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

#### **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

#### **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

### **On Polyglot Programming in the Web**

Different programming languages have been designed to solve problems efficiently in different domains. The goal of polyglot programming, a technique where several languages are used in the creation of a single application, is to combine and utilize the best solutions from different programming languages and paradigms in a seamless fashion. In this paper, the authors examine polyglot programming in the context of web applications, where it has been commonly used to create compelling applications, but where there is still considerable potential to improve development in various ways.

#### **General information**

Publication status: Published

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

Organisations: Department of Pervasive Computing, Research area: Software engineering, Ada Drive

Contributors: Harmanen, J., Mikkonen, T.

Number of pages: 18

Pages: 102-119

Publication date: 2016

#### **Host publication information**

Title of host publication: Modern Software Engineering Methodologies for Mobile and Cloud Environments

Publisher: IGI Global

ISBN (Print): 9781466699168

ISBN (Electronic): 9781466699175

DOIs:

10.4018/978-1-4666-9916-8.ch006

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

### **On service composition - dynamic formation and orchestration of service workflows**

Service-oriented approach to system engineering makes engineers to rethink the way to build and maintain a system. Use of Web Service technologies enables to remove rigid connections between software components to reassemble them dynamically at run-time according to the actual needs of applications. Such an approach can in some cases provide additional necessary functionality, which may not have been envisioned at the design time. This chapter presents an approach to orchestration allowing dynamic formation of service hierarchies in in-line with production needs, which allows tracking on all the existing service workflows. Hence the locus of control for the overall system is kept. The use of eScop Manufacturing System Ontology (MSO) for orchestration purposes is also proposed to keep the track on orchestration workflows.

#### **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: Lobov, A.

Number of pages: 9

Pages: 311-319

Publication date: 2015

#### **Host publication information**

Title of host publication: Open Knowledge-Driven Manufacturing and 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

### **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

### **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 km<sup>2</sup> 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

JUF0ID=82325

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

### Quality evaluation on of contractor's schedule for building renovation

In building and construction projects, the phase schedule developed by the contractor for the bidding phase, or after the contract award, has to be evaluated by owner's consultant for schedule approval. After approval, the phase schedule becomes the baseline for project control process and therefore it becomes very important to both owner and contractor to ensure that contract obligations will be respected. The baseline schedule developed by the contractor is frequently used by project supervisors or construction managers to justify (or deny) a request of time extensions, or to evaluate process efficiency and the possibility of late completion, and therefore can have major consequences in project cost management. In the owner's perspective, three are the main requirements to be fulfilled in a baseline schedule. Firstly, the construction total duration, i.e. contract time requirements about milestones and project completion. Secondly, baseline schedule entails the promised average process production rate that should fulfill contract requirements for progress payments. Thirdly, the construction safety coordination requirement, i.e. the compliance of the schedule with the safety – oriented project schedule developed by the safety coordinator (under the health and safety EU directive). In addition to this, the review of the phase schedule should give evidence of the quality of the schedule itself, i.e. give proof of its validness. In the research behind this paper, a Schedule Health Assessment procedure has been proposed for the evaluation of the schedule quality, and it is suggested to adopt the Schedule Health Assessment approach for the contractor's schedule review and approval. A case study of a renovation building project has been analyzed to test the proposed procedure and the possibility of using it for contractor's schedule approval in design-bid-build or design – build projects.

### General information

Publication status: Published

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

Organisations: 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: Kähkönen, K., Brandt, J.

Number of pages: 10

Pages: 175-184

Publication date: 1 Aug 2017

### Host publication information

Title of host publication: Re-shaping the construction industry

Publisher: ISTeA Italian Society of Science, Technology and Engineering of Architecture; Maggioli Editore

Editors: Ciribini, A., Alaimo, G., Capone, P., Daniotti, B., Dell'Osso, G., Nicoletta, M.

ISBN (Electronic): 978-88-916-2486-4

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

### Reinventing organisational creativity and innovation through adapting a service-based working culture

#### General information

Publication status: Published

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

Organisations: Department of Information Management and Logistics

Contributors: Ketonen-Oksi, S.

Number of pages: 20

Pages: 1-20

Publication date: 2017

#### Host publication information

Title of host publication: Integrating arts and creativity into business practice

Publisher: IGI Global

Editors: Schiuma, G., Lerro, A.

ISBN (Electronic): 978-1-5225-2050-4

DOIs:

10.4018/978-1-5225-2050-4

### **Re-inventing organizational creativity and innovation through adopting a service-based working culture**

By considering creativity to be a necessity for organisational competitiveness in today's rigorously changing working environments, this study seeks to examine whether adopting a service-based working culture could significantly improve organisational creativity and innovation. Grounded on the concepts of the Service-Dominant Logic and Complex Adaptive Systems, this research develops on understanding of the complexity of the emerging socially and digitally connected networks of individuals, teams and institutions. By introducing a novel framework for facilitating and improving the adaptability of a service-based working culture, this study offers both deliberation and practical advice for business organisations seeking valuable insight into how to develop and manage organisational creativity and innovation in increasingly digitalised service ecosystems. Specifically, the proposed framework encourages organisations to invest in the learning capacities and motivations of their employees.;

#### **General information**

Publication status: Published

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

Organisations: Industrial and Information Management

Contributors: Ketonen-Oksi, S.

Number of pages: 20

Pages: 1-20

Publication date: 28 Dec 2016

#### **Host publication information**

Title of host publication: Integrating Art and Creativity into Business Practice

Publisher: IGI Global

ISBN (Print): 9781522520504

ISBN (Electronic): 9781522520511

ASJC Scopus subject areas: Arts and Humanities(all), Economics, Econometrics and Finance(all), Business, Management and Accounting(all)

DOIs:

10.4018/978-1-5225-2050-4.ch001

Source: Scopus

Source ID: 85016922803

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

### **Technical suitability of the fine fraction of municipal solid waste incineration bottom ash to the landfill capping liner**

To protect the natural aggregates and promote the circular economy the suitable secondary aggregates have been studied intensively in last decades in Finland. One promising secondary aggregate is bottom ash from the municipal solid waste incineration (MSWI) process.

The municipal incinerator bottom ash (MIBA, also called MSWI BA) contains heavy metals and other contaminants limiting its environmental acceptability. The fines contain typically the highest concentrations of contaminants. The portion of inert particles such as rock, glass and mineral waste is higher in coarser fractions.

The aim of the study was to assess the suitability of the fines of MIBA to the mineral liner in landfill capping. Based on the environmental permit, the target permeability value for capping liner is  $k \leq 1 \cdot 10^{-9}$  m/s. The permeability of the fines of MIBA is typically around  $1 \cdot 10^{-7}$  m/s when well compacted. In order to achieve the required permeability, bentonite or other additives are needed. The grains are porous and the pH is high, typically 10-12, which effect on the amount of bentonite required. In addition, the MIBA contain high concentrations of diluting chlorides, sulfides and calcium, which decrease the swelling properties of the bentonite. The swelling capacity of bentonite decreases when permeating aggressive leakages with high cation concentration. Therefore a special polymer treated bentonite were chosen for the tests. The addition of superabsorbent polymers, which have much higher resistance to aggressive leakages, greatly improve the performance and self-healing capacity of bentonite.

First, laboratory tests were performed to estimate the proper amount and quality of the bentonite needed to achieve the permeability required. Two bentonite types were tested, the common natural bentonite and a special polymer modified bentonite produced by Cetco. The swelling index of both types of bentonite were tested by a eluate of MIBA. Several permeability tests were performed to evaluate the effect of dry density, bentonite quality and dose, and portion of coarser grains (2-5 mm).

After laboratory testing, a test area was constructed on an old waste fill to the Ämmässuo. During the construction, it was noticed that the water content effects significantly on the compaction result. The mineral liner was covered by a 1,5 mm thick LLDPE geomembrane and protective geotextile. The liner structure is covered only by a 0,5 m thick drainage layer from crushed rock. No surface layer were constructed.

After one year, the liner was exposed and studied. The quality of the structures, especially the mineral liner were visually evaluated and gas emissions were measured from the surface. The density of the layer was measured by volymeter and troxler and the water content and permeability were measured in laboratory. Based on the visual inspection the surface of the mineral liner was smooth, and the layer homogenous and hardened

### General information

Publication status: Published  
MoE publication type: A3 Part of a book or another research book  
Organisations: Civil Engineering, Research group: Earth Constructions  
Contributors: Leppänen, M., Sarkkila, J., Hämäläinen, H., Rinkinen, J.  
Pages: 168-175  
Publication date: 6 Jun 2018

### Host publication information

Title of host publication: Proceedings of the 10th International Conference on the Environmental and Technical Implications of Construction with Alternative Materials WASCON 2018 : No Gradle, No Grave - Circular Economy into Practice  
Publisher: RIL - Finnish Association of Civil Engineers  
Editors: Raasakka, V., Lahtinen, P.  
ISBN (Electronic): 978-951-758-631-3  
Keywords: municipal solid waste bottom slag, Landfill cover, bentonite, chemical incompatibility  
Research output: Chapter in Book/Report/Conference proceeding › Chapter › Scientific › peer-review

## The New Era of Crowdsourcing — Industrial Crowdsourcing

### General information

Publication status: Published  
MoE publication type: A3 Part of a book or another research book  
Organisations: Department of Information Management and Logistics, Research group: Novi, Managing digital industrial transformation (mDIT), DIGILE – Finnish Center for Science and Innovation in the Internet Economy  
Contributors: Kärkkäinen, H., Jussila, J., Erkinheimo, P.  
Number of pages: 7  
Pages: 25-31  
Publication date: 2015

### Host publication information

Title of host publication: Open Innovation Yearbook 2015  
Place of publication: Brussel  
Publisher: European Commission  
Editor: Salmelin, B.  
ISBN (Electronic): 978-92-79-43962-9  
Keywords: crowdsourcing, industrial crowdsourcing  
DOIs:  
10.2759/92658  
URLs:  
[http://ec.europa.eu/newsroom/dae/document.cfm?doc\\_id=9637](http://ec.europa.eu/newsroom/dae/document.cfm?doc_id=9637)  
Research output: Chapter in Book/Report/Conference proceeding › Chapter › 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

Source: Scopus

Source ID: 85055224030

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

### **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

### **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

ISBN (Electronic): 978-3-319-27996-1

### Publication series

Name: Computational Methods in Applied Sciences

Volume: 41

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

JUF0ID=79940

EXT="Ylinen, Antti"

Source: Scopus

Source ID: 84964233721

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

## Water services heritage and institutional diversity

### General information

Publication status: Published

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

Organisations: Department of Civil Engineering, Research group: Industrial Bioengineering and Applied Organic Chemistry

Contributors: Katko, T. S., Juuti, P., Pietilä, P., Rajala, R.

Publication date: 2015

### Host publication information

Title of host publication: Water and Heritage: material, conceptual and spiritual connections

Publisher: Sidestone Press

Editors: Willems, W., van Schaik, H.

ISBN (Print): 9789088902789

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

## 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](http://www.sykoy.fi/wp-content/uploads/oppiva-kampus_valmis_pieni.pdf)  
Research output: Chapter in Book/Report/Conference proceeding › Chapter › Professional

### **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

### **Liite 6: Yleistä kaivannaisjätealueista ja patoturvallisuudesta**

#### **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: Earth Constructions  
Contributors: Leppänen, M., Välisalo, T. (ed.), Laasonen, J.  
Publication date: 2014

#### **Host publication information**

Title of host publication: Kaivosten stressitesti 2013  
Publisher: Ympäristöministeriö  
ISBN (Electronic): 978-952-11-4269-7

#### **Publication series**

Name: Ympäristöministeriön raportteja  
URLs:  
[http://www.ym.fi/fi-FI/Ajankohtaista/Julkaisut/YMra\\_22014\\_Kaivosten\\_stressitesti\\_2013%2828221%29](http://www.ym.fi/fi-FI/Ajankohtaista/Julkaisut/YMra_22014_Kaivosten_stressitesti_2013%2828221%29)  
Research output: Chapter in Book/Report/Conference proceeding › Chapter › Professional

### **Matkalla joustaviin asuinympäristöihin**

#### **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: ASUTUT  
Contributors: Kotilainen, S.  
Number of pages: 4  
Pages: 10-13  
Publication date: 31 Mar 2015

#### **Host publication information**

Title of host publication: Joustavat asuinympäristöt : 10 visiota aikaa kestävään kaupunkiasumiseen  
Volume: 16

Place of publication: Tampere  
Publisher: Tampereen teknillinen yliopisto. Arkkitehtuurin laitos  
Article number: 1  
ISBN (Print): 978-952-15-3476-8  
ISBN (Electronic): 978-952-15-3477-5

#### **Publication series**

Name: Housing Design  
Publisher: Tampere University of Technology. School of Architecture.  
Volume: 16  
URLs:

<http://URN.fi/URN:ISBN:978-952-15-3477-5>

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

### **Puurakentamisesta potkua alueiden ja kaupunkien kehittämiseen**

#### **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: Urban Laboratory  
Contributors: Hynynen, A.  
Number of pages: 19  
Pages: 75-93  
Publication date: 2015

#### **Host publication information**

Title of host publication: Puu-Hubi. : Perinteestä uusiin innovaatioihin

Publisher: Tampereen teknillinen yliopisto. Arkkitehtuurin laitos

Editors: Hynynen, A., Panu, A., Taanila, T.

ISBN (Print): 978-952-15-3497-3

ISBN (Electronic): 978-952-15-3498-0

URLs:

<http://URN.fi/URN:ISBN:978-952-15-3498-0>

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

### **Rakennusten rakennusfysikaalisen 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

### **Rakenteiden ääneneristyskyvystä asumismelun kokemiseen**

#### **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 Acoustics

Contributors: Kylliäinen, M.

Number of pages: 5

Pages: 92-96

Publication date: 2015

#### Host publication information

Title of host publication: Rakentajain Kalenteri

Place of publication: Helsinki

Publisher: Rakennustieto Oy

ASJC Scopus subject areas: Acoustics and Ultrasonics

Keywords: acoustics, building acoustics, sound insulation

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

### Tammerkoski ja Hämeenkatu Tampereen arkkitehtonisen identiteetin ankkureina

#### 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

Contributors: Koponen, O.

Number of pages: 8

Pages: 35-42

Publication date: 2015

#### Host publication information

Title of host publication: Tampereen tarina : Teollisuuden synnyttämä kaupunki harjujen ja järvien solmukohdassa

Volume: Julkaisuja 5/2015

Place of publication: Kaupunkiympäristön kehittäminen

Publisher: Tampereen kaupunki

Editor: Hautamäki, R.

ISBN (Print): 978-951-609-783-4

#### Publication series

Name: Tampereen kaupunki/Kaupunkiympäristön kehittäminen

Publisher: Tampereen kaupunki

Volume: 5/2015

ISSN (Print): 1797-321X

URLs:

[http://www.tampere.fi/liitteet/t/bV6J59ALc/Tampereen\\_tarina.pdf](http://www.tampere.fi/liitteet/t/bV6J59ALc/Tampereen_tarina.pdf)

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

### 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 tilarakenteissa 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](http://sykoy.fi/wp-content/uploads/oppiva-kampus_valmis_pieni.pdf)

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

## Uusia tuulia Euroopasta

### 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: Built Environment in Transition, Research group: Urban Planning Theory

Contributors: Lehtovuori, P.

Number of pages: 18

Pages: 42-59

Publication date: 2015

### Host publication information

Title of host publication: Asukkaan ehdoilla : moninaisuutta asumamuotoihin

Place of publication: Helsinki

Publisher: Rakennustieto Oy

ISBN (Print): 978-952-267-100-4

URLs:

<https://www.rakennustietokauppa.fi/asukkaan-ehdoilla-moninaisuutta-asumamuotoihin-/112609/dp?nosto=recommended>

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

## 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](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

## ÄKK-hankkeen suositukset tulevaisuuden ääneneristysmääräyksiä koskien

### General information

Publication status: Published

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

Organisations: Department of Civil Engineering, Research group: Building Acoustics, University of Turku, Finnish Institute of Occupational Health, Indoor Environment Laboratory

Contributors: Hongisto, V., Kylliäinen, M., Hyönä, J.

Number of pages: 6

Pages: 561-566

Publication date: 22 Oct 2015

### Host publication information

Title of host publication: Rakennusfysiikka 2015

Place of publication: Tampere

Publisher: Tampereen teknillinen yliopisto, rakennustekniikan laitos, rakennetekniikka

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

ASJC Scopus subject areas: Civil and Structural Engineering, Acoustics and Ultrasonics

Keywords: acoustics, sound insulation, airborne sound insulation, impact sound insulation, psychoacoustics

URLs:

<http://www.tut.fi/cs/groups/public/@l912/@web/@p/documents/liit/x124266.pdf>

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

## 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](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

## A model for anisotropic magnetostriction

### 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, Lund University, Aalto University

Contributors: Belahcen, A., Kouhia, R., Rasilo, P., Ristinmaa, M.

Number of pages: 3  
Pages: 201-203  
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

#### Bibliographical note

EXT="Rasilo, Paavo"

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

#### 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](http://rmseura.tkk.fi/smp_proceedings/SMP12_Proceedings.pdf)

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

#### An experimental and numerical study of the dynamic Brazilian disc test on Kuru granite

This paper deals with numerical modeling of the dynamic tensile strength of Kuru granite and corresponding experiments with the dynamic Brazilian Disc (BD) tests using the Split Hopkinson Pressure Bar apparatus (SHPB). It was found that the indirect tensile strength of the Kuru granite increased from the static value of 13 MPa to 36 MPa when the impact velocity reached 20 m/s. A numerical method was developed for simulations of these tests. The method includes a material model based on the rate-dependent isotropic compliance damage and embedded discontinuity concepts for rock and an FEM based explicit time marching technique for simulating the dynamics of the SHPB apparatus. Simulation results are in decent agreement with the experiments.

#### General information

Publication status: Published  
MoE publication type: B3 Non-refereed article in conference proceedings  
Organisations: Department of Materials Science, Research group: Materials Characterization, Department of Mechanical Engineering and Industrial Systems, Research area: Applied Mechanics  
Contributors: Mardoukhi, A., Saksala, T., Hokka, M., Kuokkala, V.  
Number of pages: 6  
Pages: 210-215  
Publication date: 2015

#### Host publication information

Title of host publication: Proceedings of the XII Finnish Mechanics Day  
ISBN (Print): 978-952-93-5608-9  
ISBN (Electronic): 978-952-93-5609-6  
Keywords: Dynamic Brazilian Disc test, Split Hopkinson Pressure Bar, FEM, rock fracture  
URLs:



[http://rmseura.tkk.fi/smp\\_proceedings/SMP12\\_Proceedings.pdf](http://rmseura.tkk.fi/smp_proceedings/SMP12_Proceedings.pdf)

#### **Bibliographical note**

ORG=mol,0.5

ORG=mei,0.5

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

### **Asuinhuoneistojen betonivälipohjien askelääneneristyksen subjektiivinen ja objektiivinen arviointi**

#### **General information**

Publication status: Published

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

Organisations: Department of Civil Engineering, Research group: Building Acoustics, Finnish Institute of Occupational Health

Contributors: Kylliäinen, M., Oliva, D., Rekola, L., Hongisto, V.

Number of pages: 4

Pages: 204-207

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\\_11.pdf](http://www.akustinenseura.fi/wp-content/uploads/2015/09/AP2015_Paperin_palautus_11.pdf)

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

### **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: Mimitakis, 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

### **Background-Free Second-Harmonic Generation Microscopy of Individual Carbon Nanotubes**

#### **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, Frontier Photonics, Department of Applied Physics and Nanomicroscopy Center, Aalto University, Univ Jyväskylä, University of Jyväskylä, Dept Chem, Nanosci Ctr

Contributors: Bautista, G. S., Johansson, A., Parappurath, N., Herranen, O., Myllyperkiö, P., Jiang, H., Kauppinen, E., Pettersson, M., Kauranen, M.  
Number of pages: 2  
Publication date: 2015

#### Host publication information

Title of host publication: Nonlinear Optics 2015 : Kauai, Hawaii United States 26–31 July 2015  
Publisher: OSA  
Article number: NW1A.5  
ISBN (Print): 978-1-55752-001-2

#### Publication series

Name: Nonlinear Optics Conference Series

DOIs:

10.1364/NLO.2015.NW1A.5

URLs:

<https://www.osapublishing.org/abstract.cfm?URI=NLO-2015-NW1A.5>

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

#### Barkhausen noise Potcore sensor simulations with Comsol

##### General information

Publication status: Published

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

Organisations: Research group: Materials Characterization, Materials Science, Stresstech Oy

Contributors: Laitinen, A., Santa-aho, S., Lukinmaa, H., Suominen, L., Vippola, M.

Number of pages: 11

Pages: 97-107

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

#### Betonin kosteusteknisten materiaaliominaisuuksien määrittäminen

##### 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: 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](http://www.tut.fi/cs/groups/public_news/@l102/@web/@p/documents/liit/x229246.pdf)

#### Bibliographical note

INT=RAK, "Vänttinen, Kari"

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

### **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

### **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](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

### **By64 Tuulettuvat julkisivut 2016 -suunnittelu- ja toteusohjeen laadinta**

#### **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: Annala, P., Lahdensivu, J., Pikkuvirta, J., Pakkala, T.

Number of pages: 6

Pages: 109-114

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,"Pikkuvirta, Jussa"

## 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

## Cavitation wear characteristics of Al<sub>2</sub>O<sub>3</sub>-ZrO<sub>2</sub>-ceramic coatings deposited by APS and HVOF -processes

Thermally sprayed ceramic coatings are used in environments requiring good wear- and corrosion resistance among others. However, a typical issue with ceramic coatings is their low impact resistance and tendency to fail catastrophically by cracking. In bulk ceramics, the Al<sub>2</sub>O<sub>3</sub>-ZrO<sub>2</sub>-composition has been of interest for long since already small additions of ZrO<sub>2</sub> into Al<sub>2</sub>O<sub>3</sub> have shown improvements in fracture toughness compared to pure Al<sub>2</sub>O<sub>3</sub>. Efforts are being made to induce this increased resistance to fracturing in thermally sprayed coatings as well, resulting in higher wear resistance due to a more predictable behavior and damage-tolerance. In this work, Al<sub>2</sub>O<sub>3</sub>-ZrO<sub>2</sub>-coatings have been deposited by atmospheric plasma spray (APS) and high-velocity oxy-fuel spray (HVOF) processes. The wear characteristics of the coatings were evaluated with cavitation erosion, delving into the mechanics of the erosion and the resulting microstructural changes in the coatings. Evidence of phase transformation of t-ZrO<sub>2</sub> to m-ZrO<sub>2</sub> was found during the erosion. The HVOF-sprayed coating exhibited greater wear resistance against the cavitating bubbles due to its finer microstructure.

### General information

Publication status: Published

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

Organisations: Materials Science, Research group: Surface Engineering, Institute of Plasma Physics, Academy of Sciences of the Czech Republic

Contributors: Kiilakoski, J., Lukac, F., Koivuluoto, H., Vuoristo, P.

Number of pages: 6

Pages: 928-933

Publication date: 9 Jun 2017

### Host publication information

Title of host publication: International Thermal Spray Conference ITSC 2017, Conference Proceedings : June 7-9, 2017, Düsseldorf, Germany.

Volume: 336

Place of publication: Düsseldorf

Publisher: DVS Media GmbH

ISBN (Electronic): 978-3-96144-000-9

### Publication series

Name: DVS-Berichte / DVS - Deutscher Verband für Schweißen und Verwandte Verfahren e.V.

Publisher: DVS Media GmbH

ISSN (Electronic): 0418-9639

ASJC Scopus subject areas: Mechanics of Materials, Surfaces, Coatings and Films

Keywords: Thermal spray coating, HVOF spraying, Cavitation damage, alumina-ytria-stabilized zirconia, Erosion testing, PLASMA SPRAY

URLs:

<https://www.dvs-ev.de/call4papers/index.cfm?vid=85&id=5>

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

## Characteristics of Digital Hydraulics with Commercial Controllers

Model-based control algorithms of digital hydraulic valves offer optimized control performance, but are computationally heavy. Research work has been carried out using PC hardware such as dSPACE real-time systems. In order to apply digital hydraulic valve control in real, series production application, the algorithms should be redesigned such that

controllers with limited computation power are sufficient. The paper presents methods for lowering the computational burden and shows the effect of optimization methods in execution time. Model-based controller design is carried out in MATLAB/Simulink and automatic code generation is used in implementation phase. A wheel loader equipped with digital hydraulic valve system is presented as a test case, where control algorithms are implemented on commercial Bosch Rexroth BODAS RC controller. Preliminary work for computationally faster control algorithms is carried out on mobile boom mock-up. The methods presented decrease the execution time to approximately 1/194 of the original.

#### **General information**

Publication status: Published

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

Organisations: Department of Intelligent Hydraulics and Automation, Research group: Digital hydraulics, Research group:

Fluid power automation in mobile machines, Research group: Powertrain design

Contributors: Huova, M., Ahopelto, M., Ketonen, M., Ahola, V., Linjama, M., Huhtala, K.

Number of pages: 15

Pages: 114-128

Publication date: Feb 2015

#### **Host publication information**

Title of host publication: The Seventh Workshop on Digital Fluid Power

Publisher: Linz Center of Mechatronics

ISBN (Print): 978-3-200-04014-4

Keywords: Digital Hydraulics, Digital Valve System, Digital hydraulic valve control, DFCU, Optimization, Mobile machine

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

### **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

### **Computational modelling of high-cycle fatigue using a continuum based model**

In this paper a computational implementation of continuum based transversally isotropic fatigue model is described. The key idea of the continuum based HCF-model is the moving endurance surface where the movement is described by a back stress type tensor, the evolution of which is described by a rate type equation. Furthermore, damage accumulation is also governed with a rate type evolution equation. The model is implemented in the Abaqus FE-program using the user material subroutine. Two strategies to perform a fatigue analysis are compared in a standard cycling loading case. The first analysis reflects the procedure used in a standard fatigue computation. In the second analysis type the effect of evolving damage fields on fatigue life is investigated.

#### **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: Holopainen, S., Kouhia, R., Könnö, J., Saksala, T.

Number of pages: 4

Pages: 71-74

Publication date: 2015

#### **Host publication information**

Title of host publication: Proceedings of the NSCM28 : 28th Nordic Seminar on Computational Mechanics, October 22 – 23, 2015, Tallinn, Estonia

ISBN (Print): 978-9949-430-95-6

ISBN (Electronic): 978-9949-430-96-3

Electronic versions:

Holopainen\_etal\_NSCM28

URLs:

[http://www.ioc.ee/nscm28/files/Proceedings\\_of\\_NSCM28.pdf](http://www.ioc.ee/nscm28/files/Proceedings_of_NSCM28.pdf)

<http://urn.fi/URN:NBN:fi:tty-201610194608>

### **Bibliographical note**

oa 2015 Holopainen et al tarkistettu 19.10.2016 /KK

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

## **Detailed analysis of laser-induced breakdown spectroscopy of single particles using electrodynamic balance trapping**

### **General information**

Publication status: Published

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

Organisations: Department of Physics, Research area: Optics, Research area: Aerosol Physics, Research group: Applied Optics

Contributors: Järvinen, S. T., Saari, S., Keskinen, J., Toivonen, J.

Pages: CH\_7\_5

Publication date: 2015

### **Host publication information**

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

Publisher: Optical Society of America

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

URLs:

[http://www.osapublishing.org/abstract.cfm?URI=CLEO\\_Europe-2015-CH\\_7\\_5](http://www.osapublishing.org/abstract.cfm?URI=CLEO_Europe-2015-CH_7_5)

Source: Bibtex

Source ID: urn:6a7f30acd7f36662c9eb556c444f9d16

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

## **Development of New Kinds of Plasmonics Materials Through Swift Heavy Ion Shaping Technique**

### **General information**

Publication status: Published

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

Organisations: Department of Physics, Research group: Nonlinear Optics

Contributors: Cardin, J., Dufour, C., KHOMENKOV, V., Fafin, A., Monnet, I., Rizza, G., COULON, P., Slablab, A., Maily, D., Ulysse, C., Lafosse, X., Perruchas, S., Gacoin, T.

Publication date: 1 Jun 2013

### **Host publication information**

Title of host publication: 7th International Conference on Materials for Advanced Technologies (ICMAT 2013), Jun 2013, Suntec, Singapore

Place of publication: Singapore

URLs:

<https://hal.archives-ouvertes.fr/hal-01141517>

Source: Bibtex

Source ID: urn:ea7999b3358b51830b80923b8fb84f3a

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

## **Digital Hydraulics on Rails – Pilot Project of Improving Reliability on Railway Rolling Stock by Utilizing Digital Valve System**

### **General information**

Publication status: Published

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

Organisations: Department of Intelligent Hydraulics and Automation, Research group: Fluid power automation in mobile machines, Research group: Powertrain design, Research group: Digital hydraulics, Bosch Rexroth AG, VR-Group Ltd

Contributors: Fischer, H., Laamanen, A., Iso-Heiko, A., Schäfer, O., Karvonen, M., Karhu, O., Huhtala, K., Pulkkinen, V., Huttunen, A.

Number of pages: 11

Pages: 644-654

Publication date: 20 May 2015

#### Host publication information

Title of host publication: Proceedings of The Fourteenth Scandinavian International Conference on Fluid Power, SICFP15

Editors: Laamanen, A., Huhtala, K.

ISBN (Electronic): 978-952-15-3530-7, 978-952-15-3658-8

URLs:

<http://URN.fi/URN:ISBN:978-952-15-3530-7>

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

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

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

### 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

### 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., Ihanntola, S., Peräjärvi, K., Toivonen, H., Nicholl, A., Hrneck, 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](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

#### Emergency Voice/Stress - level Combined Recognition for Intelligent House Applications

Legacy technologies for word recognition can benefit from emerging affective voice retrieval, potentially leading to intelligent applications for smart houses enhanced with new features. In this work we introduce the implementation of a system, capable to react to common spoken words, taking into account the estimated vocal stress level, thus allowing the realization of a prioritized, affective aural interaction path. Upon the successful word recognition and the corresponding stress level estimation, the system triggers particular affective-prioritized actions, defined within the application scope of an intelligent home environment. Application results show that the established affective interaction path significantly improves the ambient intelligence provided by an affective vocal sensor that can be easily integrated with any sensor-based home monitoring system.

#### General information

Publication status: Published

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

Organisations: Research Community on Data-to-Decision (D2D), Technological Educational Institute of Piraeus, Ionian University, BLUE dev Ltd.

Contributors: Drossos, K., Floros, A., Agavanakis, K., Tatlas, N., Kanellopoulos, N.

Number of pages: 11

Publication date: Apr 2012

#### Host publication information

Title of host publication: Audio Engineering Society Convention 132

Publisher: AES Audio Engineering Society

URLs:

<http://www.aes.org/e-lib/browse.cfm?elib=16253>

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

#### 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

#### **Energiatohokkuusinformaatio 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](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

#### **Energiatohokkuus on entistä enemmän sähkötehon hallintaa**

##### **General information**

Publication status: Published

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

Organisations: Civil Engineering, Research group: Real estate development, Research group: Capacity Development of Water and Environmental Services CADWES, Tampere University of Applied Science

Contributors: Heljo, J., Sorri, J., Harsia, P.

Number of pages: 6

Pages: 281-286

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

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.

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

#### **Energiatohokkuus 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

#### Engelin teatterin huoneakustiikan 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: Kylliäinen, M., Niemi, H., Jäppinen, J., Lindqvist, M.

Number of pages: 6

Pages: 145-150

Publication date: 1 Sep 2015

##### Host publication information

Title of host publication: Akustiikkapäivät 2015

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\\_9.pdf](http://www.akustinenseura.fi/wp-content/uploads/2015/09/AP2015_Paperin_palautus_9.pdf)

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

#### Enhancement mechanisms for second-harmonic generation from metal nanostructures

##### 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, Univ Eastern Finland, University of Eastern Finland, Inst Photon, Institute of Photonics, Univ Eastern Finland, University of Eastern Finland, Sch Pharm

Contributors: Kauranen, M., Czaplicki, R., Mäkitalo, J., Lehtolahti, J., Koskinen, K., Laukkanen, J., Kuittinen, M.

Publication date: 2015

##### Host publication information

Title of host publication: PROCEEDINGS OF SPIE : Ultrafast Phenomena and Nanophotonics XX

Volume: 9746

ISBN (Electronic): 9781628419818

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

#### 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](https://www.osapublishing.org/abstract.cfm?uri=CLEO_Europe-2015-CF_6_3)

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

### Exploration of different boundary conditions in the sideways falling situation in hip fracture finite element modelling

#### 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, Department of Electronics and Communications Engineering, Research group: Computational Biophysics and Imaging Group, BioMediTech, UKK Institute for Health Promotion Research, Jyväskylän yliopisto, Jyväskylä Central Hospital

Contributors: Abe, S., Ylinen, A., Narra Girish, N., Nikander, R., Hyttinen, J., Kouhia, R., Sievänen, H.

Number of pages: 6

Pages: 130-135

Publication date: 2015

#### Host publication information

Title of host publication: Proceeding 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](http://rmseura.tkk.fi/smp_proceedings/SMP12_Proceedings.pdf)

#### Bibliographical note

ORG=mei,0.5

ORG=elt,0.5

EXT="Sievänen, Harri"

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

### Fabrication of Fluorescent Silver Nanoclusters-based Micro-Label in Polymers

#### 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, Research group: Applied Optics

Contributors: Kunwar, P., Hassinen, J., Bautista, G., Ras, R. H., Toivonen, J.

Publication date: 2015

#### Host publication information

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

Publisher: OSA

Article number: CM\_P\_5

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

#### Publication series

Name: European Conference on Lasers and Electro-Optics Europe and International Quantum Electronics Conference

URLs:

[https://www.osapublishing.org/abstract.cfm?uri=cleo\\_europe-2015-CM\\_P\\_5&origin=search](https://www.osapublishing.org/abstract.cfm?uri=cleo_europe-2015-CM_P_5&origin=search)

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

## High-efficiency yellow VECSEL with 20 W output power

### 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

Contributors: Kantola, E., Leinonen, T., Ranta, S., Tavast, M., Guina, M.

Publication date: 2013

### Host publication information

Title of host publication: Optics Days 2013, Helsinki, Finland : Oral presentation in Optics Days 2013, Helsinki, Finland

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

## Hometalolle suoritettavat toimenpiteet ja niiden valinta - case-esimerkki

### 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: Kankkunen, T., Kero, P.

Number of pages: 6

Pages: 265-270

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

## Hydraulic Hybrid Actuator: Theoretical Aspects and Solution Alternatives

This paper presents and analyzes a hybrid solution, in which the hydraulic energy storage element is integrated to the hydraulic actuator. The approach results in a new system layout—a distributed hybrid system—in which only mean power is transmitted between the actuators and the high power peaks are handled locally. Three different implementations are discussed. A multi-actuator excavator load cycle is analyzed and dimensioning of the components is discussed. Limitations of the approach are also discussed.

### General information

Publication status: Published

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

Organisations: Department of Intelligent Hydraulics and Automation, Research group: Digital hydraulics, Research group: Fluid power automation in mobile machines, Aalto University

Contributors: Linjama, M., Huova, M., Pietola, M., Juhala, J., Huhtala, K.

Number of pages: 11

Publication date: May 2015

### Host publication information

Title of host publication: Proceedings of the Fourteenth Scandinavian International Conference on Fluid Power

Place of publication: Tampere

Publisher: Tampere University of Technology

Editors: Laamanen, A., Huhtala, K., Uusi-Heikkilä, J.

ISBN (Electronic): 978-952-15-3658-8

Keywords: Hydraulic Hybrids, Hybrid actuator

URLs:

<http://URN.fi/URN:ISBN:978-952-15-3530-7>

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

## Ilmaääneneristysluku sekä standardisoitu ja normalisoitu äänitasoeroluku huoneistojen välisen ilmaääneneristävyyden kuvaajina

### General information

Publication status: Published

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

Organisations: Department of Civil Engineering, Research group: Building Acoustics, Finnish Institute of Occupational Health

Contributors: Kylliäinen, M., Takala, J., Hongisto, V.

Number of pages: 4

Pages: 158-161

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\\_10.pdf](http://www.akustinenseura.fi/wp-content/uploads/2015/09/AP2015_Paperin_palautus_10.pdf)

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

## 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

## 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

### Investigating Auditory Human-Machine Interaction: Analysis and Classification of Sounds Commonly Used by Consumer Devices

Many common consumer devices use a short sound indication for declaring various modes of their functionality, such as the start and the end of their operation. This is likely to result in an intuitive auditory human-machine interaction, imputing a semantic content to the sounds used. In this paper we investigate sound patterns mapped to "Start" and "End" of operation manifestations and explore the possibility such semantics' perception to be based either on users' prior auditory training or on sound patterns that naturally convey appropriate information. To this aim, listening and machine learning tests were conducted. The obtained results indicate a strong relation between acoustic cues and semantics along with no need of prior knowledge for message conveyance.

### General information

Publication status: Published

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

Organisations: Research Community on Data-to-Decision (D2D), Aristotle University of Thessaloniki, Technological Educational Institute of Ionian Islands, Ionian University

Contributors: Drossos, K., Kotsakis, R., Pappas, P., Kalliris, G., Floros, A.

Number of pages: 9

Publication date: May 2013

### Host publication information

Title of host publication: Audio Engineering Society Convention 134

Publisher: AES Audio Engineering Society

Article number: 8812

URLs:

<http://www.aes.org/e-lib/browse.cfm?elib=16713>

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

### 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/@l102/@web/@p/documents/liit/x229155.pdf](http://www.tut.fi/cs/groups/public_news/@l102/@web/@p/documents/liit/x229155.pdf)

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

## 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

## Koko Julkisivua peittävän lasijulkisivun vaikutus Etelä-Ruotsissa sijaitsevan rakennuksen energiatehokkuuteen

Article discuss the effect of the added façade glazing on the building energy consumption in one case building in Malmö, Sweden

### 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, Lund University  
Contributors: Hilliaho, K., Nordquist, B., Wallentén, P.  
Number of pages: 8  
Pages: 509-516  
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

#### Publication series

Name: Rakennustekniikan laitos. Rakennetekniikka. Seminaarijulkaisu 4

No.: 4

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

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

URLs:

<http://www.ril.fi/media/files/koulutus/rakennusfysiikka-2015-cfp.pdf>

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

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

### Kosteus- ja mikrobivaurioiden laajuus kuntien rakennuksissa

#### 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: Annala, P., Hellemaa, M., Suonketo, J., Pentti, M.

Number of pages: 6

Pages: 95-100

Publication date: 11 Mar 2015

#### Host publication information

Title of host publication: Sisäilmastoseminaari 2015 SIY Raportti 33, Messukeskus, Helsinki 11.3.2015

Place of publication: Juva

Editors: Säteri, J., Ahola, M.

ISBN (Print): 978-952-5236-43-9

#### Publication series

Name: SIY Raportti

Volume: 33

#### Bibliographical note

AUX=rak,"Hellemaa, Matti"

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

### Kosteusvaurioiden vakavuus kuntien rakennuksissa

#### 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, Research area: Structural Engineering, Research group: Building Physics

Contributors: Annala, P., Lahdensivu, J., Suonketo, J., Pentti, M., Laukkarinen, A., Vinha, J.

Number of pages: 6

Pages: 135-140

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

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



## 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/@1102/@web/@p/documents/liit/x229241.pdf](http://www.tut.fi/cs/groups/public_news/@1102/@web/@p/documents/liit/x229241.pdf)  
Research output: Chapter in Book/Report/Conference proceeding › Conference contribution › Scientific

## 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

## Kustannusoptimaaliset energiakorjaus- ja uusiutuvan energian tuotannon ratkaisut kunnallisissa palvelurakennuksissa

### General information

Publication status: Published  
MoE publication type: B3 Non-refereed article in conference proceedings  
Organisations: Civil Engineering, Research group: Building Physics, Aalto Univ, Aalto University, Sch Engn, Dept Energy Technol, Equa Simulation Finland Oy  
Contributors: Jokisalo, J., Sankelo, P., Sirén, K., Vinha, J.

Number of pages: 6  
Pages: 287-292  
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  
ASJC Scopus subject areas: Engineering(all), Energy(all)  
URLs:  
[http://www.tut.fi/cs/groups/public\\_news/@l102/@web/@p/documents/liit/x229238.pdf](http://www.tut.fi/cs/groups/public_news/@l102/@web/@p/documents/liit/x229238.pdf)  
Research output: Chapter in Book/Report/Conference proceeding › Conference contribution › 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

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

#### Lasitetun parvekkeen lämpötilan ja lämpöhäviöiden laskenta

### General information

Publication status: Published

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

Organisations: Department of Civil Engineering, Research group: Building Physics, Research group: Service Life Engineering of Structures

Contributors: Laukkarinen, A., Hilliaho, K.

Number of pages: 6

Pages: 181-186

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: Building and Construction, Civil and Structural Engineering

URLs:

<http://www.ril.fi/media/files/koulutus/rakennusfysiikka-2015-cfp.pdf>

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

### 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

### Low-cost 3D lidar for the mapping of autonomous mobile work machine

Autonomous mobile work machines need the capability of sensing and mapping the surrounding area. Machines can utilize several sensors such as laser scanners and cameras for this purpose. The challenge in their use is the relatively high price compared to the value of mobile work machines, and the sensitivity of sensors to harsh operating conditions. This paper presents a low-cost 3D LIDAR for the sensing and mapping of autonomous work machine, which is based on 2D laser scanner and electric motor drive that rotates the scanner. The 2D laser scanner provides range and intensity values from the measured plane and the controller of electric motor provides the rotation angle and rotation speed of the scanner. By combining these values together with navigation data of the machine, 3D point cloud of the surrounding area can be created. This paper presents the development of hardware and control system for the rotating of the 2D laser scanner. Their integration to autonomous mobile work machine and example of mapping results are also presented.

#### General information

Publication status: Published

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

Organisations: Department of Intelligent Hydraulics and Automation, Research group: Fluid power automation in mobile machines, Tampere University of Technology

Contributors: Kolu, A., Rajapolvi, K., Hyvönen, M., Multanen, P., Huhtala, K.

Number of pages: 10  
Publication date: 2015

#### Host publication information

Title of host publication: Proceedings of the Fourteenth Scandinavian International Conference on Fluid Power, SICFP15. May 20-22, 2015. Tampere, Finland  
ISBN (Electronic): 978-952-15-3530-7  
Keywords: Autonomous mobile machine, Mobile robotics, 3D LIDAR, CANopen, Measurement data time synchronization  
URLs:  
<http://URN.fi/URN:ISBN:978-952-15-3530-7>

#### Bibliographical note

AUX=iha,"Rajapolvi, Kimmo"  
Research output: Chapter in Book/Report/Conference proceeding › Conference contribution › Scientific

### Maanvastaisten seinien lämpö- ja kosteustekninen toiminta

#### 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: Laukkarinen, A., Heiskanen, R., Vinha, J.  
Number of pages: 6  
Pages: 71-76  
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,"Heiskanen, Roosa"  
Research output: Chapter in Book/Report/Conference proceeding › Conference contribution › Scientific

### Menetelmä parvekelasien ääneneristävyyden mitoittamiseksi liikennemelualueilla

#### General information

Publication status: Published  
MoE publication type: B3 Non-refereed article in conference proceedings  
Organisations: Department of Civil Engineering, Research group: Building Acoustics  
Contributors: Kovalainen, V., Kylliäinen, M.  
Number of pages: 6  
Pages: 617-622  
Publication date: 22 Oct 2015

#### Host publication information

Title of host publication: Rakennusfysiikka 2015  
Publisher: Tampereen teknillinen yliopisto, rakennustekniikan laitos, rakennetekniikka  
ISBN (Print): 978-952-15-3580-2  
ASJC Scopus subject areas: Civil and Structural Engineering, Acoustics and Ultrasonics  
Keywords: acoustics, noise control  
URLs:  
<http://www.tut.fi/fi/tietoa-yliopistosta/laitokset/rakennustekniikka/tutkimus/rakennetekniikka/rakennusfysiikka/rakennusfysiikkaseminaarit/index.htm>

## 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](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

## Numerically Efficient Flow Model for On/Off Valves

### General information

Publication status: Published

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

Organisations: Department of Intelligent Hydraulics and Automation, Research group: Digital hydraulics

Contributors: Linjama, M., Siivonen, L., Huova, M.

Pages: 164-172

Publication date: Feb 2015

### Host publication information

Title of host publication: Proceedings of the Seventh Workshop on Digital Fluid Power

Place of publication: Linz, Austria

Publisher: LCM GmbH

Editors: Scheidl, R., Winkler, B., Kogler, H.

ISBN (Print): 978-3-200-04014-4

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

## Onnistumiskijät 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., Annala, 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/@I912/@web/@p/documents/liit/x124266.pdf>  
Research output: Chapter in Book/Report/Conference proceeding › Conference contribution › Scientific

#### 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](http://rmseura.tkk.fi/smp_proceedings/SMP12_Proceedings.pdf)  
Research output: Chapter in Book/Report/Conference proceeding › Conference contribution › Scientific

#### On the effect of damping on stability of non-conservative systems

Anomalous damping-induced destabilization is investigated in a simple, small system consisting of a double pendulum with springs. Linearized and fully non-linear results are presented.

#### 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, Tampere University of Technology  
Contributors: Jeronen, J., Kouhia, R.  
Number of pages: 82  
Pages: 77  
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](http://rmseura.tkk.fi/smp_proceedings/SMP12_Proceedings.pdf)

#### **Bibliographical note**

AUX=mei,"Jeronen, Juha"

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

#### **Paine-erot Pirkanmaan ja Helsingin julkisissa palvelurakennuksissa**

##### **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: Kauppinen, A., Kiviste, M., Pirhonen, J., Vinha, J.

Number of pages: 7

Pages: 215-221

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

URLs:

[http://www.tut.fi/cs/groups/public\\_news/@1102/@web/@p/documents/liit/x251128.pdf](http://www.tut.fi/cs/groups/public_news/@1102/@web/@p/documents/liit/x251128.pdf)

#### **Bibliographical note**

INT=RAK, "Pirhonen, Joni"

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

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

## Puukerrostalon työmaavaiheen lämpö- ja kosteusolosuhteiden mittaukset

### General information

Publication status: Published

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

Organisations: Civil Engineering, Research group: Building Physics, Research group: Capacity Development of Water and Environmental Services CADWES, Laboratory of Civil Engineering, Tampere University of Technology

Contributors: Laukkarinen, A., Musakka, S., Penttilä, O., Teriö, O., Vinha, J.

Number of pages: 6

Pages: 167-172

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, "Musakka, Sami"

INT=RAK, "Penttilä, Olavi"

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

## 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

### Puurunkoisten tuuletettujen yläpohjien kosteustekninen toiminta

#### 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: Junttila, H., Laukkarinen, A., Vinha, J.

Number of pages: 6

Pages: 77-82

Publication date: 22 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

#### Publication series

Name: Rakennustekniikan laitos. Rakennetekniikka. Seminaarijulkaisu

No.: 4

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

URLs:

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

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

### Puuväli­pohjien akustiset ominaisuudet

#### 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

Contributors: Latvanne, P., Kylliäinen, M.

Number of pages: 6

Pages: 567-572

Publication date: 22 Oct 2015

#### Host publication information

Title of host publication: Rakennusfysiikka 2015

Publisher: Tampereen teknillinen yliopisto, rakennustekniikan laitos, rakennetekniikka

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

ASJC Scopus subject areas: Civil and Structural Engineering, Acoustics and Ultrasonics

URLs:

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

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

### Pystytäänkö haitallisia ilmanvaihtovikoja havaitsemaan ja poistamaan

#### General information

Publication status: Published

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

Organisations: Department of Civil Engineering, Research group: Real estate development, VTT

Contributors: Heljo, J., Kauppinen, T.

Number of pages: 6

Pages: 325-330

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

### **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-weight 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](http://rmseura.tkk.fi/smp_proceedings/SMP12_Proceedings.pdf)

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

### **Raudoitteiden korroosionopeuden määrittäminen betonijulkisivussa korkean aikaresoluution säädätin avulla**

#### **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 group: Building Physics, The Finnish Meteorological Institute. Ilmatieteen laitos.

Contributors: Köliö, A., Hohti, H., Pakkala, T., Laukkarinen, A., Lahdensivu, J., Mattila, J.

Number of pages: 8

Pages: 195-202

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

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

#### **Publication series**

Name: Rakennustekniikan laitos. Rakennetekniikka. Seminaarijulkaisu

No.: 4

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

URLs:

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

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](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

#### 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](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

#### 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

#### Single micro-particle scattering detection based on Edge Filter Enhanced Self-Mixing Interferometry

##### General information

Publication status: Published  
MoE publication type: B3 Non-refereed article in conference proceedings  
Organisations: Research area: Optics, Department of Physics, Research group: Applied Optics  
Contributors: Contreras, V., Lonnqvist, J., Toivonen, J.

Pages: CH\_P\_11  
Publication date: 2015

#### Host publication information

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

Publisher: Optical Society of America

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

URLs:

[http://www.osapublishing.org/abstract.cfm?URI=CLEO\\_Europe-2015-CH\\_P\\_11](http://www.osapublishing.org/abstract.cfm?URI=CLEO_Europe-2015-CH_P_11)

Source: Bibtex

Source ID: urn:fc7373a93e31bcda04a5098b47eed6aa

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

#### Smart microphone sensor system platform

A platform for a flexible, smart microphone system using available hardware components is presented. Three subsystems are employed, specifically: (a) a set of digital MEMs microphones, with a one-bit serial output; (b) a preprocessing/digital-to-digital converter; and (c) a CPU/DSP-based embedded system with I2S connectivity. Basic preprocessing functions, such as noise gating and filtering can be performed in the preprocessing stage, while application-specific algorithms such as word spotting, beam-forming, and reverberation suppression can be handled by the embedded system. Widely used high-level operating systems are supported including drivers for a number of peripheral devices. Finally, an employment scenario for a wireless home automation speech activated front-end sensor system using the platform is analyzed.

#### General information

Publication status: Published

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

Organisations: University of Patras, BLUE dev Ltd., Former organisation of the author, Ionian University

Contributors: Kokkinis, E., Drossos, K., Tattas, N., Floros, A., Tsilfidis, A., Agavanakis, K.

Number of pages: 4

Publication date: Apr 2012

#### Host publication information

Title of host publication: Audio Engineering Society Convention 132

Publisher: AES Audio Engineering Society

URLs:

<http://www.aes.org/e-lib/browse.cfm?elib=16604>

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

#### Sosiaalinen media brändi- ja asiakastiedon lähteenä

#### General information

Publication status: Published

MoE publication type: Not Eligible

Organisations: Department of Information Management and Logistics, Research group: Novi, Managing digital industrial transformation (mDIT), University of Vaasa (UVA), University of Tampere

Contributors: Jussila, J., Helander, N., Vuori, V., Okkonen, J.

Number of pages: 2

Pages: 55-56

Publication date: 23 Sep 2016

#### Host publication information

Title of host publication: TiedeAreena 2016

Volume: 11

Place of publication: Pori

Publisher: Tampereen teknillinen yliopisto, Porin laitos

Editor: Tuomi, P.

ISBN (Print): 978-952-15-3802-5

ISBN (Electronic): 978-952-15-3803-2

Keywords: sosiaalinen media, brändi, asiakastieto

URLs:

[https://tutcris.tut.fi/portal/files/8228327/TiedeAreena\\_2016.pdf](https://tutcris.tut.fi/portal/files/8228327/TiedeAreena_2016.pdf)

URLs:

<http://www.ucpori.fi/tiedeareena-ohjelma>

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

### **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=tt,"Poikonen, Elina"

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: B3 Non-refereed article in 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](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 › Scientific

## Suuren lämmöneristämättömän maanvastaisen alapohjan vaikutus rakennuksen energiankulutukseen

### 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: Huttunen, P., Rantala, J., Vinha, J.

Number of pages: 8

Pages: 335-342

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.

Publisher: Tampereen teknillinen yliopisto

URLs:

[http://www.tut.fi/cs/groups/public\\_news/@l102/@web/@p/documents/liit/x229155.pdf](http://www.tut.fi/cs/groups/public_news/@l102/@web/@p/documents/liit/x229155.pdf)

### Bibliographical note

INT=rak,"Rantala, Juha"

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

## The Parallel Diode and Trap Behaviour of Ternary Polymer Solar Cells

This paper investigates the use of ternary blends (two donor polymers and fullerene acceptor) in bulk-heterojunction (BHJ) photovoltaic devices to compare the parallel diode and trap model. Our initial study involved the blending of equivalent quantities of two of the three chosen complimentary donor polymers (red, green, blue) with [60]PCBM. Through EQE measurements, it was shown that even devices with blends exhibiting poor efficiencies, caused by traps, both polymers contributed to the PV effect. However, traps were avoided to create a parallel-like BHJ when two polymers were chosen with the appropriate HOMO-HOMO energy band alignment. Ternary blend device performance is explained in terms of transport properties issued from photogenerated current vs. light intensity and bias polarization studies, as well as a dark conductivity vs. temperature investigation. Additionally, the parallel diode circuit model is implemented to calculate the blend combination which exhibits the highest power conversion efficiency. Device optimization issued from both models is compared.

### General information

Publication status: Published

MoE publication type: B3 Non-refereed article in conference proceedings  
Organisations: Univ Limoges, University of Limoges, XLIM CNRS 7252, Former organisation of the author, Queens Univ, Queens University - Canada, Dept Chem, Univ Limoges, Centre National de la Recherche Scientifique (CNRS), University of Limoges, XLIM, CNRS, UMR 6172  
Contributors: Kraft, T., Cristoferi, C., Trigaud, T., Nunzi, J., Ratier, B.  
Publication date: Sep 2014

#### Host publication information

Title of host publication: EU PVSEC Proceedings  
Volume: EU PVSEC 2014  
Publisher: EU PVSEC  
Article number: 3BV.5.23  
ISBN (Electronic): 3-936338-34-5  
URLs:  
<https://www.eupvsec-proceedings.com/proceedings?eventId=17&topicId=116&subtopicId=359&paper=31499>

#### Bibliographical note

ISBN: 3-936338-34-5  
Research output: Chapter in Book/Report/Conference proceeding › Conference contribution › Scientific

### Thermomechanical properties of overmold epoxies in MEMS packaging

#### General information

Publication status: Published  
MoE publication type: B3 Non-refereed article in conference proceedings  
Organisations: Department of Electrical Engineering, Research area: Reliability  
Contributors: Fard Sanei, M. A., Kiilunen, J., Pippola, J., Lahokallio, S., Frisk, L.  
Number of pages: 5  
Pages: 175-179  
Publication date: 2015

#### Host publication information

Title of host publication: Proceedings of the IMAPS Nordic Annual Conference , June 8-9, 2015, Helsingør, Denmark  
Publisher: IMAPS Nordic  
ISBN (Print): 9781510808133  
Research output: Chapter in Book/Report/Conference proceeding › Conference contribution › Scientific

### Transpositions and duals high-order tensors. On theory and applications in mechanics

#### 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: Holopainen, S.  
Number of pages: 6  
Pages: 188-193  
Publication date: 4 Jun 2015

#### Host publication information

Title of host publication: Proceedings of the XII Finnish Mechanics Days : Suomen XII mekaniikkapäivien esitelmät  
Publisher: Rakenteiden Mekaniikan Seura ry  
Editor: Kouhia, R.  
ISBN (Print): 978-952-93-5608-9  
ISBN (Electronic): 978-952-93-5609-6

#### Publication series

Name: Journal of Structural Mechanics  
Publisher: Rakenteiden mekaniikan seura r.y.  
URLs:  
[http://rmseura.tkk.fi/smp\\_proceedings/SMP12\\_Proceedings.pdf](http://rmseura.tkk.fi/smp_proceedings/SMP12_Proceedings.pdf)  
Research output: Chapter in Book/Report/Conference proceeding › Conference contribution › Scientific

### 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](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

### 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=tta,"Ocaña Flores, Moramay"

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

### 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., Annala, 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/@l912/@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

### 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

### 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

## 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., Annila, 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

## Valtion tukemien homekorjaushankkeiden arviointi -jatkotutkimus (HKPro 3)

### 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: Annila, P., Marttila, T., Kero, P., Suonketo, J., Pentti, M.

Number of pages: 6

Pages: 107-112

Publication date: 11 Mar 2015

### Host publication information

Title of host publication: Sisäilmastoseminaari 2015 SIY Raportti 33, Messukeskus, Helsinki 11.3.2015

Volume: Sisäilmayhdistys raportti 33

Place of publication: Juva

Editors: Säteri, J., Ahola, M.

ISBN (Print): 978-952-5236-43-9

### Publication series

Name:

No.: 33

Name: Sisäilmayhdistys

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

## 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](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

#### **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

DOIs:

10.1117/12.2251317

#### **Bibliographical note**

INT=fot,"Koskinen, Mervi"

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

#### **1180nm VECSEL with 50 W output power**

We report on the development of a high-power vertical-external-cavity surface-emitting laser (VECSEL) emitting around 1180 nm. The laser emitted 50 W of output power when the mount of the gain chip was cooled to -15°C. The output power was measured using a 97% reflective cavity end-mirror. The VECSEL was arranged to form an I-shaped cavity with a length of ~100 mm; the gain chip and a curved dielectric mirror (RoC=150) acting as cavity end mirrors. The gain chip was grown by molecular beam epitaxy (MBE) and incorporated 10 GaInAs/GaAs quantum wells. For efficient heat extraction, the chip was capillary bonded to a diamond heat spreader which was attached to a TEC-cooled copper mount. The maximum optical-to-optical conversion efficiency of 28% was achieved for 42 W of output power and -15°C mount temperature.

#### **General information**

Publication status: Published

MoE publication type: A4 Article in a conference publication

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

Contributors: Kantola, E., Leinonen, T., Ranta, S., Tavast, M., Penttinen, J., Guina, M.

Publication date: 2015

#### **Host publication information**

Title of host publication: Proceedings of SPIE - The International Society for Optical Engineering

Volume: 9349

Publisher: SPIE

Article number: 93490U

ISBN (Print): 9781628414394

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

Keywords: continuous wave, frequency doubling, heat management, high power, infrared, power scaling, SDL, VECSEL  
DOIs:

10.1117/12.2079480

Source: Scopus

Source ID: 84925666801

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

### **1.3 $\mu$ m 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  $\mu$ m 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

### **1.55- $\mu$ m 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- $\mu$ m 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- $\mu$ m 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

#### 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

### 360 panorama super-resolution using deep convolutional networks

We propose deep convolutional neural network (CNN) based super-resolution for 360 (equirectangular) panorama images used by virtual reality (VR) display devices (e.g. VR glasses). Proposed super-resolution adopts the recent CNN architecture proposed in (Dong et al., 2016) and adapts it for equirectangular panorama images which have specific characteristics as compared to standard cameras (e.g. projection distortions). We demonstrate how adaptation can be performed by optimizing the trained network input size and fine-tuning the network parameters. In our experiments with 360 panorama images of rich natural content CNN based super-resolution achieves average PSNR improvement of 1.36 dB over the baseline (bicubic interpolation) and 1.56 dB by our equirectangular specific adaptation.

#### General information

Publication status: Published  
MoE publication type: A4 Article in a conference publication  
Organisations: Signal Processing, Nokia Technologies  
Contributors: Fakour-Sevom, V., Guldogan, E., Kämäräinen, J.  
Number of pages: 7  
Pages: 159-165  
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: 4  
Publisher: SCITEPRESS  
ISBN (Electronic): 9789897582905  
ASJC Scopus subject areas: Computer Vision and Pattern Recognition, Computer Graphics and Computer-Aided Design, Artificial Intelligence  
Keywords: Deep convolutional neural network, Equirectangular panorama, Super-resolution, Virtual reality  
DOIs:  
10.5220/0006618901590165

#### Bibliographical note

EXT="Guldogan, Esin"  
Source: Scopus  
Source ID: 85047846712  
Research output: Chapter in Book/Report/Conference proceeding > Conference contribution > Scientific > peer-review

### 405-nm pumped Ce<sup>3+</sup>-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: Digonnet, 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

### 50 W VECSEL emitting at 1180 nm

We report a 50 W VECSEL emitting at 1180 nm. The gain chip was grown by MBE and TEC-cooled. The maximum power was measured for a mount temperature of  $-15^{\circ}\text{C}$ .

### 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: Kantola, E., Leinonen, T., Penttinen, J., Tavast, M., Ranta, S., Guina, M.

Publication date: 2015

### Host publication information

Title of host publication: 2015 Conference on Lasers and Electro-Optics Europe - European Quantum Electronics Conference, 21.-25.6. Munich, Germany : CB\_3\_1

Publisher: OSA

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

URLs:

[https://www.osapublishing.org/abstract.cfm?uri=CLEO\\_Europe-2015-CB\\_3\\_1](https://www.osapublishing.org/abstract.cfm?uri=CLEO_Europe-2015-CB_3_1)

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- $\mu\text{m}$  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

#### **A bibliometric study on authorship trends and research themes in knowledge management literature**

##### **General information**

Publication status: Published

MoE publication type: A4 Article in a conference publication

Organisations: Industrial and Information Management, Research group: Business Data Research Group, Research group: Business Ecosystems, Networks and Innovations, Research group: Knowledge and Learning Research Center, University of Exeter, Lappeeranta University of Technology

Contributors: Jussila, J. J., Mustafee, N., Aramo-Immonen, H., Menon, K., Hajikhani, A., Helander, N.

Number of pages: 9

Pages: 389-397

Publication date: 7 Jun 2017

##### **Host publication information**

Title of host publication: 12th International Forum on Knowledge Asset Dynamics, St. Petersburg, Russia 7-9 June 2017 : Knowledge Management in the 21th Century: Resilience, Creativity and Co-creation

Volume: 12

Place of publication: St. Petersburg, Russia

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

Keywords: bibliometrics

URLs:

<http://www.ifkad.org/>

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

#### **A Capacity Bound for mmWave-based Channel Access in Ultra-Dense Wearable Deployments**

In this paper, we address mmWave (millimeter-wave) channel access protocols operating in extremely high frequency bands. We argue that the anticipated mass use of wearable wireless devices over such protocols is likely to soon produce ultra-dense personal network deployments, especially in commuter scenarios. To this end, this work primarily focuses on a specific area of interest, where wearable devices all hear each other. By introducing an adequate mmWave-based protocol abstraction model, we are interested in characterizing the system capacity bound for the entire class of possible channel access schemes. In particular, we establish a lower bound on system operation by thoroughly investigating a decentralized random-access model. Given that its asymptotic behavior is determined by a simple and elegant expression, the obtained performance estimate may serve as a useful reference for subsequent performance optimization. Therefore, our results constitute an important building block, which allows accounting for more realistic directional antenna patterns, as well as aids in future protocol design.

##### **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, International Insitute for Advanced Aerospace Technologies of St. Petersburg State University of Aerospace Instrumentation, Intel Corporation

Contributors: Galinina, O., Turlikov, A., Pyattaev, A., Johnsson, K., Andreev, S., Koucheryavy, Y.

Number of pages: 7

Pages: 298-304

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.2015.7382446

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



### **Accessible Games for Blind Children, Empowered by Binaural Sound**

Accessible games have been researched and developed for many years, however, blind people still have very limited access and knowledge of them. This can pose a serious limitation, especially for blind children, since in recent years electronic games have become one of the most common and wide spread means of entertainment and socialization. For our implementation we use binaural technology which allows the player to hear and navigate the game space by adding localization information to the game sounds. With our implementation and user studies we provide insight on what constitutes an accessible game for blind people as well as a functional game engine for such games. The game engine developed allows the quick development of games for the visually impaired. Our work provides a good starting point for future developments on the field and, as the user studies show, was very well perceived by the visually impaired children that tried it.

#### **General information**

Publication status: Published

MoE publication type: A4 Article in a conference publication

Organisations: Science For You, N.P.C. - SciFY, Ionian University

Contributors: Drossos, K., Zormpas, N., Giannakopoulos, G., Floros, A.

Number of pages: 8

Pages: 5:1-5:8

Publication date: Jul 2015

#### **Host publication information**

Title of host publication: Proceedings of the 8th ACM International Conference on Pervasive Technologies Related to Assistive Environments

Place of publication: New York, NY, USA

Publisher: Association for Computing Machinery (ACM)

ISBN (Print): 978-1-4503-3452-5

#### **Publication series**

Name: PETRA '15

Publisher: ACM

Keywords: audio only games, auditory interface, binaural processing, games for the visually impaired

DOIs:

10.1145/2769493.2769546

Source: Bibtex

Source ID: urn:898885533f4d5f18cc8f061fc07b3ceb

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

### **Accurate depth estimation from a sequence of monocular images supported by proprioceptive sensors**

This paper describes an extended Kalman filter based algorithm for fusion of monocular vision measurements, inertial rate sensor measurements, and camera motion. The motion of the camera between successive images generates a baseline for range computations by triangulation. The recursive estimation algorithm is based on extended Kalman filtering. The depth estimation accuracy is strongly affected by mutual observer and feature point geometry, measurement accuracy of observer motion parameters and line of sight to a feature point. The simulation study investigates how the estimation accuracy is affected by the following parameters: linear and angular velocity measurement errors, camera noise, and observer path. These results draw requirements to the instrumentation and observation scenarios. It was found that under favorable conditions the error in distance estimation does not exceed 2% of the distance to a feature point.

#### **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 group: Positioning

Contributors: Davidson, P., Raunio, J. P., Piché, R.

Number of pages: 9

Pages: 249-257

Publication date: 2016

#### **Host publication information**

Title of host publication: 23rd Saint Petersburg International Conference on Integrated Navigation Systems, ICINS 2016 - Proceedings

Publisher: State Research Center of the Russian Federation

ISBN (Electronic): 9785919950370

ASJC Scopus subject areas: Computer Networks and Communications, Signal Processing, Electrical and Electronic Engineering, Information Systems

Keywords: Computer vision, Gyroscope, IMU, Odometer, Structure from motion

URLs:

<http://www.scopus.com/inward/record.url?scp=84979573597&partnerID=8YFLogxK> (Link to publication in Scopus)

Source: Scopus

Source ID: 84979573597

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

### **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

### **A continuum damage model for creep fracture and fatigue analyses**

In this paper a thermodynamically consistent formulation for creep and creep-damage modelling is given. The model is developed for isotropic solids by using proper expressions for the Helmholtz free energy and the complementary form of the dissipation potential, and can be proven to fulfill the dissipation inequality. Also the coupled energy equation is derived. Continuum damage model with scalar damage variable is used to facilitate simulations with tertiary creep phase. The complementary dissipation potential is written in terms of the thermodynamic forces dual to the dissipative variables of creep strain-rate and damage-rate. The model accounts for the multiaxial stress state and the difference in creep rupture time in shear and axial loading as well as in tensile and compressive axial stress. In addition, the model is simple and only four to eight material model parameters are required in addition to the elasticity parameters. A specific version of the proposed model is obtained when constrained to obey the Monkman-Grant relationship between the minimum creep strain-rate and the creep rupture time. The applicability of the Monkman-Grant hypothesis in the model development is discussed. The proposed 3D-model is implemented in the ANSYS finite element software by the USERMAT subroutine. Material parameters have been estimated for the 7CrMoVTiB10-10 steel (T24) for temperatures ranging from 500 to 600 degrees of celcius. Some test cases with cyclic thermal fatigue analysis are presented.

#### **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, Valmet Technologies Oy, P.O. Box 109, FI-33101 Tampere, Finland

Contributors: Kauppila, P., Kouhia, R., Ojanperä, J., Saksala, T., Sorjonen, T.

Number of pages: 8

Pages: 887-894

Publication date: 2016

#### **Host publication information**

Title of host publication: 21st European Conference on Fracture, ECF21, 20-24 June 2016, Catania, Italy

## Publication series

Name: Procedia Structural Integrity

Volume: 2

ISSN (Print): 2452-3216

DOIs:

10.1016/j.prostr.2016.06.114

URLs:

<http://www.sciencedirect.com/science/article/pii/S2452321616301196>

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

## A coordination-based brokerage architecture for multi-cloud resource markets

With an increasing number of service providers in the cloud market, the competition between these is also increasing. Each provider attempts to attract customers by providing a high quality service with lowest possible cost and at the same time trying to make profit. Often, cloud resources are advertised and brokered in a spot market style, i.e., traded for immediate delivery. This paper proposes an architecture for a brokerage model specifically for multi-cloud resource spot markets that integrates the resource brokerage function across several cloud providers. We use a tuple space architecture to facilitate coordination. This architecture supports specifically multiple cloud providers selling unused resources in the spot market. To support the matching process by finding the best match between customer requirements and providers, offers are matched with regard the lowest possible cost available for the customer in the market at the time of the request. The key role of this architecture is to provide the coordination techniques built on a tuple space, adapted to the cloud spot market.

## General information

Publication status: Published

MoE publication type: A4 Article in a conference publication

Organisations: Dublin City University, Free University of Bolzano-Bozen, School of Computing Edinburgh Napier University Edinburgh

Contributors: Aldawood, S., Fowley, F., Pahl, C., Taibi, D., Liu, X.

Number of pages: 8

Pages: 7-14

Publication date: 14 Oct 2016

## Host publication information

Title of host publication: Proceedings - 2016 4th International Conference on Future Internet of Things and Cloud Workshops, W-FiCloud 2016

Publisher: Institute of Electrical and Electronics Engineers Inc.

ISBN (Electronic): 9781509039463

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

Keywords: Cloud Brokerage Architecture, Cloud Resources Market, Resource Brokerage, Spot Market, Tuple Space  
DOIs:

10.1109/W-FiCloud.2016.19

Source: Scopus

Source ID: 85009829349

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

## Action and power efficiency in self-organization: The case for growth efficiency as a cellular objective in escherichia coli

Complex systems of different nature self-organize using common mechanisms. One of those is increase of their efficiency. The level of organization of complex systems of different nature can be measured as increased efficiency of the product of time and energy for an event, which is the amount of physical action consumed by it. Here we apply a method developed in physics to study the efficiency of biological systems. The identification of cellular objectives is one of the central topics in the research of microbial metabolic networks. In particular, the information about a cellular objective is needed in flux balance analysis which is a commonly used constrained-based metabolic network analysis method for the prediction of cellular phenotypes. The cellular objective may vary depending on the organism and its growth conditions. It is probable that nutritionally scarce conditions are very common in the nature, and, in order to survive in those conditions, cells exhibit various highly efficient nutrient-processing systems like enzymes. In this study, we explore the efficiency of a metabolic network in transformation of substrates to new biomass, and we introduce a new objective function simulating growth efficiency. We are searching for general principles of self-organization across systems of different nature. The objective of increasing efficiency of physical action has been identified previously as driving systems toward higher levels of self-organization. The flow agents in those networks are driven toward their natural state of motion, which is governed by the principle of least action in physics. We connect this to a power efficiency principle. Systems structure themselves in a way to decrease the average amount of action or power per one event in the system. In this particular example, action efficiency is examined in the case of growth efficiency of *E. coli*. We derive the expression for growth efficiency as a special case of action (power) efficiency to justify it through first principles in physics. Growth efficiency as a cellular objective of *E. coli* coincides with previous research on complex systems and is justified by first principles in physics. It is

expected and confirmed outcome of this work. We examined the properties of growth efficiency using a metabolic model for *Escherichia coli*. We found that the maximal growth efficiency is obtained at a finite nutrient uptake rate. The rate is substrate dependent and it typically does not exceed 20 mmol/h/gDW. We further examined whether the maximal growth efficiency could serve as a cellular objective function in metabolic network analysis and found that cellular growth in batch cultivation can be predicted reasonably well under this assumption. The fit to experimental data was found slightly better than with the commonly used objective function of maximal growth rate. Based on our results, we suggest that the maximal growth efficiency can be considered a plausible optimization criterion in metabolic modeling for *E. coli*. In the future, it would be interesting to study growth efficiency as an objective also in other cellular systems and under different cultivation conditions.

### General information

Publication status: Published

MoE publication type: A4 Article in a conference publication

Organisations: BioMediTech, Wireless Innovation Laboratory at Worcester Polytechnic Institute, Assumption College, Tufts University, Complex Systems Center, University of Vermont

Contributors: Georgiev, G. Y., Aho, T., Kesseli, J., Yli-Harja, O., Kauffman, S. A.

Number of pages: 16

Pages: 229-244

Publication date: 2019

### Host publication information

Title of host publication: Evolution, Development and Complexity - Multiscale Evolutionary Models of Complex Adaptive Systems

Publisher: Springer

Editors: Flores Martinez, C. L., Georgiev, G. Y., Smart, J. M., Price, M. E.

ISBN (Print): 9783030000745

### Publication series

Name: Springer Proceedings in Complexity

ISSN (Print): 2213-8684

ISSN (Electronic): 2213-8692

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

Keywords: Action efficiency, Constraint-based modeling, Metabolism, Microorganism, Principle of least action

DOIs:

10.1007/978-3-030-00075-2\_8

### Bibliographical note

jufoid=84878

Source: Scopus

Source ID: 85071889407

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

### 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

#### **Actors' agency in the routines of innovation project portfolio management**

Innovation project portfolio management (IPPM) is carried out through various routines of assessing, prioritizing, selecting and coordinating projects. Empirical research increasingly suggests that the official routines are not necessarily used, but personnel use agency, i.e., individual situation-specific judgment in their practice of IPPM. This agency perspective is not sufficiently understood, so far. The purpose of this study is to explore different actors' agency in implementing IPPM, covering managers, personnel and external stakeholders. The goal is increased knowledge on implementing IPPM in dynamic contexts and development of propositions for better IPPM frameworks that account for different actors' agency. The qualitative case study with two innovative project-based firms reveals different approaches to IPPM agency across four different actor categories. The nature of the innovation project portfolios is discussed especially in terms of uncertainty and the maturity of the IPPM routines as situation-specific factors relevant in enabling and restraining project actors' agency in IPPM. The results contribute by proposing agency as a novel perspective to IPPM research, showing evidence of it in highly innovative contexts, and thereby enabling the theorization of situation-specific practice of IPPM.

#### **General information**

Publication status: Published  
MoE publication type: A4 Article in a conference publication  
Organisations: Industrial Engineering and Management, Research group: Center for Research on Operations Projects and Services, Research group: Center for Research on Project and Service Business (CROPS)  
Contributors: Martinsuo, M., Vuorinen, L.  
Number of pages: 26  
Publication date: 26 Jun 2019

#### **Host publication information**

Title of host publication: Proceedings of the EURAM European Academy of Management Conference 2019 : 26-28 June 2019, Lisbon, Portugal  
Publisher: European Academy of Management, EURAM  
ISBN (Electronic): 978-2-9602195-1-7

#### **Publication series**

Name: EURAM conference  
ISSN (Print): 2466-7498  
URLs:  
<http://urn.fi/URN:NBN:fi:itty-201908272032>  
URLs:  
<http://www.euramonline.org/submissions-guidelines-2019/author-s-guidelines.html>  
Research output: Chapter in Book/Report/Conference proceeding › Conference contribution › Scientific › peer-review

#### **Adapting service-based working culture as the key driver for organisational creativity and innovation**

#### **General information**

Publication status: Published  
MoE publication type: A4 Article in a conference publication  
Organisations: Department of Information Management and Logistics  
Contributors: Ketonen-Oksi, S.

Publication date: 10 Jun 2016

### Host publication information

Title of host publication: Towards a new architecture of knowledge : Big Data, culture and creativity : IFKAD 2016-11th International Forum on Knowledge Asset Dynamics, Dresden 15-17.6.2016, Germany

ISBN (Print): 978-88-96687-09-3

URLs:

<http://10times.com/ifkad>

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

### Adaptive Feedback in Local Coordinates for Real-time Vision-Based Motion Control Over Long Distances

We studied the differences in noise-effects, depth-correlated behavior of sensors, and errors caused by mapping between coordinate systems in robotic applications of machine vision. In particular, the highly range-dependent noise densities for semi-unknown object detection were considered. An equation is proposed to adapt estimation rules to dramatic changes of noise over longer distances. This algorithm also benefits the smooth feedback of wheels to overcome variable latencies of visual perception feedback. Experimental evaluation of the integrated system is presented with/without the algorithm to highlight its effectiveness.

### General information

Publication status: Published

MoE publication type: A4 Article in a conference publication

Organisations: Automation and Hydraulic Engineering, Research group: Innovative Hydraulic Automation, Signal Processing, Cargotec Corporation

Contributors: M. Aref, M., Astola, P., Vihonen, J., Tabus, I., Ghabcheloo, R., Mattila, J.

Number of pages: 6

Publication date: 2018

### Host publication information

Title of host publication: International Conference on Robotics and Mechantronics : (ICRoM 2017)

Volume: 320

Publisher: IOP Publishing Ltd.

Article number: 012009

### Publication series

Name: IOP conference series : materials science and engineering

ISSN (Print): 1757-8981

ISSN (Electronic): 1757-899X

Electronic versions:

Aref\_2018\_IOP\_Conf\_Ser.\_Mater.\_Sci.\_Eng.\_320\_012009

DOIs:

10.1088/1757-899X/320/1/012009

URLs:

<http://urn.fi/URN:NBN:fi:tyy-201803071332>

### Bibliographical note

EXT="Vihonen, Juho"

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

### Advocator, jester, spokesperson, provocateur and boundary spanner? Exploring different communication styles at twitter

Purpose – The recent development of digital communication technologies, and of social media in particular, have enhanced more direct communications between companies and their customers. Among many other things, the use of social media has become considerably popular in customer services. However, communicating with different types of customers is not easy. More profound understanding is needed about how to succeed in communicating with the customers in the increasingly impersonal, yet often emotionally sensitive online environments.

Design/methodology/approach – Based on an extensive empirical data from Twitter discussions on climate change and energy industry, the analysis will follow the ideas and concepts of research on personalities and motivation in the context of social media.

Originality/value – By theorising the impacts of human personality traits to a person's communication style in social media, in accordance with the person's own choices of roles and motivations to communicate in social media, this study will provide companies new insight on how to approach their customers in online environments.

Practical implications – This study offers significant information for any company that wants to improve their customer service through social media. That is, by presenting the early phase taxonomy for different social media communication

styles used in Twitter, this study will provide companies with both new insight and practical advice on how to better share information and manage discussions on their social media channels, considering the different communications styles of their customers.

#### General information

Publication status: Published

MoE publication type: A4 Article in a conference publication

Organisations: Industrial and Information Management, Turku University of Applied Science

Contributors: Ketonen-Oksi, S., Jalonen, H.

Publication date: 6 Jun 2017

#### Host publication information

Title of host publication: 12th Conference proceedings of IFKAD2017 : St.Petersburg, Russia, 7-9 June 2017

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

#### Publication series

Name: Proceedings IFKAD

ISSN (Print): 2280-787X

Keywords: Social Media, Uses and Gratifications Theory, Twitter, Big Five

URLs:

[http://www.harrijalonen.fi/files/files/IFKAD%20final%209\\_4\\_2017\\_ok\\_ok.pdf](http://www.harrijalonen.fi/files/files/IFKAD%20final%209_4_2017_ok_ok.pdf)

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

#### A dynamical quality model to continuously monitor software maintenance

Context: several companies, particularly Small and Medium Sized Enterprises (SMEs), often face software maintenance issues due to the lack of Software Quality Assurance (SQA). SQA is a complex task that requires a lot of effort and expertise, often not available in SMEs. Several SQA models, including maintenance prediction models, have been defined in research papers. However, these models are commonly defined as "one-size-fits-All" and are mainly targeted at the big industry, which can afford software quality experts who undertake the data interpretation tasks. Objective: in this work, we propose an approach to continuously monitor the software operated by end users, automatically collecting issues and recommending possible fixes to developers. The continuous exception monitoring system will also serve as knowledge base to suggest a set of quality practices to avoid (re)introducing bugs into the code. Method: first, we identify a set of SQA practices applicable to SMEs, based on the main constraints of these. Then, we identify a set of prediction techniques, including regressions and machine learning, keeping track of bugs and exceptions raised by the released software. Finally, we provide each company with a tailored SQA model, automatically obtained from companies' bug/issue history. Developers are then provided with the quality models through a set of plug-ins for integrated development environments. These suggest a set of SQA actions that should be undertaken, in order to maintain a certain quality level and allowing to remove the most severe issues with the lowest possible effort. Conclusion: The collected measures will be made available as public dataset, so that researchers can also benefit of the project's results. This work is developed in collaboration with local SMEs and existing Open Source projects and communities.

#### General information

Publication status: Published

MoE publication type: A4 Article in a conference publication

Organisations: Free University of Bolzano-Bozen, Università degli Studi Dell'Insubria, Former organisation of the author

Contributors: Lenarduzzi, V., Stan, A. C., Taibi, D., Tosi, D., Venters, G.

Number of pages: 11

Pages: 168-178

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: Dynamic Software Measurement, Software Maintenance, Software Quality

URLs:

<http://www.scopus.com/inward/record.url?scp=85029853227&partnerID=8YFLogxK> (Link to publication in Scopus)

Source: Scopus

Source ID: 85029853227

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

## **Affective experiences and student engagement in higher education**

### **General information**

Publication status: Published

MoE publication type: A4 Article in a conference publication

Organisations: Department of Information Management and Logistics, Research group: Novi, Language Centre, Managing digital industrial transformation (mDIT), Tampere University of Applied Science

Contributors: Helander, N., Boedeker, M., Hellsten, P., Jussila, J., Myllärniemi, J., Tukiainen, M.

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 (Print): 9782873520144

ASJC Scopus subject areas: Education

Keywords: Affective experience, Higher Education

URLs:

[http://www.sefi.be/conference-2016/papers/Engineering\\_Skills/helander-affective-experiences-and-student-engagement-in-higher-education-178\\_a.pdf](http://www.sefi.be/conference-2016/papers/Engineering_Skills/helander-affective-experiences-and-student-engagement-in-higher-education-178_a.pdf)

URLs:

<http://www.tut.fi/en/sefi-annual-conference-2016/index.htm>

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

#### Agency relationships in global project business

Project-based firms (PBFs) serving global markets rely on local agents throughout the project life-cycle. In particular, agents are frequently used to support the PBFs efforts in project marketing, project implementation, and in provisioning of services to customers operating the delivered solutions. The purpose of this paper is to analyse principal-agent relationships in global project business from an agency perspective in order to provide further clarity to their salient characteristics, and to identify mechanisms through which agency problems can be mitigated. Based on our analysis of earlier literature, it appears that PBFs' principal-agent relationships with local actors during project front-end and operations phases are predominantly explorative in their nature whilst relationships during project implementation can be characterized as exploitative. Respectively, relationships of the former kind are governed by complex combinations of contractual and noncontractual mechanisms, while in relationships of the latter kind, rather simple contractual mechanisms are favoured by PBFs. Our findings imply that PBFs need to consider both the project life-cycle phase, as well as the characteristics and goals of individual agents, when designing mechanisms for governing their agency relationships.

#### 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, Research group: Center for Research on Operations Projects and Services

Contributors: Ahola, T., Stähle, M., Martinsuo, M.

Number of pages: 38

Publication date: 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: Global project business, agency theory, local agents, project marketing, project implementation, service provisioning

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](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

### Alpha radiation induced luminescence in solar blind spectral region

Intense luminescence in the solar blind spectral region is produced by modifying the gas atmosphere around an alpha emitter. This enables standoff detection of alpha radiation under daylight conditions.

### General information

Publication status: Published

MoE publication type: A4 Article in a conference publication

Organisations: Physics, Photonics, Helsinki Institute of Physics

Contributors: Kerst, T., Toivonen, J.

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

Electronic versions:

alpha\_radiation\_induced\_luminescence\_in\_solar\_blind\_spectral\_region

DOIs:

10.1364/CLEO\_AT.2018.ATh4O.8

URLs:

<http://urn.fi/URN:NBN:fi:itty-201908232002>

Source: Scopus

Source ID: 85049133557

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

### 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-wight 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

### **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

### **A model for profiling information and knowledge management in the public sector**

#### **General information**

Publication status: Published

MoE publication type: A4 Article in a conference publication

Organisations: Industrial Engineering and Management, Information and Knowledge Management, Research group: Operations and Supply Chain Group (OSCG)

Contributors: Jääskeläinen, A., Sillanpää, V., Helander, N.

Publication date: 2019

#### **Host publication information**

Title of host publication: Proceedings of 14th IFKAD 2019 conference : Matera, Italy, 5-7 June.

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

### **An accurate small-signal model of a three-phase VSI-based photovoltaic inverter with LCL-filter**

Three-phase photovoltaic inverters are usually equipped with an LCL-type output filter to reduce cost and size of the converter compared to a simple L-type output filter. The LCL-filter has an inherent resonance which has to be damped by a passive or active method to avoid instability. This paper presents an accurate full-order small-signal model of the three-phase VSI-based photovoltaic inverter with LCL-type output filter. The model is developed in the dq-domain, where the steady-state operating point can be solved. The developed small-signal model has been verified by extracting frequency responses from a scaled-down prototype. The model is shown to give accurate predictions on the shape of inverter transfer functions such as control loop gains and output impedance. Thus, the model can be used for control design, impedance shaping and impedance-based stability analysis.

#### **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: Apro, A., Messo, T., Suntio, T.

Number of pages: 8

Pages: 2267-2274  
Publication date: 2015

#### Host publication information

Title of host publication: 9th International Conference on Power Electronics and ECCE Asia (ICPE-ECCE Asia)  
ISBN (Print): 978-89-5708-254-6  
DOIs:

10.1109/ICPE.2015.7168092

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

### Analysis of Cognitive Cooperative Networks with Best Relay Selection and Diversity Reception

#### 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, Department of Telecommunications Engineering, HoChiMinh City University of Technology

Contributors: Ho-Van, K., Sofotasios, P. C., Que Son, V., Thanh Tra, L., Hong Lien, P.

Number of pages: 6

Pages: 651-656

Publication date: 2015

#### Host publication information

Title of host publication: 2015 International Conference on Advanced Technologies for Communications (ATC)

Publisher: IEEE

ISBN (Print): 978-1-4673-8374-5

DOIs:

10.1109/ATC.2015.7388412

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-201801171105>

<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

### **Analysis of Real Mobility Records in Urban and Suburban Environments**

The long-term motion of vehicles and people is of great interest for many sectors of our society, such as urban planning, traffic forecasting, medicine, retail economy and public transport.

This paper analyzes the parameters of multiple mobility data sets obtained from real-field measurement campaigns. The mobility records show how the target vehicles use the street network in different geographical areas (old city center, suburban areas and highways). The records are obtained from Global Navigation Satellite System receivers mounted on the targets.

This study is useful for smart city scenarios for assessing the feasibility and the performance of metropolitan transport networks.

#### **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, Wireless Communications and Positioning (WICO), Ministry of National Education. University Politehnica of Bucharest

Contributors: Alexandru, R. C., Lohan, E.

Pages: 0688-0692

Publication date: 2016

#### **Host publication information**

Title of host publication: 26TH DAAAM International Symposium on Intelligent Manufacturing and Automation

Publisher: DAAAM International

ISBN (Print): 978-3-902734-07-5

DOIs:

10.2507/26th.daaam.proceedings.094

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

### **Analysis of the aircraft operational reliability research series: From statistical models to avionics data monitoring**

#### **General information**

Publication status: Published

MoE publication type: A4 Article in a conference publication

Organisations: Department of Mechanical Engineering and Industrial Systems, Research group: Käyttövarmuuden suunnittelu ja kunnossapito

Contributors: Laitinen, J., Niemi, A.

Number of pages: 15

Publication date: 2015

#### **Host publication information**

Title of host publication: Proceedings of the 9th World congress on engineering asset management (WCEAM 2014),

Pretoria, South Africa 28-31 Oct, 2014

ISBN (Print): 978-3-319-15536-4

#### **Bibliographical note**

siirretään 2015<br/>Contribution: organisation=mei,FACT1=1<br/>Portfolio EDEND: 2015-01-14<br/>publication\_forum:73368

Source: researchoutputwizard

Source ID: 19

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

### **Analysis of upconversion nanoparticles as an active medium for upconversion light sources**

In the presented work, we investigated the optical and thermal stability of upconversion nanoparticles based on the three widely used matrices (NaYF<sub>4</sub>, Y<sub>2</sub>O<sub>3</sub>, LaF<sub>3</sub>). Analysis of the upconversion emission as a function of pump power density in a wide range revealed a multi-stage functional dependence. The stages of linear growing, saturation and degradation with both reversible and irreversible characters were discovered. For matrices of nanoparticles with low-temperature stability (NaYF<sub>4</sub>), the dependence proves to be irreversible that could cause by a change in the structure and chemical composition of the matrix. Reversible dependence occurs in matrices with high-temperature stability (Y<sub>2</sub>O<sub>3</sub> and LaF<sub>3</sub>) and is caused by multiphonon nonradiative relaxation, which can be temperature-stimulated because of self-heating and low air-cooling of the crystal matrixes with low thermal conductivity.

### General information

Publication status: Published

MoE publication type: A4 Article in a conference publication

Organisations: Physics, Research group: Nanophotonics, A. M. Prokhorov General Physics Institute, Russian Academy of Sciences, Institute of Physics, University of Tartu

Contributors: Fedotov, A., Pominova, D., Orlovskaya, E., Orlovskii, Y., Niemi, T., Gumenyuk, R.

Number of pages: 9

Publication date: 1 Mar 2019

### Host publication information

Title of host publication: Proceedings of SPIE : Optical Components and Materials XVI

Volume: 10914

Publisher: S P I E - International Society for Optical Engineering

Article number: 109140R

ISBN (Print): 9781510624702

### Publication series

Name: Proceedings of SPIE : the International Society for Optical Engineering

Publisher: SPIE, The International Society for Optical Engineering

Volume: 10914

ISSN (Print): 0277-786X

ISSN (Electronic): 1996-756X

Keywords: upconversion, nanoparticles, luminescence, erbium, ytterbium, light sources

Electronic versions:

Analysis of upconversion nanoparticles as an active medium for upconversion light sources

DOIs:

10.1117/12.2507599

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

### A new method to calculate natural convection heat transfer from a non-isothermal fin array

#### 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,  
Research group: Lämpö- ja virtaustekniikka  
Contributors: Lampio, K., Karvinen, R.  
Publication date: 2015

#### Host publication information

Title of host publication: Proceedings of the 7th Baltic Heat Transfer Conference, August 24-26 2015, Tallinn Estonia  
Place of publication: Tallinn  
Publisher: Tallinn University of Technology  
Editors: Neshumayev, D., Sunden, B.  
ISBN (Print): 978-9949-23-817-0

#### Publication series

Name: Baltic Heat Transfer Conference BHTC  
Publisher: Tallinn University of Technology

#### Bibliographical note

ei ut-numeroa 26.4.2014  
Contribution: organisation=epr,FACT1=1  
Research output: Chapter in Book/Report/Conference proceeding › Conference contribution › Scientific › peer-review

#### A new waveguiding mechanism based upon geometric phase

We demonstrate light guiding in a locally twisted anisotropic medium in the absence of a refractive index gradient. The transverse phase modulation required to compensate diffraction is provided by the Pancharatnam-Berry phase.

#### 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, Univ Naples Federico II, Commonwealth Scientific & Industrial Research Organisation (CSIRO), University of Naples Federico II, Dipartimento Fis, Complesso Univ Monte St Angelo, Consiglio Nazionale delle Ricerche (CNR), CNR, SPIN  
Contributors: Alberucci, A., Pannian, J. C., Slussarenko, S., Piccirillo, B., Santamato, E., Marrucci, L., Assanto, G.  
Publication date: 2016

#### Host publication information

Title of host publication: Frontiers in Optics 2016  
Publisher: Optical Society of America (OSA)  
Article number: FF3H.3  
ISBN (Print): 978-1-943580-19-4  
URLs:  
<https://www.osapublishing.org/abstract.cfm?uri=FiO-2016-FF3H.3>  
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

#### 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

#### 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:ty-201603183702>

Source: Bibtex

Source ID: urn:e960458d3c3e7f01508ed799f1f96d

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

#### Anomaly Detection and Diagnostics of a Wheel Loader Using Dynamic Mathematical Model and Joint Probability Distributions

In this paper, we present anomaly detection and diagnostics for articulated frame steered hydraulic wheel loader. The presented methodology is based on the analysis and comparison of the responses of a dynamic mathematical model and a real wheel loader using a joint probability distribution of correlation coefficients of multiple variables. The behaviour of an undamaged machine is modelled by probability density functions of the correlation coefficients using histograms and test how well the future behaviour fits the model. First, the time series data of multiple variables are segmented into segments of the same length. Correlation coefficients are then calculated for each segment and the distributions of the correlation coefficients are estimated by computing probability density functions using histograms. Finally, the joint probabilities that the correlations in the data segments of the time series data are observed are calculated using the already computed histograms. The diagnostics is based on the combination of static threshold and threshold based on mean value of joint probabilities. The dynamic mathematical model of the wheel loader is presented with verification results. A jammed flushing valve of the hydrostatic transmission was used as an anomaly to study the changes in the joint probability values. Finally, the efficiency of the presented method is presented

with good results regarding detection of anomalies and diagnostics of the wheel loader.

#### General information

Publication status: Published

MoE publication type: A4 Article in a conference publication

Organisations: Department of Intelligent Hydraulics and Automation, Research group: Fluid power automation in mobile machines, Research group: Field robotics and control

Contributors: Krogerus, T., Hyvönen, M., Backas, J., Huhtala, K.

Number of pages: 14

Publication date: 2015

#### Host publication information

Title of host publication: Proceedings of the Fourteenth Scandinavian International Conference on Fluid Power, SICFP15. May 20-22, 2015. Tampere, Finland

Publisher: Tampere University of Technology. Department of Intelligent Hydraulics and Automation

ISBN (Electronic): 978-952-15-3530-7

#### Publication series

Name: The Scandinavian International Conference on Fluid Power

ISSN (Electronic): 2342-2726

Keywords: Diagnostics, Time series, Anomaly detection, Joint probability, Correlation coefficients, Simulation, Dynamic mathematical model, Wheel loader, Hydraulics

Electronic versions:

SICFP15\_Krogerus\_manuscript

URLs:

<http://urn.fi/URN:NBN:fi:ty-201603143631>

URLs:

<http://URN.fi/URN:ISBN:978-952-15-3530-7> (SICFP15 Proceedings)

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

### **Appearance of a Drift Problem in Variable-step Perturbative MPPT Algorithms**

#### **General information**

Publication status: Published

MoE publication type: A4 Article in a conference publication

Organisations: Department of Electrical Engineering, Research area: Power engineering

Contributors: Kivimäki, J., Suntio, T.

Number of pages: 7

Pages: 1602-1608

Publication date: 2015

#### **Host publication information**

Title of host publication: 31st European Photovoltaic Solar Energy Conference and Exhibition (EU PVSEC)

ISBN (Print): 3-936338-39-6

DOIs:

10.4229/EUPVSEC20152015-5AO.9.2

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

DOIs:

10.21125/edulearn.2017.1014

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

## Architecture for Open, Knowledge-Driven Manufacturing Execution System

### General information

Publication status: Published

MoE publication type: A4 Article in a conference publication

Organisations: Department of Automation Science and Engineering, Research area: Manufacturing and Automation,

Research group: Factory automation systems technology

Contributors: Iarovyi, S., Xu, X., Lobov, A., Lastra, J. L. M., Strzelczak, S.

Number of pages: 9

Pages: 519-527

Publication date: 2015

### Host publication information

Title of host publication: Advances in Production Management Systems: Innovative Production Management Towards Sustainable Growth

Publisher: Springer

ISBN (Print): 978-3-319-22759-7

DOIs:

10.1007/978-3-319-22759-7\_60

Source: Bibtex

Source ID: urn:147f1b11eec705e9a04fc52893d63bac

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

### **A social capital perspective on gaining optimal solutions from suppliers as preferred customer**

Capable suppliers willing to provide their best possible offering are increasingly scarce. Such suppliers increasingly select customers to whom they invest their best resources and provide the best offerings. The existing research has paid only limited attention to the antecedents of supplier's solution provision performance, i.e. the design of a good solution and its implementation. Further, existing empirical research has rarely taken a detailed view on the phases of a supplier's solution provision. This study seeks answers to the following questions: can the availability or absence of social capital in the supplier-buyer relationship explain supplier's solution provision performance?, what is the importance of different forms of social capital in supplier's solution provision performance and the different phases of solution provision? The empirical data of this study is collected with a survey addressed to suppliers of four large companies. The survey is sent to 1630 supplier companies and 662 usable responses are received resulting in a response rate of 41%. Partial least squares (PLS) structural equation modelling (SEM) and polynomial regression are used to analyze the data. The results demonstrate the importance of social capital in obtaining the optimal solution from suppliers. The results also present that different types of social capital have different influence on the phases of solution provision. Diagnosis of customer needs appears as the phase most significantly driven by social capital prevalent in the supplier-buyer relationship. The results also show that different forms of social capital can compensate each other and that structural capital can take a stronger role compared to relational capital.

#### **General information**

Publication status: Published

MoE publication type: A4 Article in a conference publication

Organisations: Industrial and Information Management, University of Twente

Contributors: Jääskeläinen, A., Schiele, H., Aarikka-Stenroos, L.

Publication date: 2018

#### **Host publication information**

Title of host publication: Academy of Management Proceedings

Volume: 2018

Publisher: Academy of Management AOM

Edition: 1

#### **Publication series**

Name: Academy of Management Proceedings

Volume: 2018

No.: 1

ISSN (Print): 0065-0668

ISSN (Electronic): 2151-6561

Electronic versions:

Social capital and solution provision\_AOM

DOIs:

10.5465/AMBPP.2018.16278abstract

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

### **A Socially-Intelligent Multi-Robot Service Team for In-Home Monitoring**

The objective of this study is to develop a socially-intelligent service team comprised of multiple robots with sophisticated sonic interaction capabilities that aims to transparently collaborate towards efficient and robust monitoring by close interaction. In the distributed scenario proposed in this study, the robots share any acoustic data extracted from the environment and act in-sync with the events occurring in their living environment in order to provide potential means for efficient monitoring and decision-making within a typical home enclosure. Although each robot acts as an individual recognizer using a novel emotionally-enriched word recognition system, the final decision is social in nature and is followed by all. Moreover, the social decision stage triggers actions that are algorithmically distributed among the robots' population and enhances the overall approach with the potential advantages of the team work within specific communities through collaboration.

#### **General information**

Publication status: Published

MoE publication type: A4 Article in a conference publication

Organisations: Technological Educational Institute of Piraeus, Trakya University, Ionian University

Contributors: Drossos, K., Floros, A., Potirakis, S., Tatlas, N., Tuna, G.

Pages: 159-164

Publication date: Jul 2014

#### **Host publication information**

Title of host publication: Information, Intelligence, Systems and Applications, IISA 2014, The 5th International Conference on  
Publisher: IEEE  
ISBN (Print): 978-1-4799-6171-9  
ISBN (Electronic): 978-1-4799-6170-2  
DOIs:

10.1109/IISA.2014.6878763

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

### **Assessment of student retention using the Evolute approach, an overview**

#### **General information**

Publication status: Published

MoE publication type: A4 Article in a conference publication

Organisations: Pori Department

Contributors: Einolander, J., Vanharanta, H.

Number of pages: 6

Pages: 581–586

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.2015.07.269

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

### **A study on the behaviour of the weathered crust in the Perniö failure test**

A full-scale embankment failure test was done in Finland in 2009 in Perniö. The test was conducted in order to gather data to

enhance stability calculation methods on soft soils in railway environment. A shallow embankment with loading structure was built on top

of an existing fill layer over a stiff and overconsolidated clay crust followed by a soft sensitive clay layer and brought to failure in two

days. The soft clay has been thoroughly studied and modeled over the last years based on high quality laboratory and field tests as well as

measurements from the experiment. In this paper, the effect of the weathered clay crust on the stability of the embankment is studied. Ac-

cording to La Rochelle (1974), the field vane tends to overestimate the undrained shear strength of the dry crust since measurements are

affected by uncertainties due to soil structure and test conditions. For this reason a parametric study on stiffness and strength parameters of Perniö dry crust is done through comparison of experimental data with predictions from finite element method. In particular, three different models are used in this study: the isotropic Mohr-Coulomb and Hardening Soil model and the anisotropic NGI-ADP model. The analysis is carried out with PLAXIS 2D. Finally, FE analysis of the Perniö failure test is done using different soil models and the failure load is predicted. Results are discussed in order to evaluate the most suitable model for the realistic prediction of undrained behaviour of Perniö weathered crust.

#### **General information**

Publication status: Published

MoE publication type: A4 Article in a conference publication

Organisations: Department of Civil Engineering, Research group: Foundation Structures, Life Cycle Effectiveness of the Built Environment (LCE@BE)

Contributors: D'Ignazio, M., Di Buo, B., Länsivaara, T.

Number of pages: 6

Pages: 3639-3644

Publication date: 2015

#### **Host publication information**

Title of host publication: Proceedings of the XVI ECSMGE 2015 : 13-17 September 2015 - Edinburgh, Geotechnical Engineering for Infrastructure and Development

Publisher: ICE Publishing

ISBN (Print): 9780727760678

URLs:

[https://www.researchgate.net/publication/265789150\\_A\\_study\\_on\\_the\\_behaviour\\_of\\_the\\_weathered\\_crust\\_in\\_the\\_Perniö\\_failure\\_test](https://www.researchgate.net/publication/265789150_A_study_on_the_behaviour_of_the_weathered_crust_in_the_Perniö_failure_test)

<http://www.icevirtuallibrary.com/doi/abs/10.1680/ecsmge.60678.vol7.572>

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

#### **A Survey of People Movement Analytics Studies in the Context of Smart Cities**

With the advent of the newest emergency call mandates in US and Europe, with the advances in cellular-based and WiFi-based localization solutions, and with the developments of cloud computing and web-based social networks, the location information and movement-related data is becoming easier and easier to collect from the user mobile devices and from the user cloud data and it is more and more used in a variety of Location Based Services and for various network planning and management tasks. The last decade has seen significant research efforts dedicated to analyze the user location and movement data, to extract mobility patterns and features and to use the predicted patterns for a more efficient resource allocation and for better location-based services. In the context of what is called today 'the smart city', user mobility and location data are becoming key components of the smart city architecture and applications. The goal of this paper is to give a compact and comprehensive overview of the challenges and solutions related to collecting, storing, analyzing, visualizing, using or distributing people's movement data and to summarize the purposes of such data in the context of the smart cities and the Internet of Things

#### **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, Aalto University, Tampere University of Technology, Department of Electronics and Communications Engineering, Laboratory for Future Electronics

Contributors: Lohan, E., Kauppinen, T., Debnath, S. B. C.

Pages: 151-158

Publication date: 10 Nov 2016

#### **Host publication information**

Title of host publication: Proceedings of the FRUCT'19

ISBN (Electronic): 978-952-68397-5-2

DOIs:

10.23919/FRUCT.2016.7892195

URLs:

<http://fruct.org/publications/fruct19/files/Loh.pdf>

#### **Bibliographical note**

INT=elt,"Debnath, Sree Bash Chandra"

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

### **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: Research group: Emerging Technologies for Nano-Bio-Info-Cogno, Electronics and Communications Engineering, 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

ISBN (Print): 9783319519166

#### **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

DOIs:

10.1007/978-3-319-51917-3\_3

Source: Scopus

Source ID: 85013436263

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

### **Augmenting Technology Trees: Automation and Tool Support**

#### **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: Heinimäki, T. J., Elomaa, T.

Number of pages: 8

Pages: 68-75

Publication date: Sep 2015

#### **Host publication information**

Title of host publication: Proceedings of the Seventh International Conference on Virtual Worlds and Games for Serious Applications (VS-Games 2015)

Publisher: IEEE

ISBN (Print): 978-1-4799-8101-4

ISBN (Electronic): 978-1-4799-8102-1

ASJC Scopus subject areas: Software

DOIs:

10.1109/VS-GAMES.2015.7295765

### **Automated pile transfer work cycles with a robotic wheel loader**

#### **General information**

Publication status: Published

MoE publication type: A4 Article in a conference publication

Organisations: Automation and Hydraulic Engineering, Research group: Robotics and Automation, Research group: Innovative Hydraulic Automation

Contributors: Halbach, E., Kolu, A., Ghabcheloo, R.

Number of pages: 8

Publication date: 2018

#### **Host publication information**

Title of host publication: 17th International Conference on Computing in Civil and Building Engineering (ICCCBE) : Tampere, 5-7 June 2018

Place of publication: Tampere, Finland

Publisher: RIL

Editors: Mela, K., Pajunen, S., Raasakka, V.

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

URLs:

<https://www.ril.fi/en/events/icccbe-2018.html>

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

### **A Variable Battery Supply DC-DC Buck Converter Designed for 45nm-CMOS Technology**

In this paper, a buck DC-DC converter is presented that is capable of operation under variable input battery voltage ranging from 3.5V to 6V. The proposed converter is based on a new design technique using an adaptive biasing circuit for cascode power stage. The biasing circuit changes its configuration when the battery voltage drops down to 4.5V. The converter is implemented in 45-nm CMOS technology; it was simulated and its operation was verified at an output power of 200mW where it achieves a maximum power conversion efficiency of 81% for an output voltage of 1.25V.



### General information

Publication status: Published

MoE publication type: A4 Article in a conference publication

Organisations: Department of Electronics and Communications Engineering, Research group: RF Integrated Circuits, Univ Alberta, University of Alberta, Tampere Univ Technol, Tampere University of Technology

Contributors: Fouladi, A., Järvenhaara, J., Filanovsky, I. M., Tchamov, N. T.

Publication date: 15 May 2016

### Host publication information

Title of host publication: 2016 IEEE Canadian Conference on Electrical and Computer Engineering (CCECE), Vancouver, May 15-18, 2016.

ISBN (Electronic): 978-1-4673-8721-7

DOIs:

10.1109/CCECE.2016.7726839

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

### Back-calculation of the Saint-Alban A test embankment with a new modelling approach in LEM

To facilitate the continued use of limit equilibrium method (LEM) in stability design of embankments on soft clays, the new calculation method "Hybrid su" (HSU) has been developed. It is used to derive undrained shear strength from effective strength parameters, or to predict the excess pore pressure at failure. The HSU method uses an anisotropic effective stress soil model with volumetric hardening, from which a closed form solution for the effective mean stress at failure  $p_f$  is derived. This in turn is used to derive the anisotropic undrained shear strength (for use in total stress analyses), or excess pore pressure (for use in undrained effective stress analyses). The model accounts for factors such as anisotropy, consolidation state, volumetric hardening and to some extent, rate effects. An advantage of the model over traditional undrained effective stress calculations is that the overestimation of shear strength at  $F > 1$  is avoided.

### General information

Publication status: Published

MoE publication type: A4 Article in a conference publication

Organisations: Department of Civil Engineering, Research group: Foundation Structures

Contributors: Lehtonen, V., Lämsivaara, T.

Number of pages: 9

Pages: 691-699

Publication date: 2016

### Host publication information

Title of host publication: Proceedings of the The 17th Nordic Geotechnical Meeting, Reykjavik Iceland : 25th - 28th of May 2016

ISBN (Electronic): 978-9935-24-002-6

URLs:

[http://www.ngm2016.com/uploads/2/1/7/9/21790806/076-024-ngm\\_2016\\_-\\_back-calculation\\_of\\_the\\_saint-alban\\_a\\_test\\_embankment\\_with\\_a\\_new\\_modelling\\_approach\\_in\\_lem\\_lehtonen\\_lansivaara.pdf](http://www.ngm2016.com/uploads/2/1/7/9/21790806/076-024-ngm_2016_-_back-calculation_of_the_saint-alban_a_test_embankment_with_a_new_modelling_approach_in_lem_lehtonen_lansivaara.pdf)

<http://www.ngm2016.com/>

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

### 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

### 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

### 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=elt"Tariq, Ali Bin"  
Source: Scopus  
Source ID: 85044729916  
Research output: Chapter in Book/Report/Conference proceeding > Conference contribution > Scientific > peer-review

#### BEADS: A dataset of Binaural Emotionally Annotated Digital Sounds

Emotion recognition from generalized sounds is an interdisciplinary and emerging field of research. A vital requirement for this kind of investigations is the availability of ground truth datasets. Currently, there are 2 freely available datasets of emotionally annotated sounds, which, however, do not include sound events (SEs) with manifestation of the spatial location of the source. The latter is an inherent natural component of SEs, since all sound sources in real-world conditions are physically located and perceived somewhere in the listener's surrounding space. In this work we present a novel emotionally annotated sounds dataset consisting of 32 SEs that are spatially rendered using appropriate binaural processing. All SEs in the dataset are available in 5 spatial positions corresponding to source/receiver angles equal to 0, 45, 90, 135 and 180 degrees. We have used the IADS dataset as the initial collection of SEs prior to binaural processing. The annotation measures obtained for the novel binaural dataset demonstrate a significant accordance with the existing IADS dataset, while small ratings declinations illustrate a perceptual adaptation imposed by the more realistic SEs spatial representation.

#### General information

Publication status: Published  
MoE publication type: A4 Article in a conference publication  
Organisations: Ionian University  
Contributors: Drossos, K., Floros, A., Giannakouloupoulos, A.  
Number of pages: 6  
Pages: 158-163  
Publication date: 1 Jul 2014

#### Host publication information

Title of host publication: Information, Intelligence, Systems and Applications, IISA 2014, The 5th International Conference on  
Publisher: IEEE  
ISBN (Electronic): 978-1-4799-6171-9  
Keywords: emotion recognition, music, BEADS, IADS dataset, SEs spatial representation, binaural dataset, binaural emotionally annotated digital sounds, binaural processing, emotionally annotated sound dataset, ground truth datasets, music signals, sound events, Acoustics, Art, Databases, Electronic mail, Emotion recognition, Headphones, Semantics  
DOIs:  
10.1109/IISA.2014.6878749  
Source: Bibtex  
Source ID: urn:b4c1c66c90ee0f9dcdb6a6f156c1bf7e  
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

### 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:tyy-201603013595>  
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

### Bioimpedance measurement system for evaluation of the status of wound healing

Hard-to-heal wounds are usually evaluated visually by a medical professional. Visual inspection as a method is subjective and in order to evaluate the wound the dressings have to be removed. Our group has developed a wound patch, a bioimpedance device and a PC software for mapping the wound area and to evaluate the status of wound healing. This study introduces the patch and the measurement system. We also present the test measurement results obtained using an early version of the wound patch. The results confirmed that the patch can be used for the evaluation of the wound status.

### General information

Publication status: Published  
MoE publication type: A4 Article in a conference publication  
Organisations: Department of Electronics and Communications Engineering, Research group: Personal Electronics Group , Research group: Physiological Measurement Systems and Methods Group, BioMediTech  
Contributors: Kekonen, A., Bergelin, M., Eriksson, J., Ylänen, H., Kielosto, S., Viik, J.  
Number of pages: 4  
Pages: 175-178  
Publication date: 17 Nov 2016

### Host publication information

Title of host publication: 2016 15th Biennial Baltic Electronics Conference (BEC)  
Publisher: IEEE  
ISBN (Print): 978-1-5090-1394-4  
ISBN (Electronic): 978-1-5090-1393-7  
Keywords: Wound healing, Bioimpedance, Mapping, Chronic wound  
DOIs:  
10.1109/BEC.2016.7743757

### Bibliographical note

JUFOID=72715  
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

#### Blind estimation of speckle variance in synthetic aperture radar images

A task of blind estimation of multiplicative noise (speckle) variance in multi-look images acquired by radars with synthesized aperture array is considered. It is shown that there are several factors affecting accuracy of such estimation. The main of them are spatial correlation of the speckle, complexity of an analyzed image and peculiarities of a method used. Spatial and spectral domain approaches are analyzed. It is shown that for both approaches spatial correlation of the speckle is to be estimated and taken into account. Results for real life TerraSAR-X data are presented as illustrations and for analyzing methods' accuracy.

#### General information

Publication status: Published  
MoE publication type: A4 Article in a conference publication  
Organisations: Tampere University of Technology, Department of Signal Processing, Research group: Computational Imaging-CI, Signal Processing Research Community (SPRC), National Aerospace University  
Contributors: Abramova, V. V., Kozhemiakin, R., Abramov, S. K., Lukin, V. V., Zelensky, A. A., Egiazarian, K.  
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: blind estimation, multi-look, SAR, speckle variance  
DOIs:  
10.1109/ICATT.2015.7136846

#### Bibliographical note

EXT="Lukin, V. V."  
Source: Scopus  
Source ID: 84939434768  
Research output: Chapter in Book/Report/Conference proceeding > Conference contribution > Scientific > peer-review

#### 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](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

### **Building energy retrofits, occupant health and wellbeing**

#### **General information**

Publication status: Published

MoE publication type: A4 Article in a conference publication

Organisations: Research group: Building Physics, Department of Civil Engineering, Research area: Structural Engineering, Natl Inst Hlth & Welf, Finland National Institute for Health & Welfare, Dept Environm Hlth

Contributors: Haverinen-Shaughnessy, U., Pekkonen, M., Turunen, M., Aaltonen, A., Leivo, V.

Number of pages: 9

Pages: 679-687

Publication date: 2016

#### **Host publication information**

Title of host publication: CIB World Building Congress 2016 Proceedings : Volume 2 Environmental Opportunities and challenges - Constructing commitment and acknowledging human experiences

Volume: 2

Publisher: Tampere University of Technology. Department of Civil Engineering

Editors: Prins, M., Wamelink, H., Giddings, B., Ku, K., Feenstra, M.

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

URLs:

[https://tutcris.tut.fi/portal/files/6186797/WBC16\\_Vol\\_2.pdf](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

### **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

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

### **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

### **Bus Transportation Accessibility - Does It Impact Housing Values?**

#### **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: Capacity Development of Water and Environmental Services CADWES

Contributors: Kurvinen, A., Sorri, J.

Number of pages: 11

Pages: 321-331

Publication date: 2016

#### **Host publication information**

Title of host publication: Proceedings of the CIB World Building Congress 2016 : Understanding impacts and functioning of different solutions

Volume: IV

Place of publication: Tampere

Publisher: Tampere University of Technology. Department of Civil Engineering

Editors: Nenonen, S., Junnonen, J.

ISBN (Electronic): 978-952-15-3744-8

ASJC Scopus subject areas: Economics, Econometrics and Finance (miscellaneous), Civil and Structural Engineering

Keywords: bus stops, bus traffic, housing prices, public transportation, residential property values, traffic related zones, urban form

Electronic versions:

WBC2016\_Bus\_Transportation\_Accessibility

URLs:

<http://urn.fi/URN:NBN:fi:tty-201606224310>

URLs:

[https://tutcris.tut.fi/admin/files/6372875/WBC2016\\_Bus\\_Transportation\\_Accessibility.pdf](https://tutcris.tut.fi/admin/files/6372875/WBC2016_Bus_Transportation_Accessibility.pdf) (Proceedings of the CIB World Building congress 2016)



<http://www.wbc16.com/wbc16/welcome.html> (Proceedings of the CIB World Building congress 2016)

### **Bibliographical note**

This paper won World Building Congress 2016 Best Paper Award.

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://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

### **Capturing knowledge from research projects: From project reports to storytelling**

Research projects are essential tools for creating knowledge and fueling societal developments. Consequently, research efforts are consistent with requirements from accepted scientific methods as they are exhaustively recorded and stored. Traditional approaches are equally effective in helping assess the robustness of research methods. However, approaches to recording research projects leave behind a wealth of tacit knowledge and contextual information. Tacit knowledge and contextual information are essential to enable the development of individual researchers and research teams, which in turn have the potential to increase productivity, effectiveness and impact of future research. Found within the project management literature is the idea of utilizing storytelling to record projects' lessons learned. This paper's main research question is "how would a storytelling framework for capturing and sharing knowledge and contextual information improve organizational memory and the management of research projects?" The framework will be piloted at Canadian, Finnish, and Japanese universities. The effectiveness of the framework will be assessed by comparing it with established procedures to record research projects. In terms of organization, this paper will include a review of the literature, a description of the logic and application of the framework, findings from pilot studies, next steps, and opportunities for future research.

#### **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: Machado, M. A., Magnier-Watanabe, R., Peltola, T.

Number of pages: 10

Pages: 2048-2057

Publication date: Sep 2016

#### **Host publication information**

Title of host publication: 2016 Portland International Conference on Management of Engineering and Technology (PICMET)

Publisher: IEEE

ISBN (Print): 978-1-5090-3595-3

Keywords: Technological innovation, Technology management

DOIs:

10.1109/PICMET.2016.7806602

Source: Bibtex

Source ID: urn:e6b6fba93971fe08c9732ef2e4b6d809

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

### **Car Type Recognition with Deep Neural Networks**

In this paper we study automatic recognition of cars of four types: Bus, Truck, Van and Small car. For this problem we consider two data driven frameworks: a deep neural network and a support vector machine using SIFT features. The accuracy of the methods is validated with a database of over 6500 images, and the resulting prediction accuracy is over 97 %. This clearly exceeds the accuracies of earlier studies that use manually engineered feature extraction pipelines.

#### **General information**

Publication status: Published

MoE publication type: A4 Article in a conference publication

Organisations: Department of Signal Processing, Research group: Vision

Contributors: Huttunen, H., Shokrollahi Yancheshmeh, F., Chen, K.

Pages: 1115-1120

Publication date: Jun 2016

#### **Host publication information**

Title of host publication: 2016 IEEE Intelligent Vehicles Symposium, IV 2016

Publisher: IEEE

ISBN (Print): 9781509018215

DOIs:

[10.1109/IVS.2016.7535529](https://doi.org/10.1109/IVS.2016.7535529)

URLs:

<https://arxiv.org/abs/1602.07125>

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

### **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 (HVOF) 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 ( $\text{Cr}_3\text{C}_2$ -25NiCr) based MMC coatings sprayed with gaseous and liquid fuelled HVOF processes and a modern HVOF 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 HVOF when compared to HVOF sprayed coatings. In addition,  $\text{Cr}_3\text{C}_2$ -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

### **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

### **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

#### **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: Väättäjä, 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

### **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

### **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

### **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

### **Coarse-grained model of protein interaction for bio-inspired nano-communication**

Bio-inspired nano-communication enables nanoscale devices to exchange information with each other by various natural mechanisms of data transfer. One of the most perspective way in bio-inspired communications is using the protein interactions, which refer from various proteins conformation states. In this paper, we describe our new coarsegrained model for protein conformation estimation based on fast transport task solving, developed algorithm and software which implement this model are provided.

#### **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, Wireless Communications and Positioning (WICO), Russian Academy of Sciences, ITMO University

Contributors: Knyazev, S., Tarakanov, S., Kuznetsov, V., Porozov, Y., Koucheryavy, Y., Stepanov, E.

Number of pages: 3

Pages: 260-262

Publication date: 6 Jan 2015

#### **Host publication information**

Title of host publication: 2014 6th International Congress on Ultra Modern Telecommunications and Control Systems and Workshops (ICUMT)

ISBN (Print): 978-1-4799-5291-5

ASJC Scopus subject areas: Computer Networks and Communications, Control and Systems Engineering

Keywords: biology signaling, coarse-grained model, nano-communications, protein conformation change

DOIs:

10.1109/ICUMT.2014.7002112

Source: Scopus

Source ID: 84932108897

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

JUFOID=72850

Source: Scopus

Source ID: 85013813769

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

### Commercialising reclaimed materials in earthworks – guidelines for productization and the process of appending these materials in the Finnish national code of practice

To decrease the use of non-renewable natural resources as well as environmental effects of earth-works, natural aggregate materials can be replaced with recycled materials acquired from surplus soil, industrial by-products and waste, etc. When wishing to increase the usage of these reclaimed materials (=“UUMA”-material), the usage must be straightforward for developers, designers and constructors alike. To make this possible, the materials must have design guidelines for their appropriate applications. They must be productized and CE marked or otherwise authorized, and the construction guidelines for the materials must be included in the Finnish general specifications for in-frastructural construction works (InfraRYL). As productization is especially important in increasing the usage of UUMA materials, guidelines for vendors are being drawn that present information on commercializing reclaimed materials to be used in earthworks. The guidelines for productization are being prepared in the Finnish national UUMA2 programme (2013-2017,

www.uuma2.fi), which was created to promote the use of recycled materials in earthworks.

#### General information

Publication status: Published

MoE publication type: A4 Article in a conference publication

Organisations: Department of Civil Engineering, Research area: Infrastructure Construction, Research group: Earth Constructions, Research group: Track Structures, Ramboll Finland Ltd.

Contributors: Koivisto, K., Forsman, J., Ronkainen, M., Lahtinen, P., Kolisoja, P., Kuula, P.

Number of pages: 10

Publication date: 2016

#### Host publication information

Title of host publication: Proceedings of the 17th Nordic Geotechnical Meeting Reykjavik Iceland : Challenges in Nordic Geotechnic 25th - 28th of May

Place of publication: Reykjavik

Publisher: Icelandic Geotechnical Society

ISBN (Electronic): 978-9935-24-002-6

URLs:

<http://www.ngm2016.com/>

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

DOIs:

10.1109/ICUMT.2017.8255207

#### Bibliographical note

jufoid=72315

Source: Bibtex

Source ID: urn:e3e92af655321f382b94981bdab749a2

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

#### Comparing two methods for Urban Complexity calculation using Shannon-Wiener index

This study will compare the results of measuring Urban Complexity using Shannon-Wiener index in two different methods. Using a joint dataset retrieved from Foursquare API, we will measure the degree of urban complexity of every street 1. relating every amenity to the closest street segment in a computational way and then applying the calculation to the segments, and 2. applying the calculation to every cell of a grid that will be combined with the street network afterwards. The selected case study is the city of London and the dataset employed will be retrieved from Foursquare. Over 79,000 venues were collected and classified in over 660 categories. In order to proceed to the analysis, these 660 categories will be reduced to 10 based on the classification of activities observed in the public space from the traditional urban discipline. Then the urban complexity index of each Street segment of London will be measured as a simultaneous calculation of the



density and diversity of collected and classified economic activities.

#### **General information**

Publication status: Published  
MoE publication type: A4 Article in a conference publication  
Organisations: Architecture, University of Alicante, SPIN Unit  
Contributors: López Baeza, J., Cerrone, D., Männigo, K.  
Number of pages: 10  
Pages: 369-378  
Publication date: 2017

#### **Host publication information**

Title of host publication: Comparing two methods for Urban Complexity calculation using Shannon-Wiener index  
Publisher: WIT Press

#### **Publication series**

Name: WIT Transactions on Ecology and The Environment  
Volume: 226  
ISSN (Print): 1743-3541  
ISSN (Electronic): 1746-448X  
DOIs:  
10.2495/SDP170321

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

#### **Comparison of food frequency questionnaire data and shopping records for the assessment of food intake**

Questionnaires are typically used for collecting information describing health behavior in areas such as diet, physical activity and sleep. Utilization of the digital footprint, formed from an individual's unique digital activities, forms a potential new opportunity for describing lifestyle and health-related behavior. We studied if passively collected shopping data describes food intake when compared to food frequency questionnaire (FFQ) data providing information on food and beverage consumption. For 4 out of 21 food groups the results were comparable. Shopping information from only one department store chain gives only a partial picture of the food consumption and differing family sizes add noise to the estimate. If the whole digital footprint would be available, including detailed product-level shopping information from all stores and restaurants, the food intake could probably be estimated more accurately and applied e.g. in personalized coaching.

#### **General information**

Publication status: Published  
MoE publication type: A4 Article in a conference publication  
Organisations: Faculty of Biomedical Sciences and Engineering, Faculty of Biomedical Sciences and Engineering, Tampere University of Technology, Institute for Molecular Medicine, FIMM, HiLIFE, University of Helsinki  
Contributors: Kallonen, A., Nieminen, H., Das, S., Sallinen, R.  
Pages: 25-30  
Publication date: 27 Aug 2018

#### **Host publication information**

Title of host publication: Proceedings of Seventh International Conference on Well-Being in the Information Society: Fighting Inequalities (WIS 2018)  
ISBN (Electronic): 978-952-12-3727-0

#### **Publication series**

Name: TUCS Lecture Notes  
Volume: 28  
ISSN (Electronic): 1797-8831  
ASJC Scopus subject areas: Molecular Medicine  
Keywords: Food intake assessment, shopping data, food frequency questionnaire, digital footprint  
URLs:  
<http://urn.fi/URN:ISBN:978-952-12-3727-0>

#### **Bibliographical note**

INT=TUT-BMT,"Das, Soumya"  
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

### **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

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

#### 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

#### Computational wavelength resolution for in-line lensless holography: Phase-coded diffraction patterns and wavefront group-sparsity

In-line lensless holography is considered with a random phase modulation at the object plane. The forward wavefront propagation is modelled using the Fourier transform with the angular spectrum transfer function. The multiple intensities (holograms) recorded by the sensor are random due to the random phase modulation and noisy with Poissonian noise distribution. It is shown by computational experiments that high-accuracy reconstructions can be achieved with resolution going up to the two thirds of the wavelength. With respect to the sensor pixel size it is a super-resolution with a factor of 32. The algorithm designed for optimal superresolution phase/amplitude reconstruction from Poissonian data is based on

the general methodology developed for phase retrieval with a pixel-wise resolution in V. Katkovnik, "Phase retrieval from noisy data based on sparse approximation of object phase and amplitude", <http://www.cs.tut.fi/~lasip/DDT/index3.html>.

### General information

Publication status: Published

MoE publication type: A4 Article in a conference publication

Organisations: Signal Processing, Department of Photonics and Optical Information Technology, ITMO University

Contributors: Katkovnik, V., Shevkunov, I., Petrov, N. V., Egiazarian, K.

Publication date: 2017

### Host publication information

Title of host publication: Digital Optical Technologies 2017

Publisher: SPIE

Article number: 1033509

ISBN (Electronic): 9781510611153

### Publication series

Name: Proceedings of SPIE

Volume: 10335

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: Discrete optical signal processing, Image processing, Noise in imaging systems, Phase retrieval, Superresolution

DOIs:

10.1117/12.2269327

### Bibliographical note

jufoid=71479

Source: Scopus

Source ID: 85030715279

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

URLs:

[http://www.sefi.be/conference-2016/papers/Engineering\\_Skills/pyrhone-computer-supported-collaborative-learning--praxes-223.pdf](http://www.sefi.be/conference-2016/papers/Engineering_Skills/pyrhone-computer-supported-collaborative-learning--praxes-223.pdf)

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

#### Computer vision aided navigation systems

The paper considers the possible use of computer vision systems for INS aiding. Two methods of navigation data obtaining from the image sequence are analyzed. The first method uses the features of architectural elements in indoor and urban conditions for generation of object attitude parameters. The second method is based on extraction of general features in the image and is more widely applied. Besides the orientation parameters, the second method estimates the object displacement, and thus can be used as visual odometry technique. The described algorithms can be used to develop small-sized MEMS navigation systems efficiently operating in urban conditions.

#### General information

Publication status: Published

MoE publication type: A4 Article in a conference publication

Organisations: Department of Automation Science and Engineering, Research group: Positioning, ITMO University

Contributors: Davidson, P., Merkulova, I.

Number of pages: 3

Pages: 560-562

Publication date: 2016

#### Host publication information

Title of host publication: 23rd Saint Petersburg International Conference on Integrated Navigation Systems, ICINS 2016 - Proceedings

Publisher: State Research Center of the Russian Federation

ISBN (Electronic): 9785919950370

ASJC Scopus subject areas: Computer Networks and Communications, Signal Processing, Electrical and Electronic Engineering, Information Systems

Keywords: Camera, Computer vision, Data fusion, Image processing, Inertial system, Orientation

URLs:

<http://www.scopus.com/inward/record.url?scp=84979499890&partnerID=8YFLogxK> (Link to publication in Scopus)

Source: Scopus

Source ID: 84979499890

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

#### Consensus building in the pre-design phase of building projects

Building projects are unique manoeuvres in which numerous participants who possess different skills work together to complete various tasks. Working processes vary in complexity from simple to very complex. Although the building construction sector has traditional ways of structuring projects, project management professionals are continuously seek new process models and ways to cooperate between people and project participants. This paper focuses on processes in the pre-planning phase of a building project and is based on exploratory study where the conceptual and empirical literature about construction processes and decision-making were reviewed. Over thirty existent models were identified and thirteen of these models, which take a decision making into account, were more closely studied. In addition, decision-making models in other fields were surveyed. Using a hermeneutic cycle approach, the aim of this paper is to investigate a preferable model for the pre-planning phase of construction projects that can produce the main objectives, which is to best serve the end user and the project as a whole. As a final result a new model in the case of the pre-design phase of the building process is introduced and discussed. This paper asks what we have learnt from these foci.

#### 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 area: Construction Management and Economics, Research group: Real estate development

Contributors: Keinänen, M., Uotila, U., Sorri, J., Teriö, O., Kähkönen, K.  
Number of pages: 12  
Pages: 561-572  
Publication date: 2016

#### Host publication information

Title of host publication: WBC16 Proceedings of the CIB World Building Congress 2016 Volume II : Environmental Opportunities and challenges, Constructing commitment and acknowledging human experiences  
Volume: Volume II  
Publisher: Tampere University of Technology. Department of Civil Engineering  
Editors: Prins, M., Wamelink, H., Giddings, B., Ku, K., Feenstra, M.  
ISBN (Electronic): 978-952-15-3741-7

#### Publication series

Name: Tampere University of Technology. Department of Civil Engineering. Construction Management and Economics.  
ISSN (Print): 1797-8904  
Keywords: consensus building, target setting, decision-making, construction project management, pre-design phase  
URLs:  
[https://tutcris.tut.fi/portal/files/6186797/WBC16\\_Vol\\_2.pdf](https://tutcris.tut.fi/portal/files/6186797/WBC16_Vol_2.pdf)  
URLs:  
<http://www.wbc16.com/wbc16/welcome.html>  
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

#### Host publication information

Title of host publication: 2018 IEEE 19th Workshop on Control and Modeling for Power Electronics, COMPEL 2018  
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

JUFID=79370  
Source: Scopus  
Source ID: 85054503298  
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

#### **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-weight structures

Contributors: Pertola, 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

#### **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](http://www.cired.net/publications/workshop2016/pdfs/CIRED2016_0240_final.pdf)

## Convolutional Recurrent Neural Networks for Rare Sound Event Detection

### General information

Publication status: Published

MoE publication type: A4 Article in a conference publication

Organisations: Signal Processing, Research group: Audio research group - ARG

Contributors: Cakir, E., Virtanen, T.

Pages: 27-31

Publication date: 2017

### Host publication information

Title of host publication: Proceedings of the Detection and Classification of Acoustic Scenes and Events 2017 Workshop (DCASE2017)

Publisher: Tampere University of Technology. Laboratory of Signal Processing

ISBN (Electronic): 978-952-15-4042-4

URLs:

<http://urn.fi/URN:ISBN:978-952-15-4042-4>

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

## Coopetition and company performance

### General information

Publication status: Published

MoE publication type: A4 Article in a conference publication

Organisations: University of Vaasa (UVA), University of Vaasa

Contributors: Helander, N., Vesalainen, J., Juha, P.

Publication date: 2 Sep 2015

### Host publication information

Title of host publication: IMP 2015 Conference

URLs:

[http://www.impgroup.org/paper\\_view.php?viewPaper=8479](http://www.impgroup.org/paper_view.php?viewPaper=8479)

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

## Cost- and time-effective sewing patterns for embroidered passive UHF RFID tags

Embroidery is an efficient method for the fabrication of textile antennas. We studied the effects of reducing the amount of conductive thread to achieve savings in material costs and the effects of the sewing pattern on the wireless performance of embroidered passive UHF RFID tags on two different fabric substrates. The antennas were sewed on cotton and polyamide fabrics, the ICs were attached to the embroidered antennas with a conductive adhesive, and the wireless performance of the ready-made textile RFID tags was evaluated through measurements. The fabric parameters were found to have a major effect on the tag performance. Based on our results, significant amounts of time and conductive yarn can be saved in the embroidery of RFID tag antennas by only partially sewing the tag antenna.

### General information

Publication status: Published

MoE publication type: A4 Article in a conference publication

Organisations: BioMediTech, Faculty of Biomedical Sciences and Engineering, Research group: Wireless Identification and Sensing Systems Research Group

Contributors: Brechet, N., Ginestet, G., Moradi, E., Ukkonen, L., Torres, J., Björninen, T., Virkki, J.

Pages: 30-33

Publication date: 1 Mar 2017

### Host publication information

Title of host publication: Proceedings of IEEE 2017 International Workshop on Antenna Technology

Publisher: IEEE

ISBN (Electronic): 978-1-5090-5176-2

Electronic versions:

PID4547891

DOIs:

10.1109/IWAT.2017.7915289

URLs:



<http://urn.fi/URN:NBN:fi:tty-201712202422>

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

### **CueSense: a Wearable Proximity-Aware Display Enhancing Encounters**

Wearable technology has been envisioned, amongst other things, to enhance face-to-face social interaction. For example, the visibility of wearable devices to other people (e.g. a wearable display) could augment the wearer's appearance by displaying public and socially relevant information about them. Such information could increase nearby people's awareness of the wearer, thus serve as tickets-to-talk and, ideally, enhance their first encounters. We present the design of CueSense, a wearable displays that shows textual content from the wearer's social media profiles, determined by the level of proximity to another user and match-making between their contents. We report the findings from a preliminary user study with 18 participants, followed by discussion as well as ideas for future research and further refinement of the concept.

#### **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), Tampere University of Technology

Contributors: Jarusriboonchai, P., Olsson, T., Prabhu, V., Väänänen-Vainio-Mattila, K.

Number of pages: 6

Publication date: 2015

#### **Host publication information**

Title of host publication: CHI EA '15 Proceedings of the 33rd Annual ACM Conference Extended Abstracts on Human Factors in Computing Systems

Publisher: ACM

ISBN (Print): 978-1-4503-3146-3

Electronic versions:

CueSense- a Wearable Proximity- Aware Display\_JarusriboonchaiEtAL\_CHI\_EA\_2015

DOIs:

10.1145/2702613.2732833

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

### **Culture-Aware Web Information System Development**

#### **General information**

Publication status: Published

MoE publication type: A4 Article in a conference publication

Organisations: Pori Department, Research group: Software Engineering and Intelligent Systems, Christian-Albrechts-Universität zu Kiel

Contributors: Jaakkola, H., Thalheim, B.

Number of pages: 18

Pages: 121-138

Publication date: 2015

#### **Host publication information**

Title of host publication: 25th International Conference on Information Modelling and Knowledge Bases EJC 2015 June 9-12, 2015, Maribor, Slovenia

Place of publication: Maribor

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

Editors: Welzer, T., Hölbl, M., Kiyoki, Y., Thalheim, B., Jaakkola, H.

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

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

### **Culture-Aware Web Information Systems in Dependence of Context**

#### **General information**

Publication status: Published

MoE publication type: A4 Article in a conference publication

Organisations: Pervasive Computing, Christian-Albrechts-University Kiel

Contributors: Jaakkola, H., Thalheim, B.

Pages: 309-331

Publication date: Jun 2017

### Host publication information

Title of host publication: The Proceedings of the 27th International Conference on Information Modelling and Knowledge Bases

Publisher: Sirindhorn International Institute of Technology, Thammasat University, Thailand

Editors: Sornlertlamvanich, V., Chawakitchareon, P., Hansuebsai, A., Koopipat, C., Kiyoki, Y., Jaakkola, H., Thalheim, B., Yoshida, N.

ISBN (Electronic): 978-616-407-165-0

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](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

### Customer Perceived Value - A Key in Marketing of Integrated Solutions

#### 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: Novi

Contributors: Helander, N., Sillanpää, V., Vuori, V., Uusitalo, O.

Pages: 37-42

Publication date: 3 Jun 2017

### Host publication information

Title of host publication: The 5th International Conference on Strategic Innovative Marketing., At Athens, Greece, Volume: 5 : September 23-26, 2016

Publisher: Springer

Editors: Kavoura, A., Sakas, D., Tomaras, P.

ISBN (Electronic): 978-3-319-56288-9

### Publication series

Name: Springer Proceedings in Business and Economics

ISSN (Print): 2198-7246

Electronic versions:

Integrated solutions

DOIs:

10.1007/978-3-319-56288-9\_6

URLs:

<http://urn.fi/URN:NBN:fi:tuni-201910033684>

URLs:

<http://www.icsim.net/>

### Bibliographical note

jufoid=84314

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  
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

## Customer value management framework for supply chains

### General information

Publication status: Published  
MoE publication type: A4 Article in a conference publication  
Organisations: Department of Information Management and Logistics  
Contributors: Ala-Maakala, M., Liimatainen, H.  
Number of pages: 10  
Pages: 447-456  
Publication date: 4 Jul 2016

### Host publication information

Title of host publication: The proceedings of 21st international symposium on logistics (ISL 2016) : Sustainable transport and supply chain innovation, Kaohsiung, Taiwan 3-6 July 2016  
Editor: Pawar, K.  
ISBN (Electronic): 9780853583172  
URLs:  
<http://www.isl21.org/wp-content/uploads/2016/06/ISL-Proceedings-2016.pdf>  
Research output: Chapter in Book/Report/Conference proceeding > Conference contribution > Scientific > peer-review

## D2D communications for mobile devices: Technology overview and prototype implementation

The mobile devices of today evolve towards offering uninterrupted connectivity while attempting to achieve untethered mobility of their users. Further technological advances in hardware often lead to an increased data consumption. Combining these two factors, we notice that the data rates on the current Internet connections are starting to lag behind. Ultimately, we observe a mismatch between the data transfer rate requirements and the actual throughput availability. In this paper, we utilize direct links between proximate devices to help offload the large amounts of user-originated data from the conventional cellular links. The paper explores the implementation possibilities of this technology on the consumer Android devices, as well as substantiates our application development choices. The proposed approach employs the infrastructure-based connections for coordination, while most data transfers happen over the device-to-device links. This allows the developers to utilize our data offloading platform for other proximate applications.

### 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, Department of Pervasive Computing, Research area: Software engineering

Contributors: Devos, M., Ometov, A., Mäkitalo, N., Aaltonen, T., Andreev, S., Koucheryavy, Y.  
Pages: 124-129  
Publication date: 5 Dec 2016

#### Host publication information

Title of host publication: 8th International Congress on Ultra Modern Telecommunications and Control Systems and Workshops (ICUMT)  
Publisher: IEEE  
ISBN (Print): 978-1-4673-8819-1  
ISBN (Electronic): 978-1-4673-8818-4  
Keywords: Device-to-device communication, Data transfer, Internet, Mobile communication, IEEE 802.11 Standard, Mobile handsets, Operating systems  
DOIs:  
10.1109/ICUMT.2016.7765344  
Research output: Chapter in Book/Report/Conference proceeding > Conference contribution > 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., Viikko, 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

#### 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

### **Decision making on sustainability in product development projects**

Companies use various evaluation and decision making criteria in their product development projects, to ensure the selection of the right projects to their project portfolio. Recently, sustainability has become an increasingly important decision parameter in companies, but it has not, yet, been studied sufficiently as part of decision making in product development projects. This study pursues increased understanding on the ways in which companies can embed sustainability into their decision making and information search. We employed a qualitative, interview-based research design with three environmentally oriented companies and studied their practices of sustainability-related decision making in projects. The results map factors relevant in sustainability-based decision making particularly concerning the product development task, decision makers, decision elicitation and decision aggregation. Sustainability-orientation in decision making particularly reveals internal information processes, decision makers' different incentives, cost saving orientation and relationships between different project evaluation criteria as relevant factors. The paper contributes by supplementing a generic framework of relevant factors in product development decision making with specifics in sustainability-based decision making.

#### **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: Martinsuo, M., Arvio, I.

Publication date: Jun 2015

#### **Host publication information**

Title of host publication: 15th Annual Conference of EURAM European Academy of Management : EURAM 2015

Place of publication: Warsaw

Publisher: European Academy of Management, EURAM

ISBN (Print): 9788389437600

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

### **Demolished buildings: Empirical evidence on types, ages and construction materials**

Studies have found that from the ecological perspective, preservation of existing buildings is usually more sustainable than demolition and new construction. Knowledge about the characteristics of demolished buildings could help to promote renovation of buildings and to advance more sustainable management of building stocks, but so far the acquisition of comprehensive data has posed an immense challenge for research. Due to the lack of empirical evidence, the current understanding is largely based on theorizing. To participate in bridging this gap of knowledge, the current study takes advantage of data extracted from the Finnish Building and Dwelling Register. This data, which encompass all buildings demolished in Finland between 2000 and 2012 (50 818 buildings), are utilized to investigate the ages, decades of origin and construction materials and methods of demolished buildings by building types in 11 different categories from residential to non-residential. The results show that buildings are being demolished after remarkably short service lives. On average, the demolished buildings were only 51 years old — a service life that is considered as appropriate for temporary structures in the current design guidance. Furthermore, prefabricated buildings reached lives around 20 years, which is clearly less than with in situ built buildings. The average lives of buildings made of different materials were as follows: 54 years (timber buildings), 50 years (brick buildings), 40 years (concrete buildings) and 19 years (steel buildings). A comparison to statistics covering the existing stock showed that demolition is typically underrepresented in the youngest cohorts and overrepresented in older cohorts.

#### **General information**

Publication status: Published

MoE publication type: A4 Article in a conference publication

Organisations: School of Architecture, Research group: Built Environment in Transition

Contributors: Huuhka, S.

Number of pages: 8

Pages: 1105-1112

Publication date: 22 Jun 2016

#### **Host publication information**

Title of host publication: CESB16 - Central Europe towards Sustainable Building 2016 : Innovations for Sustainable Future, June 22-24, 2016, Prague

Place of publication: Prague

Publisher: Czech Technical University in Prague

Editors: Hajek, P., Tywoniak, J., Lupisek, A., Sojkova, K.  
ISBN (Print): 978-80-271-0248-8  
ISBN (Electronic): 978-80-271-0248-8  
URLs:

<http://cesb.cz/>

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

### **Demolition Rates of Buildings with Different Functions and Construction Materials**

Obsolescence of buildings is a complex phenomenon. Previous research has found that demolition of buildings is primarily determined by behavioural aspects, amongst which is the use of the building. At the same time, service life design of buildings keeps focusing strongly on physical factors, such as the durability of materials. This study intends to shed light on the relationship of the building's function and material by investigating demolition rates of Finnish buildings that are made of different materials (timber, concrete, bricks, steel) and that have different functions (10 categories, both residential and non-residential). The study uses demolition data from the Finnish Building and Dwelling Register (50 818 buildings – all buildings demolished between 2000 and 2012) and statistical data on the composition of the entire building stock. According to the results, the building type seems to be more decisive than the material. The highest loss rates take place amongst warehouse buildings.

#### **General information**

Publication status: Published

MoE publication type: A4 Article in a conference publication

Organisations: School of Architecture, Research group: Built Environment in Transition

Contributors: Huuhka, S.

Number of pages: 7

Pages: 301-307

Publication date: 21 Jun 2016

#### **Host publication information**

Title of host publication: YRSB16 - iiSBE Forum of Young Researchers in Sustainable Building 2016 : Innovations for Sustainable Future June 21, 2016, Prague

Place of publication: Prague

Publisher: Czech Technical University in Prague

Editors: Zelezna, J., Hajek, P., Tywoniak, J., Lupisek, A., Sojkova, K.

ISBN (Electronic): 978-80-01-05979-1

URLs:

<http://www.cesb.cz/yrsb/>

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

### **Design and simulation of a thermal flow sensor for gravity-driven microfluidic applications**

Gravity-driven flow is an attractive approach to develop simpler microfluidic systems. Because clogged microchannels could easily lead to fatal operational failures, it is crucial to monitor flow rate in these systems. Therefore, we propose here for the first time a numerical model that combines a calorimetric flow sensor and a gravity-driven system. With the validated model, we studied the flow behavior in a gravity-driven system. Furthermore, we were able to improve the sensitivity of the measurement based on simulation results. This demonstrates, how the model could be used as an effective optimization tool in the gravity-driven system including calorimetric flow measurement.

#### **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

Contributors: Mäki, A., Kontunen, A., Rynnänen, T., Verho, J., Kreutzer, J., Lekkala, J., Kallio, P.

Number of pages: 5

Pages: 125-129

Publication date: 2016

#### **Host publication information**

Title of host publication: IEEE 11th Annual International Conference on Nano/Micro Engineered and Molecular Systems (NEMS)

Publisher: IEEE

ISBN (Electronic): 978-1-5090-1947-2

Keywords: Atmospheric modeling;Heating;Liquids;Microchannels;Reservoirs;Temperature measurement;Temperature sensors;calorimetric flow sensor;gravity-driven flow;modeling;numerical simulation

DOIs:

10.1109/NEMS.2016.7758214

URLs:

<http://ieeexplore.ieee.org/document/7758214/>

### **Bibliographical note**

INT=ase,"Kontunen, Anton"

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

### **Developing Learning and Teaching in Engineering Mathematics with and without Technology**

University teachers of mathematics have begun to observe that nowadays new students when beginning their studies do not have as good a mathematical proficiency as before. The phenomenon has been noticed in all western countries during recent decades [1, 2]. What shall we do? We think that there are at least two available courses of action for improved learning results in university mathematics: 1) to identify as soon as possible the students who have an insufficient knowledge base in mathematics, and to begin remedial instruction for them, and 2) to develop mathematics learning environments both with and without technology.

The aim of this paper is to describe how Tampere University of Technology (TUT) has developed learning environments in mathematics during the last decade. We focus in the paper on two cases: 1) a multisemiotic approach to mathematical concepts and procedures, and 2) computer aided assessment and learning systems.

The first case consists of developing studies in mathematical exercises in which new kinds of problem-solving have been constructed. In the second case new students have participated in an ICT –based basic skills test at the beginning of their mathematics studies, to enable them to practice mathematical procedures in solving processes [3]. Electronic and web-based tools make it possible for students to learn independently at any time, and for teachers, offer an effective way to evaluate students' proficiency.

### **General information**

Publication status: Published

MoE publication type: A4 Article in a conference publication

Organisations: Mathematics, Research group: MAT Positioning, Research group: Positioning, Research group: MAT Intelligent Information Systems Laboratory

Contributors: Joutsenlahti, J., Ali-Löytty, S., Pohjolainen, S.

Publication date: 15 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/Mathematics\\_and\\_Engineering\\_Education/joutsenlahti-developing-learning-and-teaching-in-engineering-mathematics-with-and-without-technology-153\\_a.pdf](http://www.sefi.be/conference-2016/papers/Mathematics_and_Engineering_Education/joutsenlahti-developing-learning-and-teaching-in-engineering-mathematics-with-and-without-technology-153_a.pdf)

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

### **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](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

#### Development of efficient electrically pumped nanolasers based on InAlGaAs tunnel junction

We propose and experimentally demonstrate a metallo-dielectric nanolasers utilizing an InAlGaAs tunnel junction for efficient carrier injection, which reduce the complexity when optimizing the metal contact, and reduces the device resistance.

#### General information

Publication status: Published

MoE publication type: A4 Article in a conference publication

Organisations: Photonics, Research group: ORC, University of California San Diego

Contributors: Fang, C. Y., Vallini, F., Amili, A. E., Tukiainen, A., Lyytikäinen, J., Guina, M., Fainman, Y.

Publication date: 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.SW4Q.4

Source: Scopus

Source ID: 85048984466

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](https://tutcris.tut.fi/portal/files/6186667/WBC16_Vol_1.pdf)

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



### **DIC measurements of the human heart during cardiopulmonary bypass surgery**

Image-based measurements of the deformation of the human heart can be very useful to the surgeon, when assessing the condition and functioning of the patient's heart. Digital image correlation can provide fast and accurate information about the deformation and motion of the surface of the heart. The deformation measurements can be visualized with colors allowing easy interpretation of the results, which makes this technique even more suitable for use in the operating room. Digital image correlation, however, requires either a natural or an artificial surface pattern with high contrast. The surface of the heart is wet, smooth, and has only a minimal contrast pattern, which cannot easily be improved with artificial markers. This preliminary feasibility study, however, shows that despite the practical and theoretical problems, DIC can provide useful data on the deformation of the human heart during cardiopulmonary bypass surgery. The results show that the natural patterns of the right atrium and ventricle are sufficient for DIC analysis, but significantly better results could be obtained with higher contrast artificial patterns.

#### **General information**

Publication status: Published

MoE publication type: A4 Article in a conference publication

Organisations: Department of Materials Science, Research group: Materials Characterization, Universitätsklinikum Gießen und Marburg GmbH, LaVision GmbH

Contributors: Hokka, M., Mirow, N., Nagel, H., Vogt, S., Kuokkala, V.

Number of pages: 9

Pages: 51-59

Publication date: 2016

#### **Host publication information**

Title of host publication: Conference Proceedings of the Society for Experimental Mechanics Series

Volume: 6

Publisher: Springer New York LLC

ISBN (Print): 9783319214542

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

Keywords: Digital Image Correlation, Human heart, In-vivo measurements, Natural pattern

DOIs:

10.1007/978-3-319-21455-9\_6

#### **Bibliographical note**

JUF0ID=72540

Source: Scopus

Source ID: 84952003607

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

### **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."

JUF0ID=71479

### **Different approaches of the PLM maturity concept and their use domains –analysis of the state of the art**

Product lifecycle management (PLM) implementation and adoption involves extensive changes in both intra-and inter-organizational practices. Various maturity approaches, for instance based on CMM (Capability maturity modeling) principles, can be used to make the implementation of PLM a better approachable and a more carefully planned and coordinated process. However, there are a number of different types of current approaches which can be thought to fall under the concept of PLM maturity. The aim of this paper is to investigate, analyze and categorize the various existing PLM maturity approaches to get an organized picture of the models and their background presumptions, as well as their potential use domains, and to facilitate their proper use to better implement PLM in different industry contexts.

#### **General information**

Publication status: Published

MoE publication type: A4 Article in a conference publication

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

Contributors: Kärkkäinen, H., Silventoinen, A.

Number of pages: 14

Pages: 89-102

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): 978-3-319-33110-2

#### **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: Comparison, Maturity approaches, Maturity models, Product lifecycle management, State-of-the-Art

DOIs:

10.1007/978-3-319-33111-9\_9

Source: Scopus

Source ID: 84964801199

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

### **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

#### Direct Laser Writing of Fluorescent Silver Nanoclusters in Polyvinyl Alcohol Films

We demonstrate successful fabrication of fluorescent microstructures by direct laser writing of silver nanoclusters in polyvinyl alcohol films using a cost-effective laser diode. The nanoclusters show very good photostability in the widely used polymer material.

#### General information

Publication status: Published

MoE publication type: A4 Article in a conference publication

Organisations: Department of Physics, Research area: Optics, Research group: Nonlinear Optics, Research group: Applied Optics, Frontier Photonics

Contributors: Karimi, N., Kunwar, P., Toivonen, J.

Publication date: Oct 2015

#### Host publication information

Title of host publication: Frontiers in Optics 2015 : Proceedings

Article number: FTu5E.4

ISBN (Electronic): 978-1-943580-03-3

ASJC Scopus subject areas: Physics and Astronomy(all)

Keywords: Optical data storage, Microstructure fabrication, Fluorescence, laser-induced

DOIs:

10.1364/FIO.2015.FTu5E.4

URLs:

<https://www.osapublishing.org/abstract.cfm?uri=FiO-2015-FTu5E.4>

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., Wetzel, 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

### 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: Ritala, 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

### Distributed Experiments in Design Sciences, a Next Step in Design Observation Studies?

This paper describes and proposes a new method for conducting globally distributed design research. Instead of using e.g. a software we tried out a completely analogue approach: Five carefully prepared packages, containing all the necessary materials and instructions for a design challenge, were sent out to supervisors in Norway, Finland, Italy, and Australia. These local supervisors then conducted the egg-drop exercise with students that are part of an international course held at CERN. As the task is conducted according to a previously tested protocol, the results gathered with this new method can then be benchmarked with this available data. This new approach to globally conducted engineering design activities avoids local bias and enables for gathering large amounts of diverse data points. One can also think of a research community where every member can send out one experiment per year and, in return, receives data points from across the world.

Based on the feedback from the supervisors we can say that from an organisational standpoint of view, this method works well. The comparison to the existing data has yet to be done.

#### General information

Publication status: Published

MoE publication type: A4 Article in a conference publication

Organisations: Department of Industrial Management, NTNU Trondheim, Aalto Univ, Aalto University, Helsinki Inst Phys, Unimore, Swinburne University of Technology, CERN, European Organization for Nuclear Research (CERN)

Contributors: Kriesi, C., Steinert, M., Aalto-Setälä, L., Anvik, A., Balters, S., Baracchi, A., Jensen, B. M., Bjorkli, L. E., Buzzaccaro, N., Cortesi, D., D'Onghia, F., Dosi, C., Franchini, G., Fuchs, M., Gerstenberg, A., Hansen, E., Hiekkänen, K.

M., Hyde, D., Ituarte, I., Kalasniemi, J., Kurikka, J., Lanza, I., Laurila, A., Lee, T. H., Lonvik, S., Mansikka-Aho, A., Nordberg, M., Oinonen, P., Pedrelli, L., Pekuri, A., Rane, E., Reime, T., Repokari, L., Ronningen, M., Rowlands, S., Sjomann, H., Slattsveen, K., Strachan, A., Stromstad, K., Suren, S., Tapio, P., Utriainen, T., Vignoli, M., Vijaykumar, S., Welo, T., Wulvik, A.

Number of pages: 10

Publication date: 2015

#### Host publication information

Title of host publication: DS 80-2 Proceedings of the 20th International Conference on Engineering Design (ICED 15) Vol 2: Design Theory and Research Methodology Design Processes

Publisher: DESIGN SOC

Editors: Weber, C., Husung, S., Cantamessa, M., Cascini, G., Marjanovic, D., Venkataraman, S.

#### Publication series

Name: International Conference on Engineering Design

Publisher: DESIGN SOC

ISSN (Print): 2220-4334

Keywords: Research methodologies and methods, Crowdsourcing, Collaborative design, Prototyping, Globally distributed experiment, COLLABORATION, STRESS

Source: WOS

Source ID: 000366977500032

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

### Distributors As Market Orientation Agents in Innovation Development and Commercialization.

#### General information

Publication status: Published

MoE publication type: A4 Article in a conference publication

Organisations: Department of Industrial Management, Perkin Elmer

Contributors: Aarikka-Stenroos, L., Talvitie, M.

Number of pages: 17

Publication date: 14 Jun 2015

#### Host publication information

Title of host publication: The Proceedings of the XXVI ISPIM Conference 2015 Budapest, Hungary

Place of publication: Denmark

Publisher: International Society for Professional Innovation Management ISPIM

ISBN (Electronic): 978-952-265-779-4

Keywords: Innovation, distributor, market demands, commercialization

URLs:

[http://conference.ispim.org/wp-content/uploads/sites/2/XXVI\\_ISPIM\\_Call\\_for\\_Papers.pdf](http://conference.ispim.org/wp-content/uploads/sites/2/XXVI_ISPIM_Call_for_Papers.pdf)

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

### Does Strategic and Innovative Fit Indicate Smart Social Media use in a Company?

#### General information

Publication status: Published

MoE publication type: A4 Article in a conference publication

Organisations: Department of Information Management and Logistics, Research group: Novi, Pori Department, Research group: Business Ecosystems, Networks and Innovations, Managing digital industrial transformation (mDIT), University of Calabria

Contributors: Jussila, J., Aramo-Immonen, H., Rouvari, O., Porkka, P., Ammirato, S.

Number of pages: 11

Pages: 1973-1983

Publication date: 15 Jun 2016

#### Host publication information

Title of host publication: Proceedings of the 11th International Forum on Knowledge Asset Dynamics : Towards a New Architecture of Knowledge: Big Data, Culture and Creativity, Dresden -Germany 15-17 June 2016

Place of publication: Dresden

Article number: 249

ISBN (Electronic): 978-88-96687-09-3

Keywords: social media, strategy, Innovation

URLs:

<http://www.knowledgeasset.org/Program/>

### **Dots-on-the-fly electron beam lithography**

We demonstrate a novel approach for electron-beam lithography (EBL) of periodic nanostructures. This technique can rapidly produce arrays of various metallic and etched nanostructures with line and pitch dimensions approaching the beam spot size. Our approach is based on often neglected functionality which is inherent in most modern EBL systems. The raster/vector beam exposure system of the EBL software is exploited to produce arrays of pixel-like spots without the need to define coordinates for each spot in the array. Producing large arrays with traditional EBL techniques is cumbersome during pattern design, usually leads to large data files and easily results in system memory overload during patterning. In Dots-on-The-fly (DOTF) patterning, instead of specifying the locations of individual spots, a boundary for the array is given and the spacing between spots within the boundary is specified by the beam step size. A designed pattern element thus becomes a container object, with beam spacing acting as a parameterized location list for an array of spots confined by that container. With the DOTF method, a single pattern element, such as a square, rectangle or circle, can be used to produce a large array containing thousands of spots. In addition to simple arrays of nano-dots, we expand the technique to produce more complex, highly tunable arrays and structures on substrates of silicon, ITO/ FTO coated glass, as well as uncoated fused silica, quartz and sapphire.

#### **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, Optoelectronics Research Centre, Research group: Nanophotonics

Contributors: Isotalo, T. J., Niemi, T.

Number of pages: 7

Publication date: 2016

#### **Host publication information**

Title of host publication: SPIE Proceedings : Alternative Lithographic Technologies VIII

Volume: 9777

Publisher: SPIE

Editor: Bencher, C.

Article number: 97771E

ISBN (Electronic): 9781510600126

#### **Publication series**

Name: Proceedings of SPIE

Publisher: SPIE

ISSN (Print): 0277-786X

ISSN (Electronic): 1996-756X

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

Keywords: electron beam lithography, nano-fabrication, nano-particle arrays, optoelectronics, periodic nano-structures, plasmonics

DOIs:

10.1117/12.2219136

Source: Scopus

Source ID: 84981516864

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

### **Double-side pumped membrane external-cavity surface-emitting laser (MECSEL) with increased efficiency emitting > 3 W in the 780 nm region**

We demonstrate a double-side pumped MECSEL emitting more than 3 W of output power in the 780 nm wavelength region. The laser exhibits an efficiency as high as 34.4 %.

#### **General information**

Publication status: Published

MoE publication type: A4 Article in a conference publication

Organisations: Physics

Contributors: Kahle, H., Phung, H., Penttinen, J., Rajala, P., Tukiainen, A., Ranta, S., Guina, M.

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.2019.8749958

#### **Bibliographical note**

INT=phys,"Rajala, Patrik"

Source: Scopus

Source ID: 85069191246

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

#### **Dual-frequency signal processing architecture for robust and precise positioning applications**

Availability of new GPS civil signals L2C and L5 along with existed L1C/A signal and Galileo E1/E5/E6 signals has increased the potential ways to generate linear combination of signals to remove ionosphere errors and improve accuracy in carrier integer ambiguity resolution. Conventionally, a linear combination of dual frequency signals has been used to remove first order ionosphere delays incurred in signal propagation path which is a major source of range error. Out of the three civil signals in GPS and Galileo system, L5/E5 signals have advanced signal features such as higher received power, faster chip rate and lower carrier frequency than L1/E1 and L2C/E6 signals. Hence, dual frequency receiver with combination of L1/L5 and E1/E5 signals is more suitable to remove ionosphere delay and get benefit from L5/E5 signal characteristics. However, the major limitation of linear combination of signal observations is an amplification of receiver noise. To get benefit of two frequency signals, a suitable signal processing architecture is needed. By taking advantage of GPS L5/Galileo E5 signal characteristics, a dual frequency signal processing architecture is proposed with an aim to reduce the ionosphere-free signal observation noise and to enhance the L1/E1 signal tracking loop sensitivity. The L1/E1 signal tracking loop sensitivity can be enhanced by Doppler aiding from L5/E5 signal tracking loop. The low noise L5/E5 signal Doppler aid reduces the noise in the L1/E1 signal tracking loop. Moreover, two frequency signals tracked with common Doppler estimate will have common observation errors, which will get cancel in linear combination of observations i.e. ionosphere-free, wide-lane etc. Further, code phase observations can be smoothed (Hatch filter) using carrier phase observations. The carrier phase observations are limited by cycle slip. Hence, we have investigated an optimum combination of divergence-free and ionosphere-free pseudorange smoothing using dual-frequency carrier Doppler observations for GPS L1/L5 and Galileo E1/E5 signals. The cycle slip in carrier phase observations can be neglected in carrier Doppler observations. The proposed signal processing architecture incorporated in GPS L1/L5 and Galileo E1/E5 dual frequency receiver will ensure robust signal tracking and minimum pseudorange errors, suitable to a range of high accuracy standalone and code differential positioning applications. The performance of the proposed dual frequency signal processing architecture is evaluated with GPS L1/L5 signals collected from Block-II/F satellites.

#### **General information**

Publication status: Published

MoE publication type: A4 Article in a conference publication

Organisations: Electronics and Communications Engineering, Faculty of Electronics and Instrument Engineering, Samara National Research University

Contributors: Bolla, P., Lohan, E.

Number of pages: 9

Pages: 72-80

Publication date: 5 Jun 2018

#### **Host publication information**

Title of host publication: 2018 IEEE/ION Position, Location and Navigation Symposium, PLANS 2018

Publisher: IEEE

ISBN (Electronic): 9781538616475

ASJC Scopus subject areas: Automotive Engineering, Aerospace Engineering, Control and Optimization

Keywords: Carrier Doppler smoothing, Doppler aiding, Dual-frequency, Hatch filter

DOIs:

10.1109/PLANS.2018.8373367

#### **Bibliographical note**

EXT="Bolla, Padma"

jufoid=72638

Source: Scopus

Source ID: 85048871323

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

#### **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

### Dynamic characteristics of three-phase Z-source-based photovoltaic inverter with asymmetric impedance network

#### 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: Jokipii, J., Suntio, T.  
Number of pages: 8  
Pages: 1976-1983  
Publication date: 2015

#### Host publication information

Title of host publication: 9th International Conference on Power Electronics ECCE Asia (ICPE-ECCE Asia)  
Publisher: IEEE  
ISBN (Electronic): 978-89-5708-254-6  
DOIs:  
10.1109/ICPE.2015.7168049  
Research output: Chapter in Book/Report/Conference proceeding > Conference contribution > 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

JUF0ID=71479

Source: Scopus

Source ID: 85017345812

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

## 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

## 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

## 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

#### 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

#### Education on the utilization of secondary materials in earthworks

#### General information

Publication status: Published

MoE publication type: A4 Article in a conference publication

Organisations: Civil Engineering, Aalto University, Aalto University

Contributors: Kuula, P., Leppänen, M., Kolisoja, P., Korkiala-Tanttu, L., Sorvari, J., Gustavsson, H.

Number of pages: 11

Pages: 177-187

Publication date: 6 Jun 2018

#### Host publication information

Title of host publication: Proceedings of the 10th International Conference on the Environmental and Technical Implications of Construction with Alternative Materials : No Gradle no Grave Circular Economy into practice

Publisher: RIL - Finnish Association of Civil Engineers

Editors: Lahtinen, P., Raasakka, V.

ISBN (Electronic): 978-951-758-631-3

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

## Effect of active damping on the output impedance of PV inverter

### 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: Aapro, A., Messo, T., Suntio, T.

Number of pages: 8

Publication date: 2015

### Host publication information

Title of host publication: IEEE 16th Workshop on Control and Modeling for Power Electronics (COMPEL)

ISBN (Print): 978-1-4673-6847-6

DOIs:

10.1109/COMPEL.2015.7236463

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

## 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

### **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

### **Effects of surface cracks and strain rate on the tensile behavior of Balmoral Red granite**

This paper presents an experimental procedure for studying the effects of surface cracks on the mechanical behavior of Balmoral Red granite under dynamic and quasi-static loading. Three different thermal shocks were applied on the surface of the Brazilian Disc test samples by keeping a flame torch at a fixed distance from the sample surface for 10, 30, and 60 seconds. Microscopy clearly shows that the number of the surface cracks increases with the duration of the thermal shock. After the thermal shock, the Brazilian Disc tests were performed using a servohydraulic materials testing machine and a compression Split Hopkinson Pressure Bar (SHPB) device. The results show that the tensile strength of the rock decreases and the rate sensitivity of the rock increases as more cracks are introduced to the structure. The DIC analysis of the Brazilian disc tests shows that the fracture of the sample initiates at the center of the samples or slightly closer to the incident bar contact point. This is followed by crushing of the samples at both contact points with the stress bars.

### **General information**

Publication status: Published

MoE publication type: A4 Article in a conference publication

Organisations: Department of Materials Science, Research group: Materials Characterization, Engineering materials science and solutions (EMASS)

Contributors: Mardoukhi, A., Hokka, M., Kuokkala, V.

Publication date: Sep 2015

### Host publication information

Title of host publication: 11th International Conference on the Mechanical and Physical Behaviour of Materials Under Dynamic Loading

Publisher: EDP Sciences

Article number: 02007

ISBN (Print): 978-2-7598-1817-4

URLs:

[http://epjwoc.epj.org/articles/epjconf/abs/2015/13/epjconf-dymat2015\\_02007/epjconf-dymat2015\\_02007.html](http://epjwoc.epj.org/articles/epjconf/abs/2015/13/epjconf-dymat2015_02007/epjconf-dymat2015_02007.html)

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

### E-learning of ethics, awareness, hacking and research by information security majors

Some earlier courses were reorganized in 2013 to construct a syllabus for the information security major at Tampere University of Technology, a 30 ECTS credit unit package in the 300-cu master's degree. As their other subjects the students may have for instance communications or software engineering, or information management. This paper describes how the compulsory courses introduce four important but not very technical engineering skills using mainly an e-learning approach. The reasons for such an approach is to save resources in the very beginning – because of the large number of students heading for other majors – and after that to offer flexibility in scheduling to serve the elective courses, as well as the studies of other disciplines – those that provide a need for security. The four topic areas are ethics of individuals and organizations, personal awareness of security issues, hacking, i.e. offensive way of thinking, and The described introductory stage of exposing the students' minds to these matters does not forget innovativeness, but that remains more in the background before the students start working with cases and hands-on experiments later. The description covers four separate courses, forming a prerequisite chain. The first and last one are lecture-based and it takes at least two years to pass them; 3–4 years is more normal. The academic units are not essential here. Instead, one of the main points is the repeated exposure to the various ways of thinking. In the following summary of the succession the numbers 1–4 refer to the courses, but they can be just thought of as time-separated occasions: Ethics: 1. Laws 2. Laws 3. Ethical questions in one's own environment – technology-related ethical questions for individuals – ethical questions for organizations. 4. Interview a security professional, ethical point of view included. Awareness: 1 & 2. Policies, guidelines and web-sites of security information. 3. Daily observations (own or from news) and actions regarding information security, 4. Campaigns etc. Hacking: 1. By-pass authentication by changing the source code of a web page. 2. -- 3. Carry out and report an exercise found at one of listed sites, 4. Laboratory exercises in hacking. Research: 1. Fill in a questionnaire resembling the one from 3rd stage. 2. -- 3. A questionnaire to five acquaintances, completed by interviewing them; deal with the results. 4. Read research papers, interview a security professional trying to generalize together with peers. The paper explains the rationale of these exposures and how they are delivered. It must be noted that not everything is compulsory for passing the courses. The paper reports observations concerning the student choices and feedback. The course #3 appears in its earlier form in [1]. The current version was updated to be two times larger and more professionally oriented. Reference: [1] Jukka A. Koskinen, Tomi O. Kelo: Pure e-learning course in information security. Proc. 2nd Int. Conf. on Security of Information and Networks, 2009. 8–13.

### General information

Publication status: Published

MoE publication type: A4 Article in a conference publication

Organisations: Department of Pervasive Computing, Research area: Information security, Intelligent dexterity for secure networked infrastructure and applications (IDSNIA)

Contributors: Koskinen, J. A.

Number of pages: 8

Publication date: 29 Jun 2015

### Host publication information

Title of host publication: Proceedings of SEFI Annual Conferences

Publisher: European Society for Engineering Education SEFI

ISBN (Electronic): 978-2-87352-004-5

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

### Electricity Distribution Network Tariffs - Present Practices, Future Challenges and Development Possibilities

In this paper, we discuss the pricing of electricity distribution. In the paper, the present practices concerning the forming of tariffs are examined. The possible directions and main future challenges of the energy sector can present challenges for the business of Distribution System Operators (DSOs). These change directions and challenges are examined and explained in the paper. The development opportunities from the alternative distribution network tariff structure and implementation possibility point of view are briefly discussed in the paper.

### General information

Publication status: Published

MoE publication type: A4 Article in a conference publication

Organisations: Department of Electrical Engineering, Research area: Power engineering, Helen Electricity Network Ltd.

Contributors: Lummi, K., Rautiainen, A., Järventausta, P., Heine, P., Lehtinen, J., Hyvärinen, M.

Number of pages: 4  
Publication date: Jun 2016

#### Host publication information

Title of host publication: CIRED Workshop 2016  
ISBN (Electronic): 978-1-78561-202-2  
URLs:

[http://www.cired.net/publications/workshop2016/pdfs/CIRED2016\\_0112\\_final.pdf](http://www.cired.net/publications/workshop2016/pdfs/CIRED2016_0112_final.pdf)

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

#### Electronic Exam in Electronics Studies

Electronic exams will become more common the following years as new students studying at universities are more and more used to digital devices. Students' working methods as well as the teaching will thus be digitalized, which will directly create expectations of and requirements for teaching and exams in universities. Thus, electronic exam systems need to take into account the needs of different users and the various features needed by the different fields.

This paper introduces an electronic exam project that has been carried out by the department of Electronics and Communications Engineering at Tampere University of Technology during academic years 2014 – 2015 and 2015 – 2016. In this project the final exam of a pilot course in electronics intermediate studies was implemented with EXAM electronic exam system. The EXAM system has been developed in cooperation with Finnish universities and universities of applied sciences. The results presented in the paper are based on the feedback that was gathered from the participated students. The results of this project indicate that flexibility of scheduling is one of the key advantages of electronic exams. As electronic exams enable the possibility for students to choose their exam time, overlapping of exams is avoided and students have more time to prepare for exams. The results also confirm that with a computer answering essay questions is pleasant and quick, and due to computer's text editing options the essay answers are more structured than in pen-and-paper exams. In electronics studies mathematical problem solving is an integral part of studies, and this needs to be taken into consideration when designing and executing electronic exams. According to the results of this project the EXAM electronic exam system has not been able to meet these demands as satisfyingly as hoped. However, students, who used MATLAB software in the electronic exam, considered the software helpful when solving mathematical problems. The possibility to use software as part of an exam is thus another key advantage of electronic exams.

#### General information

Publication status: Published

MoE publication type: A4 Article in a conference publication

Organisations: Department of Electronics and Communications Engineering, Research group: Personal Electronics Group, Research group: Wireless Identification and Sensing Systems Research Group, Tampere University of Technology IT Services Teaching and Learning Services

Contributors: Laine, K., Sipilä, E., Anderson, M., Sydänheimo, L.

Number of pages: 10

Publication date: 15 Sep 2016

#### Host publication information

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

ISBN (Print): 9782873520144

URLs:

[http://www.sefi.be/conference-2016/papers/Engineering\\_Education\\_Research\\_\\_I\\_feel\\_brilliant/laine-electronic-exam-in-electronics-studies-9.pdf](http://www.sefi.be/conference-2016/papers/Engineering_Education_Research__I_feel_brilliant/laine-electronic-exam-in-electronics-studies-9.pdf)

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

### **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: Viheriäköski, 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

### **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

#### **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

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

#### **Emotion-Gauge: Analyzing affective experiences in B2B customer journeys**

#### **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, Tampere University of Applied Science

Contributors: Andersson, T., Boedeker, M., Vuori, V.

Number of pages: 6

Pages: 31-36

Publication date: 2017

#### **Host publication information**

Title of host publication: Strategic Innovative Marketing : 5th IC-SIM, Athens, Greece, September 23-26, 2016

Publisher: Springer

Editors: Kavoura, A., Sakas, D., Tomaras, P.

ISBN (Print): 978-3-319-56287-2

ISBN (Electronic): 978-3-319-56288-9

#### **Publication series**

Name: Springer Proceedings in Business and Economics

ISSN (Print): 2198-7246

URLs:

<http://www.springer.com/us/book/9783319562872>

<https://www.aueb.gr/en/content/5th-international-conference-strategic-innovative-marketing>

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

#### **Empirical study of good, bad and ugly modular engineering solutions in machinery manufacturing industry**

This study examines the relationship between the product structuring principles chosen in modular product families and the business results of companies. In the three case studies of the article, it can be seen that products that meet the



modularity definitions discussed in the literature have been able to utilise the benefits of modularity in a very varied way. In one business case, the effect of modularity on business has been negative. In two other cases, the effect has been positive - in one of these even the profitability of the business has significantly improved. The aim of this article is to identify whether product designing consistently has been following some product structuring principles previously mentioned in modularisation literature or whether case studies bring new principles to consciousness. In all case studies, the product structuring principles used are also discussed in the previous modularisation studies at a varying extent. In the discussion section, we raise the question of whether the recording and use of product structuring principles in design briefs could lead to making the product design decisions that affect the business positively.

#### **General information**

Publication status: Published

MoE publication type: A4 Article in a conference publication

Organisations: Automation Technology and Mechanical Engineering, Research area: Design, Development and LCM

Contributors: Juuti, T., Pakkanen, J., Lehtonen, T.

Number of pages: 10

Pages: 2981-2990

Publication date: 26 Jul 2019

#### **Host publication information**

Title of host publication: Proceedings of the Design Society: International Conference on Engineering Design : The 22nd International Conference on Engineering Design, ICED19, Delft, The Netherlands, 5-8 August 2019

Publisher: Cambridge University Press

#### **Publication series**

Name: Proceedings of the Design Society: International Conference on Engineering Design

ISSN (Electronic): 2220-4342

DOIs:

10.1017/dsi.2019.305

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

### **Enablers and Restraints of Knowledge Work – Does profession make a difference?**

#### **General information**

Publication status: Published

MoE publication type: A4 Article in a conference publication

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

Contributors: Helander, N., Okkonen, J., Vuori, V., Paavilainen, N., Kujala, J.

Number of pages: 13

Pages: 40-52

Publication date: 10 Jun 2016

#### **Host publication information**

Title of host publication: Towards a new architecture of knowledge : Big Data, culture and creativity : IFKAD 2016-11th International Forum on Knowledge Asset Dynamics, Dresden 15-17.6.2016, Germany

ISBN (Print): 978-88-96687-09-3

URLs:

<http://10times.com/ifkad>

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

### **Energy efficiency evaluation method for machine tools**

The energy efficiency of machine tools is typically poor and there is potential to increase it. It is possible to effect the energy consumption of a cutting process by selecting suitable process parameters and tools. When the power usage of the machine tool is measured by cutting experiments, the energy efficiency of the machine tool effect of the results and the cutting process has an influence. This paper presents the impact of several cutting parameters affecting the cutting power, the machine tool electric power usage and the efficiency. Furthermore, the possibilities to adjust the cutting power by changing the process parameters is used in developing a shop floor level method for evaluating and comparing performance of different machine tools.

#### **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

Contributors: Ikkala, K., Lanz, M., Kiviö, J., Coatanéa, E.

Number of pages: 8

Pages: 58-65

Publication date: 2015

#### **Host publication information**

Title of host publication: Flexible Automation and Intelligent Manufacturing 2015

Publisher: The Choir Press

ISBN (Print): 9781910864005

URLs:

<http://www.mendeley.com/research/energy-efficiency-evaluation-method-machine-tools>

#### **Bibliographical note**

INT=MEI, "Coatanéa, Eric"

Source: Mendeley

Source ID: 4d2d0cbd-8088-335d-bdbe-19e87e0899f4

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

### **Engaging facts and feelings in management accounting practices**

#### **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: Laine, T., Suomala, P., Saukkonen, N.

Publication date: 2015

#### **Host publication information**

Title of host publication: IFKAD 2015 : 10th International Forum on Knowledge Asset Dynamics, Bari, Italy, June 10th-12th

Place of publication: Italy

Publisher: Institute of Knowledge Asset Management & Arts for Business Institute

#### **Publication series**

Name: International forum on knowledge asset dynamics

Publisher: Institute of Knowledge Asset Management & Arts for Business Institute

ISSN (Print): 2280-787X

URLs:

<http://www.knowledgeasset.org/>

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

URLs:

[http://www.sefi.be/conference-2016/papers/Sustainability\\_and\\_Engineering\\_Education/pyrhonen-enhancing-old-laboratory-experiment-using-flipped-learning--towards-self-regulating-collaborative-.pdf](http://www.sefi.be/conference-2016/papers/Sustainability_and_Engineering_Education/pyrhonen-enhancing-old-laboratory-experiment-using-flipped-learning--towards-self-regulating-collaborative-.pdf)

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

### 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

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ASJC Scopus subject areas: Engineering(all)

Keywords: EPA, ESD, DISTURBANCES, EMI, failure

Electronic versions:

5B.2\_Tamminen\_2015

DOIs:

[10.1109/EOESD.2015.7314792](https://doi.org/10.1109/EOESD.2015.7314792)

URLs:

<http://urn.fi/URN:NBN:fi:tty-201603013599>

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

## **Evaluating organizational commitment in support of organizational leadership**

### **General information**

Publication status: Published

MoE publication type: A4 Article in a conference publication

Organisations: Pori Department

Contributors: Einolander, J.

Number of pages: 5

Pages: 668–673

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.2015.07.300

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

## **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

#### Evaluation of visual object trackers on equirectangular panorama

Equirectangular (360° spherical) panorama is the most widely adopted format to store and broadcast virtual reality (VR) videos. Equirectangular projection provides a new challenge to adapt existing computer vision methods for the novel input type. In this work, we introduce a new dataset which consists of high quality equirectangular videos captured using a high-end VR camera (Nokia OZO). We also provide the original wide angle (8× 195°) videos and densely annotated bounding boxes for evaluating object detectors and trackers. In this work, we introduce the dataset, compare state-of-the-art trackers for object tracking in equirectangular panorama and report detailed analysis of the failure cases which reveal potential factors to improve the existing visual object trackers for the new type of input.

#### General information

Publication status: Published

MoE publication type: A4 Article in a conference publication

Organisations: Signal Processing, Nokia Technologies

Contributors: Kart, U., Kämäräinen, J. K., Fan, L., Gabbouj, M.

Number of pages: 8

Pages: 25-32

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: 360°-video, Equirectangular, Tracking

DOIs:

10.5220/0006526200250032

Source: Scopus

Source ID: 85047804481

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

#### Evolution equations based approach for modeling of fatigue in amorphous glassy polymers. On the investigation of fatigue damage development in polycarbonate

#### 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: Holopainen, S.

Number of pages: 13  
Pages: 6675-6687  
Publication date: 2016

#### Host publication information

Title of host publication: Proc. of VII European Congress on Computational Methods in Applied Sciences and Engineering , ECCOMAS Congress 2016. : M. Papadrakakis, V. Papadopoulos, G. Stefanou, V. Plevris (eds.) . Crete Island, Greece, 5 – 10 June 2016

Editors: Papadrakakis, M., Papadopoulos, V., Stefanou, G., Plevris , V.

ISBN (Print): 978-618-82844-0-1

DOIs:

10.7712/100016.2289.11047

URLs:

<https://www.eccomas2016.org/proceedings/pdf/11047.pdf>

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

### Examining Innovation Barriers along Innovation Process in Multi-Industry Hygiene-Technology Network.

#### General information

Publication status: Published

MoE publication type: A4 Article in a conference publication

Organisations: Department of Industrial Management, University of Turku, Turku School of Economics

Contributors: Mäkitalo-Keinonen, T., Aarikka-Stenroos, L.

Number of pages: 15

Publication date: 14 Jun 2015

#### Host publication information

Title of host publication: The Proceedings of the XXVI ISPIM Conference 2015 Budapest, Hungary

Place of publication: Denmark

Publisher: International Society for Professional Innovation Management ISPIM

ISBN (Electronic): 978-952-265-779-4

Keywords: innovation, barriers

URLs:

[http://conference.ispim.org/wp-content/uploads/sites/2/XXVI\\_ISPIM\\_Call\\_for\\_Papers.pdf](http://conference.ispim.org/wp-content/uploads/sites/2/XXVI_ISPIM_Call_for_Papers.pdf)

#### Bibliographical note

EXT="Mäkitalo-Keinonen, Tiina"

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

### Experiences from development of security audit criteria

Cyber-attacks have grown in importance to become a matter of national security. A growing number of states and organisations around the world have been developing defensive and offensive capabilities for cyber warfare. Security criteria are important tools for defensive capabilities of critical communications and information systems (CIS). Various criteria have been developed for designing, implementing and auditing CIS. The paper is based on work done from 2008 to 2016 at FICORA, the Finnish Communications Regulatory Authority. FICORA has actively participated in development and usage of three versions of Katakri, the Finnish national security audit criteria. Katakri is a tool for assessing the capability of an organisation to safeguard classified information. While built for governmental security authorities, usefulness for the private sector has been a central design goal of the criteria throughout its development. Experiences were gathered from hundreds of CIS security audits conducted against all versions of Katakri. Feedback has been gathered also from CIS audit target organisations including governmental authorities and the private sector, from other Finnish security authorities, from FICORA's accredited third party Information Security Inspection Bodies, and from public sources. This paper presents key lessons learnt and discusses recommendations for the design and implementation of security criteria. Security criteria have significant direct impacts on CIS design and implementation. Criteria design is always a trade-off between the varying goals of the target users. Katakri has tried to strike a balance between the different needs for security criteria. The paper recommends that criteria design should stem from a small set of strictly defined use cases. Trying to cover the needs of a wide variety of different use cases quickly renders the criteria useless as an assessment tool. In order to provide sufficient information assurance, security criteria should describe requirements on a reasonably concrete level, but also provide support for the security and risk management processes of the target users.

#### General information

Publication status: Published

MoE publication type: A4 Article in a conference publication

Organisations: Pervasive Computing, Univ of Oulu

Contributors: Kelo, T., Eronen, J.

Number of pages: 8  
Pages: 208-215  
Publication date: 2017

#### Host publication information

Title of host publication: Proceedings of the 16th European Conference on Cyber Warfare and Security, ECCWS 2017  
Publisher: TAPPI Press; Curran Associates, Inc  
ISBN (Electronic): 9781911218432  
ASJC Scopus subject areas: Information Systems, Information Systems and Management, Safety, Risk, Reliability and Quality  
Keywords: Auditing, Criteria, Cyber security, Information assurance, Katakri

#### Bibliographical note

JUF0ID=71915  
Source: Scopus  
Source ID: 85028004488  
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

#### 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

### **Exploring Attitudes, Knowledge and Competencies for Security Technology: A Cross-Cultural Survey in Higher Education**

#### **General information**

Publication status: Published

MoE publication type: A4 Article in a conference publication

Organisations: Intelligent dexterity for secure networked infrastructure and applications (IDSNIA), Department of Pervasive Computing, Research area: Information security, University of Tampere, University of Patras, Department of Computer Science and Information Systems, University of Jyväskylä, Department of Computer Engineering and Information Technology of College of Information and Communication Technology at the University of Dar Es Salaam, Beijing Institute of Petrochemical Technology

Contributors: Chaudhary, S., Zhao, Y., Berki, E., Valtanen, J., Li, L., Helenius, M., Mystakidis, S., Nalam, T., Thapa, R. B.

Number of pages: 8

Pages: 11-18

Publication date: 2015

#### **Host publication information**

Title of host publication: 8th International Conference on ICT, Society and Human Beings 2015

ISBN (Print): 978-989-8533-41-8

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

### **Exploring effects of ecosystem clockspeed on product performance**

The performance of any technological system is dependent on the performance of its subsystems. The evolution of the entire technological systems performance is determined by the performance improvements in deficient sub-systems. In this paper, we extend earlier notions of clockspeed measurement [6, 7] in our examination of the evolutionary dynamics of technological systems. We study the time lag in reverse salience improving the overall system performance and its relation with subsequent product performance. Our empirical study of the product performance investigates the product performance of the PC (personal computer) games. Our findings suggest that the evolution of the PC technological system with respect to computer gaming function is losing forward momentum on the processing speed performance front, while maintaining momentum on the graphics performance front.

#### **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), Leiden University, Delft University of Technology

Contributors: Mäkinen, S., Dedehayir, O., Ortt, R.

Number of pages: 5

Pages: 1457-1461

Publication date: 11 Mar 2015

#### **Host publication information**

Title of host publication: IEEE International Conference on Industrial Engineering and Engineering Management

Volume: 2015-January

Publisher: IEEE COMPUTER SOCIETY PRESS

Article number: 7058880

ISBN (Print): 9781479964109

ASJC Scopus subject areas: Business, Management and Accounting (miscellaneous), Industrial and Manufacturing Engineering, Safety, Risk, Reliability and Quality

Keywords: business ecosystems, product performance

DOIs:

10.1109/IEEM.2014.7058880

URLs:

<http://www.scopus.com/inward/record.url?scp=84940371264&partnerID=8YFLogxK> (Link to publication in Scopus)

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

### **Extending Professional Fields. Architectural Research and Regional Development**

In this article, architectural research work is studied as an effective operations model in regional innovation networks of building clusters. The study focuses on the projects of an academic research team working at the University Centre of Seinäjoki, as well as on the innovation environment of the surrounding South Ostrobothnian region in Western Finland. There is no actual university in the region, but the University Centre hosts some twenty professors and their research teams from six Finnish universities. The head of the subject team is also the author of this article. Because of this, the method applied in the article is a reflective action research approach.

The actions and impacts of the research work will be analysed through three case projects. The first case is the development of the large railway station area that will form a new 20-hectare multifunctional part of the city centre of Seinäjoki. The project has strong linkages to the economic policies of the city. The second case is related to the boom in new timber construction, which has been going on in Central Europe and Scandinavia for some time, but not so strongly in the subject region of this study. The aim of the project was to train small and medium-sized building cluster firms to take advantage of the emerging business potential in timber construction. The third case is closely related to the real speciality of the region. The city of Seinäjoki is home to one of the most complete building groups of architect Alvar Aalto, the famous civic centre that consists of the town hall, library, theatre, office building, church and the parish centre. At the moment there is a very demanding renovation project going on, which was also the main subject of the recent research and development project.

The descriptions of the projects are meant to illustrate the operational field of the research team, but the main focus of the article is to analyse the innovation environment that the researchers join as players among others, thus deviating from the more conventional role of architectural professionals.

#### **General information**

Publication status: Published

MoE publication type: A4 Article in a conference publication

Organisations: School of Architecture, Research group: Urban Laboratory  
Contributors: Hynynen, A.  
Number of pages: 12  
Pages: 372-383  
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: I

Publisher: Tampere University of Technology. Department of Civil Engineering

Editors: Kähkönen, K., Keinänen, M.

ISBN (Print): 978-952-15-3741-7

URLs:

[https://tutcris.tut.fi/portal/files/6186667/WBC16\\_Vol\\_1.pdf](https://tutcris.tut.fi/portal/files/6186667/WBC16_Vol_1.pdf)

URLs:

<http://www.wbc16.com/wbc16/welcome.html>

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](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

#### Eye-in-Hand Manipulation for Remote Handling: Experimental Setup

A prototype for eye-in-hand manipulation in the context of remote handling in the fusion power plant ITER is presented in this paper. The setup consists of an industrial robot manipulator with a modified open control architecture and equipped with a pair of stereoscopic cameras, a force/torque sensor, and pneumatic tools. It is controlled through a haptic device in a mock-up environment. The industrial robot controller has been replaced by a single industrial PC running Xenomai that has a real-time connection to both the robot controller and another Linux PC running as the controller for the haptic device. The new remote handling control environment enables further development of advanced control schemes for autonomous and semi-autonomous manipulation tasks. This setup benefits from a stereovision system for accurate tracking of the target objects with irregular shapes. The overall environmental setup successfully demonstrates the required robustness and precision that remote handling tasks need.

#### General information

Publication status: Published

MoE publication type: A4 Article in a conference publication

Organisations: Automation and Hydraulic Engineering, Signal Processing, Research group: Innovative Hydraulic Automation, Fusion for Energy Joint Undertaking

Contributors: Niu, L., Suominen, O., M. Aref, M., Mattila, J., Ruiz, E., Esque, S.

Number of pages: 7

Publication date: 2018

#### Host publication information

Title of host publication: International Conference on Robotics and Mechantronics : (ICRoM 2017)

Volume: 320

Publisher: IOP Publishing Ltd.  
Article number: 012007

#### Publication series

Name: IOP conference series : materials science and engineering  
ISSN (Print): 1757-8981  
ISSN (Electronic): 1757-899X  
Electronic versions:

Niu\_2018\_IOP\_Conf.\_Ser.\_Mater.\_Sci.\_Eng.\_320\_012007

DOIs:

10.1088/1757-899X/320/1/012007

URLs:

<http://urn.fi/URN:NBN:fi:tty-201803071333>

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: Pertula, 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

#### Fabrication and characterization of broadband superluminescent diodes for 2 $\mu\text{m}$ wavelength

Single-mode superluminescent diodes operating at 2  $\mu\text{m}$  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  $\mu\text{m}$ . 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:  
Proc\_SPIE\_9768\_97680Q\_N.\_Zia\_et\_al\_author\_prepared\_version  
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

#### Fabrication and Practical Evaluation of Glove-integrated Passive UHF RFID Tags

Passive RFID-based technology is a convincing approach to achieve versatile energy- and cost-efficient wireless platforms for future wearable applications. In this paper, we present passive UHF RFID tags integrated into normal work gloves for wearable RFID applications. We introduce embroidery as a new efficient antenna fabrication method for glove-integrated tags as well as establish reference glove-tag antennas from electro-textiles and copper tape. The performance of the three types of glove-tags is evaluated on a male test subject in an anechoic room and in an office environment. Based on the wireless measurement results, the read ranges of the embroidered glove-tags were around 1 meter in an anechoic chamber and in an office, when measured near the human body. These results meet the requirements of many practical applications of glove-tags, although the read ranges are shorter than those of the electro-textile and copper tape tags that showed read ranges of 2-2.5 meters. Finally, the developed glove-tags were successfully tested in actual use situations for identification and access control. These results are very promising, especially considering the cost effectiveness of embroidered tag antennas and the easiness of their integration into different types of gloves.

#### 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: Chen, X., He, H., Ukkonen, L., Virkki, J., Xu, J., Wang, T., Cheng, L.  
Number of pages: 5  
Publication date: Sep 2018

#### Host publication information

Title of host publication: 2018 IEEE International Conference on RFID Technology Application (RFID-TA)  
Publisher: IEEE  
ISBN (Print): 978-1-5386-5058-5  
ISBN (Electronic): 978-1-5386-5057-8  
Keywords: anechoic chambers (electromagnetic), radiofrequency identification, textile products, UHF antennas, wearable antennas, passive RFID-based technology, cost-efficient wireless platforms, wearable RFID applications, glove-integrated tags, electro-textile, embroidered glove-tags, practical applications, copper tape tags, embroidered tag antennas, wireless measurement, glove-integrated passive UHF RFID tags, antenna fabrication method, anechoic chamber, Antennas, Copper, Antenna measurements, Meters, Yarn, Frequency measurement, Radiofrequency identification, RFID, wearable antenna, glove-tag, embroidery electronics, electro-textile antenna  
DOIs:  
10.1109/RFID-TA.2018.8552814

#### Bibliographical note

JUF0ID=72031  
Source: Bibtex  
Source ID: urn:7ff8bf18c5235d84d462120f1392fdd5

### **Fabrication and reliability evaluation of passive UHF RFID T-shirts**

In this paper, we present textile antennas fabricated for T-shirt RFID applications by cutting from commercially available electro-textile, by sewing with conductive thread, and by 3D printing with stretchable silver ink on a 100 % cotton fabric. The ready tags with attached ICs are coated with a protective stretchable encapsulant. The wireless performance of the T-shirt tags is evaluated initially as well as after seven washing cycles, followed by nine washing-drying cycles in a household washing and drying machines. The initial read ranges of all kinds of tags, when measured on-body, are around 3.5 meters. Based on the reliability testing results, the coating effectively protects the components from cyclic washing and drying.

#### **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, Department of Electronic Engineering, City University of Hong Kong

Contributors: Chen, X., He, H., Ukkonen, L., Virkki, J., Lu, Y., Lam, H.

Number of pages: 4

Pages: 1-4

Publication date: 8 Jun 2018

#### **Host publication information**

Title of host publication: 2018 IEEE International Workshop on Antenna Technology, iWAT2018 - Proceedings

Publisher: IEEE

ISBN (Electronic): 9781538618516

ASJC Scopus subject areas: Instrumentation, Computer Networks and Communications, Electronic, Optical and Magnetic Materials

Keywords: 3D Printing, electro-textiles, embroidery, passive UHF RFID, T-shirts, textiles, washing, wearable electronics

DOIs:

10.1109/IWAT.2018.8379146

#### **Bibliographical note**

jufoid=79362

Source: Scopus

Source ID: 85050037887

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

### **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

### **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

#### Host publication information

Title of host publication: 2016 IEEE International Conference on Pervasive Computing and Communication Workshops, PerCom Workshops 2016

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

DOIs:

10.1109/PERCOMW.2016.7457161

#### 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

#### 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

#### 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

#### 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](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

#### Finnish Round Robin Test on Airborne Sound Insulation

#### General information

Publication status: Published

MoE publication type: A4 Article in a conference publication

Organisations: Civil Engineering



Contributors: Lietzen, J., Kylliäinen, M.  
Number of pages: 6  
Pages: 1677-1682  
Publication date: May 2018

#### Host publication information

Title of host publication: Proceedings of the 11th European Congress and Exposition on Noise Control Engineering, Euronoise 2018, May 27-31 2018, Hersonissos, Crete, Greece : Reduce Noise to Improve Life  
Place of publication: Hersonissos, Crete, Greece  
Publisher: European Acoustic Association EAA  
Article number: 282.162

#### Publication series

Name: European Congress and Exposition on Noise Control Engineering  
ISSN (Print): 2226-5147  
URLs:

[http://www.euronoise2018.eu/docs/papers/282\\_Euronoise2018.pdf](http://www.euronoise2018.eu/docs/papers/282_Euronoise2018.pdf)

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

#### Frequency Comb Generation in a Continuous-Wave Pumped Second-Order Nonlinear Waveguide Resonator

Optical frequency comb generation has been experimentally studied using an integrated system based on a lithium niobate waveguide resonator featuring a strong quadratic nonlinearity. Our theoretical model shows good agreement with the experimental results.

#### General information

Publication status: Published  
MoE publication type: A4 Article in a conference publication  
Organisations: Physics, Paderborn University, University of Helsinki, VTT Technical Research Centre of Finland  
Contributors: Abdallah, Z., Stefszky, M., Ulvila, V., Silberhorn, C., Vainio, M.  
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.2019.8750403

Source: Scopus

Source ID: 85069196416

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

#### Frequency-doubled VECSEL employing a Volume Bragg Grating for linewidth narrowing

We report on a frequency-doubled VECSEL emitting at 512.6 nm. The laser spectrum was narrowed with a Volume Bragg Grating and the intracavity frequency-doubling was achieved with a periodically poled MgO-doped lithium niobate.

#### General information

Publication status: Published  
MoE publication type: A4 Article in a conference publication  
Organisations: Photonics  
Contributors: Kantola, E., Penttinen, J., Leinonen, T., Ranta, 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.17

Source: Scopus

Source ID: 85049150395

### **Frequency-doubled wafer-fused 638 nm VECSEL with an output power of 5.6 W**

We report on a frequency doubled vertical-external-cavity surface-emitting laser emitting 5.6 W at 635 nm. The cavity employed a wafer-fused AlInGaAs/InP-AlAs/GaAs gain mirror in a V-shaped configuration. The heatsink temperature was 20 °C.

#### **General information**

Publication status: Published

MoE publication type: A4 Article in a conference publication

Organisations: Photonics, RTI-Research SA

Contributors: Kantola, E., Leinonen, T., Rantamäki, A., Guina, M., Sirbu, A., Iakovlev, V.

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.10

Source: Scopus

Source ID: 85049146963

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

### **From theories to game mechanics: Developing a game for training rational numbers**

The paper reports the results from an ongoing project that aims to develop an engaging and effective digital game for training conceptual rational number knowledge. The overall research approach is design science. In the paper we report the results of an iteration in which we studied how students used a Semideus School game prototype and how they experienced the core mechanics of the game. 20 fourth graders and 32 sixth graders played Semideus School game for approximately 2.5 hours. Students were allowed to freely play the game with their iPads. Playing experience was studied with a digital questionnaire that included items about flow experience (Flow Short Scale), perceived playability, and acceptance of game-based math training. Additionally, a researcher observed the playing sessions and discussed with the students about the implementation of the game. Students experienced reasonable high flow experience while playing the game. The results revealed that 4th graders would be more willing to study rational numbers with a game and they also appreciated the playability of the game more than sixth graders. Moreover, sixth graders demanded more complex game mechanics, but 4th graders were happy with the core mechanics. We redesigned the game mechanics based on the findings. The paper describes the new mechanics and the theoretical basis of the new design.

#### **General information**

Publication status: Published  
MoE publication type: A4 Article in a conference publication  
Organisations: Pervasive Computing  
Contributors: Kiili, K.  
Number of pages: 7  
Pages: 328-334  
Publication date: 2017

#### **Host publication information**

Title of host publication: Proceedings of the 11th European Conference on Games Based Learning, ECGBL 2017  
Publisher: Academic Conferences and Publishing International Limited  
ISBN (Electronic): 9781911218562  
ASJC Scopus subject areas: Software, Computer Graphics and Computer-Aided Design, Computer Networks and Communications, Artificial Intelligence, Human-Computer Interaction, Control and Systems Engineering, Education  
Keywords: Game design, Game mechanic, Game-based learning, Mathematics, Playing experience, Rational numbers  
Source: Scopus  
Source ID: 85036471818  
Research output: Chapter in Book/Report/Conference proceeding > Conference contribution > 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  $2600 \text{ s}^{-1}$  was investigated. Quasi-static tests ( $7 \times 10^{-3}$  to  $0.8 \text{ s}^{-1}$ ) were completed on a hydraulic load frame, intermediate tests ( $200 \text{ s}^{-1}$ ) were performed with a modified pressure bar, and high strain rate tests ( $2600 \text{ s}^{-1}$ ) 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  $2600 \text{ s}^{-1}$ . 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**

JUFOID=72540

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

#### **Gain Scheduling Full State Feedback with D-Implementation for Velocity Tracking of Hydrostatic Drive Transmission**

This paper presents a gain-scheduling based velocity controller for hydrostatic drive transmissions (HSD). We design our controller based a model of the system which captures most of the nonlinear effects and parameter variation. Therefore, we can obtain much better performance compared to existing linear controllers. Our control strategy is based on full state feedback whose gains are scheduled on measured states which are speed and volume pressures, and estimated hydraulic flow. To implement standard state feedback, we would need to calculate operating points of all the states at all time. However, due to modelling uncertainty (specially unknown frictions) pressure equilibrium calculation will be very inaccurate. We will employ D implementation methodology to remedy this problem.

For the proof of concept, we show the efficacy of the controller using a validated simulator of a wheel loader with real machine parameters. The experiments are performed both on flat terrain and slope. The results demonstrate that the performance of velocity tracking is high and the controllability of the machine is maintained in every situation.

##### **General information**

Publication status: Published

MoE publication type: A4 Article in a conference publication

Organisations: Department of Intelligent Hydraulics and Automation, Research group: Field robotics and control,

Research group: Fluid power automation in mobile machines

Contributors: Backas, J., Ghabcheloo, R., Huhtala, K.

Number of pages: 12

Pages: 64-75

Publication date: 2015

##### **Host publication information**

Title of host publication: Proceedings of the Fourteenth Scandinavian International Conference on Fluid Power, SICFP15. May 20-22, 2015. Tampere, Finland

Publisher: Tampere University of Technology. Department of Intelligent Hydraulics and Automation

ISBN (Print): 978-952-15-3529-1

URLs:

<http://URN.fi/URN:ISBN:978-952-15-3530-7>

#### **Bibliographical note**

J. Backas, R. Ghabcheloo, K. Huhtala, "Gain Scheduling Full State Feedback with D-Implementation for Velocity Tracking of Hydrostatic Drive Transmission", 14th Scandinavian International Conference on Fluid Power, May 2015,

Tampere/Finland

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

### **Generalized hyperbolic harmonic functions in the plane**

We consider solutions of the equation  $y\Delta_h(x,y) - k \frac{ah}{ay} = 0$  in the plane. These functions already have been investigated by Weinstein around 1950 in connection of generalized axially symmetric potential theory. We have found several results concerning these type of functions, called  $k$ -hyperbolic harmonic functions, in higher dimensions. In this paper, we show in the plane case that it is possible to compute the explicit fundamental solutions in terms of the hyperbolic metric. These results may be used to find fundamental solutions in all even dimensional spaces. The key tools are the transformation properties of hyperbolic metric of the Poincaré upper half space model.

### **General information**

Publication status: Published

MoE publication type: A4 Article in a conference publication

Organisations: Department of Mathematics, Research group: MAT Clifford analysis

Contributors: Eriksson, S., Orelma, H., Vuojamo, V.

Publication date: 10 Mar 2015

### **Host publication information**

Title of host publication: Proceedings of the International Conference on Numerical Analysis and Applied Mathematics 2014 (ICNAAM-2014)

Volume: 1648

Publisher: American Institute of Physics Inc.

Article number: 440007

ISBN (Print): 9780735412873

ASJC Scopus subject areas: Physics and Astronomy(all)

Keywords: axially symmetric, fundamental solution, Hyperbolic, Laplace-Beltrami

DOIs:

10.1063/1.4912658

Source: Scopus

Source ID: 84939648578

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

### **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

### 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

### Glove-integrated slotted patch antenna for wearable UHF RFID reader

We present a glove-integrated slotted patch antenna for a wearable Ultra High Frequency Radio Identification Technology (UHF RFID) reader operating at 866

MHz. We tested the prototype antenna made of copper foil adhered on low-permittivity Ethylene Propylene Diene Monomer (EPDM) foam material having the thickness of 4 mm. To characterize the antenna, we tested it wirelessly in communication with a common dipole type RFID tag to estimate its realized gain, radiation pattern and maximum tag read range it provides. We also analyzed the effects of variable separation between the antenna and the body to confirm stable operation required by the application. The results showed that the antenna feasible for the work glove applications providing the read range

up to 360 cm with the reader's output power of 28.4 dBm.

### 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: Ahmed, S., Musfequr Rehman, S. M., 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:

rfidta

DOIs:

10.1109/RFID-TA.2018.8552817

URLs:

<http://urn.fi/URN:NBN:fi:tty-201812192866>

#### Bibliographical note

INT=TUT-BMT,"Musfequr Rehman, S. M."

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

#### Grammatical and Semantic Disambiguation of Requirements at Elicitation and Representation Stages

The final outcome of a design process depends a lot on the initial conditions of this process. The initial design conditions can be viewed as the initial definition and representation of the design problem in the form of requirement model.

Describing the requirements involves considering their elicitation and its transformation in a form that can be further used by engineering designers. These two phases of requirements, elicitation and representation, involve by nature linguistic description. Users, stakeholders or designers express themselves through natural language. Semantics considerations involve understanding aspects that comes down to word selection or connotation but also interpretation aspects of written terms used by communities or persons within particular circumstances and contexts. The present research work is constructed around a central hypothesis: Final design outcomes are strongly dependent on the initial design conditions because of the recursive nature of the design activity.

The present article claims that computer tools can support the disambiguation process associated with elicitation and representation. For this reason the authors have developed an experimental process aiming at reducing ambiguity of the parts of the initial conditions of the design process that are expressed in natural language. This disambiguation is considering several levels: the grammar, words selection and context description.

#### General information

Publication status: Published

MoE publication type: A4 Article in a conference publication

Organisations: Intelligent dexterity for secure networked infrastructure and applications (IDSNIA), Aalto Univ, Aalto University, Aalto Univ Finland, Dept Engr Design & Prod, Sch Engr, Aalto Univ, Aalto University, Sch Engr, Dept Engr Design & Prod

Contributors: Christophe, F., Wang, M., Coatanea, E., Zeng, Y., Bernard, A.

Number of pages: 15

Pages: 17-31

Publication date: 2012

#### Host publication information

Title of host publication: Proceedings of the ASME International Design Engineering Technical Conferences and Computers and Information in Engineering, 2011, vol 9

Publisher: AMER SOC MECHANICAL ENGINEERS

ISBN (Print): 978-0-7918-5486-0

Keywords: PRODUCT REQUIREMENTS, DESIGN

Source: WOS

Source ID: 000324350600003

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

#### Green (In,Ga,Al)P-GaP light-emitting diodes grown on high-index GaAs surfaces

We report on green (550-560 nm) electroluminescence (EL) from

(Al<sub>0.5</sub>Ga<sub>0.5</sub>)<sub>0.5</sub>In<sub>0.5</sub>P-

(Al<sub>0.8</sub>Ga<sub>0.2</sub>)<sub>0.5</sub>In<sub>0.5</sub>P double p-i-n heterostructures with monolayer-scale tensile strained GaP insertions in the cladding layers and light-emitting diodes (LEDs) based thereupon. The structures are grown side-by-side on high-index and (100) GaAs substrates by molecular beam epitaxy. Cross-sectional transmission

electron microscopy studies indicate that GaP insertions are flat, thus the GaP-barrier substrate orientation-dependent heights should match the predictions of the flat model. At moderate current densities ( $\sim 500 \text{ A/cm}^2$ ) the EL intensity of the structures is comparable for all substrate orientations. Opposite to the (100)-grown structures, the EL spectra of (211) and (311)-grown devices are shifted towards shorter wavelengths ( $\sim 550 \text{ nm}$  at room temperature). At high current densities ( $> 1 \text{ kA/cm}^2$ ) a much higher EL intensity is achieved for the devices grown on high-index substrates. The integrated intensity of (311)-grown structures gradually saturates at current densities above  $4 \text{ kA/cm}^2$ , whereas no saturation is revealed for (211)-grown structures up to the current densities above  $14 \text{ kA/cm}^2$ . We attribute the effect to the surface orientation-dependent engineering of the GaP band structure which prevents the escape of the nonequilibrium electrons into the indirect conduction band minima of the p-doped ( $\text{Al}_{0.8}\text{Ga}_{0.2}$ ) $\text{In}_{0.5}\text{P}$  cladding layers.

#### 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, Technische Universität Berlin, Fakultät VII-Wirtschaft und Management, 25.6.2012, VI Systems GmbH, CEMES-CNRS, A. F. Ioffe Physical Technical Institute, Institut Für Festkörperphysik

Contributors: Ledentsov, N. N., Shchukin, V. A., Lyytikäinen, J., Okhotnikov, O., Cherkashin, N. A., Shernyakov, Y. M., Payusov, A. S., Gordeev, N. Y., Maximov, M. V., Schlichting, S., Nippert, F., Hoffmann, A.

Publication date: 2015

#### Host publication information

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

Volume: 9383

Publisher: SPIE

Article number: 93830E

ISBN (Print): 9781628414738

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

Keywords: high-index surface, light-emitting diode, tensile strained barrier

DOIs:

10.1117/12.2083953

Source: Scopus

Source ID: 84930074847

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

#### >8W GaInNAs VECSEL emitting at 615 nm

We report a high-power VECSEL emitting  $< 8 \text{ W}$  around  $615 \text{ nm}$ . The gain chip of the laser was grown by plasma-assisted molecular beam epitaxy and it comprised 10 GaInNAs quantum wells. The VECSEL cavity had a V-shaped geometry and a 10-mm-long non-critically phase-matched LBO crystal for second harmonic generation. The cavity incorporated also an etalon and a birefringent filter for controlling the output wavelength. With the aid of the second-harmonic output and the infrared light leaking out from the laser cavity, the single-pass conversion efficiency of the crystal was estimated to have a value of 0.75%.

#### General information

Publication status: Published

MoE publication type: A4 Article in a conference publication

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

Contributors: Leinonen, T., Penttinen, J. P., Korpijärvi, V. M., Kantola, E., Guina, M.

Publication date: 2015

#### Host publication information

Title of host publication: Proceedings of SPIE : Vertical External Cavity Surface Emitting Lasers (VECSELs) V

Volume: 9349

Publisher: SPIE

Article number: 934909

ISBN (Print): 9781628414394

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

Keywords: frequency doubling, high power visible laser, OPSL, orange-red VECSEL, SDL, SHG

DOIs:

10.1117/12.2079162

Source: Scopus



Source ID: 84925597620

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

### **Guidelines for Designing Human-friendly User Interfaces for Factory Floor Manufacturing Operators**

Agility and fast reaction to changes is required in today's turbulent manufacturing environment. Unfortunately, the commonly used user interfaces

(UIs) on the factory floor don't support such rapid reaction. Even though the human involvement improves agility and reactivity of production systems, it is also a source of uncertainty, especially when it comes to information inputting. Therefore, specific attention should be placed on human-friendly UI design, in order to improve the reliability of collected data and productivity of operations, as well as to make the workplaces more attractive for the future operators. This paper gives generic guidelines for human-friendly UI design and represents a case study in the context of manufacturing IT-system design.

#### **General information**

Publication status: Published

MoE publication type: A4 Article in a conference publication

Organisations: Department of Mechanical Engineering and Industrial Systems, Research area: Engineering Intelligence, Research area: Manufacturing and Automation

Contributors: Järvenpää, E., Lanz, M.

Number of pages: 8

Pages: 531-538

Publication date: 2015

#### **Host publication information**

Title of host publication: Advances in Production Management Systems: Innovative Production Management Towards Sustainable Growth : IFIP WG 5.7 International Conference, APMS 2015, Tokyo, Japan, September 7-9, 2015, Proceedings, Part II

Publisher: Springer International Publishing

ISBN (Print): 978-3-319-22758-0

ISBN (Electronic): 978-3-319-22759-7

#### **Publication series**

Name: IFIP Advances in Information and Communication Technology

Keywords: User-centric design, human-friendly design, user interface, manufacturing environment, IT-system

Electronic versions:

APMS2015\_Jarvenpaa\_FinalPaper. Embargo ended: 18/08/16

DOIs:

10.1007/978-3-319-22759-7\_61

URLs:

<http://urn.fi/URN:NBN:fi:tty-201606134234> . Embargo ended: 18/08/16

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

### **Handheld wireless authentication key and secure documents storage for the Internet of Everything**

In this paper, a novel approach for user authentication in Internet of Everything, called 'wireless key' is studied. While the majority of existing solutions suggest a wireless key to be a battery-powered device with considerable computational power, we propose to use passive NFC tags instead. In our approach, all the computations are performed by the service the user is authenticating to and thus no computational power and no battery on the key side is required. This approach allows minimizing the device size and significantly reducing the costs. To ensure security of data stored on the tag we propose a transparent data encryption mechanism constructed on top of strong cryptographic primitives. In addition to the authentication-related feature, we have designed a system that enables secure storage of documents on the same tag making it capable of saving ID cards, bank cards, licenses, etc. The presented approach allows on-the-fly validation of any stored document by the entity that issued it as well as by any other entity granted such permissions. Correctness and a security level of the system have been assessed via the analytical study and validated through a hardware prototype. The algorithms and protocols described in the paper are also applicable to any other carrier technology including Bluetooth Low Energy and Wireless USB.

#### **General information**

Publication status: Published

MoE publication type: A4 Article in a conference publication

Organisations: Research group: Emerging Technologies for Nano-Bio-Info-Cogno, Department of Electronics and Communications Engineering, Yaroslavl State University, University of Goettingen

Contributors: Komar, M., Edelev, S., Koucheryavy, Y.

Number of pages: 11  
Pages: 120-130  
Publication date: 6 Sep 2016

#### **Host publication information**

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:  
10.1109/FRUCT-ISPIT.2016.7561517  
Source: Scopus  
Source ID: 84989154385  
Research output: Chapter in Book/Report/Conference proceeding › Conference contribution › Scientific › peer-review

#### **Handling exceptional situations in a distribution network congestion management algorithm**

##### **General information**

Publication status: Published  
MoE publication type: A4 Article in a conference publication  
Organisations: Department of Electrical Engineering, Research area: Power engineering  
Contributors: Kulmala, A., Repo, S.  
Publication date: Jun 2016

##### **Host publication information**

Title of host publication: CIREC Workshop 2016  
Place of publication: Helsinki, Finland  
ISBN (Electronic): 978-1-78561-202-2  
DOIs:  
10.1049/cp.2016.0663  
Research output: Chapter in Book/Report/Conference proceeding › Conference contribution › 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

#### **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

### 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

### 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

#### Highly-efficient Ho:KY(WO<sub>4</sub>)<sub>2</sub> 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(WO<sub>4</sub>)<sub>2</sub> active layer grown on a (010)-oriented KY(WO<sub>4</sub>)<sub>2</sub> substrate. When pumped by a Tm-fiber laser at 1960 nm with a single-bounce pump geometry, the continuous-wave Ho:KY(WO<sub>4</sub>)<sub>2</sub> thin-disk laser generates an output power of 1.01 W at 2057 nm corresponding to a slope efficiency  $\eta$  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 μJ/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 Ho<sup>3+</sup> doping concentration. For the 3 at.% Ho<sup>3+</sup>-doped thin-disk, the thermal lens is negative (the sensitivity factors for the two principal meridional planes are -1.7 and -0.6 m<sup>-1</sup>/W) and astigmatic. The Ho:KY(WO<sub>4</sub>)<sub>2</sub> 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

#### 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

#### 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."  
JUFID=71479  
Source: Scopus  
Source ID: 84978785955  
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](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

#### High power picosecond MOPA with anisotropic ytterbium-doped tapered double-clad fiber

Generation of ultrashort pulses with high average power and moderately high pulse energy generally requires a mode-locked laser followed by several fiber amplifiers in a master-oscillator power-amplifier configuration. Recently, gain-switched diode lasers have emerged as a viable replacement to mode-locked oscillators as sources of sub-100 ps pulses in these systems, but the low output power available from the diodes necessitates the use of multiple costly amplifier stages. Here, we demonstrate the generation of 1.7  $\mu\text{J}$  pulses at 1030 nm, and 11.7  $\mu\text{J}$  pulses at 1064 nm from a gain-switched diode seeded compact MOPA with only two amplification stages. The final stage is a tapered fiber amplifier, whose geometry efficiently suppresses amplified spontaneous emission and allows reaching a gain of similar to 40 dB. This research work is still in progress, and further increase in pulse energy should be possible by optimizing the setup.

#### General information

Publication status: Published

MoE publication type: A4 Article in a conference publication

Organisations: Photonics, Research group: Nanophotonics, Ampliconix Ltd, ITMO Univ, ITMO University, Dept Photon & Opt Informat Technol, Kotelnikov Inst Radio Engn & Elect, Kotelnikov Institute of Radioengineering & Electronics, Tampere Univ Technol, Tampere University of Technology, Peter Great St Petersburg State Polytech Univ, Peter the Great St.Petersburg Polytechnic University

Contributors: Fedotov, A., Noronen, T., Rissanen, J., Gumenyuk, R., Petrov, A., Chamorovskii, Y., Golant, K., Odnoblyudov, M., Filippov, V.

Number of pages: 7

Publication date: 2018

#### Host publication information

Title of host publication: Proceedings of SPIE : Fiber Lasers and Glass Photonics: Materials through Applications

Volume: 10683

Publisher: SPIE-INT SOC OPTICAL ENGINEERING

Editors: Taccheo, S., Mackenzie, J., Ferrari, M.

ISBN (Print): 9781510618923

ISBN (Electronic): 9781510618930

#### Publication series

Name: Proceedings of SPIE

Publisher: SPIE-INT SOC OPTICAL ENGINEERING

Volume: 10683

ISSN (Print): 0277-786X

Keywords: Fiber laser, active fiber, fiber amplifier, COMPACT

Electronic versions:

Fedotov A. High power picosecond MOPA with anisotropic ytterbium-doped tapered double clad fiber

DOIs:

10.1117/12.2307693

URLs:

<http://urn.fi/URN:NBN:fi:tty-201908211997>

#### Bibliographical note

EXT="Noronen, Teppo"

EXT="Filippov, Valery"

Source: WOS

Source ID: 000450857500033

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

#### 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

#### High repetition rate 1.34 $\mu\text{m}$ Nd:YVO<sub>4</sub> microchip laser Q-switched with GaInNAs SESAM

We demonstrate 1.34- $\mu\text{m}$  Nd:YVO<sub>4</sub> 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](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

#### High-speed manufacturing of antimicrobial paper

#### General information

Publication status: Published

MoE publication type: A4 Article in a conference publication

Organisations: Physics, Abo Akademi University, University of Turku, Center for Functional Materials at Biological Interfaces (FUNMAT)

Contributors: Brobbey, K. J., Haapanen, J., Gunell, M., Mäkelä, J. M., Eerola, E., Saarinen, J. J., Toivakka, M.

Number of pages: 3

Pages: 564-566

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: 85060366453

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

### High Temperature Tension HSB Device Based on Direct Electrical Heating

The effects of strain rate and temperature on the mechanical properties of various engineering materials have been extensively studied within the past few decades. However, the high temperature high strain rate tension Hopkinson Split Bar (HSB) testing is still quite challenging to perform due to the need to fix the sample to the stress bars. Mechanical fixing of a sheet material sample is not very convenient and can produce low quality results. Therefore, the sheet samples are typically glued directly to the stress bars. This glue joint, however, loses strength rapidly if the temperature of the glue joint increases above room temperature, which makes the high temperature testing more difficult. In this paper, we present a tension Hopkinson Split Bar device with a high temperature system that allows the sample to be heated while keeping the glue joint at or close to room temperature. The sample is rapidly heated by a powerful low voltage high amperage DC pulse. When testing stainless steels, test temperatures between 400 and 800 °C are reached in less than one second, and even the melting temperature of the material is reached in less than 2 s. The system is fully computer controlled allowing accurate timing and control of the different actions during the test including heating of the sample, pneumatic manipulation of the heating electrodes, releasing of the striker bar, and recording of the test results. The results obtained with the current high temperature system are high quality and the obtained high temperature stress strain curves are essentially oscillation free. © The Society for Experimental Mechanics, Inc. 2015.

#### General information

Publication status: Published

MoE publication type: A4 Article in a conference publication

Organisations: Department of Materials Science, Research group: Materials Characterization, Engineering materials science and solutions (EMASS)

Contributors: Hokka, M., Östman, K., Rämö, J., Kuokkala, V. T.

Number of pages: 7

Pages: 227-233

Publication date: 2015

#### Host publication information

Title of host publication: Dynamic Behavior of Materials, Volume 1 : Proceedings of the 2014 Annual Conference on Experimental and Applied Mechanics

Volume: 65

Publisher: Springer

Editors: Song, B., Casem, D., Kimberley, J.

ISBN (Print): 978-3-319-06994-4

ISBN (Electronic): 978-3-319-06995-1

#### Publication series

Name: Conference Proceedings of the Society for Experimental Mechanics Series

Publisher: Springer

ISSN (Print): 2191-5644

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

Keywords: High strain rate, High temperature, Hopkinson split bar, Stainless steels, Tension testing

DOIs:

10.1007/978-3-319-06995-1\_34

URLs:

<http://www.scopus.com/inward/record.url?scp=84906319239&partnerID=8YFLogxK> (Link to publication in Scopus)

#### Bibliographical note

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13<br/>publication\_forum:72540

Source: researchoutputwizard

Source ID: 8

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

#### 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

#### How mono-valent cations bend peptide turns and a first-principles database of amino acids and dipeptides

In this contribution we detail our efforts to investigate the structural effects of cations binding to peptides and amino acids. We perform first-principles studies employing long-range dispersion-corrected approximate density-functional theory and compare to gas-phase experiments.

##### General information

Publication status: Published  
MoE publication type: A4 Article in a conference publication  
Organisations: Department of Physics, Research area: Computational Physics, Computational Science X (CompX), Fritz Haber Institute of the Max Planck Society, COMP Centre of Excellence, Department of Applied Physics, Aalto University, Duke University  
Contributors: Baldauf, C., Ropo, M., Blum, V., Scheffler, M.  
Number of pages: 2  
Pages: 119-120  
Publication date: 6 Oct 2014

##### Host publication information

Title of host publication: International Conference of Computational Methods in Sciences and Engineering 2014 (ICCMSE 2014)

Volume: 1618

Publisher: American Institute of Physics Inc.

Editors: Simos, T. E., Kalogiratou, Z., Monovasilis, T.

ISBN (Print): 9780735412552

##### Publication series

Name: AIP Conference Proceedings  
Volume: 1618  
ISSN (Print): 0094-243X  
ASJC Scopus subject areas: Physics and Astronomy(all)  
Keywords: benchmarks, conformation database, density-functional theory, Peptide conformation, theoretical vibrational spectroscopy  
DOIs:  
10.1063/1.4897692  
Source: Scopus  
Source ID: 84947544071  
Research output: Chapter in Book/Report/Conference proceeding › Conference contribution › Scientific › peer-review

## How to benefit from learning logs in engineering education?

### General information

Publication status: Published  
MoE publication type: A4 Article in a conference publication  
Organisations: Mechanical Engineering and Industrial Systems, Research area: Design, Development and LCM, MEI Laboratory, Ita-Suomen yliopisto  
Contributors: Juuti, T., Kopra, M. J., Rättyä, K., Lehtonen, T.  
Publication date: 2016

### Host publication information

Title of host publication: 44th Annual Conference of the European Society for Engineering Education - Engineering Education on Top of the World: Industry-University Cooperation, SEFI 2016  
Publisher: European Society for Engineering Education SEFI  
ISBN (Electronic): 9782873520144  
ASJC Scopus subject areas: Engineering(all), Education  
URLs:  
[http://www.sefi.be/conference-2016/papers/Engineering\\_Education\\_Research\\_\\_Engineering\\_Skills/juuti-learning-logs-and-reflecting-in-engineering-education-39\\_a.pdf](http://www.sefi.be/conference-2016/papers/Engineering_Education_Research__Engineering_Skills/juuti-learning-logs-and-reflecting-in-engineering-education-39_a.pdf)  
URLs:  
<http://www.scopus.com/inward/record.url?scp=85014063424&partnerID=8YFLogxK> (Link to publication in Scopus)  
Source: Scopus  
Source ID: 85014063424  
Research output: Chapter in Book/Report/Conference proceeding › Conference contribution › Scientific › peer-review

## How to develop a new innovation education tool: case of impact canvas

### 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, Innovation Services, Research Services, University of Tampere  
Contributors: Aarikka-Stenroos, L., Boedeker, S., Köppä, L., Langwaldt, J.  
Publication date: Dec 2016

### Host publication information

Title of host publication: In the Proceedings of ISPIM Innovation Summit. The International Society for Professional Innovation Management (ISPIM). : 4-7 December 2016, Kuala Lumpur, Malaysia.  
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

## 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

### 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

### 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](http://app.iahr2015.info/programma_details/2833)

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