

## 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

## 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

## 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 Engn Design & Prod, Sch Engn, Aalto Univ, Aalto University, Sch Engn, Dept Engn 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

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

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

#### **General information**

Publication status: Published

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

Organisations: Department of Mechanical Engineering and Industrial Systems

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

Number of pages: 186

Publication date: 2012

#### **Publication information**

Publisher: Tampere University of Technology. Department of Production Engineering

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

Original language: English

Electronic versions:

[iwmf\\_2012](#)

URLs:

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

#### **Bibliographical note**

Versio ok 16.12.2015

Research output: Book/Report > Commissioned report > Professional

#### **Proceedings of VikingPLoP 2012 Conference**

The papers in this proceedings are updated versions of the papers workshopped in the conference. Participants submitted their papers for shepherding process. In shepherding process, experienced pattern writer gave ideas and feedback for the author, colloquially known as a sheep. The sheep incorporated this feedback in to her paper. After three iterations of shepherding the paper was discussed at the conference in writer's workshop. Workshop group gave comments, criticism and praise. After the conference sheep updated their papers according to the workshop feedback. This process of giving feedback was made possible by having community of trust. Mutual trust was built by playing non-competitive games and by having social activities.

VikingPLoP 2012 focused on patterns and their usage in various fields of expertise. These fields included a wide range of topics from language teaching to embedded system's software architecture. Bringing people together from various fields of expertise, stimulates creativity and new ideas might emerge. These innovations are reflected in the papers in these

proceedings. VikingPLoP 2012 was especially a conference for newcomers and over half of the participants were first time PLoP participants.

These proceedings contain 10 papers and description of one focus group. In addition, a shepherding workshop was arranged and updated version of the demo pattern used in this workshop is also presented in the proceedings. The conference had two writer's workshop groups. Papers are organized as follows: in the first part of the proceedings patterns for embedded systems are presented and the second part contains general software related patterns. Finally in the third part, interdisciplinary patterns are included.

#### **General information**

Publication status: Published

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

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

Contributors: Eloranta, V. (ed.), Koskinen, J. (ed.), Leppänen, M. (ed.)

Number of pages: 142

Publication date: 2012

#### **Publication information**

Publisher: Tampere University of Technology. Department of Software Systems

ISBN (Print): 978-952-15-2943-6

ISBN (Electronic): 978-952-15-2944-3

Original language: English

#### **Publication series**

Name: Tampere University of Technology. Department of Software Systems. Report

Publisher: Tampere University of Technology

Volume: 22

ISSN (Print): 1797-836X

Electronic versions:

[proceedings\\_of\\_vikingplop\\_2012\\_conference](#)

URLs:

<http://URN.fi/URN:ISBN:978-952-15-2944-3>

#### **Bibliographical note**

Versio ok 14.12.2015

Research output: Book/Report › Commissioned report › Professional

#### **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

### **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

### **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

### **Integration of evaluation and simulation methods for virtual prototypes**

This article combines evaluation and selection of early design concepts into a methodology at different stages of the development process. A web-based evaluation environment to support this methodology has been developed including Kurtoglu's component taxonomy. In addition, the Taguchi's design of experiments approach has been used to virtually assess all feasible combinations generated from Zwicky matrix. This evaluation methodology is applied to the case study of an autonomous robot for Eurobot competition. The virtual environment was useful to provide a fast visual representation of the different robot concepts and their behaviours. This evaluation methodology was compared with AHP and Pareto optimality evaluation methods. The main contribution of this paper is to develop a methodology and a computer tool integrating virtual simulation associated with a design of experiments providing a visual representation of the concepts. These concepts can be simulated according to situations they would face in reality. This enables the evaluation of concepts according to non-subjective criteria and it could assist the decision making process at early design stage. Furthermore, this evaluation method enables preliminary selection in a concurrent manner during the phase of concept generation. The goal is to integrate the entire approach as a web-based platform supporting the early design process. This work is developed for pedagogical purpose in the context of an EU project.

#### **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 University

Contributors: Christophe, F., Mokammel, F., Coatanea, E., Bakhouya, M.

Number of pages: 6

Pages: 623-628

Publication date: 2013

#### **Host publication information**

Title of host publication: Proceedings of the 15th International Conference on Engineering and Product Design Education: Design Education - Growing Our Future, EPDE 2013

ISBN (Print): 9781904670421

ASJC Scopus subject areas: Industrial and Manufacturing Engineering

Keywords: Design, Design methodologies, Simulation and evaluation, Virtual prototyping

URLs:

<http://www.scopus.com/inward/record.url?scp=84891309348&partnerID=8YFLogxK> (Link to publication in Scopus)

Source: Scopus

Source ID: 84891309348

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

### **Interplay between offering, provider and customer in product-service system design**

Customer value creation is pivotal for a company in order to be able to create value for their shareholders. Product-service systems (PSS) offer new ways for creating added value in comparison to selling traditional products with added services. The goal in this article is to study a product-service system design project and identify different interactions in the three dimensions of product-service systems - the offering, the provider, and the user/customer. Being able to identify interactions between the design elements in the three PSS dimensions would advance our understanding about PSS development in general and facilitate designing higher-value product-service systems. The research utilizes first-hand data of an availability-oriented reverse vending machine design project undergone in the research group during 2011-2012. The research resulted in identifying concrete interactions with potentially complex dynamics between the elements from the three dimensions. The interactions between the dimensions play an important role in PSS development, they may provide interesting openings for value creation, and they definitely deserve more attention and further research in the domain.

#### **General information**

Publication status: Published

MoE publication type: A4 Article in a conference publication

Organisations: Department of Mechanical Engineering and Industrial Systems, Aalto Univ, Aalto University, Helsinki Inst Phys

Contributors: Ritola, T., Coatanea, E.

Number of pages: 10

Publication date: 2013

#### **Host publication information**

Title of host publication: Proceedings of the 19th International Conference on Engineering Design (ICED13), Design for Harmonies, Vol.4: Product, Service and Systems Design , Seoul, Korea, 19-22.08.2013

Publisher: DESIGN SOC

Editors: Lindemann, U., Venkataraman, S., Kim, Y., Lee, S., DeWeck, O., Hong, Y.

#### **Publication series**

Name: International Conference on Engineering Design

Publisher: DESIGN SOC

ISSN (Print): 2220-4334

Keywords: product-service systems, design engineering, value, STRATEGY

Source: WOS

Source ID: 000360582600033

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

### **Model-Based Approach for Change Propagation Analysis in Requirements**

The need for support related to the complexity management of systems engineering problems, specifically for requirements management and changes is especially necessary during the early stages of the systems engineering process. Indeed, these stages have a tremendous impact on the overall outcome of a project. If not anticipated at early stages, changes in requirements are leading to changes in the design and in the later implementation stages, resulting in an unexpected increase in costs (monetary, time, etc.). The framework proposed in this article for requirements change prediction consists of a three steps process. First, requirements are modeled using SysML with predefined relationships. Second, all the relationships between requirements in the SysML model are transformed into an adjacency matrix also named DSM. A higher order Dependency Structure Matrix is applied; this matrix-based methodology allows support in the prediction of which requirements will be affected after a change in a specific requirement. Third, the change propagation path is visualized. Using this framework, it is possible to predict the possible propagation of changes in requirements. In addition, it is also possible to identify the requirements that can be reused. This can help to save the time and cost for developing a new system.

#### **General information**

Publication status: Published

MoE publication type: A4 Article in a conference publication

Organisations: Aalto Univ, Aalto University, Sch Engr, Dept Engr Design & Prod, Aalto Univ, Aalto University, Aalto Univ Finland, Dept Engr Design & Prod, Sch Engr

Contributors: Nonsiri, S., Coatanea, E., Bakhouya, M., Mokammel, F.  
Number of pages: 7  
Pages: 497-503  
Publication date: 2013

#### Host publication information

Title of host publication: 2013 IEEE International Systems Conference (SysCon)  
Publisher: IEEE  
ISBN (Print): 978-1-4673-3107-4

#### Publication series

Name: Systems Conference (SysCon), 2013 IEEE International  
Keywords: Requirements management, Change propagation, SysML, higher order DSM  
DOIs:  
10.1109/SysCon.2013.6549928  
URLs:  
<http://ieeexplore.ieee.org/lpdocs/epic03/wrapper.htm?arnumber=6549928>  
<http://www.mendeley.com/research/modelbased-approach-change-propagation-analysis-requirements>  
Source: WOS  
Source ID: 000326754400078  
Research output: Chapter in Book/Report/Conference proceeding > Conference contribution > Scientific > peer-review

#### Moduulirakentaminen: Teräskennoteknologian mahdollisuudet

##### General information

Publication status: Published  
MoE publication type: D4 Published development or research report or study  
Organisations: Department of Civil Engineering, Research group: Capacity Development of Water and Environmental Services CADWES  
Contributors: Sorri, J. (ed.)  
Number of pages: 114  
Publication date: 2013

##### Publication information

Publisher: Tampereen teknillinen yliopisto. Rakennustekniikan laitos  
ISBN (Print): 978-952-15-3035-7  
ISBN (Electronic): 978-952-15-3036-4  
Original language: Finnish

##### Publication series

Name: Tampereen teknillinen yliopisto. Rakennustekniikan laitos. Rakennustuotanto ja -talous. Raportti  
Publisher: Tampereen teknillinen yliopisto  
Volume: 14  
ISSN (Print): 1797-8904  
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URLs:  
<http://URN.fi/URN:ISBN:978-952-15-3036-4>

##### Bibliographical note

Versio ok 16.12.2015  
Research output: Book/Report > Commissioned report > Professional

#### Proceedings of VikingPLoP 2013 Conference

This is the proceedings of VikingPLoP 2013 – a record of all papers workshopped during the conference. VikingPLoP is a Nordic conference of pattern languages of programs which took place this year in Horse Inn of Luomajärvi, Ikaalinen, Finland in March 2013. VikingPLoP was organized jointly by Tampere University of Technology and Hillside Europe. VikingPLoP 2013 was also sponsored by Wiley which provided books for the focus group reading session. The conference was organized in Finland for the second time in a row. Previous location in 2012 was in Saariselkä Lapland. In 2013 vikings were moving towards south and chose the Horse Inn in Ikaalinen as the venue as it offered a luxurious opportunity for participants to experience rustic romance, good food, horseback riding, traditional Finnish sauna, the nature, and wilderness tracks. In March the landscape was still covered in snow making the landscape ruggedly beautiful.

The papers in this proceedings book are updated versions of the papers workshopped in the conference. In the beginning, participants submitted their papers for shepherding process. In the shepherding process, the shepherd, an experienced

pattern writer, gave ideas and feedback for the author, colloquially known as a sheep. The sheep incorporated this feedback in to her paper. After three iterations of shepherding the paper was discussed at the conference in a writer's workshop. The workshop group gave comments, criticism and praise. After the conference the authors updated their papers according to the workshop feedback.

This process of giving feedback was made possible by having a community of trust. Mutual trust was built by playing non-competitive games and by having social activities. VikingPLoP 2013 focused on patterns and their usage in various fields of expertise. These fields included a wide range of topics from educational patterns to safety patterns and embedded system's software architecture patterns. Bringing people together from various fields of expertise stimulates creativity and new ideas might emerge. These innovations are reflected in the papers in these proceedings. VikingPLoP 2013 was especially a conference for newcomers and over half of the participants were first time PLoP participants.

These proceedings contain 9 papers. In addition, a book reading workshop was arranged with Bob Hanmer who presented his new title Pattern-Oriented Software Architecture for Dummies and discussed it with the participants using video conferencing tools.

#### **General information**

Publication status: Published

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

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

Contributors: Eloranta, V. (ed.), Koskinen, J., Leppänen, M. K.

Number of pages: 125

Publication date: 2013

#### **Publication information**

Publisher: Tampere University of Technology. Department of Pervasive Computing

ISBN (Print): 978-952-15-3166-8

ISBN (Electronic): 978-952-15-3167-5

Original language: English

#### **Publication series**

Name: Tampere University of Technology. Department of Pervasive Computing. Report

Publisher: Tampere University of Technology, Department of Pervasive Computing

Volume: 2

ISSN (Print): 2323-9174

Electronic versions:

[proceedings\\_of\\_vikingplop\\_2013\\_conference](#)

URLs:

<http://URN.fi/URN:ISBN:978-952-15-3167-5>

#### **Bibliographical note**

Version: 14.12.2015

Research output: [Book/Report](#) › [Commissioned report](#) › [Professional](#)

#### **Theory driven design and real prototyping of biomass pyrolytic stove**

This article introduces a design approach integrating early design phase and model based engineering in order to develop innovative biomass gasifier system for rural communities in Africa. The need for such a systemic perspective is imposed by the imbrication of technical, ecological and cultural issues that cannot be ignored while designing new technology. The article proposes an integrated generic design theory approaches to discover and rank by order of importance system's variables and to single out most desired design parameters. A pre-design user requirement assessment was carried out to identify detailed stove's functions. Causal-ordering diagrams sketched for system's modelling. System functions were described graphically and synthesized through simple linear algebraic matrices. Contradictions in system functions were solved using Theory of Inventive Thinking (TRIZ 40). And system's optimization was done through simple Taguchi experimentation method. A two level L8 degree of freedom Taguchi table was used in the experimentation and optimization of the pyrolytic stove. The design approach was exemplified using the case of the "AKIBA" biomass stove.

#### **General information**

Publication status: Published

MoE publication type: A4 Article in a conference publication

Organisations: Kenya Industrial Research and Development Institute (KIRDI), Aalto University School of Engineering, Department of Engineering Design and Production, Aalto University

Contributors: Ogeya, M. C., Coatanéa, E., Medyna, G.

Number of pages: 10

Pages: 69-78

Publication date: 2013

### Host publication information

Title of host publication: Proceedings of the International Conference on Engineering Design, ICED

Volume: 9 DS75-09

ISBN (Print): 9781904670520

ASJC Scopus subject areas: Engineering (miscellaneous), Industrial and Manufacturing Engineering, Modelling and Simulation

Keywords: Design theory, Early design phase, Innovation, Optimisation, Systems engineering

URLs:

<http://www.scopus.com/inward/record.url?scp=84897650359&partnerID=8YFLogxK> (Link to publication in Scopus)

Source: Scopus

Source ID: 84897650359

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

### Theory driven design and real prototyping of biomass pyrolytic stove

This article introduces a design approach integrating early design phase and model based engineering in order to develop innovative biomass gasifier system for rural communities in Africa. The need for such a systemic perspective is imposed by the imbrication of technical, ecological and cultural issues that cannot be ignored while designing new technology. The article proposes an integrated generic design theory approaches to discover and rank by order of importance system's variables and to single out most desired design parameters. A pre-design user requirement assessment was carried out to identify detailed stove's functions. Causal-ordering diagrams sketched for system's modelling. System functions were described graphically and synthesized through simple linear algebraic matrices. Contradictions in system functions were solved using Theory of Inventive Thinking (TRIZ 40). And system's optimization was done through simple Taguchi experimentation method. A two level L8 degree of freedom Taguchi table was used in the experimentation and optimization of the pyrolytic stove. The design approach was exemplified using the case of the "AKIBA" biomass stove.

### General information

Publication status: Published

MoE publication type: A4 Article in a conference publication

Organisations: Kenya Ind Res & Dev Inst, Aalto Univ, Aalto University, Aalto Univ Finland, Dept Engn Design & Prod, Sch Engn, Aalto Univ, Aalto University, Sch Sci & Technol, Dept Chem

Contributors: Ogeya, M. C., Coatanea, E., Medyna, G.

Number of pages: 10

Pages: 69-78

Publication date: 2013

### Host publication information

Title of host publication: Design for Harmonies, Vol.9: Design Methods and Tools

Publisher: DESIGN SOC

Editors: Lindemann, U., Srinivasan, Kim, Y., Lee, S., Papalambros, P., Chen, W.

### Publication series

Name: International Conference on Engineering Design

Publisher: DESIGN SOC

ISSN (Print): 2220-4334

Keywords: design theory, innovation, optimisation, early design phase, systems engineering

Source: WOS

Source ID: 000361026600008

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

### Kids Out! Urban environments and physical activity among children and adolescents

#### General information

Publication status: Published

MoE publication type: Not Eligible

Organisations: School of Architecture, Research group: EDGE

Contributors: Sarjala, S.

Number of pages: 1

Publication date: 26 Feb 2013

#### Host publication information

Title of host publication: 2013 Active Living Research (ALR) Annual Conference in San Diego, CA

#### Bibliographical note

xabstract

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

### **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

### **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 Engr

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

### **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

### **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

## **EMCCD imaging of strongly ionizing radioactive materials for safety and security**

### **General information**

Publication status: Published

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

Organisations: Department of Physics, Research area: Optics, Frontier Photonics

Contributors: Sand, J., Ihantola, S., Peräjärvi, K., Toivonen, H., Nicholl, A., Hrnccek, E., Toivonen, J.

Pages: JSII\_P\_1

Publication date: 12 May 2013

### **Host publication information**

Title of host publication: 2013 Conference on Lasers and Electro-Optics - International Quantum Electronics Conference

Publisher: Optical Society of America

ISBN (Electronic): 978-1-4799-0594-2

Keywords: Radioluminescence, Imaging of alpha emitters

URLs:

[http://www.osapublishing.org/abstract.cfm?URI=CLEO\\_Europe-2013-JSII\\_P\\_1](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

## **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

## **Sound Events and Emotions: Investigating the Relation of Rhythmic Characteristics and Arousal**

A variety of recent researches in Audio Emotion Recognition (AER) outlines high performance and retrieval accuracy results. However, in most works music is considered as the original sound content that conveys the identified emotions. One of the music characteristics that is found to represent a fundamental means for conveying emotions are the rhythm-related acoustic cues. Although music is an important aspect of everyday life, there are numerous non-linguistic and non-musical sounds surrounding humans, generally defined as sound events (SEs). Despite this enormous impact of SEs to humans, a scarcity of investigations regarding AER from SEs is observed. There are only a few recent investigations concerned with SEs and AER, presenting a semantic connection between the former and the listener's triggered emotion. In this work we analytically investigate the connection of rhythm-related characteristics of a wide range of common SEs with the arousal of the listener using sound events with semantic content. To this aim, several feature evaluation and classification tasks are conducted using different ranking and classification algorithms. High accuracy results are obtained, demonstrating a significant relation of SEs rhythmic characteristics to the elicited arousal.

### **General information**

Publication status: Published

MoE publication type: A4 Article in a conference publication

Organisations: Ionian University, Aristotle University of Thessaloniki

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

Number of pages: 6

Pages: 1-6  
Publication date: Jul 2013

#### Host publication information

Title of host publication: Information, Intelligence, Systems and Applications (IISA), 2013 Fourth International Conference on

Publisher: IEEE

ISBN (Electronic): 978-1-4799-0771-7

Keywords: audio emotion recognition, Sound events, arousal, rhythm related features, audio emotion classification

DOIs:

10.1109/IISA.2013.6623709

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

#### Automated driving and the key megatrends of future

Road transport is facing several changes that derive from the operational environment. Technological progress supporting advances in automated driving is one of these. Alongside e.g. globalisation, urbanisation, aging, climate change and digitalisation are challenging the transport needs and solutions of today. This paper discusses how automated driving is related to the factors of change. Based on the analysis, the progress towards more automated driving is supporting and is supported by the changes deriving from the key megatrends even though also some conflicting issues are recognised.

#### General information

Publication status: Published

MoE publication type: D3 Professional conference proceedings

Organisations: Department of Information Management and Logistics

Contributors: Pöllänen, M., Nykänen, L.

Publication date: 2014

#### Host publication information

Title of host publication: ITS European Congress : 10th ITS EUROPEAN CONGRESS, Helsinki, Finland 16-19 June 2014

Article number: TP0067

ASJC Scopus subject areas: Engineering(all)

Keywords: automated driving, megatrends, FUTURE-RESEARCH

URLs:

<http://www.itsineurope.com/its10/>

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

#### 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

### Contact analysis included in a 3D FEA of tube splices

#### General information

Publication status: Published

MoE publication type: A4 Article in a conference publication

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

Contributors: Perttola, H., Ronni, H., Heinisuo, M.

Publication date: 2014

#### Host publication information

Title of host publication: Eurosteel 2014 7th European conference on steel and composite structures

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

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

### Crossing Boundaries for Learning – through Technology and Human Efforts

#### General information

Publication status: Published

MoE publication type: C1 Separate scientific books

Organisations: University of Helsinki

Contributors: Niemi, H., Multisilta, J., Löfström, E.

Publication date: 2014

#### Publication information

Publisher: CICERO Learning Network, University of Helsinki

ISBN (Print): 978-952-10-9878-9

Original language: Undefined/Unknown

Keywords: 516 Educational sciences

Source: Bibtex

Source ID: urn:8ca22e584c9a353efda0aea3cc9fbf1d

Research output: Book/Report > Book > Scientific > peer-review

### 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 Engn Design & Prod, Sch Engn

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

## **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

## **Electrostatic Threats in Hospital Environment**

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

### **General information**

Publication status: Published

MoE publication type: A4 Article in a conference publication

Organisations: Department of Electronics and Communications Engineering, Cascade Metrol, Kanta Hame Cent Hosp, Premix Oy, Ion PhasE, Electrostat Solut Ltd

Contributors: Viheriäkoski, T., Kokkonen, M., Tamminen, P., Karja, E., Hillberg, J., Smallwood, J.

Number of pages: 9

Publication date: 2014

### **Host publication information**

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

Publisher: IEEE COMPUTER SOC

### **Publication series**

Name: Electrical Overstress Electrostatic Discharge Symposium

Publisher: IEEE COMPUTER SOC

ISSN (Print): 0739-5159

Source: WOS

Source ID: 000355792800054

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

## **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

### 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., Reinvuuo, 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

### Kävelystä elinvoimaa

#### General information

Publication status: Published

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

Organisations: Department of Information Management and Logistics

Contributors: Rantala, T., Luukkonen, T., Karhula, K., Vaismaa, K., Mäntynen, J., Metsäpuro, P.

Number of pages: 142

Publication date: 2014

#### Publication information

Place of publication: Tampere

Publisher: Tampereen teknillinen yliopisto. Liikenteen tutkimuskeskus Verne.

ISBN (Print): 978-952-15-3231-3

ISBN (Electronic): 978-952-15-3232-0

Original language: Finnish

URLs:

[http://www.tut.fi/verne/wp-content/uploads/Kavelysta\\_elinvoimaa.pdf](http://www.tut.fi/verne/wp-content/uploads/Kavelysta_elinvoimaa.pdf)

Research output: Book/Report > Commissioned report > Professional

### Knowledge Management Practices in Large Companies

#### General information

Publication status: Published

MoE publication type: A1 Journal article-refereed

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

Contributors: Väyrynen, H., Helander, N., Kukko, M.  
Number of pages: 17  
Pages: 56-72  
Publication date: 2014  
Peer-reviewed: Yes  
Early online date: 2014

#### **Publication information**

Journal: The Macrotheme Review  
Volume: 3  
Issue number: 9  
Article number: 3(9)  
ISSN (Print): 1848-4735  
Original language: English  
Keywords: Knowledge Management, practices, survey, large companies  
Electronic versions:  
Knowledge Management Practices in Large Companies\_Author  
URLs:  
<http://urn.fi/URN:NBN:fi:tty-201604203832>

#### **Bibliographical note**

Versio ok 20.4.2016 /KK  
EXT="Helander, Nina"  
Research output: Contribution to journal > Article > Scientific > peer-review

#### **Kohti kestäväää Skanssia**

##### **General information**

Publication status: Published  
MoE publication type: D4 Published development or research report or study  
Organisations: School of Architecture  
Contributors: Laak, M. (ed.), Del Barrio Batista, J. (ed.)  
Number of pages: 87  
Publication date: 2014

##### **Publication information**

Publisher: Tampereen teknillinen yliopisto. Arkkitehtuurin laitos  
ISBN (Print): 978-952-15-3248-1  
ISBN (Electronic): 978-952-15-3249-8  
Original language: Finnish  
Electronic versions:  
kohti\_kestavaa\_skanssia  
URLs:  
<http://URN.fi/URN:ISBN:978-952-15-3249-8>

##### **Bibliographical note**

Versio ok 14.12.2015  
Research output: Book/Report > Commissioned report > Professional

#### **Lahdelma & Mahlamäki Architects: Works**

##### **General information**

Publication status: Published  
MoE publication type: D5 Text book, professional manual or guide or a dictionary  
Organisations: School of Architecture, Research group: Architecture: History, Theory and Innovations  
Contributors: Lahdelma, I.  
Number of pages: 152  
Publication date: 2014

##### **Publication information**

Publisher: Rakennustieto  
ISBN (Print): 978-952-267-071-7  
Original language: English  
Research output: Book/Report > Book > Professional

### **Life Beyond the Binary Code: Select Prose and Poetry**

This is a collection of fourteen short stories and five poems from the first-ever creative writing course offered at the Language Center at Tampere University of Technology. Thematically varied, the writings range in humor, irony, wit, and compassion from high adventure to human oddity to drama, conflict and their resolution. Imaginative and well crafted, the collection testifies to the writers' enthusiasm, creativity, and commitment to learning the necessary expressive skills.

#### **General information**

Publication status: Published  
MoE publication type: D4 Published development or research report or study  
Organisations: Language Centre  
Contributors: Lepistö, T. (ed.)  
Number of pages: 79  
Publication date: 2014

#### **Publication information**

Publisher: Tampere University of Technology, Language Center  
ISBN (Print): 978-952-15-3290-0  
ISBN (Electronic): 978-952-15-3291-7  
Original language: English  
Electronic versions:  
life\_beyond\_the\_binary\_code  
URLs:  
<http://URN.fi/URN:ISBN:978-952-15-3291-7>

#### **Bibliographical note**

Versio ok 16.12.2015  
Research output: Book/Report > Commissioned report > 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

### **Modeling of Age-Dependent Failure Tendency from Incomplete Data**

This paper addresses modeling of age-dependent failure rates from incomplete data that includes interval-censored failure ages. Two estimators for cumulative failure rates are presented: a simple non-parametric estimator and a maximum-likelihood method based on the gamma distribution and the non-homogeneous Poisson process. The maximum-likelihood fit of familiar parametric models (e.g., the power law) to the available field data from an aircraft component was far from satisfactory, so a special three-parameter model function had to be worked out. The maximum-likelihood estimate obtained is then used for repeated random generation of different data sets akin to the field data. This way the effect of data set size, censoring rate, and randomness on the non-parametric estimate can be analyzed to get practical appraisals.

#### **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, Research group: Käyttövarmuuden suunnittelu ja kunnossapito

Contributors: Hagmark, P., Laitinen, J.  
Number of pages: 11  
Pages: 449-459  
Publication date: 2014

#### Host publication information

Title of host publication: Engineering Asset Management 2011 : Proceedings of the Sixth World Congress on Engineering Asset Management  
Place of publication: London  
Publisher: Springer-Verlag London Limited  
Editors: Lee, J., Ni, J., Sarangapani, J., Mathew, J.  
ISBN (Print): 978-1-4471-4993-4

#### Publication series

Name: Lecture Notes in Mechanical Engineering  
ISSN (Print): 2195-4356  
DOIs:

10.1007/978-1-4471-4993-4\_40

Source: Bibtex

Source ID: urn:d7b891dd2fe21c5e9c101c432e092e18

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

#### On Design and Development of Super-FRS main tunnel Remote Handling System Concept

The Super Fragment Separator (Super-FRS) main tunnel at the Facility of Antiproton and Ion Research (FAIR) consists of 11 focal planes with vacuum chamber to perform physics experiments. Four of the vacuum chambers at four different focal planes contain activated beamline inserts that requires remote maintenance. The remote maintenance will be performed using automated equipment that can safely conduct remote manipulation on to the activated beamline inserts. In this paper we discuss the conceptual design and development process for the remote handling (RH) system to be used in the Super-FRS main tunnel environment. The RH system for Super-FRS main tunnel is presented here along with conceptual design phase methodology. The main features of the new concept design are to utilize the state of the art of the shelf technologies and products from the industry, which in accordance to Super-FRS needs and requirements to make it more reliable and available during the remote maintenance tasks. The selected design concept are verified with virtual reality simulations and are fulfilling the requirements defined during the concept design phase, including structural, assembly sequence, safety and reliability

#### General information

Publication status: Published

MoE publication type: A4 Article in a conference publication

Organisations: Department of Intelligent Hydraulics and Automation, Research group: Mobile manipulation, GSI Helmholtz Ctr Heavy Ion, FRS Dept, GSI Helmholtz Ctr Heavy Ion, FRS Dept, Super FRS Target Area, GSI Helmholtz Ctr Heavy Ion, FRS Dept, Super FRS Facil

Contributors: Amjad, F., Weick, H., Mattila, J., Kozlova, E., Schloer, C.

Number of pages: 7

Pages: 188-194

Publication date: 2014

#### Host publication information

Title of host publication: 2014 IEEE 17th International Conference on Intelligent Transportation Systems (ITSC), 8-11 Oct. 2014, Qingdao

Publisher: IEEE

ISBN (Print): 978-1-4799-6078-1

Keywords: Super-FRS, beamline inserts, Remote Handling, FAIR, FRAGMENT SEPARATOR FRS, GSI

DOIs:

10.1109/ITSC.2014.6957689

#### Bibliographical note

EXT="Amjad, Faraz"

Source: WOS

Source ID: 000357868700047

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

#### Optimization of high strength steel tubular trusses

#### General information

Publication status: Published

MoE publication type: A4 Article in a conference publication  
Organisations: Department of Civil Engineering, Research group: Metal and Light-wight structures  
Contributors: Tiainen, T., Mela, K., Jokinen, T., Heinisuo, M.  
Publication date: 2014

#### Host publication information

Title of host publication: Eurosteel 2014 7th European conference on steel and composite structures  
ISBN (Print): 978-92-9147-121-8  
Research output: Chapter in Book/Report/Conference proceeding › Conference contribution › Scientific › peer-review

#### Optimizing investment in ESD control

We examine strategies for optimizing investment in ESD protection and trade-offs that can arise. Standard ESD measures require low expertise but may result in unnecessary equipment spend. Tailored EPAs may require higher expertise and greater training. ESD control measures and equipment used with inadequate understanding can fail to yield the potential benefits expected. Optimal ESD control results from understanding ESD threats and control, with effective implementation.

#### General information

Publication status: Published  
MoE publication type: A4 Article in a conference publication  
Organisations: Department of Electronics and Communications Engineering, Electrostat Solut Ltd, Cascade Metrol  
Contributors: Smallwood, J., Tamminen, P., Viheriäkoski, T.  
Number of pages: 6  
Publication date: 2014

#### Host publication information

Title of host publication: 2014 Electrical Overstress/Electrostatic Discharge Symposium (EOS/ESD)  
Publisher: IEEE COMPUTER SOC

#### Publication series

Name: Electrical Overstress Electrostatic Discharge Symposium  
Publisher: IEEE COMPUTER SOC  
ISSN (Print): 0739-5159  
Source: WOS  
Source ID: 000355792800025  
Research output: Chapter in Book/Report/Conference proceeding › Conference contribution › Scientific › peer-review

#### Orimattilan Henna

Kurssijulkaisu. Vuoden 2014 yhdyskuntasuunnittelun ammattikurssi 1 opiskelijoiden harjoitustyöt. Kurssin harjoitustöiden teemana oli uuden kaupunginosan suunnittelu Lahti-Kerava -oikoradan varteen. Kurssi ja julkaisu toteutettiin yhteistyössä Orimattilan kaupungin kanssa.

#### General information

Publication status: Published  
MoE publication type: D4 Published development or research report or study  
Organisations: School of Architecture  
Contributors: Laak, M. (ed.)  
Number of pages: 89  
Publication date: 2014

#### Publication information

Publisher: Tampereen teknillinen yliopisto. Arkkitehtuurin laitos  
ISBN (Print): 978-952-15-3321-1  
ISBN (Electronic): 978-952-15-3322-8  
Original language: Finnish  
Electronic versions:  
orimattilan\_henna  
URLs:  
<http://URN.fi/URN:ISBN:978-952-15-3322-8>

#### Bibliographical note

Versio ok 16.12.2015  
Research output: Book/Report › Commissioned report › Professional

### **Product Upgradability: Towards a Medical Analogy**

This paper explored the analogy between the medical area and product design. Many similarities, shared between the genetic mutation permitting human to ensure its survival and the product undergoing the introduction of new technologies to meet the market fluctuation, are found to propose this analogy. From creating genetic reference space to transplant technology into product, fundamental process of survival and evolution will be described and allows the parallel with a product, to understand how the evolution of product respond to future needs. It also ensures the durability of resources in an ecological perspective. We discuss the complexity of establishing the right diagnosis for directing the design to choose the right technology and to enable its future integration into a living product. This uncertainty in the technological maturity but also the integrability of this technology in the current product at first, then in the future will allow its product development. Conclusions for the use of this analogy and the justification to describe "living product" will be drawn.

### **General information**

Publication status: Published

MoE publication type: A4 Article in a conference publication

Organisations: IRTES-M3M, Université de Technologie de Belfort-Montbéliard (UTBM)

Contributors: Chapuis, Y., Demoly, F., Coatanéa, E., Gomes, S.

Number of pages: 8

Pages: 148-155

Publication date: 2014

### **Host publication information**

Title of host publication: ADVANCES IN PRODUCTION MANAGEMENT SYSTEMS: INNOVATIVE AND KNOWLEDGE-BASED PRODUCTION MANAGEMENT IN A GLOBAL-LOCAL WORLD, APMS 2014, PT III

Volume: 440

Publisher: Springer-Verlag, Berlin

Editors: Grabot, B., Vallespir, B., Gomes, S., Bouras, A., Kiritsis, D.

Edition: PART 3

ISBN (Print): 9783662447321

### **Publication series**

Name: IFIP Advances in Information and Communication Technology

Publisher: SPRINGER-VERLAG BERLIN

Volume: 440

ISSN (Print): 1868-4238

ASJC Scopus subject areas: Information Systems and Management

Keywords: Changeable product, DFX, Living product, Proactive engineering, Technology introduction, Upgradability

DOIs:

10.1007/978-3-662-44733-8\_19

URLs:

<http://www.scopus.com/inward/record.url?scp=84906932728&partnerID=8YFLogxK> (Link to publication in Scopus)

Source: WOS

Source ID: 000360158500019

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

### **Professional knowledge, skills and competencies of the new graduates and the engineering professionals - Comparison of the importance in working-life**

### **General information**

Publication status: Published

MoE publication type: A4 Article in a conference publication

Organisations: Department of Industrial Management, Policy Academic Engineers and Architects in Finland, TEK

Contributors: Hyötynen, P., Mursu, S., Teini, J.

Publication date: 2014

### **Host publication information**

Title of host publication: SEFI Annual Conference 2014

Place of publication: Brussel

Publisher: European Society for Engineering Education SEFI

ISBN (Print): 978-2-87352-004-5

ASJC Scopus subject areas: Engineering(all), Education

URLs:

<http://www.scopus.com/inward/record.url?scp=84939191998&partnerID=8YFLogxK> (Link to publication in Scopus)

Source: Scopus

Source ID: 84939191998

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

## Systemic Sustainability and Emerging Diversity of Shopping Concepts in Urban Multi-Agent Networks

### General information

Publication status: Published

MoE publication type: A4 Article in a conference publication

Organisations: Institute of Society and Space (SOCIS), School of Architecture, Research group: EDGE

Contributors: Rantanen, A., Iltanen, S., Joutsiniemi, A.

Pages: 510-517

Publication date: 2014

### Host publication information

Title of host publication: New Urban Configurations

Publisher: Delft University Press

Editors: Cavallo, R., Komossa, S., Marzot, N., Berghauser Pont, M., Kuijper, J.

ISBN (Print): 978-1-61499-365-0

ISBN (Electronic): 978-1-61499-366-7

DOIs:

10.3233/978-1-61499-365-0-517

### Bibliographical note

Contribution: organisation=ark,FACT1=1<br/>Portfolio EDEND: 2015-03-20

Source: researchoutputwizard

Source ID: 1352

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

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

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

### General information

Publication status: Published

MoE publication type: A4 Article in a conference publication

Organisations: University of Oulu

Contributors: Vinberg, M., Malaska, M., Peltonen, S.

Number of pages: 6

Publication date: 2014

### Host publication information

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

Place of publication: Belgium

Publisher: ECCS - European Convention for Constructional Steelwork

Editors: Landolfo, R., Mazzolani, F.

Article number: 33-493

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

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

### Towards a sustainable Skanssi

Course publication. The publication contains course works submitted for the Sustainable Design Studio 2013 which concentrate on the future development of the Skanssi area in Turku. For the publication six student groups' analyses and structure & masterplan –proposals have been gathered. In addition to that, selected individual works by 12 students are shown in this publication. Furthermore this publication contains a green roof and storm water management analysis and an environmental and landscape management proposal for the new residential areas.

### General information

Publication status: Published  
MoE publication type: D4 Published development or research report or study  
Organisations: School of Architecture  
Contributors: Laak, M. (ed.), Del Barrio Batista, J. (ed.)  
Number of pages: 87  
Publication date: 2014

### Publication information

Publisher: Tampere University of Technology, School of Architecture  
ISBN (Electronic): 978-952-15-3260-3  
Original language: English  
Electronic versions:  
towards\_a\_sustainable\_skanssi  
URLs:  
<http://URN.fi/URN:ISBN:978-952-15-3260-3>

### Bibliographical note

AUX=ark,"Del Barrio Batista, Juan"

Versio ok 14.12.2015

Research output: Book/Report › Commissioned report › Professional

### Vaihdetta isommalle: Pyöräilyn potentiaalin hyödyntäminen

#### General information

Publication status: Published  
MoE publication type: D4 Published development or research report or study  
Organisations: Department of Information Management and Logistics  
Contributors: Metsäpuro, P., Vaismaa, K., Karhula, K., Luukkonen, T., Mäntynen, J., Rantala, T.  
Number of pages: 145  
Publication date: 2014

#### Publication information

Place of publication: Tampere  
Publisher: Tampereen teknillinen yliopisto. Liikenteen tutkimuskeskus Verne.  
ISBN (Print): 978-952-15-3243-6  
ISBN (Electronic): 978-952-15-3244-3  
Original language: Finnish  
URLs:  
[http://www.tut.fi/verne/wp-content/uploads/Vaihdetta\\_isommalle\\_-\\_Pyorailyn\\_potentiaalin\\_hyodyntaminen.pdf](http://www.tut.fi/verne/wp-content/uploads/Vaihdetta_isommalle_-_Pyorailyn_potentiaalin_hyodyntaminen.pdf)  
Research output: Book/Report › Commissioned report › Professional

### Vibration analysis of the composite slim floor

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

#### General information

Publication status: Published  
MoE publication type: A4 Article in a conference publication  
Organisations: University of Oulu, Peikko Group Oy  
Contributors: Yrjölä, J., Peltonen, S., Malaska, M.  
Number of pages: 6

Publication date: 2014

### Host publication information

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

Place of publication: Belgium

Publisher: ECCS - European Convention for Constructional Steelwork

Editors: Landolfo, R., Mazzolani, F.

Article number: 33-494

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

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

### White Knights of the Smart City

In this paper we will demonstrate how a science fiction storyboard was used as a means for delivering and discussing future technology and design innovations. We present a case in which an illustrated storyboard exemplified the interactions of an experience-centered technology design concept - a winter caretaking system for a smart city and two devices that could assist its citizens. In the science fiction introduced, the emphasis is on the experience-centered design approach, particularly experiences relating to nurture, sympathy and control.

### General information

Publication status: Published

MoE publication type: A4 Article in a conference publication

Organisations: Department of Pervasive Computing, Research area: User experience, VTT Tech Res Ctr Finland, VTT Technical Research Center Finland, Human Factors Complex Syst

Contributors: Kymäläinen, T., Sahar, F., Palviainen, J.

Number of pages: 12

Pages: 223-234

Publication date: 2014

### Host publication information

Title of host publication: Workshop Proceedings of the 10th International Conference on Intelligent Environments

Publisher: IOS Press

Editors: Augusto, J., Zhang, T.

ISBN (Print): 978-1-61499-410-7

### Publication series

Name: Ambient Intelligence and Smart Environments

Publisher: IOS PRESS

Volume: 18

ISSN (Print): 1875-4163

Keywords: Science-fiction prototype, storyboard, intelligent city, user experience design, experience-centered design

DOIs:

10.3233/978-1-61499-411-4-223

Source: WOS

Source ID: 000360238400028

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

### Patterns for controlling chaos in a startup

A growing trend in industrial software engineering is that new software products and information services are developed under conditions of notable uncertainty. This is especially visible in startup enterprises which aim at new kinds of products and services in rapidly changing social web, where potential customers can quickly adopt new behavior. Special characteristics of the startups are lack of resources and funds, and startups may need to change direction fast. All these affect the software engineering practices used in the startups. Unfortunately almost 90 percent of all startups fail and goes bankrupt. There are probably indefinite numbers of reasons why startups fail. Failure might be caused by wrongly chosen software engineering practices or inconsiderate decision making. While there is no recipe for success, we argue that good practices that can help on the way to success can be identified from successful startups. In this paper, we present two patterns that startups can consider when entering the growth phase of the lifecycle.

### General information

Publication status: Published

MoE publication type: A4 Article in a conference publication

Organisations: Department of Pervasive Computing

Contributors: Eloranta, V.

Number of pages: 8

Pages: 1-8

Publication date: 10 Apr 2014

#### Host publication information

Title of host publication: VikingPLoP 2014 Proceedings of the 8th Nordic Conference on Pattern Languages of Programs  
Volume: 2014-April  
Publisher: Association for Computing Machinery  
ISBN (Print): 9781450326605

#### Publication series

Name: ACM International Conference Proceeding Series  
ASJC Scopus subject areas: Human-Computer Interaction, Computer Networks and Communications, Computer Vision and Pattern Recognition, Software  
Keywords: Lean start-up, Organizational patterns, Patterns, Software engineering, Start-up  
DOIs:  
10.1145/2676680.2676682  
Source: Scopus  
Source ID: 84940028558  
Research output: Chapter in Book/Report/Conference proceeding › Conference contribution › Scientific › peer-review

#### Two patterns for minimizing human resources in a startup

In this paper, we describe two patterns that are part of a larger pattern language for software startup companies. These two particular patterns help startup companies to focus on the essential; the product itself and keeping their team intact and productive. In this way, the startup may operate with a sustainable team size.

#### General information

Publication status: Published  
MoE publication type: A4 Article in a conference publication  
Organisations: Department of Pervasive Computing, Research area: Software engineering  
Contributors: Leppänen, M.  
Publication date: 10 Apr 2014

#### Host publication information

Title of host publication: VikingPLoP 2014 Proceedings of the 8th Nordic Conference on Pattern Languages of Programs (VikingPLoP)  
Publisher: ACM  
Article number: 4  
ISBN (Print): 9781450326605  
ASJC Scopus subject areas: Human-Computer Interaction, Computer Networks and Communications, Computer Vision and Pattern Recognition, Software  
Keywords: Lean startup, Organization, Organizational patterns, Patterns, Software engineering, Software product, Team  
DOIs:  
10.1145/2676680.2676686  
Source: Scopus  
Source ID: 84940021370  
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

### 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 deviations 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., Giannakoulopoulos, 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

### 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

#### 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 complementary 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

#### 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

### **Massive Open Online Research: An approach to deal with wicked problems**

Humans are hardwired as problem-solvers. Professional education, in particular, enables us to solve complex problems. Even decades ago, we could safely send a crew to the moon and back. A moon-bound project is a very challenging and complex problem, but it is a tame one. The problem is clearly defined and the challenge becomes how to find the best solution. As the world and issues become more interconnected, there is a different type of problem in the horizon - 'wicked' problems. A wicked problem is normally complex and challenging, but differs from the 'tame' problem because there is no agreement in terms of problem definition. A wicked problem does not allow for the 'choice' of best solution. Solutions tend to only mitigate the problem and sometimes generate unpredictable consequences. For instance, climate change is an issue that requires a level of ingenuity that cannot be achieved by a limited group of people, regardless how brilliant they are. It cannot be addressed by our dominant scientific, reductionist, discipline-based, and proprietary approach either. This paper proposes Massive Online Open Research (MOOR) as a better approach to deal with wicked problems. In terms of organization, this paper includes a literature review on online collaboration, focusing on the dynamics of knowledge creation and innovation. Selected open online research initiatives are used to contextualize the literature review. Based on the literature review and real cases, a MOOR framework is presented and discussed. Limitations and opportunities for future research are also included.

#### **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, Kwantlen Polytechnic University

Contributors: Machado, M., Verghese, G., Peltola, T.

Number of pages: 7

Pages: 236-242

Publication date: 10 Oct 2014

#### **Host publication information**

Title of host publication: PICMET 14 Conference, Portland International Center for Management of Engineering and Technology : Infrastructure and Service Integration

Place of publication: Portland

Publisher: The Institute of Electrical and Electronics Engineers, Inc.

Article number: 6921178

ISBN (Print): 9781890843304

ASJC Scopus subject areas: Management of Technology and Innovation, Strategy and Management, Transportation  
URLs:

<http://www.scopus.com/inward/record.url?scp=84910125519&partnerID=8YFLogxK> (Link to publication in Scopus)

Source: Scopus

Source ID: 84910125519

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

### **Consumers' Views on Eco-Friendliness as a Dimension of a High-Tech Brand**

High-tech companies are facing the need to perform deeper analysis of how consumers view the eco-friendliness of their brands, in order to create green product and marketing strategies. The focus of this paper is to study whether consumers associate eco-friendliness with high-tech brands, and what kinds of consumers are most pro-environmental based on demographics. The key finding of this research is that consumers consider also eco-friendly aspects when reflecting on high-tech brands on four dimensions also used to measure general brand experience: the sensory, affective, behavioral and intellectual dimensions [1]. Demographically, women consider eco-friendliness more in association with high-tech brands than men across all of the four brand experience dimensions. In addition, mature consumers consider on the intellectual and sensory brand dimensions more eco-friendly aspects than young consumers. There are no statistically significant differences in the responses based on the educational background of the respondents.

#### **General information**

Publication status: Published

MoE publication type: D3 Professional conference proceedings

Organisations: Department of Industrial Management, Research group: Center for Innovation and Technology Research

Contributors: Saari, U., Mäkinen, S., Alinikula, P.

Number of pages: 8

Pages: 1-8

Publication date: 17 Nov 2014

#### **Host publication information**

Title of host publication: Going Green - CARE INNOVATION 2014

Publisher: SAT Austrian Society for Systems Engineering and Automation

Article number: 067

URLs:

<http://www.4980.timewarp.at/CARE/CI2014/index.html>

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

### **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

### **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

### 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

### 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

### 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 Institute 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

#### 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

#### 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

### 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

### **Active corrosion phase as a service life extension of concrete facades**

#### **General information**

Publication status: Published  
MoE publication type: D3 Professional conference proceedings  
Organisations: Department of Civil Engineering, Research group: Service Life Engineering of Structures, Research area: Structural Engineering  
Contributors: Köliö, A., Lahdensivu, J., Pentti, M.  
Publication date: 2015

#### **Host publication information**

Title of host publication: Proceedings of the Eurocorr 2015, European corrosion congress  
Publisher: Austrian Society for Metallurgy and Materials (ASMET); EFC; DECHEMA  
Research output: Chapter in Book/Report/Conference proceeding › Conference contribution › Professional

### **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

### **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

## 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 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 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 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: Aapro, 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 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 on bus travel time through traffic light intersection**

As the number of vehicles grows, cities around the world face serious road traffic congestion problems. One solution is the introduction of bus traffic with intelligent traffic light control. Travel time in an urban area consists of driving time and dwelling time. To analyze the effect of traffic light, data was collected from two sources: GPS bus locations and traffic light system. Travel time in an intersection depends on the arrival time on the traffic light sequence and other traffic. The traffic light on the selected segment utilizes bus priority. Comparisons with bus priority and without were carried out. Bus priority in the intersection causes a slight decrease on travel time and removes some of the larger waiting times. Bus arrival time on the traffic light sequence is random. In this paper travel time of buses through an intersection with bus priority is analyzed.

### **General information**

Publication status: Published

MoE publication type: D3 Professional conference proceedings

Organisations: Department of Signal Processing, Research group: MMDM, Research area: Information Technology for Biology and Health, Research area: Intelligence in Machines, Research area: Signal and Information Processing, University of Tampere

Contributors: Kerminen, R., Wang, C., Visa, A.

Number of pages: 10

Publication date: 2015

### **Host publication information**

Title of host publication: ITS World Congress 2015 Proceedings : Towards Intelligent Mobility – Better Use of Space

Article number: EU-ITS-2051

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

## **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

### **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

### **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<br/>Contribution: organisation=epr,FACT1=1

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

### 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

### 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:ty-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

### **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

#### Application and Theory of Petri Nets and Concurrency: 36th International Conference, PETRI NETS 2015 Brussels, Belgium, June 21-26, 2015 Proceedings

#### General information

Publication status: Published

MoE publication type: C2 Edited books

Organisations: Department of Mathematics, Research group: MAT Computer Science and Applied Logics, Regulation of learning and active learning methods (REALMEE), Embedded Electronics research unit of the Bio Electro and Mechanical Systems (BEAMS) department of the Université Libre de Bruxelles

Contributors: Devillers, R. (ed.), Valmari, A. (ed.)

Publication date: 2015

#### Publication information

Publisher: Springer Verlag

Volume: 9115

ISBN (Print): 978-3-319-19487-5

ISBN (Electronic): 978-3-319-19488-2

Original language: English

#### Publication series

Name: Lecture Notes in Computer Science (including subseries Lecture Notes in Artificial Intelligence and Lecture Notes in Bioinformatics)

Volume: 9115

ISSN (Print): 0302-9743

ISSN (Electronic): 1611-3349

ASJC Scopus subject areas: Computer Science(all), Theoretical Computer Science

DOIs:

10.1007/978-3-319-19488-2

URLs:

<http://www.scopus.com/inward/record.url?scp=84937510301&partnerID=8YFLogxK> (Link to publication in Scopus)

#### Bibliographical note

JUF0ID=62555

Source: Scopus

Source ID: 84937510301

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

#### Application of terrestrial LiDAR and modelling of tree branching structure for plant- scaling models in tropical forest trees

#### General information

Publication status: Published

MoE publication type: D3 Professional conference proceedings

Organisations: Department of Mathematics, Research group: MAT Inverse Problems, Wageningen University and the UNESCO-IHE Institute for Water Education, Delft, The Netherlands, 18.10.2013

Contributors: Lau Sarmiento, A., Bartholomeus, H., Herold, M., Martius, C., Malhi, Y., Patrick Bentley, L., Shenkin, A., Raunonen, P.

Number of pages: 3

Pages: 96-98

Publication date: 2015

#### Host publication information

Title of host publication: Proceedings of SilviLaser 2015 : 14th conference on Lidar Applications for Assessing and Managing Forest Ecosystems

URLs:

[https://silvilaser2015.teledetection.fr/files/Proceedings\\_Silvilaser\\_22\\_09\\_2015\\_2.pdf](https://silvilaser2015.teledetection.fr/files/Proceedings_Silvilaser_22_09_2015_2.pdf) (Conference proceedings)

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

### **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

### **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

### **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

## 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](https://doi.org/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

## 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 of a condensing heat exchanger and electrostatic precipitator combination for small-scale wood combustion

#### General information

Publication status: Published

MoE publication type: D3 Professional conference proceedings

Organisations: Department of Physics, Research area: Aerosol Physics, Research area: Optics, Research group: The Instrumentation, Emissions, and Atmospheric Aerosols Group

Contributors: Grigonyte, J., Sippula, O., Tissari, J., Laitinen, A., Keskinen, J., Kortelainen, M., Lamberg, H., Jokiniemi, J.

Publication date: 2015

#### Host publication information

Title of host publication: European Aerosol Conference 2015 : EAC 2015, Milan, Italy

Article number: 2COA\_P021

#### Bibliographical note

ISBN kysytty, HO.

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

### 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 differ-

ent models are used in this study: the isotropic Mohr-Coulomb and Hardening Soil model and the anisotropic NGI-ADP model. The anal-

ysis 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., Lämsivaara, 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\\_Perni\\_failure\\_test](https://www.researchgate.net/publication/265789150_A_study_on_the_behaviour_of_the_weathered_crust_in_the_Perni_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

### 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 Jyvaskyla, University of Jyvaskyla, 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

### 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

## 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

## 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

## CEO 2015: Proceedings of the 8th Nordic Conference on Construction Economics and Organization

Nordic conferences on Construction Economics and Organization (CEO conferences) have been biennial events for academics and industry people. These events are bringing together experts globally and those particularly from Nordic countries for sharing and learning new knowledge, to meet colleagues, get new connection and to visit/see interesting construction case projects or companies. For academics these conferences are important publishing channels. The accepted double-blind reviewed papers are published using widely recognised academic media.

We are very pleased to introduce 8th CEO conference 28th – 29th May 2015, Tampere Finland. The overall theme of this CEO2015 conference is Leadership for targeted change and proven advancements. The following titles represent key areas for which the conference was planned to contribute.

- Gaining desirable changes in real estate and construction sector
- Change towards sustainable built environment and environmental friendly behaviour

- Processes and methods for realizing change initiatives
- Principles, methods and tools for the management of change in processes and projects
- Learning from change: challenges in change processes
- Change behaviour – methods and models to affect change processes
- Business and operations management under unceasing change
- Built environment, companies and projects as systems.

The CEO2015 conference comprises 79 accepted papers and their presentations. The special issue of Elsevier Procedia Economics and Finance (Volume 21, 8th Nordic Conference on Construction Economics and Organization) includes 76 papers. This publication includes three papers. The editors are grateful to all authors for their valuable efforts.

#### General information

Publication status: Published

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

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: Kähkönen, K. (ed.), Huovinen, P. (ed.), Keinänen, M. (ed.)

Number of pages: 40

Publication date: 2015

#### Publication information

Publisher: Tampere University of Technology. Department of Civil Engineering

ISBN (Electronic): 978-952-15-3534-5

Original language: English

#### Publication series

Name: Tampere University of Technology. Department of Civil Engineering. Construction Management and Economics. Report

Publisher: Tampere University of Technology

Volume: 16

ISSN (Print): 1797-8904

Electronic versions:

ceo\_2015\_proceedings

URLs:

<http://URN.fi/URN:ISBN:978-952-15-3534-5>

#### Bibliographical note

Versio ok 14.12.2015

Research output: Book/Report › Commissioned report › Professional

#### 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

#### Changes in operations when introducing disruptive technologies

Disruptive technologies alter the competitive conditions by proposing new sources of value to the customers and possibly cannibalizing existing offerings. Their implications are frequently discussed from the perspective of markets and competition, whereas changes in the internal operations of manufacturing firms are not sufficiently considered. This study explores changes in the practices and delivery chain cooperation of suppliers, when introducing disruptive technologies. In an embedded case study of two disruptive material technologies, we find support for the cognitive and behavioral aspects of changes and reveal the contingent nature and unique character of technology introduction in the business-to-business context.

#### General information

Publication status: Published

MoE publication type: D3 Professional conference proceedings

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

Contributors: Martinsuo, M., Ahvenniemi, O., Vaittinen, E.

Publication date: 2015

#### Host publication information

Title of host publication: 22nd EurOMA Conference : Operations management for sustainable competitiveness

Place of publication: Switzerland

Publisher: European Operations Management Association

Keywords: operations change, disruptive technology, product innovation

URLs:

<http://www.euroma2015.org/>

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

#### 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

#### **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

#### **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 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

### **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

### **Complexity and Digitalisation of Cities - Challenges for Urban Planning and Design: Conference Proceedings of 13th AESOP Complexity and Planning Thematic Group Meeting 15th-16th January 2015, Tampere, Finland**

#### **General information**

Publication status: Published

MoE publication type: C2 Edited books

Organisations: School of Architecture, Research group: Urban Planning Theory

Contributors: Partanen, J. (ed.)

Number of pages: 226

Publication date: 2015

#### **Publication information**

Publisher: Tampere University of Technology. School of Architecture

ISBN (Electronic): 978-952-15-3711-0

Original language: English

Electronic versions:

AESOP\_PC2015\_PROCEEDINGS

URLs:

<http://urn.fi/URN:ISBN:978-952-15-3711-0>

### **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

### **Concentration and composition gradients of exhaust and non-exhaust particles near a major road**

#### **General information**

Publication status: Published

MoE publication type: D3 Professional conference proceedings

Organisations: Department of Physics, Research area: Aerosol Physics, Helsinki Region Environmental Services Authority (HSY), Department of Environmental Sciences, Helsinki University, Metropolia University of Applied Science, Metropolia University of Applied Sciences, Atmospheric Composition Research, Finnish Meteorological Institute

Contributors: Niemi, J. V., Saarikoski, S., Pirjola, L., Taimisto, P., Pulkkinen, A., Yli-Tuomi, T., Lanki, T., Kousa, A., Enroth, J., Kuuluvainen, H., Rönkkö, T., Hillamo, R.

Publication date: 2015

#### **Host publication information**

Title of host publication: EAC 2015, European Aerosol Conference, 6-11 September, 2015, Milan, Italy

#### **Bibliographical note**

ISBN kysytty, HO.

Ei ole, HO.

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

### **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

#### **Creating sustainable value in manufacturing operations: the role of an external service provider**

Manufacturing companies need to fulfill sustainability requirements in their operations. Previous research has not covered external service providers' sustainability-oriented cooperation with manufacturing firms sufficiently. The purpose is to develop new knowledge on ways to create sustainable value as part of manufacturing operations, particularly in cooperation with an external service provider. We conducted a qualitative study with two companies and mapped the activities in sustainable value creation. The results reveal a strategic approach to sustainable value, creation of sustainability by continuous improvement and development projects, and enhanced sustainable value creation through an industrial symbiosis with the external service provider.

#### **General information**

Publication status: Published

MoE publication type: D3 Professional conference proceedings

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

Contributors: Martinsuo, M., Kivilä, J., Heikkilä, J.

Publication date: 2015

#### **Host publication information**

Title of host publication: 22nd EurOMA Conference : Operations management for sustainable competitiveness

Place of publication: Switzerland

Publisher: European Operations Management Association

Keywords: Sustainability, Manufacturing, Service providers

URLs:

<http://www.euroma2015.org/>

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

#### **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

#### **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

### 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

### 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

### Diesel engine exhaust particle measurements using a particle size magnifier (PSM)

### General information

Publication status: Published

MoE publication type: D3 Professional conference proceedings

Organisations: Department of Physics, Research area: Aerosol Physics, Research group: The Instrumentation, Emissions, and Atmospheric Aerosols Group, Metropolia University of Applied Science, Metropolia University of Applied Sciences, Helsinki University

Contributors: Kuuluvainen, H., Karjalainen, P., Saukko, E., Nousiainen, P., Karhu, T., Pirjola, L., Keskinen, J., Rönkkö, T.

Publication date: 2015

### Host publication information

Title of host publication: EAC 2015, European Aerosol Conference, 6-11 September, 2015, Milan, Italy

### Bibliographical note

ISBN kysytty, HO.

Ei ole, HO.

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

## Different types of non-volatile nanoparticles in off-road diesel engine exhaust

### General information

Publication status: Published

MoE publication type: D3 Professional conference proceedings

Organisations: Department of Physics, Research area: Aerosol Physics, Research group: The Instrumentation, Emissions, and Atmospheric Aerosols Group

Contributors: Kuuluvainen, H., Karjalainen, P., Saukko, E., Nilsson, O., Sirviö, K., Ovaska, T., Niemi, S., Keskinen, J., Rönkkö, T.

Publication date: 2015

### Host publication information

Title of host publication: EAC 2015, European Aerosol Conference, 6-11 September, 2015, Milan, Italy

### Bibliographical note

ISBN kysytty, HO.

Ei ole, HO.

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

## 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., Hiekkanen, 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., Sjomán, 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

### 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

### 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

### 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: Apro, 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 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

### **Emergence of relationship triads in construction project networks**

Research is increasingly addressing attention to project networks, in terms of inter-organizational relationships. Very often, research is focused on customers and contractors at the center of the project networks and their strong dyadic relationships. Less attention has been paid to the non-central actors and triadic relationships, which might have significant role in project delivery and in the construction innovations. This research focuses on the emergence of relationship triad between contractor, supplier and designer. The goal of this research is to identify contractors' motives to engage in triadic relationship, and practices to adopt contractor-supplier-designer triads in the construction project networks. Qualitative, exploratory research strategy is employed in the context of construction project networks, with contractors as adopters of relationship triads. Interviews are conducted with contractors, to discover the specifics of contractor-supplier-designer relationship triads in construction projects. The results indicate that contractors are motivated to enhance their dyadic relationships with suppliers and designer, but they are also motivated and capable to adopt triadic relationships with these actors. The research contributes by showing that relationship triads promote development and innovations in construction projects. As key contributions, this research suggests practices and project conditions through which beneficial relationship triads can be adopted.

#### **General information**

Publication status: Published

MoE publication type: D3 Professional conference proceedings

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

Contributors: Sariola, R.

Number of pages: 13

Pages: 1-13

Publication date: 2015

#### **Host publication information**

Title of host publication: 23rd Nordic Academy of Management conference, NFF, 12-14 August 2015, Copenhagen, Denmark

Place of publication: Copenhagen, Denmark

Publisher: Nordic Academy of Management

### Publication series

Name: Nordic Academy of Management Conference

URLs:

<https://nordicacademy.hi.is/>

URLs:

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

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

### 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

### 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

#### **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

#### **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

### Erosion testing of filled and/or reinforced vinyl ester composites in water medium at elevated temperature

#### General information

Publication status: Published

MoE publication type: D3 Professional conference proceedings

Organisations: Department of Materials Science, Research group: Plastics and Elastomer Technology, Outotec Research Center

Contributors: Siljander, S., Kiviniemi, M., Sarlin, E., Lindgren, M., Suihkonen, R., Vuorinen, J.

Number of pages: 10

Publication date: 2015

#### Host publication information

Title of host publication: Proceedings of the 20th International Conference on Composite Materials

URLs:

<http://iccm20.org/fullpapers/file?f=BJk14rEQqP>

#### Bibliographical note

ISBN kysytty, ei löydy / TL

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

### 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

### **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

### **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

### 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

### 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

### 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

### Gas and particle composition and properties of photochemically aged ship plumes using chemical ionization and aerosol mass spectrometry

#### General information

Publication status: Published  
MoE publication type: D3 Professional conference proceedings  
Organisations: Department of Physics, Research area: Aerosol Physics, University of Gothenburg  
Contributors: Psichoudaki, M., Faxon, C., Kuuluvainen, H., Thomson, E. S., Eriksson, A., Mallqvist, J., Pettersson, J., Hallquist, Å., Kristensson, A., Hallquist, M.  
Publication date: 2015

#### Host publication information

Title of host publication: EAC 2015, European Aerosol Conference, 6-11 September, 2015, Milan, Italy

#### Bibliographical note

ISBN kysytty, HO.  
Ei ole, HO.  
Research output: Chapter in Book/Report/Conference proceeding › Conference contribution › Professional

### 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

### 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

### **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:tyy-201606134234> . Embargo ended: 18/08/16

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

### **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:tyy-201604183810>

<http://www.sciencedirect.com/science/article/pii/S221256711500218X>

Source: RIS

Source ID: urn:16F0384ED693DEFF48B71B73D5740E05

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

### Hiekkatekonurmipintaisten pesäpallokenttien ominaisuuksien muuttuminen ja elinkaari

Tässä tutkimuksessa selvitettiin hiekkatekonurmipintaisten pesäpallokenttien ominaisuuksia (jousto ja pinnan laatu) ja niiden muuttumista verrattuna aikaisempiin vuosina 1993–1997 tehtyihin tutkimuksiin. Tehtävällä tutkimuksella saatu numeerinen tieto hiekkatekonurmen ominaisuuksista on käyttökelpoinen työväline kenttien luokittelussa, käyttöhyväksynnässä ja peruskorjaustarpeen määrittelyssä.

Kentän pinnan jousto-ominaisuudet koostuvat rakennekerrosten joustosta ja hiekkatekonurmipinnan joustosta. Pinnan joustoon vaikuttaa hiekan rakeisuus sekä nukan laatu (nukkatiheys, nukan pituus) ja kunto. Kenttärakenteen jousto-ominaisuuksia mitattiin kannettavalla pudotuspainolaitteella, Loadman II. Laitteen ”tehollinen” mittausvyvyys on n. 200 mm. Vuosina 2013–2014 mitattujen 30 hiekkatekonurmipintaisten pesäpallokentän joustomoduulien (E2) keskiarvo kenttäalueelta Loadmanilla (10 kg paino,  $\varnothing$  132 mm kuormituslevy) mitattuna oli 100,8 MPa. Aikaisemmassa tutkimuksessa pesäpallokentiltä vuosina 1994–1995 mitattujen kymmenen uuden kentän joustomoduulien (E2) keskiarvo kenttäalueelta oli 85,9 MPa ja vuosina 2013–2014 tehdyissä mittauksissa samojen kenttien keskiarvo oli 110,2 MPa. Vuonna 1996 mitattujen 26 kentän joustomoduulien (E2) keskiarvo kenttäalueelta oli 97,3 MPa. Tällöin kentät olivat mittaushetkellä uusia tai keskimäärin 1...3 vuoden ikäisiä poikkeuksena Ikaalisten, Oulun vanha ja Seinäjoen kentät, jotka silloin mitattiin 5...8 vuoden ikäisinä. Uuden kentän joustomoduuli on pienempi kuin vuoden käytössä olleen kentän, koska rakenteet ja etenkin nukan lomassa oleva täyttöhiekka tiivistyy sään ja kuormituksen vaikutuksesta. Myöhemmin kentän jousto-ominaisuudet eivät merkittävästi muutu. Uusi kenttä koetaan myös pelaajien mielestä usein pehmeäksi.

Pesäpallossa kovasta kentästä (korkea joustomoduuliarvo) on hyötyä pelillisesti pallon pomppaamisen ja vierinnän kannalta. Toisaalta kova kenttä lisää lihaksille ja nivelille tulevia kuormituksia. Joukkueiden lääkäreille tehdyn, pelaajien jalkoihin kohdistuvia vammoja koskevan kyselyn katsottiin antavan suuntaa pesäpallokentällä tapahtuvista vammoista. Pienimuotoisen kyselytutkimuksen mukaan pelaajalla esiintyviin jalka-vammoihin kentän ominaisuudet eivät juuri vaikuta. Yksi joukkueen lääkäri arvioi, että nilkan nyrjähdyskentän ominaisuuksilla saattaa olla oma vaikutuksensa.

Pelaajayhdistyksen kautta tehtyyn kyselyyn kenttien pelillisistä ominaisuuksista saatiin pelaajilta ainoastaan 12 vastausta. Yleisvaikutelmana oli, että kentät koettiin pääsääntöisesti joustoltaan sopiviksi. Uutta kenttää pidettiin kuitenkin pehmeänä. Kentät olivat pidoltaan vähintään tyydyttäviä. Pelaajat katsoivat kentän tasaisuuden ja oikean hiekkamäärän olevan

tärkeitä tekijöitä pallon liikkeen ennakoitavuuden kannalta. Sopiva tekonurmen hiekan täyttöaste on sellainen, että nukkaa näkyy noin 1...3 mm.

Pelialueella (etukenttä, takakenttä) nukan kulumisen on mittaustulosten mukaan keskimäärin 0,1...0,4 mm/vuosi. Kentän käytetyimmillä alueilla (pesät) nukan kulumisen voidaan mittausten mukaan arvioida olevan enintään 0,7 mm/vuosi. Muualla kovan kulutuksen alueella, kuten lyöjän pelipaikalla, nukka voi kuitenkin kulua puhki jo yhden pelikauden aikana. Riittävä nukan hiekkatäyttö pitää nukan pystyssä. Vajaatäyttöisessä tekonurmessa nukka taittuu. Taittunut, laossa oleva nukka hiertyy ja menee poikki herkemmin kuin pystyssä oleva nukka. Kentällä on huolehdittava tarpeellisesta hiekan lisäyksestä (oikea hiekkamäärä) ja hoidosta.

Hoitamalla hiekkatekonurmea harjauksella ja tarvittaessa imulaitteella pidetään te-konurmen täyttöhiekkä ilmavana (irttonaisena) ja nukka pystyssä, jolloin maksimoidaan sen hoitomahdollisuudet ja käyttöikä. Hyvällä hoidolla hiekkatekonurmipintainen pesäpallokenttä on tämän tutkimuksen mukaan käyttökelpoinen yli 20 vuotta. Tämän jälkeenkin vanhaa hiekkatekonurmea voidaan käyttää erilaisissa liikuntapaikoissa, kuten esimerkiksi erilaisilla pienpelikentillä.

### General information

Publication status: Published

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

Organisations: Department of Civil Engineering, Research group: Earth Constructions

Contributors: Jäniskangas, T.

Number of pages: 45

Publication date: 2015

### Publication information

Publisher: Tampereen teknillinen yliopisto. Rakennustekniikan laitos

ISBN (Print): 978-952-15-3512-3

ISBN (Electronic): 978-952-15-3513-0

Original language: Finnish

### Publication series

Name: Tampereen teknillinen yliopisto. Rakennustekniikan laitos. Maa- ja pohjarakenteet. Tutkimusraportti

Publisher: Tampereen teknillinen yliopisto

Volume: 80

ISSN (Print): 1799-1684

Electronic versions:

janiskangas\_hiekkatekonurmipintaisten\_pesapallokenttien\_ominaisuuksien\_muuttuminen\_ja\_elinkaari

URLs:

<http://URN.fi/URN:ISBN:978-952-15-3513-0>

### Bibliographical note

Versio ok 14.12.2015

Research output: Book/Report > Commissioned report > Professional

### 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

siirretään 2015<br/>Contribution: organisation=mol,FACT1=1<br/>Portfolio EDEND: 2015-01-13<br/>publication\_forum:72540  
Source: researchoutputwizard  
Source ID: 8  
Research output: Chapter in Book/Report/Conference proceeding › Conference contribution › Scientific › peer-review

### HKPro3 - Valtion tukemien homekorjaushankkeiden arviointi: Jatkotutkimus

#### General information

Publication status: Published  
MoE publication type: D4 Published development or research report or study  
Organisations: Department of Civil Engineering, Research group: Service Life Engineering of Structures  
Contributors: Marttila, T., Annala, P., Kero, P., Suonketo, J., Heino, S., Pentti, M.  
Number of pages: 68  
Publication date: 2015

#### Publication information

Publisher: Tampereen teknillinen yliopisto, rakennustekniikan laitos, rakennustekniikka  
ISBN (Electronic): 978-952-15-3659-5  
Original language: Finnish

#### Publication series

Name: Tampereen teknillinen yliopisto. Rakennustekniikan laitos. Rakennetekniikka; Tutkimusraportti  
Publisher: Tampereen teknillinen yliopisto, rakennustekniikan laitos, rakennustekniikka  
Volume: 163  
ISSN (Print): 1797-9161  
Electronic versions:  
hkpro3\_loppuraportti  
URLs:  
<http://URN.fi/URN:ISBN:978-952-15-3659-5>

#### Bibliographical note

pdf ok 11.1.2016 KK  
Research output: Book/Report › Commissioned report › Professional

### 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

### 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

## 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 the potential of performance measurement in supporting strategic purchasing and supply chain management

Purchasing and supply management (PSM) is increasingly important part of the success of companies.

Many potential benefits have been identified for PSM performance measurement. However, it appears that the potential is not always realized and that the research around the topic is limited and dated. PSM takes increasingly strategic role in companies as an addition to the earlier transaction-oriented role. This study takes a strategic approach to purchasing highlighting long-term value-creation between purchaser and provider network. It aims at identifying the topical challenges and potential solutions regarding performance measurement with the chosen focus and context. The paper is based on a literature review and analysis, augmented by a survey study in four large Finnish industrial companies (2 service and 2 manufacturing companies). It appears that valuable basic research has been carried out in several relevant areas of this study. However, empirical studies testing and further elaborating the presented frameworks and conceptual ideas are hard to find. There also seems to be a certain level of mismatch between the academic ideal and the prevailing situation and challenges in practice.

### 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: Jääskeläinen, A., Heikkilä, J., Thitz, O.

Number of pages: 21

Pages: 1-21

Publication date: 2015

### Host publication information

Title of host publication: 8th conference on performance measurement and management control

Place of publication: Nice, France

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

### Publication series

Name: Conference on Performance Measurement and Management Control

ISSN (Electronic): 2295-1660

URLs:

[http://www.eiasm.org/frontoffice/event\\_announcement.asp?event\\_id=1035#4212](http://www.eiasm.org/frontoffice/event_announcement.asp?event_id=1035#4212)

### Bibliographical note

Artikkeli julkaistu verkossa, tarvitaan käyttäjätunnus ja salasana.

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

## Impedanssipneumografia pienten lasten alahengitytiesoireiden selvittelyssä

### General information

Publication status: Published

MoE publication type: D2 Article in professional manuals or guides or professional information systems or text book material

Organisations: Department of Electronics and Communications Engineering, Research group: Physiological Measurement Systems and Methods Group

Contributors: Seppä, V., Pelkonen, A. S., Kotaniemi-Syrjänen, A., Viik, J., Mäkelä, M. J., Malmberg, P.  
Publication date: 2015

#### Host publication information

Title of host publication: Allergiatutkimussäätiön vuosikirja 2015

#### Publication series

Name: Allergiakoulu

Publisher: Allergiatutkimussäätiö

ISSN (Print): 1457-2508

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

### 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., Sörensen, 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

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

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

#### General information

Publication status: Published

MoE publication type: D3 Professional conference proceedings

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

Contributors: Vuorinen, L., Sariola, R.

Number of pages: 17

Pages: 1

Publication date: 2015

#### Host publication information

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

Place of publication: London, U.K.

URLs:

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

### **Bibliographical note**

Sariola vastannut: ei isbn

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

### **Improving Recovery Boiler Availability through Understanding Fume Behavior**

Unexpected recovery boiler shutdowns are rare, but they can cost millions of dollars in lost income. Sometimes the inorganic compounds in black liquor can cause sudden fouling or plugging problems that could not be predicted beforehand. The ash particles can be divided into two main types and size classes: carryover and fume. This paper focuses on the smaller fume particles that form through the condensation of alkali metal vapors, and that deposit via different mechanisms than carryover. The location of fume deposition depends on several factors, such as flue gas and superheater temperatures, black liquor composition, and the flow field in the boiler.

This paper presents results obtained with a computational method that simulates fume formation in recovery boilers. The results in this paper focus on the effect of black liquor composition and elemental release on fume behavior, and the paper suggests how these observations should be taken into account when designing new boilers or retrofits. Moreover, the paper introduces the possible applications of the modeling method. These include, for example, troubleshooting of fouling problems in existing boilers, designing superheater configurations for new boilers, and positioning soot blowers.

### **General information**

Publication status: Published

MoE publication type: D3 Professional conference proceedings

Organisations: Department of Chemistry and Bioengineering, Research group: Power Plant and Combustion Technology, Valmet Technologies Oy

Contributors: Leppänen, A., Välimäki, E.

Number of pages: 11

Publication date: 2015

### **Host publication information**

Title of host publication: TAPPI PEERS Conference Proceedings, October 25-28, 2015

Place of publication: Atlanta, Georgia

Publisher: TAPPI

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

### **Incoherent Broadband Cavity Enhanced Absorption Spectroscopy Using a Supercontinuum Source in the Mid-IR**

### **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, Frontier Photonics

Contributors: Amiot, C. G., Aalto, A., Toivonen, J., Genty, G.

Number of pages: 2

Publication date: 2015

### **Host publication information**

Title of host publication: Laser Science 2015 : Proceedings Frontiers in Optics 2015

Article number: JTU4A-80

ISBN (Electronic): 978-1-943580-03-3

DOIs:

10.1364/FIO.2015.JTU4A.80

Source: Bibtex

Source ID: urn:0317892665660f6764692e18288f7f3d

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

### **Incoherent Broadband Cavity Enhanced Absorption Spectroscopy with a Supercontinuum Source**

### **General information**

Publication status: Published

MoE publication type: A4 Article in a conference publication

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

Contributors: Amiot, C., Aalto, A., Genty, G., Toivonen, J.

Pages: CH\_P\_16  
Publication date: 2015

#### Host publication information

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

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\\_16](http://www.osapublishing.org/abstract.cfm?URI=CLEO_Europe-2015-CH_P_16)

Source: Bibtex

Source ID: urn:c56367a4bf927ab34e30bddeb94639e4

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

### Increasing Employee Involvement in Socially Sustainable Manufacturing: Two Methods for Capturing Employees' Tacit Knowledge to Improve Manufacturing Processes

#### General information

Publication status: Published

MoE publication type: A4 Article in a conference publication

Organisations: Department of Mechanical Engineering and Industrial Systems, Research area: Design, Development and LCM, Research area: Engineering Intelligence, Research area: Manufacturing and Automation

Contributors: Kopra, M., Halonen, N., Järvenpää, E., Lanz, M.

Number of pages: 8

Pages: 539-546

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

DOIs:

10.1007/978-3-319-22759-7\_62

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

### Infant respiration and heart rate monitoring with EMFi sensor

#### General information

Publication status: Published

MoE publication type: A4 Article in a conference publication

Organisations: Department of Automation Science and Engineering, Research area: Microsystems, Research area: Measurement Technology and Process Control, Integrated Technologies for Tissue Engineering Research (ITTE)

Contributors: Rajala, S., Lekkala, J.

Number of pages: 5

Publication date: 2015

#### Host publication information

Title of host publication: IMEKO XXI World Congress, Proceedings, August 30 - September 4, 2015, Prague, Czech Republic

Editor: Holub, J.

ISBN (Electronic): 978-80-01-05793-3

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

### Infinitesimals and Pavelka logic

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

### General information

Publication status: Published

MoE publication type: A4 Article in a conference publication

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

Contributors: Turunen, E., Navara, M.

Number of pages: 7

Pages: 1027-1033

Publication date: 2015

### Host publication information

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

Place of publication: PARIS

Publisher: Atlantis Press

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

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

### Publication series

Name: Advances in Intelligent Systems Research

Publisher: ATLANTIS PRESS

Volume: 89

ISSN (Print): 1951-6851

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

DOIs:

10.2991/ifsa-eusflat-15.2015.145

Source: WOS

Source ID: 000358581100145

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

### 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

### Internet of Things, Smart Spaces, and Next Generation Networks and Systems: 15th International Conference, NEW2AN 2015, and 8th Conference, ruSMART 2015, St. Petersburg, Russia, August 26-28, 2015, Proceedings

#### General information

Publication status: Published

MoE publication type: C2 Edited books

Organisations: Department of Electronics and Communications Engineering, Research group: Emerging Technologies for Nano-Bio-Info-Cogno, Wireless Communications and Positioning (WICO)

Contributors: Balandin, S. (ed.), Andreev, S. (ed.), Koucheryavy, Y. (ed.)

Publication date: 2015

### Publication information

Publisher: Springer International Publishing  
ISBN (Print): 978-3-319-23125-9  
ISBN (Electronic): 978-3-319-23126-6  
Original language: English

### Publication series

Name: Lecture Notes in Computer Science  
Volume: 9247  
ISSN (Print): 0302-9743  
DOIs:  
10.1007/978-3-319-23126-6

### Bibliographical note

JUF0ID=62555  
Research output: Book/Report > Anthology > 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  
No.: 12  
ISSN (Print): 2342-6594  
ISSN (Electronic): 2342-6608  
URLs:  
[https://www.eduskunta.fi/FI/tietoaeduskunnasta/julkaisut/Documents/tuvj\\_12+2014.pdf](https://www.eduskunta.fi/FI/tietoaeduskunnasta/julkaisut/Documents/tuvj_12+2014.pdf)

### Bibliographical note

AUX=pla,"Lilja, Kari"  
Research output: Chapter in Book/Report/Conference proceeding > Chapter > Scientific > peer-review

## 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

## 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

## Kiviaines- ja luonnonkiviteollisuuden kehitysnäkymät

### General information

Publication status: Published  
MoE publication type: D4 Published development or research report or study  
Organisations: Department of Civil Engineering, Research group: Track Structures, Työ- ja elinkeinoministeriö, Infra ry, Suomen ympäristökeskus SYKE - Finnish Environment Institute, Kiviteollisuusliitto ry, Geologian tutkimuskeskus, Aalto University, Geological Survey of Finland  
Contributors: Loukola-Ruskeeniemi, K. (ed.), Lonka, H. (ed.), Ehrukainen, E., Gustafsson, J., Honkanen, M., Härmä, P., Jauhiainen, P., Kuula, P., Nenonen, K., Pellinen, T., Rintala, J., Selonen, O., Martikainen, M., Aalto, M.  
Number of pages: 72  
Publication date: 2015

### Publication information

Place of publication: Helsinki  
Publisher: Työ- ja elinkeinoministeriö  
Volume: 2015  
ISBN (Print): 978-952-327-047-3  
ISBN (Electronic): 978-952-327-048-0  
Original language: Finnish

### Publication series

Name: Työ- ja elinkeinoministeriön julkaisuja  
Publisher: Työ- ja elinkeinoministeriö  
Volume: 2015  
No.: 54  
ISSN (Print): 1797-3554  
ISSN (Electronic): 1797-3562  
URLs:  
[https://www.tem.fi/files/44123/TEMjul\\_54\\_2015\\_web\\_28102015.pdf](https://www.tem.fi/files/44123/TEMjul_54_2015_web_28102015.pdf)  
Research output: Book/Report › Commissioned report › Professional

## 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

### 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

### 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

### **Leveraging concepts for environmentally sustainable business management in construction - a focused review**

The main objective of this paper is to advance applied conceptual knowledge about environmentally sustainable business management (BM) in construction. Environmentally sustainable BM is herein defined to encompass the utilization and development of natural resources in ways which are compatible with the maintenance of these resources, and with the conservation of the natural and built environments, for current and future generations. In principle, concept designers can incorporate environmental sustainability into their BM concepts as a dimension, an element, or an attribute of managing, or as a criterion in decision making. Readily, the 71 construction-related BM concepts have been published between 1990 and 2013. A focused review resulted in the expected findings, i.e., only the 11 (15%) construction-related BM concepts have been designed along the environmental sustainability dimension. Thus, it is posited that high-sustainability BM concepts be designed by coupling environmental sustainability with the three other necessary dimensions, i.e., content-free frames of reference on BM, schools of thought on generic BM, and focal contexts in construction, respectively. In turn, CIB-related researchers may adopt these couplings and engage themselves with cross-disciplinary BM conceptualization programs in collaboration with farsighted business managers in construction.

#### **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: Huovinen, P.

Number of pages: 11

Pages: 286-296

Publication date: 2015

#### **Host publication information**

Title of host publication: CIB Proceedings 2015 : Going North for Sustainability: Leveraging Knowledge and Innovation for Sustainable Construction and Development

Place of publication: London, UK

Publisher: IBEA Publications Ltd

Editor: Egbu , C.

ISBN (Print): 978-1-326-47951-0

ASJC Scopus subject areas: Building and Construction

Keywords: business management, concept design, construction, environmental sustainability, research review

Electronic versions:

CIB 2015 Huovinen Pekka Leveraging environmentally sustainable BM concepts 121115

URLs:

<http://urn.fi/URN:NBN:fi:tyy-201701101042>

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

### **Liikuntapalveluiden ulkoistaminen ja palveluiden turvallisuus. Nykytilanne ja kuntien kokemukset – Loppuraportti**

#### **General information**

Publication status: Published

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

Organisations: Department of Industrial Management, Research group: Safety Management and Engineering

Contributors: Hyytinen, T., Kivistö-Rahnasto, J.

Number of pages: 27

Publication date: 2015

#### **Publication information**

Place of publication: Helsinki

Publisher: OPETUS- JA KULTTUURIMINISTERIÖ

ISBN (Electronic): 978-952-263-342-2

Original language: Finnish

#### **Publication series**

Name: Opetus- ja kulttuuriministeriön julkaisuja

ISSN (Electronic): 1799-0351

URLs:

<http://www.minedu.fi/export/sites/default/OPM/Julkaisut/2015/liitteet/okm9.pdf?lang=fi>

Research output: Book/Report > Commissioned report > Professional

### **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

#### LTE Performance Analysis Using Queuing Systems with Finite Resources and Random Requirements

Heavy traffic load in current LTE networks calls for effective radio resource allocation methods and tools for performance evaluation. In this work, we provide an analytical framework for LTE resource allocation in terms of queuing theory. We consider a multiservice queuing system with a finite amount of resources of several types, and allow the customers occupy a random amount of resources upon their arrival. Random resource requirements lead to more accurate performance evaluation compared to conventional multiservice models. For the considered model, we prove that the stationary probability distribution has a multiplicative form. Our findings are illustrated with a numerical example.

#### General information

Publication status: Published

MoE publication type: A4 Article in a conference publication

Organisations: Department of Electronics and Communications Engineering, Research group: Emerging Technologies for Nano-Bio-Info-Cogno

Contributors: Naumov, V., Samouylov, K., Yarkina, N., Sopin, E., Andreev, S., Samuylov, A.

Number of pages: 4

Pages: 100-103

Publication date: 2015

#### Host publication information

Title of host publication: 2015 7th International Congress on Ultra Modern Telecommunications and Control Systems and Workshops (ICUMT)

Publisher: IEEE

ISBN (Print): 978-1-4673-9282-2

DOIs:

10.1109/ICUMT.2015.7382412

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

#### 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](#)

### Managing Cultural Knowledge in Project Execution

The purpose of this study was to explore the factors through which the project implementation phase could be enhanced by cultural knowledge. The importance of studying this subject is that the exploitation of cultural knowledge (Hofstede & Hofstede 2005, Schwartz 1999, Ng et al. 2006, Hall 1976, Lewis 2006) and competence (Koskinen 2001) is still limited in the constantly increasing project-based business (Turner 1999, Arto et al. 2011, PMBOK 2004) in the international field. Two objectives exist in this study: understanding project complexity through the main challenges in project implementation and evaluating the impacts of the cultural factors behind them. We propose the multiple case study approach (Eisenhard & Graebner 2007, Yin 2014). The prominence of cultural knowledge in project implementation is difficult to determine, so the research design has exploratory features. Case project A was implemented in Sub-Saharan Africa and Case project B in the Near East. Interviewed managers worked either from distance and only visited the target country periodically or represented the perspective of an operational level manager working in the host country. The main cultural challenges that occurred in the projects are defined by these interviewees. This methodology gives evidence of the main challenges in the two case projects and clarifies the multiplicity of cultural issues in the project context. The importance of the subject was highlighted and the interviewed managers demonstrated that cultural knowledge can offer benefits. Numerous studies exist concerning the challenges in the project business (Deresky 2014, Turner 1999). The outcomes of the research stressed the uniqueness of projects and the situational need for cultural knowledge. The results highlighted the pervasive nature of culture in the international playing field. Companies are obliged to adjust their operations according to environments with multifaceted requirements. National cultures not only prevail within the borders of geographical areas, but are also reflected in company procedures. Therefore, their overall impact needs to be considered in international projects.

### 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: Aramo-Immonen, H., Hietaoja, H., Jussila, J. J., Ammirato, S.  
Number of pages: 12  
Pages: 1085-1096  
Publication date: 2015

### Host publication information

Title of host publication: 10th International Forum on Knowledge Asset Dynamics, IFKAD 2015, Bari, Italy : Culture, Innovation and Entrepreneurship: connecting the knowledge dots  
Volume: 10  
Place of publication: Bary  
Publisher: IKAM Centro Studi & Ricerche  
ISBN (Electronic): 978-88-96687-07-9  
Keywords: Project management, Cultural Knowledge, Project execution, Developing country, Multicultural projects

### **Bibliographical note**

ORG=pla,0.5

ORG=tlo,0.5

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

### **Managing software engineering competences with domain ontology for customer and team profiling and training**

#### **General information**

Publication status: Published

MoE publication type: A4 Article in a conference publication

Organisations: Pori Department, Research group: Software Engineering and Intelligent Systems, Tallinn University of Technology, Tallinn, Estonia

Contributors: Robal, T., Ojastu, D., Kalja, A., Jaakkola, H.

Number of pages: 7

Pages: 1369 - 1376

Publication date: 2015

#### **Host publication information**

Title of host publication: PICMET '15 : Proceedings, Management of the Technology Age, August 2 - 6, 2015

Place of publication: Portland, Oregon, USA

Publisher: PICMET

Editor: Kocaoglu, D.

ISBN (Electronic): 978-1-890843-32-8

DOIs:

10.1109/PICMET.2015.7273171

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

### **Measurement of the Temporal Coherence of Supercontinuum Light**

We experimentally measure, for the first time, the second-order temporal coherence of supercontinuum pulses from the time-resolved interference fringes observed at the output of a Michelson interferometer using cross-correlation frequency-resolved optical gating.

#### **General information**

Publication status: Published

MoE publication type: A4 Article in a conference publication

Organisations: Department of Physics, Research area: Optics, Research group: Nonlinear Fiber Optics, Institute of Photonics, Institut FEMTO-ST, Université de Franche-Comté, Institut FEMTO-ST, UMR 6174 CNRS-Université de Franche-Comté

Contributors: Närhi, M., Genty, G., Amiot, C., Dutta, R., Friberg, A. T., Dudley, J. M., Turunen, J.

Publication date: 2015

#### **Host publication information**

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

Publisher: OSA

Article number: EE\_3\_1

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

Keywords: supercontinuum, coherence

URLs:

[https://www.osapublishing.org/abstract.cfm?uri=EQEC-2015-EE\\_3\\_1](https://www.osapublishing.org/abstract.cfm?uri=EQEC-2015-EE_3_1)

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

### **Measurements of particulates and gas phase precursors emissions from fresh ship plumes during the Big Glenn 2014 Campaign**

#### **General information**

Publication status: Published

MoE publication type: D3 Professional conference proceedings

Organisations: Department of Physics, Research area: Aerosol Physics, University of Gothenburg

Contributors: Kuuluvainen, H., Faxon, C., Psichoudaki, M., Thomson, E. S., Eriksson, A., Kristensson, A., Svenningsson, B., Mellqvist, J., Salo, K., Hallquist, M.

Publication date: 2015

#### **Host publication information**

Title of host publication: EAC 2015, European Aerosol Conference, 6-11 September, 2015, Milan, Italy

#### **Bibliographical note**

ISBN kysytty, HO.

Ei ole, HO.

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

#### **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

#### **Mezhdunarodnaya konferencia po pozicionirovaniyu i navigacii vnutri pomeshhenij**

##### **General information**

Publication status: Published

MoE publication type: B1 Article in a scientific magazine

Organisations: Department of Automation Science and Engineering, Research area: Dynamic Systems, Research group:

Positioning

Contributors: Piche, R. A.

Pages: 122-124

Publication date: 2015

Peer-reviewed: No

##### **Publication information**

Journal: Giroskopiya I Navigatsiya

Volume: 88

Issue number: 1

ISSN (Print): 0869-7035

Original language: Russian

#### **Bibliographical note**

xoa ei tarkistettu

Research output: Contribution to journal › Article › Scientific

#### **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

### Monolithic GaInNAsSb/GaAs VECSEL emitting at 1550 nm

We report the first monolithic GaAs-based vertical external-cavity surface-emitting laser (VECSEL) operating at 1550 nm. The VECSEL is based on a gain mirror which was grown by plasma-assisted molecular beam epitaxy and comprises 8 GaInNAsSb/GaAs quantum wells and an AlAs/GaAs distributed Bragg reflector. When pumped by an 808 nm diode laser, the laser exhibited an output power of 80 mW for a mount temperature of 16 °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, Frontier Photonics

Contributors: Korpijärvi, V., Kantola, E. L., Leinonen, T., Guina, M.

Publication date: 2015

### Host publication information

Title of host publication: SPIE conference proceedings

Volume: 9349

Publisher: SPIE

Article number: 93490D

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: dilute nitride, diode-pumped lasers, GaInNAsSb, semiconductor disk lasers, Semiconductor lasers, vertical external cavity surface emitting lasers

DOIs:

10.1117/12.2077517

Source: Scopus

Source ID: 84925652903

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

### New mechanistic design approach for subgrade rutting of Low Volume Roads

Until recently very few mechanistic design approaches for Low Volume Road (LVR) structures have been available, which is why they have been mostly built based on local experience and traditions. This paper describes a new mechanistic design approach intended for assessing the risk of subgrade rutting of LVRs. It is based essentially on 3D Finite Element Modelling of LVR structures, but the final results of these fairly sophisticated analyses have also been compiled into

simple analytical design equations so as to make implementation of the design approach easy enough for everyday practical applications. The description of the theoretical approach is illustrated by a few application examples.

#### **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, Life Cycle Effectiveness of the Built Environment (LCE@BE)

Contributors: Kolisoja, P., Kalliainen, A., Vuorimies, N.

Number of pages: 6

Pages: 301-306

Publication date: 2015

#### **Host publication information**

Title of host publication: XVI ECSMGE 2015, 13-17 September 2015 - Edinburgh : Geotechnical engineering for infrastructure and development

ISBN (Print): 978-0-7277-6067-8

Electronic versions:

XVI-ECSMGE-Paper-0561-Kolisoja\_et\_al

URLs:

<http://urn.fi/URN:NBN:fi:tty-201705121386>

URLs:

<http://xvi-ecsmge-2015.org.uk/>

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

### **New routes from cellulose to textile fiber and ready products**

#### **General information**

Publication status: Published

MoE publication type: A4 Article in a conference publication

Organisations: Department of Materials Science, Research group: Fibre Materials, Aalto University, VTT Tech Res Ctr Finland, VTT Technical Research Center Finland

Contributors: Nousiainen, P., Rissanen, M., Michud, A., Sixta, H., Hummel, M., Setälä, H.

Publication date: 2015

#### **Host publication information**

Title of host publication: Proceedings of 15th AUTEX World Textile Conference, June 10-12, 2015, Bucharest, Romania

ISBN (Print): 9786066852760

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

### **New tools to help in the recruitment process**

#### **General information**

Publication status: Published

MoE publication type: A4 Article in a conference publication

Organisations: Department of Signal Processing, Research area: Information Technology for Biology and Health, Research area: Intelligence in Machines, Research group: MMDM, Research area: Signal and Information Processing, Pori Department

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

Number of pages: 7

Pages: 653-659

Publication date: 2015

#### **Host publication information**

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

Publisher: Elsevier

#### **Publication series**

Name: Procedia Manufacturing

Volume: 3

ISSN (Print): 2351-9789

DOIs:

10.1016/j.promfg.2015.07.297

### **Bibliographical note**

ORG=sgn,0.5

ORG=pla,0.5

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

### **Non-Instantaneous Polarization Dynamics in Resonant Dielectrics**

#### **General information**

Publication status: Published

MoE publication type: A4 Article in a conference publication

Organisations: Optoelectronics Research Centre

Contributors: Hyyti, J., Hofmann, M., Birkholz, S., Bock, M., Das, S. K., Grunwald, R., Hoffmann, M., Nagy, T., Demircan, A., Jupé, M., Ristau, D., Morgner, U., Brée, C., Woerner, M., Elsaesser, T., Steinmeyer, G.

Publication date: 2015

#### **Host publication information**

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

Place of publication: Washington, D.C.

Publisher: Optical Society of America

Article number: EE\_5b\_2

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

URLs:

[http://www.osapublishing.org/abstract.cfm?URI=EQEC-2015-EE\\_5b\\_2](http://www.osapublishing.org/abstract.cfm?URI=EQEC-2015-EE_5b_2)

Source: Bibtex

Source ID: urn:11581f3548cd9222d9ce827d8dba37e4

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

### **Novel Method For Online Stereo Self-Calibration**

#### **General information**

Publication status: Published

MoE publication type: A4 Article in a conference publication

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

Contributors: Melin, J., Ritala, R.

Publication date: 2015

#### **Host publication information**

Title of host publication: XXI IMEKO World Congress "Measurements In Research and Industry"

ISBN (Print): 978-80-01-05793-3

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

### **Numerical modelling of rock fracture with the embedded discontinuity approach incorporating heterogeneity**

In this paper, the embedded discontinuity approach is applied to finite element modeling of rock fracture. A rate-dependent constitutive model based on the embedded displacement discontinuity theory is developed to describe the mode I, mode II and mixed mode fracture of rock in tension and compression. The bulk material is described as linear elastic until reaching the elastic limit. Beyond this limit, a rate-dependent exponential softening law governs the evolution of the embedded displacement jump. The present approach incorporates the rock heterogeneity by random description of the mineral texture of rock. Moreover, the inherent initial microcrack populations of natural rocks are accounted for as randomly oriented embedded discontinuities. Numerical examples demonstrate the model behavior in uniaxial compression and tension. The effect of loading rate and confining pressure is tested as well in 2D numerical simulations. These simulations show that the model captures the main features of rock in confined compression and uniaxial tension. The developed method has the computational efficiency of continuum plasticity models. However, it has an important advantage of accounting for the orientation of introduced microcracks.

#### **General information**

Publication status: Published

MoE publication type: A4 Article in a conference publication

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

Contributors: Saksala, T.

Number of pages: 11

Publication date: 2015

### Host publication information

Title of host publication: ISRM Congress 2015 Proceedings : Innovations in Applied and Theoretical Rock Mechanics

Publisher: International Society for Rock Mechanics ISRM

Article number: 177

ISBN (Electronic): 978-1-926872-25-4

URLs:

<https://security.gibsongroup.ca/isrm/calendar.php> (Click on Fracture Modelling (PART I) Chair: Frederic Pellet & Derek Martin)

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

### On Predicting Video Quality Expectations of Mobile Users

Mobile network operators are currently seeking for simple but accurate methods to predict the levels of satisfaction for their customers using the on-line multimedia applications, such as YouTube. Even though the ultimate user demands are known to be influenced by multiple factors, there is one clear trend - people require an increasingly higher quality of mobile video services. To this end, modeling the corresponding quality of experience (QoE) constitutes a non-trivial task and calls for a careful balance between the key underlying aspects, while maintaining the overall complexity as low as possible. This should in turn deliver the much needed usability of the resulting model across many real-world scenarios, and in this work we develop a novel QoE prediction model based on our extensive user experience investigation of the YouTube service. Our proposed solution allows network operators to estimate the degrees of video quality and thus predict the associated mobile user expectations in their deployments. The design principles behind our methodology, its accuracy evaluation, as well as the obtained numerical results are reported in the course of this paper.

### 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, Brno University of Technology

Contributors: Hosek, J., Kovac, D., Uhlir, D., Galinina, O., Andreev, S., Koucheryavy, Y., Ries, M.

Number of pages: 6

Pages: 110-115

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.2015.7382414

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

### **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

### **Open knowledge-driven manufacturing & logistics - The eScop approach**

#### **General information**

Publication status: Published

MoE publication type: C2 Edited books

Organisations: Department of Automation Science and Engineering, Research group: Factory automation systems technology

Contributors: Strzelczak, S. (ed.), Balda, P. (ed.), Garetti, M. (ed.), Lobov, A. (ed.)

Number of pages: 404

Publication date: 2015

#### **Publication information**

Place of publication: Warsaw, Poland

Publisher: Warsaw University of Technology Publishing House

ISBN (Print): 978-83-7814-440-3

Original language: English

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

### **Optimal operation of a three camera system on a four-wheel robot**

At present the automated moving of a robot is made possible by a complete measurement system including GPS, laser scanners, radars and static cameras. Such approach is reliable but rather expensive. In this paper the optimal operation of a three camera system on a four-wheel robot is studied. The benefit of the dynamic camera system over the complete static measurement system is the reasonable price and the possibility to focus at certain directions.

#### **General information**

Publication status: Published

MoE publication type: A4 Article in a conference publication

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

Contributors: Raunio, J., Ritala, R., Välimäki, T.

Pages: 968-973

Publication date: 2015

### Host publication information

Title of host publication: IMEKO XXI World Congress, Fundamental and Applied Metrology, Proceedings, August 31-September 4, 2015, Prague, Czech Republic  
ISBN (Print): 978-80-01-05793-3

### Bibliographical note

Contribution: organisation=ase ,FACT1=1

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

### 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

### Photometric stereo system for detailed analysis of material surfaces

This paper describes a photometric stereo system for the measurement of surface topography. The system provides versatile experimental possibilities due to movable multicolor LEDs, movable camera, and a traveling (xy-)table for the sample. We introduce our measurement setup and present analysis of its performance. Our topography maps correlate well with the contact profilometry reference map, and reveal different details of the surfaces depending on the illumination wavelength and pixel size.

### General information

Publication status: Published

MoE publication type: A4 Article in a conference publication

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

Contributors: Mettänen, M., Melin, J., Ihalainen, H.

Number of pages: 6

Publication date: 2015

### Host publication information

Title of host publication: IMEKO XXI World Congress, Measurement in Research and Industry, Proceedings, August 30 - September 4, 2015, Prague, Czech Republic  
ISBN (Print): 978-80-01-05793-3  
Electronic versions:

Mettanen\_IMEKO\_2015\_preprint

URLs:

<http://urn.fi/URN:NBN:fi:tty-201705121384>

<https://www.imeko.org/publications/wc-2015/IMEKO-WC-2015-TC2-022.pdf>

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

## Physical and chemical properties of real exhaust particle emissions from city buses

### General information

Publication status: Published

MoE publication type: D3 Professional conference proceedings

Organisations: Department of Physics, Research area: Aerosol Physics, Metropolia University of Applied Science, Metropolia University of Applied Sciences, Helsinki University, Helsinki Region Environmental Services Authority (HSY), Department of Environmental Sciences, Atmospheric Composition Research, Finnish Meteorological Institute

Contributors: Pirjola, L., Dittrich, A., Niemi, J. V., Saarikoski, S., Malinen, A., Kuuluvainen, H., Wihersaari, H., Timonen, H., Kousa, A., Rönkkö, T., Hillamo, R.

Publication date: 2015

### Host publication information

Title of host publication: EAC 2015, European Aerosol Conference, 6-11 September, 2015, Milan, Italy

### Bibliographical note

AUX=fys,"Wihersaari, Hugo"

Ei ISBN-numeroa

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

## Piezoelectric sensitivity measurements of cellulose nanofibril sensors

Piezoelectric sensitivity of cellulose nanofibril (CNF) film sensors was measured using a mechanical shaker and charge amplifier setup. In-house fabricated CNF

film sensors showed 5-7 pC/N sensitivity in ambient conditions. The CNF film used here contained randomly oriented fibrils, and the piezoelectric response is expected to increase remarkably after film polarization and fibril alignment. The results obtained in this study suggest that nanocellulose film is a suitable sensor material for applications in various fields such as material sciences, electronics and biomedical diagnostics.

### General information

Publication status: Published

MoE publication type: A4 Article in a conference publication

Organisations: Department of Automation Science and Engineering, Research area: Microsystems, Research area: Measurement Technology and Process Control, Integrated Technologies for Tissue Engineering Research (ITTE), Aalto Univ, Aalto University, Sch Chem Technol, Dept Forest Prod Technol, Aalto University

Contributors: Rajala, S., Vuoriluoto, M., Rojas, O., Franssila, S., Tuukkanen, S.

Number of pages: 5

Publication date: 2015

### Host publication information

Title of host publication: IMEKO XXI World Congress, Proceedings, August 30 - September 4, 2015, Prague, Czech Republic

Editor: Holub, J.

ISBN (Electronic): 978-80-01-05793-3

### Bibliographical note

xoa ei tarkistettu

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

## 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

#### Potentials of web standards for automation control in manufacturing systems

Web standards developed mainly by W3C and OASIS shape general IT domain and its applications. Due to the scale of web applications, the web standards have matured to deal with the typical situations of finding the right node on the network, reconfiguring the routing for messaging, using common standards for representing graphical information and many others. Industrial manufacturing can benefit from the web standards due to the interoperability and simplified application integration. This article reviews the current use of web standards in the industrial automation domain. In addition, the manuscript describes and discusses the potentials of using web standards at all the levels of automation system: from high level web-based user interfaces to the industrial controllers, which are located in the lowest layer of the well known automation pyramid. Aligned with such description, the article presents a framework for Open, Knowledge Driven Manufacturing Execution Systems (OKD-MES), which allows using systematically web standards and technologies in factories

#### General information

Publication status: Published  
MoE publication type: A4 Article in a conference publication  
Organisations: Department of Automation Science and Engineering, Research group: Factory automation systems technology, Research area: Manufacturing and Automation  
Contributors: Borja Ramis, F., Iarovy, S., Lobov, A., Martinez Lastra, J. L.  
Number of pages: 8  
Pages: 359-366  
Publication date: 2015

#### Host publication information

Title of host publication: 2015 IEEE European Modelling Symposium  
ISBN (Print): 978-1-5090-0206-1  
DOIs:  
10.1109/EMS.2015.59  
Research output: Chapter in Book/Report/Conference proceeding › Conference contribution › Scientific › peer-review

#### Power and wavelength scaling using semiconductor disk laser - bismuth fiber MOPA systems

We present a master oscillator power amplifier (MOPA) system that comprises a mode-locked semiconductor disk laser (SDL) emitting at 1.33  $\mu\text{m}$  and a bismuth-doped fiber amplifier. The mode-locked SDL was fabricated by wafer bonding an InP-based gain section with a GaAs-based distributed Bragg reflector (DBR) using (3-Mercaptopropyl)trimethoxysilane. The bismuth-doped fiber amplifier was pumped with a continuous wave SDL emitting at 1.18  $\mu\text{m}$ . The MOPA system produced pulses at a repetition rate of 827 MHz with a pulse energy of 0.62 nJ, which corresponds to an average output power of more than 0.5 W.

#### General information

Publication status: Published  
MoE publication type: A4 Article in a conference publication  
Organisations: Frontier Photonics, Optoelectronics Research Centre, Research group: Ultrafast and intense lasers, Research group: Semiconductor Technology and Applications, Ulyanovsk State University, Fiber Optics Research Center, Russian Academy of Sciences  
Contributors: Heikkinen, J., Gumenyuk, R., Rantamäki, A., Lyytikäinen, J., Leinonen, T., Zolotovskii, I., Melkumov, M., Dianov, E. M., Okhotnikov, O. G.  
Number of pages: 7  
Publication date: 2015

#### Host publication information

Title of host publication: Vertical External Cavity Surface Emitting Lasers (VECSELs) V  
Place of publication: BELLINGHAM

Publisher: SPIE  
Editor: Guina, M.  
Article number: 93490E  
ISBN (Print): 9781628414394

#### **Publication series**

Name: Proceedings of SPIE  
Publisher: SPIE-INT SOC OPTICAL ENGINEERING  
Volume: 9349  
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: Semiconductor disk laser (SDL), vertical-external-cavity surface-emitting laser (VECSEL), modelocking, wafer bonding, bismuth-doped fiber, master oscillator power amplifier (MOPA), SUPERCONTINUUM GENERATION, OUTPUT POWER, PICOSECOND, VECSEL, PULSES, GHZ

DOIs:

10.1117/12.2076805

Source: WOS

Source ID: 000353134900011

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

#### **Principles of designing for situation awareness**

High level of situation awareness is a key factor in many domains to ensure correct decision making and actions. Situation awareness has been studied extensively in the aviation and military domains but the research also applies to other domains e.g. power grid operations and managing disturbances of electricity supply. Based on the research design principles have been created in order to help system designers to create better user interfaces for systems used in operational activities. These principles have been applied when designing the situation awareness system concept for managing disturbances of electricity supply.

#### **General information**

Publication status: Published

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

Organisations: Department of Electrical Engineering, Research area: Power engineering

Contributors: Haapanen, J.

Pages: 29-46

Publication date: 2015

#### **Publication information**

Place of publication: Tampere

Publisher: Maanpuolustuskorkeakoulu Sotatekniikan laitos

ISBN (Print): 978-951-25-2720-5

ISBN (Electronic): 978-951-25-2721-2

#### **Publication series**

Name: Situational awareness for critical infrastructure protection

Volume: 3

No.: 1

Research output: Working paper › Professional

#### **Proactive vision for strategy making**

#### **General information**

Publication status: Published

MoE publication type: A4 Article in a conference publication

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

Contributors: Vanharanta, H., Kantola, J.

Number of pages: 8

Pages: 587-594

Publication date: 2015

#### **Host publication information**

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

Publisher: Elsevier

### Publication series

Name: Procedia Manufacturing

Volume: 3

ISSN (Print): 2351-9789

Electronic versions:

Proactive vision for strategy making

DOIs:

10.1016/j.promfg.2015.07.272

URLs:

<http://urn.fi/URN:NBN:fi:tty-201606064219>

### Bibliographical note

EXT="Kantola, Jussi"

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

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

### General information

Publication status: Published

MoE publication type: C2 Edited books

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

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

Publication date: 2015

### Publication information

Place of publication: Maribor, Slovenia

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

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

Original language: English

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

## 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

## Pseudo-Random Sequences in DQ-Domain Analysis of Feedforward Control in Grid-Connected Inverters

Grid-parallel inverters are typically used to connect renewable energy sources to a power grid. The impedance mismatch between the grid and the interfacing circuit can generate harmonic resonances which may lead to reduced power quality. The impedance mismatch can be mitigated by applying an inverter that employs feedforward control. This paper presents a novel DQ-domain technique, based on pseudo-random sequences, for acquiring the impedance information and verifying the effectiveness of the feedforward control. The results can be used for tuning the feedforward control and as a method to perform fast on-line stability analysis of grid-connected systems in the DQ domain.

### General information

Publication status: Published

MoE publication type: A4 Article in a conference publication

Organisations: Department of Automation Science and Engineering, Department of Electrical Engineering, Research area: Power engineering, Research area: Dynamic Systems, Research area: Measurement Technology and Process Control

Contributors: Roinila, T., Messo, T., Suntio, T., Vilkkö, M.

Number of pages: 6

Pages: 1301-1306

Publication date: 2015

### Host publication information

Title of host publication: 17th IFAC Symposium on System Identification SYSID 2015 – Beijing, China, 19–21 October 2015

### Publication series

Name: IFAC-PapersOnLine

Volume: 48

No.: 28

ISSN (Print): 2405-8963

ASJC Scopus subject areas: Control and Systems Engineering

Keywords: Feedforward control, Fourier analysis, Frequency-response methods, Inverters, Signal analysis

DOIs:

10.1016/j.ifacol.2015.12.311

Source: Scopus

Source ID: 84988503981

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

## Public-sector as an Initiator in a Collaborative Innovation Process

### General information

Publication status: Published

MoE publication type: A4 Article in a conference publication

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

Contributors: Suominen, A. H., Mäenpää, S., Breite, R.

Number of pages: 12

Publication date: 2015

### Host publication information

Title of host publication: The XXVI ISPIM Innovation Conference – Shaping the Frontiers of Innovation Management – Budapest, Hungary, 14-17 June 2015

Publisher: International Society for Professional Innovation Management ISPIM

ISBN (Electronic): 978-952-265-779-4

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

## Puu-Hubi: Perinteestä uusiin innovaatioihin

Maailmalla on menossa puurakentamisen buumi, jolle ennakoidaan pitkää ikää ja valoisaa tulevaisuutta. Kehityksen etulinjassa on saksankielinen Keski-Eurooppa, Ruotsi ja Norja. Myös Kanadassa ja Yhdysvalloissa puurakentamisella on pitkät perinteet ja laajat markkinat. Vahvin muutosajuri puun käytön lisäämiselle on ilmastonmuutos. Suomi on mukana kansainvälisissä sopimuksissa, jotka sitovat meidät hiilidioksidipäästöjen runsaaseen pienentämiseen lähitulevaisuudessa. Mutta vaikka ympäristösopimukset asettavat kovia velvoitteita, ne tarjoavat myös uusia taloudellisia mahdollisuuksia.

Seinäjoen Ammattikorkeakoulun ja Tampereen teknillisen yliopiston yhteistyössä käynnistämä Puu-Hubi-projekti pyrki edistämään eteläpohjalaista puurakentamista. Tavoitteena oli puukerrostalon rakentamisessa vaadittava osaaminen ja tuotetarjonta, sekä näiden myötä kasvava liiketoiminta. Tässä kirjassa esitellään teemoja, joita hankkeen kuluessa kohdattiin, ja jotka tuntuivat tuoreilta. Kirjan tekstit eivät ole "yhdestä puusta", vaan ne rönsyävät omia uomiaan kohti yhteistä aihettamme, suomalaisen puurakentamisen uutta tuleamista.

### General information

Publication status: Published

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

Organisations: School of Architecture, Research group: Urban Laboratory

Contributors: Hynynen, A. (ed.), Panu, A. (ed.), Taanila, T. (ed.)

Number of pages: 107

Publication date: 2015

#### Publication information

Publisher: Tampereen teknillinen yliopisto. Arkkitehtuurin laitos

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

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

Original language: Finnish

Electronic versions:

puu\_hubi

URLs:

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

#### Bibliographical note

Versio ok 14.12.2015

Research output: Book/Report › Commissioned report › 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

### Quantification of the ionic current contributions to alterations in the action potential repolarization by means of piecewise-linear approximation

#### General information

Publication status: Published

MoE publication type: A4 Article in a conference publication

Organisations: Research group: Computational Biophysics and Imaging Group, Department of Electronics and Communications Engineering, BioMediTech

Contributors: Paci, M., Hyttinen, J., Severi, S.

Number of pages: 4

Pages: 145-148

Publication date: 2015

#### Host publication information

Title of host publication: Computing in cardiology 2015

#### Publication series

Name: Computing in Cardiology

Publisher: Long Beach, Calif : IEEEComputer Society

Volume: 42

ISSN (Print): 0276-6574

ISSN (Electronic): 0276-6574

URLs:

<http://www.cinc.org/archives/2015/pdf/0145.pdf>

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

## Quantitative structure tree models from terrestrial laser scanner data

### General information

Publication status: Published  
MoE publication type: D3 Professional conference proceedings  
Organisations: Department of Mathematics, Research group: MAT Inverse Problems  
Contributors: Raunonen, P. A.  
Number of pages: 3  
Pages: 32-34  
Publication date: 2015

### Host publication information

Title of host publication: Proceedings of SilviLaser 2015 : 14th conference on Lidar Applications for Assessing and Managing Forest Ecosystems

URLs:

[https://silvilaser2015.teledetection.fr/files/Proceedings\\_Silvilaser\\_22\\_09\\_2015\\_2.pdf](https://silvilaser2015.teledetection.fr/files/Proceedings_Silvilaser_22_09_2015_2.pdf) (Conference proceedings)

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

### Raitiotien seisakkeet: Yhdyskuntasuunnittelun jatkokurssi A ja B

Vuoden 2014 Yhdyskuntasuunnittelun jatkokurssin aiheena oli Tampereelle toteutettava kaupunkiraitiotie, joka tulee helpottamaan huomattavasti kulkemista Tampereella tulevaisuudessa.

Kurssi oli sisällöltään ja osallistujiltaan epätavanomainen. Osallistujia kurssilla oli useammasta eri tiedekunnasta: Tampereen teknillisen yliopiston arkkitehtiotieteiden opiskelijoita ja liikennesuunnittelun opiskelijoita, Tampereen yliopistolta psykologian sekä sosiologian opiskelijoita.

Kolmiosaisen kurssin painopiste oli urban design-osuudella, muiden ollessa vapaavalintaisia. Suunnitteluohjelmoina poikkitieteellisesti muodostetuilla ryhmillä oli kolme Tampereen raitiotien yleissuunnitelmassa esitettyä seisaketta: Hakametsä, Turtola ja Hallila. Useat osallistujat olivat valinneet myös planning-osuuden, johon koottiin jäsenistö kunkin seisakkeen design-osuuden ryhmistä.

### General information

Publication status: Published  
MoE publication type: D4 Published development or research report or study  
Organisations: School of Architecture, Research group: Urban Planning  
Contributors: Chudoba, M. (ed.), Rajaniemi, J. (ed.), Virkkala, J. (ed.)  
Number of pages: 74  
Publication date: 2015

### Publication information

Publisher: Tampere University of Technology, School of Architecture

ISBN (Print): 978-952-15-3456-0

ISBN (Electronic): 978-952-15-3457-7

Original language: Finnish

Electronic versions:

raitiotien\_seisakkeet

URLs:

<http://URN.fi/URN:ISBN:978-952-15-3457-7>

### Bibliographical note

Versio ok 14.12.2015

Research output: Book/Report › Commissioned report › Professional

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

### General information

Publication status: Published  
MoE publication type: C2 Edited books  
Organisations: Department of Civil Engineering, Research group: Building Physics  
Contributors: Vinha, J. (ed.), Ruuska, T. (ed.)  
Publication date: 2015

### Publication information

Place of publication: Tampere  
Publisher: Tampereen teknillinen yliopisto. Rakennustekniikan laitos  
ISBN (Print): 978-952-15-3580-2  
Original language: Finnish

### Publication series

Name: Tampereen teknillinen yliopisto, rakennustekniikan laitos, rakennetekniikka, seminaarijulkaisu  
Publisher: Tampereen teknillinen yliopisto  
URLs:  
<http://www.tut.fi/cs/groups/public/@I912/@web/@p/documents/liit/x124266.pdf>  
Research output: Book/Report > Anthology > Scientific > peer-review

## Rakennusten energiatehokkuuden parantamisen vaikutukset - Insulate-projektin tuloksia

### General information

Publication status: Published  
MoE publication type: A4 Article in a conference publication  
Organisations: 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., Turunen, M., Aaltonen, A., Kiviste, M., Pekkonen, M., Haverinen-Shaughnessy, U.  
Number of pages: 12  
Pages: 369-380  
Publication date: 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  
URLs:  
<http://www.tut.fi/cs/groups/public/@I912/@web/@p/documents/liit/x124278.pdf>  
Research output: Chapter in Book/Report/Conference proceeding > Conference contribution > Scientific > peer-review

## 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

#### Recent progress in wafer-fused VECSELS emitting in the 1310 nm waveband

Over the last years we have continuously improved the performance of 1300 nm band VECSELS with wafer fused gain mirrors in the intra-cavity diamond and the flip-chip heat dissipation configurations. In this work we present recent results for gain mirrors that implement both heat-dissipation schemes applied to the same fused gain mirror structure. We demonstrate record high output powers of 7.1 W in the intra-cavity diamond heat-spreader configuration and 6.5 W in the flip-chip heat dissipation scheme. These improvements are achieved due to optimization of the wafer fused gain mirror structure based on AlGaInAs/InP-active region fused to AlAs-GaAs distributed Bragg reflector (DBR) and application of efficient methods of bonding semiconductor gain mirror chips to diamond heatspreaders.

#### General information

Publication status: Published  
MoE publication type: A4 Article in a conference publication  
Organisations: Optoelectronics Research Centre, Research group: Ultrafast and intense lasers, Frontier Photonics, École Polytechnique Fédérale de Lausanne, CH-1015 Lausanne, Switzerland  
Contributors: Sirbu, A., Rantamäki, A., Iakolev, V., Mereuta, A., Caliman, A., Volet, N., Lyytikäinen, J., Okhotnikov, O., Kapon, E.  
Number of pages: 7  
Publication date: 2015

#### Host publication information

Title of host publication: Proceedings of SPIE vol. 8966, 2014.  
Place of publication: BELLINGHAM  
Publisher: SPIE  
Editor: Guina, M.

#### Publication series

Name: Proceedings of SPIE  
Publisher: SPIE-INT SOC OPTICAL ENGINEERING  
Volume: 9349  
ISSN (Print): 0277-786X  
Keywords: Wafer-fused vertical-external-cavity surface-emitting lasers (VECSELS), wafer-fused gain mirrors, optically pumped VECSELS, photonics technology, SEMICONDUCTOR DISK LASER  
DOIs:  
10.1117/12.2079752  
Source: WOS  
Source ID: 000353134900006  
Research output: Chapter in Book/Report/Conference proceeding › Conference contribution › Scientific › peer-review

#### Reducing uncertainties in above-ground biomass estimates using terrestrial laser scanning

#### General information

Publication status: Published  
MoE publication type: D3 Professional conference proceedings  
Organisations: Department of Mathematics, Research group: MAT Inverse Problems, Univ Melbourne, University of Melbourne, Melbourne Sch Land & Environm  
Contributors: Calders, K., Burt, A., Newnham, G., Disney, M., Murphy, S., Raunonen, P., Herold, M., Culvenor, D., Armston, J., Avitabile, V., Kaasalainen, M.  
Number of pages: 3  
Pages: 197-199  
Publication date: 2015

### Host publication information

Title of host publication: Proceedings of SilviLaser 2015 : 14th conference on Lidar Applications for Assessing and Managing Forest Ecosystems

URLs:

[https://silvilaser2015.teledetection.fr/files/Proceedings\\_Silvilaser\\_22\\_09\\_2015\\_2.pdf](https://silvilaser2015.teledetection.fr/files/Proceedings_Silvilaser_22_09_2015_2.pdf) (Conference proceedings)

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

### 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

### Remarks on characterization of bent functions in terms of gibbs dyadic derivatives

#### General information

Publication status: Published

MoE publication type: A4 Article in a conference publication

Organisations: Department of Signal Processing, Research group: Algebraic and Algorithmic Methods in Signal Processing AAMSP, Signal Processing Research Community (SPRC), University of Niš, Technical University of Dortmund

Contributors: Stanković, R. S., Astola, J. T., Moraga, C., Stanković, M., Gajić, D.

Number of pages: 8

Pages: 632-639

Publication date: 2015

#### Host publication information

Title of host publication: Computer Aided Systems Theory – EUROCAST 2015 : 15th International Conference, Las Palmas de Gran Canaria, Spain, February 8-13, 2015, Revised Selected Papers

Publisher: Springer

ISBN (Print): 978-3-319-27339-6

ISBN (Electronic): 978-3-319-27340-2

#### Publication series

Name: Lecture Notes in Computer Science

Volume: 9520

ISSN (Print): 0302-9743

ISSN (Electronic): 1611-3349

ASJC Scopus subject areas: Computer Science(all), Theoretical Computer Science

Keywords: Bent functions, Dyadic derivatives, GPU, Walsh functions

DOIs:

10.1007/978-3-319-27340-2\_78

Source: Scopus

Source ID: 84952325470

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

### **Riding for a fall in outsourced ISD: Knowledge transfer challenges between the onshore vendor and the offshored unit**

#### **General information**

Publication status: Published

MoE publication type: A4 Article in a conference publication

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

Contributors: Alanne, A., Pekkola, S.

Number of pages: 17

Pages: 124-140

Publication date: 2015

#### **Host publication information**

Title of host publication: Achieving Success and Innovation in Global Sourcing: Perspectives and Practices : 9th Global Sourcing Workshop 2015, La Thuile, Italy, February 18-21, 2015, Revised Selected Papers

Place of publication: Germany

Publisher: Springer Verlag

Editors: Oshri, I., Kotlarsky, J., Willcocks, L.

ISBN (Print): 978-3-319-26738-8

ISBN (Electronic): 978-3-319-26739-5

#### **Publication series**

Name: Lectures Notes in Business Information Processing

Volume: 236

ISSN (Print): 1865-1348

DOIs:

10.1007/978-3-319-26739-5\_7

URLs:

<http://www.globalsourcing.org.uk/2013/05/the-8th-global-sourcing-workshop-23-26-of-march-2014-call-for-papers-released/>

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

### **Savukaasun NOx-päästöjen epäsuora monitorointi maakaasukäyttöisissä polttolaitoksissa**

#### **General information**

Publication status: Published

MoE publication type: A4 Article in a conference publication

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

Contributors: Korpela, T., Kumpulainen, P., Majanne, Y., Häyrynen, A.

Number of pages: 6

Pages: 1-6

Publication date: 2015

#### **Host publication information**

Title of host publication: Automaatio XXI seminaari

Publisher: Suomen Automaatioseura

Editor: Jämsä-Jounela, S.

ISBN (Print): 978-952-5183-46-7

#### Publication series

Name: SAS julkaisusarja

No.: 44

ISSN (Print): 1455-6502

URLs:

<http://xxi.automaatioseura.fi/>

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

### 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., Hrnccek, 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

### Seinäjoen ydinkeskustan olennaiset kehitysvaiheet ja sen 1950 - 70-lukujen rakennusperinnön arvottamisperiaatteita

#### General information

Publication status: Published

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

Organisations: School of Architecture, Research group: Urban Laboratory

Contributors: Hirvonen, T.

Number of pages: 121

Publication date: 2015

#### Publication information

Place of publication: Tampere

Publisher: Tampereen teknillinen yliopisto. Arkkitehtuurin laitos

ISBN (Electronic): 978-952-15-3549-9

Original language: Finnish

Electronic versions:

[hirvonen\\_seinajoen\\_ydinkeskustan\\_olennaiset\\_kehitysvaiheet](http://urn.fi/URN:ISBN:978-952-15-3549-9)

URLs:

<http://URN.fi/URN:ISBN:978-952-15-3549-9>

#### Bibliographical note

Versio ok 14.12.2015

Research output: Book/Report › Commissioned report › Professional

### Service Failure and Interruption Probability Analysis for Licensed Shared Access Regulatory Framework

#### 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: Gudkova, I., Samouylov, K., Ostrikova, D., Mokrov, E., Ponomarenko-Timofeev, A., Andreev, S., Koucheryavy, Y.  
Number of pages: 9  
Pages: 123-131  
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.2015.7382416

#### Bibliographical note

INT=elt,"Ponomarenko-Timofeev, Aleksei"

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

### 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

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

#### General information

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

#### Host publication information

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

#### Publication series

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

### Bibliographical note

ORG=ark,0.5

ORG=rak,0.5

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

### Simulation of ash-forming compounds in the kraft recovery boiler

This paper presents a summary of the doctoral dissertation titled "Modeling Fume Particle Dynamics and Deposition with Alkali Metal Chemistry in Kraft Recovery Boilers". In the thesis, a computational model was developed and used to simulate the behavior of alkali metal compounds in kraft recovery boilers. The model combines, for the first time, the methods of CFD (Computational Fluid Dynamics), equilibrium chemistry, and fine particle dynamics to model the formation and deposition of fume particles. Fume particles are below 1 µm in diameter and form through the condensation of the alkali metal compounds. The model has been partially validated in an operating recovery boiler in terms of fume particle composition, but the modeling results also shed light on processes that cannot be investigated through experimental methods alone. For example, the modeling results indicate that thermophoresis is the main factor leading to fume deposit formation.

### General information

Publication status: Published

MoE publication type: A4 Article in a conference publication

Organisations: Department of Chemistry and Bioengineering, Research group: Power Plant and Combustion Technology

Contributors: Leppänen, A., Välimäki, E., Oksanen, A.

Number of pages: 10

Publication date: 2015

### Host publication information

Title of host publication: 10th European Conference on Industrial Furnaces and Boilers

Place of publication: Porto, Portugal

ISBN (Electronic): 978-972-99309-7-3

Keywords: kraft recovery boiler, alkali metal, fine particle, deposition, computational fluid dynamics

URLs:

<http://www.cenertec.pt/infub/>

Source: Bibtex

Source ID: urn:c88098f51c0b1f0404f1a0f11bbb345f

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

### Simulointi nopeuttaa käyttöiän määrittystä

### General information

Publication status: Published

MoE publication type: D1 Article in a trade journal

Organisations: Department of Materials Science, Research group: Tribology and Machine Elements, Department of Mechanical Engineering and Industrial Systems, Research group: Kokeellinen virtaustekniikka, Research area: Applied Mechanics, Department of Intelligent Hydraulics and Automation, Research group: Fluid power automation in mobile machines, Department of Electrical Engineering, Research area: Reliability

Contributors: Ojala, P., Saarenrinne, P., Miettinen, J., Multanen, P., Kiilunen, J., Hietala, J., Kolu, A., Pippola, J., Mostofizadeh, M., Ylönen, M.

Number of pages: 4

Pages: 24-27

Publication date: 2015

Peer-reviewed: Unknown

### Publication information

Journal: Promaint

Volume: 2

ISSN (Print): 1797-2000

Original language: Finnish

### Bibliographical note

ORG=mol,0.25

ORG=mei,0.25

ORG=iha,0.25

ORG=dee,0.25

Research output: Contribution to journal › Article › Professional

## 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., Lonqvist, 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

## 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

## Social capital in hybrid governance - Case study in a global subcontracting process

### General information

Publication status: Published

MoE publication type: A4 Article in a conference publication

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

Contributors: Mäenpää, S., Breite, R.

Publication date: 2015

### Host publication information

Title of host publication: Proceedings of the 24th Annual IPSERA Conference Preparing for new competitive challenges, March 29-April 1, Amsterdam, the Netherlands

Publisher: IPSERA

ISBN (Print): 978-90-823707-0-6

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

### **Social media applications in external B2B transactions: An empirical analysis of the Finnish technology industry**

Despite the popularity of the topic, social media research is still limited and focuses largely on the role of consumer-to-consumer (C2C) and business-to-consumer (B2C) domains (Volpentesta and Felicetti, 2012; Michaelidou et al., 2011). In many aspects, B2C social media practices are not directly useful for inter-organizational and business-to-business (B2B) purposes. The main aim of this paper is to increase the understanding of the current applications of social media in external B2B transactions. This is carried out through an extensive survey of companies in the technology industry which are operating purely in B2B markets, having only other companies as customers.

We wanted to understand how industrial B2B companies currently apply social media in their own inter-organizational applications, what potential they see for social media in this context, and what kind of support they need to better adopt social media together with

~~their customers and partners.~~

A population of 2488 Finnish decision makers from the Federation of Finnish Technology Industries were observed. Based on the answers of 143 different companies, 125 companies were found to wholly (100%) represent B2B markets, and these were chosen as the sample of this particular study.

Studies on social media, especially survey-based studies, have not focused solely on B2B companies, particularly on the inter-organizational applications of social media in B2Bs, except for the B2B-marketing oriented study of Michaelidou et al. (2011) and the study of social media utilization in B2B relationships by Pettersson et al. (2014). This study extends these previous studies by creating new understanding of the maturity of social media integration in businesses, organizational business problems that companies perceive can be solved with social media, and approaches that can support social media adoption in B2B companies.

Managerially, the results can be used, for instance, to better understand the various possibilities of applying social media for inter-organizational use in B2Bs, which are currently only superficially understood by a significant portion of managers. This can help support and facilitate external social media use in B2Bs.

#### **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. J., Kärkkäinen, H., Aramo-Immonen, H., Ammirato, S., Michele Felicetti, A., Della Gala, M.

Number of pages: 11

Pages: 1930-1940

Publication date: 2015

#### **Host publication information**

Title of host publication: 10th International Forum on Knowledge Asset Dynamics : Culture, Innovation and Entrepreneurship: connecting the knowledge dots

Volume: 10

Place of publication: Bari

ISBN (Electronic): 978-88-96687-07-9

Keywords: social media, business-to-business, enterprise social, survey, inter-organizational

URLs:

<http://www.knowledgeasset.org/>

#### **Bibliographical note**

ORG=tlo,0.5

ORG=pla,0.5

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

### **Some aspects of molecular physics in measuring tissue samples using enose for disease diagnostics**

eNose technologies can be used for disease diagnostics. One technology is based on ionized molecules and their drifting speed in an electric field. Ionized molecules can be measured with ion mobility spectrometry and with electrical mobility measurements. Depending on the size scale of these molecules, different physical effects are relevant. We studied the relevance of size scale dependent physics for disease diagnostics.

#### **General information**

Publication status: Published

MoE publication type: A4 Article in a conference publication

Organisations: Department of Automation Science and Engineering, Integrated Technologies for Tissue Engineering Research (ITTE), University of Tampere, Medical School, Tampere University Hospital

Contributors: Karjalainen, M., Roine, A., Oksala, N., Lekkala, J.  
Publication date: 2015

#### Host publication information

Title of host publication: XXI IMEKO World Congress "Measurement in Research and Industry"

Publisher: IMEKO-International Measurement Federation Secretariat

ISBN (Electronic): 978-80-01-05793-3

ASJC Scopus subject areas: Electrical and Electronic Engineering

Keywords: Aerosol physics, Disease diagnostics, Ion mobility spectrometry

URLs:

<http://www.scopus.com/inward/record.url?scp=84951173545&partnerID=8YFLogxK> (Link to publication in Scopus)

Source: Scopus

Source ID: 84951173545

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

#### Stirring the Construction Project Management with Co-creation and Continuous Improvement

Abstract Gathering information that is capable to explain customers' needs is usually seen as a quite straightforward part of the traditional construction process: a customer should be able to tell all relevant needs in the first stage so that a building could be designed and built according to the gained information. But the process is lacking of service abilities if a customer wants to modify the given information due to a change in circumstances, albeit such a change is easily caused due turbulent economic situations and long spans in real-estate development projects. Hence the customer perspective regarding the construction management (CM) process should be accommodated better. In this paper, the case studies of the four premises improvement projects are reported upon, where the CM process was altered to include and apply the concepts of continuous improvement and co-creation. The process documentation covered the impacts of the case project on the usability of the premises, the indoor climate conditions (carbon dioxide and temperature) metering, the time lapse cameras and the on-line user feedback system. The documentation consists of the minutes of the meetings, the financial reporting and the time tables. Both the processes and the results of the projects are analysed. Based on the key findings, some suggestions are put forth upon how to improve the CM process to better serve customer interests and quality improvement in the future.

#### General information

Publication status: Published

MoE publication type: A1 Journal article-refereed

Organisations: Department of Civil Engineering, Research group: Digitalization in the real estate and construction sector, School of Architecture

Contributors: Savolainen, J., Kähkönen, K., Niemi, O., Poutanen, J., Varis, E.

Number of pages: 8

Pages: 64-71

Publication date: 2015

Peer-reviewed: Yes

#### Publication information

Journal: Procedia Economics and Finance

Volume: 21

ISSN (Print): 2212-5671

Original language: English

Keywords: Co-creation, construction management, continuous improvement, customer relations management, quality management

DOIs:

10.1016/S2212-5671(15)00151-3

#### Bibliographical note

ORG=rak,1

ORG=ark,0

Source: RIS

Source ID: urn:76EF98A938A43DE456AFD5111BF4116C

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

#### Strategic planning and epistemology of change: Probing the fitness of urban and planning systems with resilient spatial strategies

The aim of this paper is to question the fitness of our state-of-the-art urban planning and urban systems to adapt to continuous changes and disturbances in operating environment. We argue that in an attempt to help cities adapt to uncertain futures, strategic planning should be better informed by the epistemology of complex adaptive systems and better recognise recursive emergent processes between urban metabolism and morphology.

### General information

Publication status: Published  
MoE publication type: A4 Article in a conference publication  
Organisations: School of Architecture, Research group: EDGE  
Contributors: Rantanen, A., Joutsiniemi, A.  
Number of pages: 12  
Pages: 336-347  
Publication date: 2015

### Host publication information

Title of host publication: Sustainable Futures in a Changing Climate : Proceedings of the Conference "Sustainable Futures in a Changing Climate", 11–12 June 2014, Helsinki, Finland  
Volume: 2/2015  
Place of publication: Turku  
Publisher: Finland Futures Research Centre, University of Turku  
Editors: Hatakka, A., Vehmas, J.  
ISBN (Print): 978-952-249-303-3

### Publication series

Name: FFRC eBook 2/2015  
Publisher: Finland Futures Research Centre, University of Turku  
ISSN (Electronic): 1797-1322  
Keywords: Strategic planning, Resilience, Complex adaptive system  
URLs:  
[http://www.researchgate.net/profile/Jari\\_Kaivo-oja/publication/280941248\\_Assessing\\_Sustainability\\_of\\_Economic\\_Growth\\_with\\_Sustainability\\_Window/links/55cd87ae08aeeaab209b543e.pdf](http://www.researchgate.net/profile/Jari_Kaivo-oja/publication/280941248_Assessing_Sustainability_of_Economic_Growth_with_Sustainability_Window/links/55cd87ae08aeeaab209b543e.pdf)  
Research output: Chapter in Book/Report/Conference proceeding > Conference contribution > Scientific > peer-review

### Surrogate model for rotational stiffness of welded tubular Y-joints

#### 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, Poznan University of Technology, Peter Great St Petersburg Polytech Univ  
Contributors: Heinisuo, M., Mela, K., Tiainen, T., Jokinen, T., Baczkiewicz, J., Garifullin, M.  
Number of pages: 22  
Pages: 18-39  
Publication date: 2015

#### Host publication information

Title of host publication: METNET Tenth International Seminar in Budapest 13.-14.10.2015  
ISBN (Print): 978-951-784-762-9  
ISBN (Electronic): 978-951-784-763-6

#### Publication series

Name: HAMKin julkaisu  
No.: 15  
ISSN (Print): 1795-4231  
ISSN (Electronic): 1795-424X  
URLs:  
<http://urn.fi/URN:ISBN:978-951-784-763-6>  
Research output: Chapter in Book/Report/Conference proceeding > Conference contribution > Scientific > peer-review

### Sustainable and responsible freight transport through public-private collaboration: Finnish road freight responsibility model

#### Purpose

In aviation, maritime and rail transport safety management systems are well adapted and they are fixed part of daily practices and the minimum requirements for systems are set in European regulations. However, this does not apply a road freight sector. In 2013, Finnish Transport Safety Agency (Trafi) started to develop a road freight responsibility model, which was intended to enhance safety, quality and environmental management in the Finnish road freight transport sector. The aim of this paper is to introduce the Finnish model and to summarize the main findings from the responsibility model.

#### Approach

This paper includes data and knowledge from two separate but related projects which studied responsibility and sustainability in the Finnish road freight sector. The paper combines information from several methods, but the main research method was a case study with transport companies. Complementary methods used in this paper are workshop and online survey.

#### Findings

Transport companies have different practises and attitudes related to the responsible business and the size of the company or the main service sector of the company do not always explain the differences. According to the results, this kind of new voluntary basis approach has a demand in the road freight sector and it will provide help for transport companies to develop their business.

#### Value

The paper represents a new approach of the national transport agency to develop the road freight sector. With the responsibility model Trafi aims to promote sustainable and responsible business of all sizes of transport companies with a voluntary basis approach.

### General information

Publication status: Published

MoE publication type: A4 Article in a conference publication

Organisations: Department of Information Management and Logistics

Contributors: Nykänen, L., Rantala, J., Liimatainen, H.

Number of pages: 15

Pages: 238-252

Publication date: 2015

### Host publication information

Title of host publication: NOFOMA 2015 : Post Conference Proceedings, Molde, 3-5 June 2015, Nordic Logistics Research Network

Publisher: Nordic Logistics Research Network Publisher

ISBN (Electronic): 978-82-7962-207-9

ASJC Scopus subject areas: Engineering(all)

Keywords: Heavy road freight, sustainability, transport management, transport agency, Finland, Safety, quality, environment, responsibility

URLs:

<http://brage.bibsys.no/xmlui/bitstream/handle/11250/2359479/1/NOFOMA%202015%20PCP.pdf> (pp. 238-252)

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

### Sustainable Design Studio 2014

The City of Tampere is experiencing a great regeneration boom. Several central areas are under redevelopment. The Hakametsä area is one of them. The ice hockey hall of Hakametsä and the surrounding commercial areas will be redeveloped in the near future. The identity and integrated sustainable urban solutions unifying the entire Hakametsä area is becoming a key issue.

The Sustainable Design Studio 2014 looked at the opportunities related to sustainable redevelopment of the new city district. In particular, the focus was in the intersection of Hervannan valtaväylä and Sammon valtatie. Currently this intersection divides the area in separate and isolated sections with very scattered street scape and difficult accessibility for light-traffic. The restructuring of the entire city structure could offer several opportunities for more sustainable city district in connection to the new tram line.

The task for the students had to two parts with different objectives and urban scales. The first part included a group work analysis on the Hakametsä area and designing a new urban strategy for a sustainable city district. The lack of overall scheme for the area motivated the students to look at the intersection area as the point for connecting the four sectors divided by Hervannan valtaväylä and Sammon valtatie.

The second individual part of the assignment consisted of designing additional floors to an existing residential building next to the Hakametsä ice hockey rink. The work aimed at creating appealing typological solutions for attractive in-fill architecture thus increasing the opportunities for densification of the 70s residential areas at large. The starting point for the design was the structural system developed in KORKO research project of the Tampere University of Technology. The research project delivered a concept for a prefabricated steel structure allowing fast and affordable assembly of prefabricated wooden housing modules. The objective of the course was to connect university education and research in a mutually benefiting way that is motivating for the students.

The results of the studio provided a comprehensive overview of different approaches to reshape the urban plan for more sustainable city structure. The need for the new character of Hervannan valtaväylä became evident. Should the road be a main artery focusing on delivering the traffic flows, or, is it part of integrated city structure potentially lowering the speeds of vehicles and calling for improved lightraffic conditions? The students' works opened up a number of alternative

perspectives – including engineering studies on sustainability issues. The Hakametsä area is a great potential for sustainable urban densification within the proximity of the city center, yet with a unique character making it a distinct and identifiable place.

#### **General information**

Publication status: Published  
MoE publication type: D4 Published development or research report or study  
Organisations: Department of Civil Engineering, School of Architecture  
Contributors: Edelman, H. (ed.), Härkönen, K. (ed.)  
Number of pages: 79  
Publication date: 2015

#### **Publication information**

Publisher: Tampere University of Technology. School of Architecture  
ISBN (Print): 978-952-15-3473-7  
ISBN (Electronic): 978-952-15-3474-4  
Original language: English  
Electronic versions:  
sustainable\_design\_studio\_2014  
URLs:  
<http://URN.fi/URN:ISBN:978-952-15-3474-4>

#### **Bibliographical note**

ORG=rak,0.25  
ORG=ark,0.75  
Research output: Book/Report › Commissioned report › Professional

### **Suunnittelutyökalu putkiristikoiden mitoitukseen ja optimointiin**

#### **General information**

Publication status: Published  
MoE publication type: A4 Article in a conference publication  
Organisations: Department of Civil Engineering, Research group: Metal and Light-wight structures, SUBNIC Oy, Ruukki Construction Oy  
Contributors: Mela, K., Alinikula, M., Tiainen, T., Heinisuo, M., Sorsa, I.  
Number of pages: 6  
Pages: 136-141  
Publication date: 2015

#### **Host publication information**

Title of host publication: Proceedings of the XII Finnish Mechanics Days. Suomen XII Mekaniikkapäivien esitelmät  
Publisher: Rakenteiden Mekaniikan Seura ry  
ISBN (Print): 978-952-93-5608-9  
ISBN (Electronic): 978-952-93-5609-6  
Research output: Chapter in Book/Report/Conference proceeding › Conference contribution › Scientific › peer-review

### **Systematic Literature Review on Enterprise Architecture in the Public Sector**

#### **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: Dang, D., Pekkola, S.  
Publication date: 2015

#### **Host publication information**

Title of host publication: The 38th Information Systems Research Conference in Scandinavia (IRIS38)  
Editors: Öörni, A., Iivari, N., Kuutti, K., Oinas-Kukkonen, H., Rajanen, M.  
ISBN (Electronic): 978-952-62-0917-3  
URLs:  
<http://iris2015.org/proceedings/>  
Research output: Chapter in Book/Report/Conference proceeding › Conference contribution › 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., Ryyänen, 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:4AB62BAC3A0A0D77B9BD9FDFF1D977D4

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

## **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

## 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

## 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

## Temperature Effect on Breakdown Performance of Insulating Polymer Thin Films

### General information

Publication status: Published  
MoE publication type: A4 Article in a conference publication  
Organisations: Department of Electrical Engineering, Research area: Power engineering  
Contributors: Ritamäki, M., Rytöluoto, I., Lahti, K.  
Number of pages: 4  
Pages: 75-79  
Publication date: 2015

#### Host publication information

Title of host publication: 24th Nordic Insulation Symposium on Materials, Components and Diagnostics, Proceedings  
ISBN (Print): 978-82-321-0274-7

#### Publication series

Name: Proceedings of the Nordic Insulation Symposium  
No.: 24  
ISSN (Electronic): 2525-3969  
Research output: Chapter in Book/Report/Conference proceeding › Conference contribution › Scientific › peer-review

### 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

### Teräsristikon paarteiden liitoksen vapaan välin leikkausvoiman arviointi

#### General information

Publication status: Published  
MoE publication type: A4 Article in a conference publication  
Organisations: Department of Civil Engineering, Research group: Metal and Light-wight structures  
Contributors: Tiainen, T., Heinisuo, M.  
Number of pages: 6  
Pages: 30-35  
Publication date: 2015

#### Host publication information

Title of host publication: Proceedings of the XII Finnish Mechanics Days. Suomen XII Mekaniikkapäivien esitelmät  
Publisher: Rakenteiden Mekaniikan Seura ry  
ISBN (Print): 978-952-93-5608-9  
ISBN (Electronic): 978-952-93-5609-6  
Research output: Chapter in Book/Report/Conference proceeding › Conference contribution › Scientific › peer-review

### Terrestrial LiDAR and 3D tree Quantitative Structure Model for quantification of aboveground biomass loss from selective logging in a tropical rainforest of Peru

#### General information

Publication status: Published  
MoE publication type: D3 Professional conference proceedings  
Organisations: Department of Mathematics, Research group: MAT Inverse Problems, Wageningen Univ, Wageningen University & Research Center, Wageningen University and the UNESCO-IHE Institute for Water Education, Delft, The Netherlands, 18.10.2013, Center for International Forestry Research

Contributors: Gonzalez de Tanago, J., Bartholomeus, H., Joseph, S., Herold, M., Avitabile, V., Goodman, R., Raunonen, P., Burt, A.  
Number of pages: 3  
Pages: 119-121  
Publication date: 2015

#### Host publication information

Title of host publication: Proceedings of SilviLaser 2015 : 14th conference on Lidar Applications for Assessing and Managing Forest Ecosystems

URLs:

[https://silvilaser2015.teledetection.fr/files/Proceedings\\_Silvilaser\\_22\\_09\\_2015\\_2.pdf](https://silvilaser2015.teledetection.fr/files/Proceedings_Silvilaser_22_09_2015_2.pdf) (Conference proceedings)  
Research output: Chapter in Book/Report/Conference proceeding › Conference contribution › Professional

### The Company Democracy Model for the Development of Intellectual Human Capitalism for Shared Value

#### 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: Markopoulos, E., Vanharanta, H.

Number of pages: 8

Pages: 603-610

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.2015.07.277](https://doi.org/10.1016/j.promfg.2015.07.277)

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

### The effect of physical adhesion promotion treatments on interfacial adhesion in cellulose-epoxy composite

#### General information

Publication status: Published

MoE publication type: D3 Professional conference proceedings

Organisations: Department of Materials Science, Research group: Plastics and Elastomer Technology, Research group: Paper Converting and Packaging

Contributors: Siljander, S., Lehmonen, J., Tanaka, A., Ketoja, J., Heikkilä, P., Lahti, J., Sarlin, E., Vuorinen, J.

Number of pages: 10

Publication date: 2015

#### Host publication information

Title of host publication: Proceedings of the 20th International Conference on Composite Materials

URLs:

<http://iccm20.org/fullpapers/file?f=WM39KAy5r2>

#### Bibliographical note

ISBN- tai ISSN-numeroa kysytty, ei löydy

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

### The Effects of Initial Moisture on Damp Problems of a Timber Framed Wall Construction - a Numerical Approach

#### General information

Publication status: Published

MoE publication type: A4 Article in a conference publication

Organisations: University of Oulu

Contributors: Fedorik, F., Malaska, M.

Pages: 18-23  
Publication date: 2015

#### Host publication information

Title of host publication: Proceedings of the XII Finnish Mechanics Days : Finnish mechanics days  
Place of publication: Espoo, Finland  
Publisher: Finnish Association for Structural Mechanics  
Editors: Kouhia, R., Mäkinen, J., Pajunen, S., Saksala, T.  
ISBN (Print): 978-952-93-5608-9 ISBN-E 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 › peer-review

#### The Extended 1-D (One-Dimensional) Discrete Phase Retrieval Problem

In this work we discuss some difficulties that can be encountered when one uses iterative methods for finding a solution of a onedimensional discrete phase retrieval problem. Iterative methods are widely used but, unfortunately, they often stagnate. We shall show that by using an extended form of the one-dimensional discrete phase retrieval problem, we can find a solution to the problem.

#### General information

Publication status: Published

MoE publication type: A4 Article in a conference publication

Organisations: Department of Signal Processing, Research group: Algebraic and Algorithmic Methods in Signal Processing AAMSP, Signal Processing Research Community (SPRC), Technical University of Cluj-NapocaUniversitatea Tehnica din Cluj-Napoca

Contributors: Rusu, C., Astola, J.

Number of pages: 8

Pages: 640-647

Publication date: 2015

#### Host publication information

Title of host publication: Computer Aided Systems Theory – EUROCAST 2015 : 15th International Conference, Las Palmas de Gran Canaria, Spain, February 8-13, 2015, Revised Selected Papers

Publisher: Springer

ISBN (Print): 978-3-319-27339-6

ISBN (Electronic): 978-3-319-27340-2

#### Publication series

Name: Lecture Notes in Computer Science

Volume: 9520

ISSN (Print): 0302-9743

ISSN (Electronic): 1611-3349

ASJC Scopus subject areas: Computer Science(all), Theoretical Computer Science

Keywords: Phase retrieval, Signal reconstruction

DOIs:

10.1007/978-3-319-27340-2\_79

#### Bibliographical note

EXT="Rusu, Corneliu"

Source: Scopus

Source ID: 84952332786

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

#### The Fourteenth Scandinavian International Conference on Fluid Power, SICFP15: Proceedings

At this time the conference includes various themes like hybrids, drives, digital hydraulics and pneumatics. Special attention in the program is given for energy efficiency, renewable energy production and energy recovery. They are reflecting well the situation, where environmental issues and energy saving are increasingly important issues.

#### General information

Publication status: Published

MoE publication type: C2 Edited books

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

Contributors: Laamanen, A. (ed.), Huhtala, K. (ed.)

Number of pages: 835

Publication date: 2015

#### **Publication information**

Publisher: Tampere University of Technology. Department of Intelligent Hydraulics and Automation  
ISBN (Electronic): 978-952-15-3530-7, 978-952-15-3658-8  
Original language: English

#### **Publication series**

Name: Scandinavian International Conference on Fluid Power (SICFP)  
Publisher: Tampere University of Technology  
ISSN (Print): 2342-2726  
Electronic versions:  
SICFP15\_proceedings  
URLs:  
<http://URN.fi/URN:ISBN:978-952-15-3530-7>

#### **Bibliographical note**

Versio ok 16.12.2015  
Research output: Book/Report > Anthology > Scientific > peer-review

#### **The Fourteenth Scandinavian International Conference on Fluid Power, SICFP15: Abstracts**

At this time the conference includes various themes like hybrids, drives, digital hydraulics and pneumatics. Special attention in the program is given for energy efficiency, renewable energy production and energy recovery. They are reflecting well the situation, where environmental issues and energy saving are increasingly important issues.

#### **General information**

Publication status: Published  
MoE publication type: C2 Edited books  
Organisations: Department of Intelligent Hydraulics and Automation, Research group: Fluid power automation in mobile machines  
Contributors: Laamanen, A. (ed.), Huhtala, K. (ed.)  
Number of pages: 100  
Publication date: 2015

#### **Publication information**

Publisher: Tampere University of Technology, Department of Intelligent Hydraulics and Automation  
ISBN (Print): 978-952-15-3529-1  
ISBN (Electronic): 978-952-15-3548-2  
Original language: English  
Electronic versions:  
sicfp15\_abstract\_book  
URLs:  
<http://URN.fi/URN:ISBN:978-952-15-3548-2>

#### **Bibliographical note**

sicfp15\_abstract\_book ok 8.1.2016 KK  
Varsinainen proceedings-julkaisu hyväksytty tiedonkeruuseen  
Research output: Book/Report > Anthology > 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

### **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

### **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

### **The role of film processing in the large-area dielectric breakdown performance of nano-silica-BOPP films**

This paper summarizes the effects of various compositional, structural and film processing factors on the breakdown behavior of laboratory- and pilot-scale melt-compounded bi-axially oriented polypropylene (BOPP) nanocomposite films with silica fillers. A self-healing multi-breakdown measurement approach has been extensively utilized for large-area breakdown characterization of a large number of material variants from different processing trials. The results suggest that although the optimum level of silica presumably resides at the low fill-fraction range (~1 wt-%), the silica content itself is not the only determining factor, as compounds with equal silica content were found to exhibit large differences in the breakdown properties depending on the compounding and film processing steps. Dispersion quality and filler agglomeration (in both the nm- and  $\mu\text{m}$ -scale) appear to be of great importance. Indications of possible interaction between nano-silica and co-stabilizer Irgafos 168 are also presented. Overall, the laboratory- and pilot-scale film processing trials suggest that up-scaling of the polymer nanocomposite production is sensible with traditional melt-blending technology, although further development and optimization of nanocomposite formulations and processing is necessary.

#### **General information**

Publication status: Published

MoE publication type: A4 Article in a conference publication

Organisations: Department of Electrical Engineering, Research area: Power engineering, VTT Technical Research Centre of Finland

Contributors: Rytöluoto, I., Lahti, K., Ritamäki, M., Karttunen, M.

Number of pages: 6

Publication date: 2015

#### **Host publication information**

Title of host publication: 24th Nordic Insulation Symposium on Materials, Components and Diagnostics (NORD-IS), Proceedings

Place of publication: Copenhagen, Denmark

ISBN (Print): 978-82-321-0274-7

#### **Publication series**

Name: Proceedings of the Nordic Insulation Symposium

No.: 24

ISSN (Electronic): 2535-3969

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

### **The role of product retailers' service adoption in services introduction - A case of services supplementing consumer durables.**

Retailers marketing manufacturers' services have a significant role in service success and therefore their adoption of the service and commitment to its sales needs to be ensured. However, this topic has gained only limited attention in the scientific literature while majority of the adoption literature has focused on products. This paper discusses retailer adoption of service meant for end customers by reviewing the antecedents of adoption and effect of retailer's background to service adoption. The focus is on a complementary product-related guarantee service. The data was collected by a survey among retailers of a consumer durables manufacturer in three countries. The results revealed that retailers had mainly positive attitudes towards the reviewed service indicating also service adoption. However, the adoption of the service did not ensure that the service was marketed for all the potential customers. Noteworthy is that retailers' attitudes were positively related with their own service deployment. Thus, manufacturers utilizing retailers in service distribution need to invest in retailers' service adoption but also ensure trialability and possibilities for fluent marketing of the service.

#### **General information**

Publication status: Published

MoE publication type: A4 Article in a conference publication

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

Contributors: Nenonen, S., Vaittinen, E.

Number of pages: 10

Pages: 762-771

Publication date: 2015

### Host publication information

Title of host publication: The 14th International Research Symposium on Service Excellence in Management : QUIS14

Place of publication: Shanghai

Editors: Zhao, X., Zhang, J. J., Han, H. J.

ISBN (Electronic): 978-0-692-46156-3

URLs:

<http://www.quis14.com/agenda/>

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

### The target reliability of the eurocodes

The target reliability of the Eurocodes is given clearly: One-year reliability is 4.7 and 50-year reliability 3.8 correspondingly. However, the implementation of the direction is unclear in many ways: The reliability calculations for the Eurocodes are made sometimes by using one-year reliability 4.45 or 4.2. The Eurocodes does not instruct for which reference time the reliability is calculated. Normally, the reliability is calculated for the service time, 50 years, but sometimes for one year. The paper concludes that the reliability must be calculated for the service time. The independent versus the dependent load combination results in different reliability. The independent load combination results in higher reliability with fixed safety factors and up to about 10 % less safety factors with fixed target reliability when two loads are combined and with three loads even less. The loads are combined in the Eurocodes sometimes independently and sometimes dependently. Arguments are given here that the loads must be combined dependently. The variable load distribution is generally assumed Gumbel. However, this distribution is excessively safe as it has a robust upper tail which unrealistically affects the reliability. Normal distribution is one possible alternative, however obviously somewhat unsafe. In the paper, the safety factors are given based on Gumbel and normal distribution. The combination of 20 % Gumbel and 80 % normal distribution is one feasible option. In the current reliability calculation 50-year return load, i.e. 0.98 fractile of the load distribution is usually set at the characteristic load with the target reliability of the service time. This means that one-year loads are only considered in the reliability calculation. For this reason the variable load safety factors are unrealistically low as the target reliability corresponds to the service time loads. Gumbel distribution partly counterbalances the unsafe error but the overall effect is unsafe. The material factors of the Eurocodes are given based on the current calculation and modified calculation. The paper concludes that the reliability should be calculated for the service time loads with the distributions set at the service time location and the reference reliability should be 3.8. The issue of partial factors and design values is shortly addressed and concluded that the design value code is simple with better reliability accuracy than the current partial factor code when the characteristic variable load is made variable.

### General information

Publication status: Published

MoE publication type: A4 Article in a conference publication

Organisations: Department of Civil Engineering

Contributors: Poutanen, T.

Number of pages: 7

Pages: 202-208

Publication date: 2015

### Host publication information

Title of host publication: Safety, Robustness and Condition Assessment of Structures

Publisher: International Association for Bridge and Structural Engineering (IABSE)

### Publication series

Name: IABSE Symposium Report

ISSN (Print): 2221-3783

ASJC Scopus subject areas: Civil and Structural Engineering, Building and Construction, Safety, Risk, Reliability and Quality

Keywords: Code, Design value, Gumbel distribution, Normal distribution, Partial factor, Reliability

DOIs:

10.2749/222137815815622816

URLs:

<http://www.scopus.com/inward/record.url?scp=84929340776&partnerID=8YFLogxK> (Link to publication in Scopus)

Source: Scopus

Source ID: 84929340776

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

### The World Innovation Stock Exchange- shared value for individuals, business and society

#### 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: Markopoulos, E., Vanharanta, H.  
Number of pages: 8  
Pages: 595-602  
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.2015.07.275

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

#### Towards Business Potential of Workplace Services in Finland

People no longer work as they worked 15 years ago. One of the major changes, as Laing (2013) stated, is that the employee no longer has to go to work, but information technology brings the work to the employee. Due to the independency of work from time and place, employees are working in a new way in multiple locations. For service providers, this offers a new business field. Thus, the paper focuses on this new business opportunity. The aim of the paper is to identify the business potential to build up and elaborate the workplace service business. Interviews with national workplace service providers and international workplace experts were conducted in order to get practical insight on the topic. Based on the interviews, two development steps are required to utilise the new business opportunity: (1) the transaction-oriented way to provide workplace services should be substituted by new business models, and (2) the workplace service should be re-thought and re-designed as a service that is not solely dependent on physical space. Based on the new business model and service, a new business opportunity could be harnessed.

#### General information

Publication status: Published  
MoE publication type: A4 Article in a conference publication  
Organisations: Department of Information Management and Logistics, Research group: Novi, Aalto University  
Contributors: Jylhä, T., Vuolle, M., Nenonen, S., Virtaneva, M.  
Number of pages: 6  
Pages: 518-523  
Publication date: 2015

#### Host publication information

Title of host publication: 8th Nordic Conference on Construction Economics and Organization : May 28-29 2015, Tampere, Finland  
Volume: 21  
Publisher: Elsevier

#### Publication series

Name: Procedia Economics and Finance  
ISSN (Print): 2212-5671  
Keywords: Workplace services, multi-locational work, co-working, business model  
DOIs:

10.1016/S2212-5671(15)00207-5

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

#### Towards Capturing Interaction in the Interactive Use of Controls - The Role of Reflection

#### General information

Publication status: Published  
MoE publication type: A4 Article in a conference publication  
Organisations: Department of Industrial Management, Research group: Cost Management Center  
Contributors: Suomala, P., Hilden, S.  
Publication date: 2015

#### Host publication information

Title of host publication: 8th conference on performance measurement and management control, Nice, France, September 30 October 2, 2015

### Publication series

Name: Conference on performance measurement and management control

Publisher: European Institute for Advanced Studies in Management

ISSN (Print): 2295-1660

URLs:

[http://www.eiasm.org/frontoffice/event\\_announcement.asp?event\\_id=1035](http://www.eiasm.org/frontoffice/event_announcement.asp?event_id=1035)

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

### Towards high power flip-chip long-wavelength semiconductor disk lasers

#### General information

Publication status: Published

MoE publication type: A4 Article in a conference publication

Organisations: Optoelectronics Research Centre, Research group: Ultrafast and intense lasers, Research group: Surface Science, Frontier Photonics

Contributors: Rantamäki, A., Saarinen, E., Lyytikäinen, J., Heikkinen, J., Lahtonen, K., Valden, M., Okhotnikov, O.

Publication date: 2015

#### Host publication information

Title of host publication: Proceedings of SPIE

Volume: 9349

Publisher: SPIE

ISBN (Electronic): 9781628414394

DOIs:

10.1117/12.2076795

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

### Towards Traditional Simulation Models of Context Using Process Mining

Context (sensor) systems are hard to model: they require constant updating and insightful approaches, especially considering the increasing data volume, variety, and generation rate of contemporary networking paradigms, like the Internet of Things. In this paper, we argue that intelligent process models can be mined to look at the actual system activity from alternative context perspectives, i.e., perspectives observable from the sensor attributes themselves. We explain how the close relationship between the models derived using Process Mining, and Event-Driven Simulation can be exploited to help not only better understand what is happening in such systems but also provide alternative models for the intelligent solutions they support, such as context inference. We demonstrate this using a real-world example and discuss the feasibility of extending these alternative process models to be viewed as simulation. We envision automated steps that would result in traditional simulation models of context using Process Mining.

#### General information

Publication status: Published

MoE publication type: A4 Article in a conference publication

Organisations: Department of Mathematics, Research group: MAT Intelligent Information Systems Laboratory

Contributors: Pileggi, P., Rivero-Rodriguez, A., Nykänen, O.

Number of pages: 6

Pages: 70-75

Publication date: 2015

#### Host publication information

Title of host publication: Computational Intelligence, Communication Systems and Networks (CICSyN), 2015 7th International Conference on

Publisher: IEEE

ISBN (Print): 9781467370165

Electronic versions:

CICSyN2015-ProcessMining

DOIs:

10.1109/CICSyN.2015.23

URLs:

<http://urn.fi/URN:NBN:fi:tyy-201605043939>

<http://www.mendeley.com/research/towards-traditional-simulation-models-context-using-process-mining>

Source: Mendeley

Source ID: 3b5a7052-83aa-3c38-ba30-f4290873ae25

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

## 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

## Traceability of essential climate variables through forest stand reconstruction with terrestrial laser scanning

### General information

Publication status: Published  
MoE publication type: D3 Professional conference proceedings  
Organisations: Department of Mathematics, Research group: MAT Inverse Problems  
Contributors: Calders, K., Disney, M., Nightingale, J., Origo, N., Barker, A., Raunonen, P. A., Lewis, P., Burt, A., Brennan, J., Fox, N.  
Number of pages: 3  
Pages: 122-124  
Publication date: 2015

### Host publication information

Title of host publication: Proceedings of SilviLaser 2015 : 14th conference on Lidar Applications for Assessing and Managing Forest Ecosystems  
URLs:  
[https://silvilaser2015.teledetection.fr/files/Proceedings\\_Silvilaser\\_22\\_09\\_2015\\_2.pdf](https://silvilaser2015.teledetection.fr/files/Proceedings_Silvilaser_22_09_2015_2.pdf) (Conference proceedings)  
Research output: Chapter in Book/Report/Conference proceeding › Conference contribution › Professional

## Triboelectric charging of fungal spores during resuspension and rebound

### General information

Publication status: Published  
MoE publication type: D3 Professional conference proceedings  
Organisations: Department of Physics, Research area: Aerosol Physics, Research group: The Instrumentation, Emissions, and Atmospheric Aerosols Group  
Contributors: Kuuluvainen, H., Saari, S., Mensah-Attipoe, J., Pasanen, P., Reponen, T., Keskinen, J.  
Publication date: 2015

### Host publication information

Title of host publication: EAC 2015, European Aerosol Conference, 6-11 September, 2015, Milan, Italy

### Bibliographical note

ISBN kysytty, HO.  
Ei ole, HO.  
Research output: Chapter in Book/Report/Conference proceeding › Conference contribution › Professional

## 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

## Tunable second-harmonic generation in a single nanostructure

### General information

Publication status: Published

MoE publication type: D3 Professional conference proceedings

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

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

Number of pages: 2

Publication date: 2015

### Host publication information

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

URLs:

[http://www2.uef.fi/documents/1812306/2637761/Program\\_File+OIE2015.pdf/2e71a273-2b87-414c-b4a1-fb77be93660e](http://www2.uef.fi/documents/1812306/2637761/Program_File+OIE2015.pdf/2e71a273-2b87-414c-b4a1-fb77be93660e)

### Bibliographical note

ISBN kysytty, HO.

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

## Two models for hydraulic cylinder

### General information

Publication status: Published

MoE publication type: D3 Professional conference proceedings

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

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

Number of pages: 2

Pages: 115-116

Publication date: 2015

### Host publication information

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

Place of publication: Sarajevo

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

Keywords: computational methods, Multi-Scale, Solid

URLs:

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

URLs:

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

### **Bibliographical note**

Ei löydy isbn

ORG=mei,0.5

ORG=rak,0.5

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

## **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

## **Using context overlays to analyse the role of a priori information with Process Mining**

Notwithstanding the significant advances in context-aware computing in pervasive computing and self-adaptive systems, there is still much more to be desired in providing better context services. The number of sensors deployed world-wide increases very rapidly. The Internet of Things, amongst others, generates vast amounts of data of many different data types. How data are used is essential to improve user experience and efficiencies of the systems in which they occur. We explain how familiar concepts of Process Mining strengthen generalised sensor context services. We present a laboratory case to explain the approach. By way of a real-world example, we confirm the viability of using Process Mining to strengthen context-aware computing.

### **General information**

Publication status: Published

MoE publication type: A4 Article in a conference publication

Organisations: Department of Mathematics, Research group: MAT Intelligent Information Systems Laboratory

Contributors: Pileggi, P., Rivero Rodriguez, A., Nykänen, O.

Number of pages: 6

Pages: 639-644

Publication date: 2015

### **Host publication information**

Title of host publication: 2015 IEEE International Systems Conference (SysCon 2015) Proceedings

Place of publication: Vancouver, BC, Canada

Publisher: IEEE

ISBN (Print): 978-1-4799-5927-3

Keywords: Context-aware computing, Process mining, Self- adaptive systems, Pervasive computing

DOIs:

10.1109/SYSCON.2015.7116823

URLs:

<http://ieeexplore.ieee.org/xpl/articleDetails.jsp?arnumber=7116823>

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

## 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

## 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

## Varmuuden kohdentaminen geotekniikassa, miten Eurokoodeja voisi kehittää?

### General information

Publication status: Published

MoE publication type: D3 Professional conference proceedings

Organisations: Department of Civil Engineering, Research group: Foundation Structures

Contributors: Länsivaara, T.

Publication date: 2015

### Host publication information

Title of host publication: Geotekniikan päivä 2015

Publisher: SGY

URLs:

<http://www.getunderground.fi/web/page.aspx?refid=38>

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

## Voimalaitosten reaaliaikainen ympäristövaikutusten monitorointi

### 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, Suomen ympäristökeskus SYKE - Finnish Environment Institute, IndMeas Oy, Helen Oy

Contributors: Majanne, Y., Korpela, T., Judl, J., Koskela, S., Laukkanen, V., Häyrynen, A., Salminen, O.

Number of pages: 6

Pages: 1-6

Publication date: 2015

### Host publication information

Title of host publication: Automaatio XXI seminaari

Publisher: Suomen Automaatioseura

Editor: Jämsä-Jounela, S.

ISBN (Print): 978-952-5183-46-7

### Publication series

Name: SAS julkaisusarja

No.: 44

ISSN (Print): 1455-6502

URLs:

<http://xxi.automaatioseura.fi/>

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

## Wireless Authentication using OPACITY Protocol

Authentication using wireless keys simplifies the user daily life and opens the door to a number of promising applications in the area of pervasive computing, Internet of Things and Tactile Internet. However, this approach raises several research challenges, including but not limited to: which communication technology to use, how to guarantee the relevant security level, and, last but not the least, how to integrate the wireless authentication systems into already deployed authorization solutions. In this paper, we address the above mentioned questions by proposing a wireless authentication solution based on the NFC-capable smartphone and using OPACITY authentication protocol that is compatible with existing access control mechanisms in OS Windows 8. We start with qualitative comparison of Bluetooth, RFID and NFC technologies in terms of applicability for wireless authentication. We then describe the OPACITY protocol in general, and its adaptation to wireless authentication scenario. We finally present the high-level architecture of our solution and highlight some Windows OS specifics we faced during the reference implementation. We believe that demonstrated interoperability between wireless authentication solution and existing access control mechanisms in modern OS provides an important step towards further development of advanced authentication methods, based on wireless keys.

### General information

Publication status: Published

MoE publication type: A4 Article in a conference publication

Organisations: Department of Electronics and Communications Engineering, Research group: Emerging Technologies for Nano-Bio-Info-Cogno

Contributors: Petrov, V., Bezzateev, S., Zybin, V.

Pages: 253-258

Publication date: 2015

### Host publication information

Title of host publication: 2015 7th International Congress on Ultra Modern Telecommunications and Control Systems and Workshops (ICUMT)

Publisher: IEEE

ISBN (Print): 978-1-4673-9282-2

DOIs:

10.1109/ICUMT.2015.7382438

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

### 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

### Winner-Does-Not-Take-All: Selective Attention and Local Bias in Platform-Based Markets

We examine competition between platforms in platform-based markets with agent-based modeling. In our proposed model, a consumer adopts a platform that offers the most relative utility of competing platforms. More specifically, the utility is derived from the local direct network effects arising from the social network of the consumer and the indirect network effects arising from complementary products of the platform. We portray the consumer as selectively attentive and locally biased. We contrast the proposed model to several alternative models with empirical data from the competition between Sony's PlayStation 3 and Microsoft's Xbox 360 and show that the proposed model, where the aforementioned consumer characteristics, and platform pricing, explain the adoption decisions of consumers and thus the division of the market between platforms. We offer important insights on how the dynamics of competition on the macro-level emerge from micro-level interactions between consumers.

#### 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, Lappeenranta University of Technology, Hanken School of Economics

Contributors: Huotari, P., Järvi, K., Kortelainen, S., Huhtamäki, J.

Publication date: Jan 2015

#### Host publication information

Title of host publication: Academy of Management Proceedings : Meeting Abstract Supplement

Publisher: Academy of Management

#### Publication series

Name: Academy of Management. Annual Meeting Proceedings

Publisher: Academy of Management

ISSN (Electronic): 2151-6561

URLs:

<http://proceedings.aom.org/content/2015/1/16901.short>

### **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

### **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

#### The development curve of knowledge management practices: a ten year perspective from top50 Finnish enterprises

##### 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 Information Management and Logistics

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

Publication date: 31 Jan 2015

##### Host publication information

Title of host publication: 15th Eurasia business and economics society conference : Lisbon, Portugal, January 8-10, 2015

Publisher: Springer

ISBN (Electronic): 978-3-319-27573-4

URLs:

<https://www.ebesweb.org/Conferences/Recent/15th-EBES-Conference-Lisbon.aspx>

##### Bibliographical note

INT=tlo,"Zhao, Xuepin"

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

#### 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

## 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

## 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

## LTE indoor MIMO performances field measurements

Long-term evolution (LTE) and multiple input multiple output (MIMO) have earned reputations to be a cutting-edge technology, which can boost significantly wireless communication performances. The paper aims at providing LTE MIMO performances in indoor environments and, therefore, guidelines for network operators can be proposed. Medium access control throughput (MAC TP) and some system parameters in LTE network that are linked with MAC TP, such as Channel Quality Indicator (CQI), Modulation and Coding Scheme (MCS), Ranking Indicator (RI), Pre-coding Matrix Indicator (PMI), as well as MIMO utilization, are analysed. Effects of indoor propagation, Line of Sight (LoS), No-line of Sight (NLoS), strong and weak signal levels on Signal to Noise Ratio (SNR) strength and MIMO utilization are clarified. In this paper, the performances of MIMO transmission mode over transmit diversity (TxDiv, Multiple Input-Single Output-MISO) and single antenna (Single Input Multiple Output-SIMO) modes are also analyzed and compared at overall manner and at channel-specific manners.

### General information

Publication status: Published

MoE publication type: A4 Article in a conference publication

Organisations: Tampere University of Technology, Department of Electronics and Communications Engineering, Department of Electronics and Communication Engineering, Electrical and Electronics Engineering Department, Department of Electric-Electronics Engineering, Ho Chi Minh City University of Technology, Industrial University of Ho Chi Minh City, Ho Chi Minh City University of Food Industry

Contributors: Nguyen-Thanh, D., Le-Tien, T., Bui-Thu, C., Le-Thanh, T.

Number of pages: 6

Pages: 84-89

Publication date: 17 Feb 2015

### Host publication information

Title of host publication: International Conference on Advanced Technologies for Communications

Publisher: IEEE

ISBN (Print): 9781479969555

ASJC Scopus subject areas: Computer Networks and Communications, Hardware and Architecture, Software

Keywords: Field measurements, LTE, MIMO, MISO, OFDM, Rayleigh channel, Rician channel

DOIs:

10.1109/ATC.2014.7043361

### Bibliographical note

INT=elt,"Nguyen-Thanh, Duc"

Source: Scopus

Source ID: 84940516567

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

### Riding for a fall in outsourced ISD: Transferring knowledge between onshore vendor and offshored unit

#### General information

Publication status: Published

MoE publication type: D3 Professional conference proceedings

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

Contributors: Alanne, A., Pekkola, S.

Publication date: 18 Feb 2015

#### Host publication information

Title of host publication: 9th Global Sourcing Workshop 2015 : La Thuile, Italy, February 18-21, 2015

URLs:

<http://www.globalsourcing.org.uk/2013/05/the-8th-global-sourcing-workshop-23-26-of-march-2014-call-for-papers-released/>

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

### 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. Muwaqqa. The analysis intends to explore how Muwaqqa 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

### Uudet arkkitehtoniset ratkaisumallit muuttavat kampuksien ilmettä

Uudet pedagogiset oivallukset sekä tekniset innovaatiot ovat radikaalisti muokanneet yliopisto-oppimista, mikä asettaa merkittäviä kehitystarpeita myös oppimistiloille. Uudenlaiset oppimistavat vaativat uudenlaisia tiloja ja paikkoja, jotka tukevat oppimista parhaalla mahdollisella tavalla. Artikkelissa pohditaan kuinka kampuksia voidaan elävöittää arkkitehtuurin keinoin? Miten eri mittakaavalliset ratkaisut tukevat oppimista, vuorovaikutusta sekä luovuutta?

Kampusten uudistamista voidaan tarkastella erilaisista tilallisista ja arkkitehtonisista näkökulmista. Tässä artikkelissa esitetään kolmen tarkastelutason ideoita kampus-, rakennus- ja tilamittakaavoissa. Kokonaisvaltaiset ratkaisut, joissa rakennuksen tilat ja toiminta uudistuvat täysin, omaavat valtavan potentiaalin muuttaa ihmisten välistä vuorovaikutusta sekä tilojen käyttöä. Tällaiset ratkaisut saattavat olla kuitenkin kalliita ja hitaita toteuttaa. Pienemmän mittakaavan ratkaisut vaikuttavat pienemmällä alueella, mutta ovat toteutukseltaan edullisempia ja nopeampia. Esimerkiksi kampusten vajaakäyttöisten tilojen, kuten käytävien ja aulatilojen ottaminen hyötykäyttöön voisi tehostaa merkittävästi kampusten tilarakennetta. Täysin uusien toimintojen sijoittaminen näihin vajaakäyttöisiin tiloihin voisi lisäksi luoda kampuksista eläviä urbaaneja ympäristöjä, joissa on toimintaa vuorokauden ympäri. Olemassa olevat rakennukset voivat täten toimia alustoina uusille arkkitehtonisille ratkaisuille, jotka viestivät opetuksen ja tutkimuksen ajankohtaisuudesta. Tutkimuksen tuloksia voidaan soveltaa joustavasti erilaisten kampusympäristöjen muutosten suunnittelussa. Artikkelit toimii keskustelun avauksena suunnittelijoiden, kampuskehittäjien sekä käyttäjien välisessä vuoropuhelussa. Esitetyt ratkaisumallit paljastavat, että olemassa olevissa kampuksissa ja niiden tilarakenteessa on paljon kehityspotentiaalia. Artikkelissa esitetyt visiot herättelevät lukijoita katsomaan olemassa olevia kampuksia uudesta näkökulmasta uusien innovatiivisten esimerkkien ja tilaratkaisujen kautta.

### General information

Publication status: Published  
MoE publication type: D2 Article in professional manuals or guides or professional information systems or text book material  
Organisations: School of Architecture, Research group: Public Buildings  
Contributors: Poutanen, J., Peltoniemi, S., Pihlajarinne, N.  
Number of pages: 22  
Pages: 72-93  
Publication date: Mar 2015

### Host publication information

Title of host publication: Oppiva kampus : How to co-create campus?  
Place of publication: Tampere  
Publisher: Suomen Yliopistokiinteistöt Oy  
Editors: Nenonen, S., Kärnä, S., Junnonen, J., Tähtinen, S., Sandström, N.  
ISBN (Print): 978-952-15-3478-2  
ISBN (Electronic): 978-952-15-3479-9  
URLs:  
[http://sykoy.fi/wp-content/uploads/oppiva-kampus\\_valmis\\_pieni.pdf](http://sykoy.fi/wp-content/uploads/oppiva-kampus_valmis_pieni.pdf)  
Research output: Chapter in Book/Report/Conference proceeding › Chapter › Professional

### Generalized hyperbolic harmonic functions in the plane

We consider solutions of the equation  $\Delta_h(x,y) - k \frac{\partial h}{\partial y} = 0$  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

### 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)

### **Internet-of-things disrupting business ecosystems: A case in home automation**

The paper presents a case study of Internet of Things (IoT) technology application and its disruptive nature on the business ecosystem. The disruptive nature of changes is analyzed with identification of changes incurred to the business ecosystem as IoT is introduced to the marketplace. The results of a case analysis exemplify how business ecosystems are changing due to opportunities provided by IoT.

#### **General information**

Publication status: Published

MoE publication type: A4 Article in a conference publication

Organisations: Department of Industrial Management, Research group: Center for Innovation and Technology Research, Managing digital industrial transformation (mDIT)

Contributors: Mäkinen, S.

Number of pages: 4

Pages: 1467-1470

Publication date: 11 Mar 2015

#### **Host publication information**

Title of host publication: IEEM 2014 : 2014 IEEE International Conference on Industrial Engineering and Engineering Management

Publisher: IEEE COMPUTER SOCIETY PRESS

ISBN (Print): 9781479964109

ASJC Scopus subject areas: Business, Management and Accounting (miscellaneous), Industrial and Manufacturing Engineering, Safety, Risk, Reliability and Quality

Keywords: business ecosystems, home automation, internet of things

DOIs:

10.1109/IEEM.2014.7058882

URLs:

<http://www.scopus.com/inward/record.url?scp=84940397804&partnerID=8YFLogxK> (Link to publication in Scopus)

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

### **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

### **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

### 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

### 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

### Systematic approach to secure automation – coordinated voltage control use-case

### General information

Publication status: Published  
MoE publication type: A4 Article in a conference publication  
Organisations: Department of Automation Science and Engineering, Research area: Information Systems in Automation, Research area: Dynamic Systems, Department of Electrical Engineering, Research area: Power engineering  
Contributors: Salmenperä, M., Seppälä, J., Koivisto, H., Lu, S., Repo, S.  
Publication date: 18 Mar 2015

### Host publication information

Title of host publication: Proceedings of AutomaatioXXI, The Industrial Revolution of Internet – From Intelligent Devices to Networked Intelligence  
Place of publication: Helsinki, Finland  
Publisher: Suomen Automaatioseura ry  
ISBN (Electronic): 978-952-5183-46-7

### Publication series

Name: SAS Julkaisusarja

Publisher: Finnish Society of Automation

Volume: 44

#### Bibliographical note

ORG=ase,0.8

ORG=dee,0.2

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

#### Towards automation security research and training environment

An automation system is a networked software product in hardware intensive environment and requires more than normal IT security skills. Building an automation security research and training environment for automation requires knowledge on the internal workings of an automation system as well as creative approach on how to keep the system secure where needed, and broken when required for development and teaching purposes. The main challenges are to combine the amount of automation specific hardware and to create good practices which keep the need for maintenance, versatility and pedagogical aspects in balance. This paper presents a project called TUTCyberLabs, the learned lessons and the design decisions. The main focus is on Department of Automation Science and Engineering environment ASECyberLab.

#### General information

Publication status: Published

MoE publication type: A4 Article in a conference publication

Organisations: Department of Automation Science and Engineering, Research area: Information Systems in Automation, Research area: Dynamic Systems, Department of Pervasive Computing, Research area: Information security, Department of Electrical Engineering, Research area: Power engineering, Ajeco Inc, VTT Technical Research Centre of Finland

Contributors: Seppälä, J., Salmenperä, M., Koivisto, H., Harju, J., Repo, S., Holmström, J., Ahonen, P.

Publication date: 18 Mar 2015

#### Host publication information

Title of host publication: Proceedings of Automaatio XXI, The Industrial Revolution of Internet – From Intelligent Devices to Networked Intelligence

Place of publication: Helsinki, Finland

Publisher: Suomen Automaatioseura ry

ISBN (Electronic): 978-952-5183-46-7

#### Publication series

Name: SAS Julkaisusarja

Publisher: Finnish Society of Automation

Volume: 44

#### Bibliographical note

ORG=ase,0.8

ORG=tie,0.1

ORG=dee,0.1

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

#### Joustavat asuinympäristöt: 10 visiota aikaa kestävään kaupunkiasumiseen

Housing production is usually based on the belief of predictability, but this approach is inconsistent with the fact that the future cannot be predicted. Residential design and construction must therefore adopt more flexible and adaptable principles, where the impossibility of making predictions is taken into account. Adaptable housing can help to meet the forthcoming and increasingly diverse housing needs, providing housing alternatives in a sustainable way. Ten visions presented in this publication introduce a wide range of means, methods and scales to achieve adaptability and flexibility in housing construction. The publication consists of ten design assignments created during an advanced housing design course at Tampere University of Technology in spring 2013. The publication presents not only a wide range of means to achieve flexibility in housing construction, but also their direct connection with the practice. The publication is part of a study concerning user-centric spaces in the Indoor Environment Program of RYM Oy.

#### General information

Publication status: Published

MoE publication type: D6 Edited professional books

Organisations: School of Architecture, Research group: ASUTUT

Contributors: Kotilainen, S. (ed.), Hedman, M. (ed.), Heikkinen, J. (ed.)

Number of pages: 268

Publication date: 31 Mar 2015

#### Publication information

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

#### Publication series

Name: Housing Design  
Publisher: Tampere University of Technology. School of Architecture. Housing Design. Publication;16  
Electronic versions:  
joustavat\_asuinymparistot  
URLs:  
<http://URN.fi/URN:ISBN:978-952-15-3477-5>  
URLs:  
<http://URN.fi/URN:ISBN:978-952-15-3477-5>

#### Bibliographical note

Versio ja lupa ok 12.1.2016 KK  
Research output: Book/Report > Anthology > 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

#### On improvement of transient stage of composite nonlinear feedback control using arbitrary order set point filters

This paper studies the generalization of composite nonlinear feedback (CNF) control using arbitrary order set point filters, which focus on the initial stage of the transient response. The set point filters can be used to provide more performance by shortening the rise and settling times of the control system. Furthermore, the filters operate outside the feedback loop, and hence, they do not sacrifice loop robustness. The new method is illustrated by a benchmark problem found in an open literature. The simulation results show that the proposed method improves the set point response more than 10% in terms of settling time.

##### General information

Publication status: Published  
MoE publication type: A4 Article in a conference publication  
Organisations: Research area: Information Systems in Automation, Research area: Dynamic Systems, Department of Automation Science and Engineering, Smart Energy Systems (SES)  
Contributors: Pyrhönen, V., Koivisto, H.  
Number of pages: 6

Pages: 147 - 152  
Publication date: 1 Apr 2015

#### Host publication information

Title of host publication: 2014 IEEE International Conference on Control System, Computing and Engineering (ICCSCE)  
Publisher: Institute of Electrical and Electronics Engineers IEEE  
ISBN (Print): 978-1-4799-5685-2  
Keywords: Composite nonlinear feedback, actuator saturation, high performance, robust control, set point filter, control system synthesis, feedback, nonlinear control systems, transient response  
DOIs:  
10.1109/ICCSCE.2014.7072705  
URLs:  
<http://ieeexplore.ieee.org/stamp/stamp.jsp?tp=&arnumber=7072705>  
Research output: Chapter in Book/Report/Conference proceeding > Conference contribution > Scientific > peer-review

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

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

#### General information

Publication status: Published  
MoE publication type: A1 Journal article-refereed  
Organisations: Department of Signal Processing, Research group: Computational Systems Biology  
Contributors: Yli-Hietanen, J., Ylipää, A., Yli-Harja, O.  
Publication date: 11 Apr 2015  
Peer-reviewed: Yes

#### Publication information

Journal: Chinese Journal of Cancer  
Volume: 34  
Issue number: 10  
Article number: 12  
ISSN (Print): 1944-446X  
Ratings:  
Scopus rating (2015): CiteScore 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

#### Comparison of Sintering Methods and Conductive Adhesives for Interconnections in Inkjet-Printed Flexible Electronics

Increasing demands for flexibility and stretchability for electronic devices are driving the research for novel fabrication technologies. Inkjet-printing is one of these novel electronics fabrication techniques studied and developed globally in recent years and it has some interesting benefits over traditional lithography-based techniques, mainly its additive and digital nature. Traditional manufacturing methods are mature techniques and the processes are well defined and optimized for large scale manufacturing and inkjet-printing is not going to replace the lithography as such for large scale manufacturing. Inkjet-printing does, however, enable whole new ways of electronics fabrication, such as high part-to-part customization and 3D processability, which have previously been either very challenging or even impossible.

So far research has focused mainly on inkjet-printing itself and the jetting process is understood fairly well. However, at the moment printed semiconductor materials are far inferior to traditional semiconductor components and can not enable the same level of functionality or connectivity. Hybrid systems, combining the high performance of traditional semiconductor components and benefits of inkjet-printing, are studied as a solution for fabricating high performance devices with novel fabrication techniques. Hybrid systems require the ability to attach external components to the printed structures and this integration was chosen as one of the main topic for this thesis work as it had not been studied previously and the knowledge was required for developing inkjet-printing.

This thesis analyzes inkjet-printed hybrid systems and focuses on system level integration. The work is done on interconnections including both the sintering of metallic nanoparticles as well as external component interconnections and circuit board to circuit board connections. Sintering research is focused on alternative sintering methods to traditional thermal sintering and evaluation of their usability in electronics fabrication. Electrically conductive adhesives are studied as the main method of forming external connection to components and to other circuit boards.

In the research related to this thesis alternative sintering methods were found to be suitable replacements for traditional thermal sintering with the advantages and disadvantages varying between different technologies. Laser and intense pulsed lighting were generally found to be the most promising techniques for inkjet-printed structures. External connections to traditional surface mounted components as well as other printed circuit boards were also successfully demonstrated in the related publications using electrically conductive adhesive materials. Both the electrical performance and long term reliability of the conductive adhesives were found to be inferior to solder-based interconnections but observations show that the difference is caused by the adhesive material itself, not by the use of inkjet-printing. Thus adhesives can be considered as a viable method for forming external interconnections on inkjet-printed structures.

#### **General information**

Publication status: Published

MoE publication type: G5 Doctoral dissertation (article)

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

Contributors: Niittynen, J.

Number of pages: 62

Publication date: 24 Apr 2015

#### **Publication information**

Publisher: Tampere University of Technology

ISBN (Print): 978-952-15-3505-5

ISBN (Electronic): 978-952-15-3515-4

Original language: English

#### **Publication series**

Name: Tampere University of Technology. Publication

Publisher: Tampere University of Technology

Volume: 1291

ISSN (Print): 1459-2045

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niittynen\_1291

URLs:

<http://URN.fi/URN:ISBN:978-952-15-3515-4>

#### **Bibliographical note**

Awarding institution: Tampere University of Technology

Versio ok 16.12.2015

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

#### **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

### **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

### **Vehicle Mass Estimation for Hydraulic Drive System using Longitudinal Motion Model**

The real-time mass estimation of the vehicle is applied for the machine with the hydraulic drive system. The mass estimation is based on the longitudinal drive model comprising the model of hydraulic drive transmission. The resistance forces of the longitudinal motion such as the air drag, rolling resistance and friction of the drive system are modelled. The actual mass of the vehicle is deduced from the measured hydraulic torque and from the force causing the acceleration. As the aerodynamic drag, rolling resistance, road grade load and transmission losses have a significant share from the total drive torque, the effects of these forces are taken account. Further, the estimated mass data is classified by recognising operation conditions where the mass estimation is accurate. After a short acceleration-deceleration period, the measured signals provide enough data for estimating the mass of the vehicle. The experimental tests are run with a middle-size wheel loader and with a typical work cycle resulting  $\pm 5\%$  accuracy from the real mass. Furthermore, the proposed model and recognition of the operation conditions are applicable to estimate also other vehicle parameters such as friction force or road grade.

#### **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

Contributors: Ahopelto, M., Krogerus, T., Huhtala, K.

Number of pages: 10

Pages: 433-442

Publication date: May 2015

#### **Host publication information**

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

Publisher: Tampere University of Technology. Department of Intelligent Hydraulics and Automation

ISBN (Electronic): 978-952-15-3530-7

#### **Publication series**

Name: The Fourteenth Scandinavian International Conference on Fluid Power, SICFP15

ISSN (Electronic): 2342-2726

Keywords: Longitudinal motion, mass estimation, hydraulic drive system, wheel loader

URLs:

<http://urn.fi/URN:ISBN:978-952-15-3530-7> (Link to conference publication)

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

### **Feasibility of electric buses in public transport**

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

Charging at the line stops.

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

### **General information**

Publication status: Published

MoE publication type: D3 Professional conference proceedings

Organisations: Department of Electrical Engineering, Research area: Power engineering

Contributors: Vilppo, O., Markkula, J.

Number of pages: 9

Publication date: 3 May 2015

### **Host publication information**

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

URLs:

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

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

### **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

## 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

## 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

## Oppivan organisaation kehittäminen osaavaksi organisaatioksi. Tapaustutkimus suomalaisessa teollisuusyriyksessä

### General information

Publication status: Published

MoE publication type: G4 Doctoral dissertation (monograph)

Organisations: Department of Information Management and Logistics

Contributors: Hagman, S.

Number of pages: 209

Publication date: 22 May 2015

### Publication information

Publisher: Tampere University of Technology

ISBN (Print): 978-952-15-3516-1

ISBN (Electronic): 978-952-15-3521-5

Original language: Finnish

### Publication series

Name: Tampere University of Technology. Publication

Publisher: Tampere University of Technology

Volume: 1296

ISSN (Print): 1459-2045

Electronic versions:

hagman\_1296

URLs:

<http://URN.fi/URN:ISBN:978-952-15-3521-5>

### Bibliographical note

Awarding institution: Tampere University of Technology

Versio 16.12.2015

Research output: [Book/Report](#) › [Doctoral thesis](#) › [Monograph](#)

### 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](https://doi.org/10.1007/s12213-015-0080-9)

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

### Boundary Integral Operators in Linear and Second-order Nonlinear Nano-optics

Recent advances in the fabrication of nanoscale structures have enabled the production of almost arbitrarily shaped nanoparticles and so-called optical metamaterials. Such materials can be designed to have optical properties not found in nature, such as negative index of refraction. Noble metal nanostructures can enhance the local electric field, which is beneficial for nonlinear optical effects. The study of nonlinear optical properties of nanostructures and metamaterials is becoming increasingly important due to their possible uses in nanoscale optical switches, frequency converters and many

other devices.

The responses of nanostructures depend heavily on their geometry, which calls for versatile modeling methods. In this work, we develop a boundary element method for the modeling of surface second-harmonic generation from isolated nanoparticles of very general shape. The method is also capable of modeling spatially periodic structures by the use of appropriate Green's function. We further show how to utilize geometrical symmetries to lower the computational time and memory requirements in the boundary element method even in cases where the incident field is not symmetrical.

We validate the boundary element approach by the calculation of second-harmonic scattering from gold spheres of different radii. Comparison to analytical solution reveals that under one percent relative error is easily achieved. The method is then applied to model second-harmonic microscopy of single gold nanodots and second-harmonic generation from arrays of L- and T-shaped gold particles. The agreement between the calculations and measurements is shown to be excellent.

To provide a more intuitive understanding of the optical response of nanostructures, we develop a full-wave spectral approach, which is based on boundary integral operators. We present a theory which proves that the resonances of a smooth scatterer are isolated poles that occur at complex frequencies. Other types of singularities, such as branch-cuts, may occur only via the fundamental Green function or material dispersion. We propose a definition of an eigenvalue problem at fixed real frequencies which gives rise to modes defined over the surface of the scatterer. We illustrate that these modes accurately describe the optical responses that are usually seen for certain particle shapes when using plane-wave excitations. With the spectral approach, the resonance frequencies and the modal responses of a scatterer can be found as intrinsic properties independent of any incident field. We show that the spectral theory is compatible with the Mie theory for spherical particles and with a previously studied quasi-static theory in the limit of zero frequency.

#### **General information**

Publication status: Published

MoE publication type: G5 Doctoral dissertation (article)

Organisations: Department of Physics, Research area: Optics

Contributors: Mäkitalo, J.

Number of pages: 73

Publication date: 29 May 2015

#### **Publication information**

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ISBN (Print): 978-952-15-3522-2

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Original language: English

#### **Publication series**

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#### **Bibliographical note**

Awarding institution: Tampere University of Technology

Versio ok 16.12.2015

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

#### **Brownfield Process: A Method for the Rationalisation of Existing Product Variety towards a Modular Product Family**

The purpose of the research is to define what kind of design information is needed when existing non-modular product elements are designed towards a modular product family that enables product configuration — and what kinds of steps facilitate this kind of design. Thus this thesis poses two research questions: RQ1. How to structure the design information needed in the designing of modular product families? RQ2. How to create the design information needed in the rationalisation of existing product variety towards a modular product family? The research approach includes application of Design Research Methodology (DRM) as originated by Blessing & Chakrabarti (2009). This research includes four main stages (Research Clarification, Descriptive Study I, Prescriptive Study and Descriptive Study II), all focusing on the defining of influencing factors and their impacts, as DRM suggests. This thesis considers that design reuse, product variety, standardisation, modularisation, product platforms, product families and product configuration are all main product structuring topics when an existing product assortment should be rationalised. Consideration of these topics makes up an effective tactic for the enabling of product variants to be provided for customers, without forgetting the benefits of design reuse and commonality in an industrial environment. The contribution of the research suggests that there are five key

factors from a design information perspective that are essential in modular product family development aimed at product configuration. These elements are also the answer to RQ1: - Partitioning logic defines viewpoints that affect product structuring decisions from both a business and customer perspective. - A set of modules includes building blocks of product variants of a product family. - Interfaces (standardised) enable efficient defining of product variants in the order/sales-delivery process. - Architecture describes how modules and their interfaces are related to each other. Architecture also considers layout issues such as space reservations. - Configuration knowledge describes the relations between product family elements and customer needs that create a need for variety. Configuration knowledge can also present compatibilities of product elements or customer needs. The thesis also suggests a design process known as the Brownfield Process (the BfP), and includes ten steps in which design information related to the above key factors is defined. This is the suggested answer to RQ2. - Step 1: Target setting based on business environment - Step 2: Generic element model of the Module System - Step 3: Architecture: generic elements and interfaces - Step 4: Target setting based on customer environment - Step 5: Preliminary product family description - Step 6: Configuration knowledge: generic elements and customer needs - Step 7: Modular architecture: modules and interfaces - Step 8: Configuration knowledge: module variants and customer needs - Step 9: Product family documentation - Step 10: Business impact analysis The role of the BfP within the context of design research is discussed. From an academic viewpoint, there is a lack of these kinds of modularisation methods that aim at configurable products, although single aspects and key factors of the proposed method have been often discussed and their benefits and importance are emphasised separately in the literature. From an industrial viewpoint, the steps of the method can be applied in a real life environment based on the case studies. Thus contribution of the thesis can be considered worthwhile and an important addition in this research field.

### General information

Publication status: Published

MoE publication type: G4 Doctoral dissertation (monograph)

Organisations: Department of Mechanical Engineering and Industrial Systems, Research area: Design, Development and LCM

Contributors: Pakkanen, J.

Number of pages: 283

Publication date: 29 May 2015

### Publication information

Publisher: Tampere University of Technology

ISBN (Print): 978-952-15-3524-6

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Original language: English

### Publication series

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[pakkanen\\_1299](#)

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<http://URN.fi/URN:ISBN:978-952-15-3537-6>

### Bibliographical note

Awarding institution: Tampere University of Technology

Versio ok 16.12.2015

Research output: [Book/Report](#) › [Doctoral thesis](#) › [Monograph](#)

### On the Socio-Technical Dependencies in Free/Libre/Open Source Software Projects

During the course of the past two decades, Open Source Software (OSS) development model has lead to a number of projects which have produced software that rivals and in some cases even exceeds the scale and quality of the traditional software projects. Among others, Eclipse, Apache, Linux, and BSD operating system are representative examples of such success stories.

However, OSS project like traditional in-house projects, often pose the potential for enormous problems, whose effects run the gamut from immense cumulative delay through complete breakdown and failure. This situation is evident, as OSS development is a socio-technical endeavor and is non-trivial. Such development occurs within an intensively collaborative process, in which technical prowess must go hand in hand with the efficient coordination and management of a large number of social, inter-personal interactions across the development organization. Furthermore, those social and technical dimensions are not orthogonal. It has been recognized that the structure of a software product and the layout of the development organization working on that product correlate.

Therefore this thesis argue that a comprehensive understanding on the sustainable evolution of OSS projects can be gained through the examination of the mutual influence of social and technical dimensions in OSS development. Thus, the

goal of this thesis is the verification and reasoning of the following proposition,

“The evolution of the Open Source Software (OSS) project is constrained by the non-orthogonal evolution of Social and Technical dimensions (often termed as Socio-Technical dependency) of such projects”.

In concrete terms, this thesis investigates and measures empirically the extent to which the two dimensions of OSS projects, social and technical, approximate and influence each other during the evolution of the projects. Perceived insight is then used to build proposals that would provide empirical basis to frame theory around the affirmed proposition.

Moving towards this goal, this thesis proposes models, methods, frameworks and tool supports to measure, assess, and reason the socio-technical dependency within OSS project context. The starting point is to propose a data model to mimic the social and technical dimensions and their inter-relationships. This model is instantiated through the repository data of OSS projects that represent each of these dimensions. Then, methods and a mathematical model are proposed to derive dependency between the two dimensions, and to utilize them in measuring socio-technical dependency quantitatively. These proposals are then put into practice within distinct OSS project contexts to empirically measure and investigate socio-technical dependency. Along the process, frameworks, architectural design and corresponding tool implementations are provided to automate the analysis and visualization of such dependency.

Reported results suggest that high degree of socio-technical congruence can be considered as the implicit underlying principle for building team collaboration and coordination within the developer community of long lived OSS projects. Even being highly distributed community of developers, and mostly using passive communication channels, OSS communities are tied together by maintaining task dependent communication. Such communication is often ad-hoc, adaptive and situated as it cope with rapid and continuous changes in the underlying software.

Additionally, collaboration among projects are significantly influenced by the resembling properties among the projects. Resembling properties (e.g., project domain, size, and programming language) often form a favorable ground, thus creating a stimuli for developers to participate in those projects.

#### **General information**

Publication status: Published

MoE publication type: G5 Doctoral dissertation (article)

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

Contributors: Syeed, M. M. M.

Publication date: 29 May 2015

#### **Publication information**

Publisher: Tampere University of Technology

ISBN (Print): 978-952-15-3525-3

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Original language: English

#### **Publication series**

Name: Tampere University of Technology. Publication

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<http://URN.fi/URN:ISBN:978-952-15-3533-8>

#### **Bibliographical note**

Awarding institution: Tampere University of Technology

Versio ok 16.12.2015

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

#### **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

#### 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

#### 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

### **Enhancing the supplier's third-party relationships in construction projects**

Project delivery involves networks of customers, contractors, suppliers, and various third parties. Previous research has focused on contractual relationships in the direct supply chains, with less attention to third parties and non-contractual relationships. This study develops and tests a framework of relationship strength and its antecedents in the non-contractual relationship of component suppliers and designers as third parties. The intent is to identify factors relevant to enhancing the supplier's third party relationships. The results reveal the supplier's activeness and technical capability as antecedents to trust, and supplier's technical capability and supplier-designer cooperation outside projects as antecedents to commitment.

#### **General information**

Publication status: Published

MoE publication type: D3 Professional conference proceedings

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

Contributors: Sariola, R., Martinsuo, M.

Number of pages: 21

Publication date: Jun 2015

#### **Host publication information**

Title of host publication: The Bartlett IRNOP 2015 : International Research Network on Organizing by Projects Conference

Publisher: IRNOP

Keywords: project networks, supplier relationships, relationship strength

URLs:

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

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

### **Kangasalan Lamminrahka. Yhdyskuntasuunnittelun ammattikurssi 1 2015**

#### **General information**

Publication status: Published

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

Organisations: School of Architecture, Research group: Urban Planning

Contributors: Rajaniemi, J. (ed.), Thureson, J. (ed.), Chudoba, M. (ed.)

Number of pages: 92

Publication date: Jun 2015

#### **Publication information**

Place of publication: Tampere

Publisher: Tampere University of Technology, School of Architecture

ISBN (Print): 978-952-15-3540-6

ISBN (Electronic): 978-952-15-3541-3

Original language: Finnish

Electronic versions:

Kangasalan\_Lamminrahka-TTY\_YSAK1\_2015

URLs:

<http://urn.fi/URN:NBN:fi:ty-201603183718>

Research output: Book/Report › Commissioned report › Professional

### **Moving manufacturing back: a content-based literature review**

The purpose of this research is to systematically review and analyze the state-of-the-art of research on the backshoring, reshoring, and insourcing of manufacturing, published in peer-reviewed international scientific journals. We identify 21 articles from 2005 to 2015. The content analysis identifies 23 factors that influence the decision to move manufacturing back, and which we categorize in 8 clusters. We also analyze the content with respect to research methodology, industry type, and firm size. Furthermore, we provide suggestions for further research on the phenomenon of moving manufacturing back in a research agenda.

#### **General information**

Publication status: Published

MoE publication type: D3 Professional conference proceedings

Organisations: Department of Industrial Management, University of Southern Denmark, Lund University

Contributors: Stentoft, J., Olhager, J., Heikkilä, J., Thoms, L.

Publication date: Jun 2015

#### Host publication information

Title of host publication: 22nd EurOMA Conference : Operations management for sustainable competitiveness

Place of publication: Neuchatel, Switzerland

URLs:

<http://www.euroma2015.org/>

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

#### Raudoitetun betonirakenteen taivutuksen mallintaminen Ansys-ohjelmalla

##### General information

Publication status: Published

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

Organisations: Department of Civil Engineering, Research group: Metal and Light-wight structures, Research group: Structural Mechanics

Contributors: Pietilä, J., Mäkinen, J.

Number of pages: 7

Pages: 91-96

Publication date: Jun 2015

##### Host publication information

Title of host publication: Proceedings of the XII Finnish Mechanics Days

Place of publication: Helsinki

Publisher: Rakenteiden Mekaniikan Seura ry

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

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

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

URLs:

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

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

#### Remote monitoring systems as enablers for project-related services

Project-based firms complement their system deliveries with services. Remote monitoring assists these firms in monitoring the use of the installed base of equipment and offering services that meet the customers' needs. This paper analyses how remote monitoring systems can enable project-related services. A qualitative study was conducted at three engineering firms that provide technology-based solutions and services for a global installed base of equipment. The paper demonstrates different value drivers for using remote monitoring systems, discusses opportunities for utilizing remote data to improve project-related services and enablers, and describes barriers in implementing remote monitoring systems. Ultimately, the research highlights the role of remote monitoring systems in enabling services during the project lifecycle. Project-based firms complement their system deliveries with services. Remote monitoring assists these firms in monitoring the use of the installed base of equipment and offering services that meet the customers' needs. This paper analyses how remote monitoring systems can enable project-related services. A qualitative study was conducted at three engineering firms that provide technology-based solutions and services for a global installed base of equipment. The paper demonstrates different value drivers for using remote monitoring systems, discusses opportunities for utilizing remote data to improve project-related services and enablers, and describes barriers in implementing remote monitoring systems. Ultimately, the research highlights the role of remote monitoring systems in enabling services during the project lifecycle.

##### General information

Publication status: Published

MoE publication type: D3 Professional conference proceedings

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

Contributors: Momeni, K., Martinsuo, M.

Number of pages: 23

Publication date: Jun 2015

##### Host publication information

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

Publisher: IRNOP

Keywords: Project business, Services , Remote monitoring systems

URLs:

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

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

### **Are Finns walking the talk?: Examining the national collaboration process on engineering education for sustainable development five years later**

In 2009, the National Collaboration Group for Finnish Engineering Education published a proposal for action on sustainable development (SD). The aim of this paper is to analyze how the three main universities providing engineering education have fulfilled their commitments. The study consists of interviews with key stakeholders supplemented with the analysis of documented material. It is argued that the studied universities are now committed to SD in their strategies. However, a lot of work remains to be done before the strategies are implemented and SD is integrated to all degree programmes. Recommendations for the next steps are presented.

#### **General information**

Publication status: Published

MoE publication type: D3 Professional conference proceedings

Organisations: Department of Chemistry and Bioengineering, The Education Fund

Contributors: Takala, A., Korhonen-Yrjänheikki, K.

Publication date: 1 Jun 2015

#### **Host publication information**

Title of host publication: Conference on Engineering Education for Sustainable Development (7th : 2015 : Vancouver, B.C.)

DOIs:

10.14288/1.0064702

URLs:

<https://open.library.ubc.ca/cIRcle/collections/52657/items/1.0064702>

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

### **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

### **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

### **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

### **Performance comparison of selected wired and wireless networks on chip architectures**

In this paper we compare performance intra-core communications in network on chips. We consider two alternative architectures, wired and wireless. The wired one is based on a common bus (ring) with all the cores attached to it. We compare it to the mesh (point-to-point) architecture based on THz wireless links operating in 0.1-0.54 frequency band. Using reference latencies of inter-core communications in modern CPUs we perform an applicability assessment of considered schemes. As performance metrics of interest we consider both delay and capacity. Our results indicate that the latter architecture outperforms the former by a significant margin. The proposed system can be realized implementing directional antennas at all cores and ensuring that cores are placed on a chip such that there is no interference between them.

#### **General information**

Publication status: Published

MoE publication type: A4 Article in a conference publication

Organisations: Tampere University of Technology, Department of Electronics and Communications Engineering, P.G.

Demidov Yaroslav State University

Contributors: Komar, M.

Number of pages: 7

Pages: 68-74

Publication date: 3 Jun 2015

#### **Host publication information**

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#### **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.2015.7117974

#### **Bibliographical note**

INT=elt,"Komar, Maria"

Source: Scopus

Source ID: 84936951198

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

### **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

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

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

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

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

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

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

#### **General information**

Publication status: Published

MoE publication type: G5 Doctoral dissertation (article)

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

Contributors: Vepsäläinen, T.

Number of pages: 115

Publication date: 5 Jun 2015

#### **Publication information**

Publisher: Tampere University of Technology

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

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

Original language: English

#### **Publication series**

Name: Tampere University of Technology. Publication

Publisher: Tampere University of Technology

Volume: 1303

ISSN (Print): 1459-2045

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vepsalainen\_1303

URLs:

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

## Bibliographical note

Awarding institution: Tampere University of Technology

Versio ok 16.12.2015

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

### **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

### **User experience in technology investment decisions of industrial firms**

#### **General information**

Publication status: Published

MoE publication type: A4 Article in a conference publication

Organisations: Department of Industrial Management, Research group: Center for Innovation and Technology Research, Pori Department, Research group: Business Ecosystems, Networks and Innovations

Contributors: Sundberg, H., Seppänen, M.

Publication date: 10 Jun 2015

#### **Host publication information**

Title of host publication: 22nd Innovation & Product Development Management Conference, IPDMC

Place of publication: Copenhagen

Publisher: EIASM

URLs:

[http://www.eiasm.org/frontoffice/event\\_announcement.asp?event\\_id=1079](http://www.eiasm.org/frontoffice/event_announcement.asp?event_id=1079)

### **Bibliographical note**

ORG=pla,0.5

ORG=tta,0.5

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

### **Visual tools to support innovation development: User experiences from the Parisian ecosystem**

**Purpose** – This paper reports an experimental application of network visualization to understand the value of visual expression for presenting complex knowledge assets to executive decision makers in order to develop culturally-relevant insights for program development.

**Design/methodology/approach** – In pairs, decision makers used interactive network visualizations to explore complex multi-layer data about relationships among key executives, companies, and financing organizations in the region served by their network facilitation programs. Their experiences were documented using pre- and post- questionnaires, as well as observations and interviews conducted by research team members.

**Originality/value** –The results provide novel evidence of the benefits of a relationship- based visual format to present knowledge assets for evidence-based decisions. Using interactive visualizations, the decision makers aligned views of the data with their individual cognitive mindsets. Working in pairs to complete a joint task, team members made their cultural interpretation and working explicit.

**Practical implications** – The findings support the argument that the value of knowledge assets in problem-solving performance depends on both the format of the data and the nature of the task. Our results support the importance of continual involvement and interaction between data analysts and decision makers; they highlight the importance of considering knowledge assets as value drivers that can support knowledge-based innovation.

### **General information**

Publication status: Published

MoE publication type: A4 Article in a conference publication

Organisations: Department of Mathematics, Research group: MAT Intelligent Information Systems Laboratory, MediaX, Stanford University, VTT Technical Research Centre of Finland

Contributors: Russell, M. G., Still, K., Huhtamäki, J. V.

Number of pages: 14

Publication date: 10 Jun 2015

### **Host publication information**

Title of host publication: Proceedings of the International Forum on Knowledge Asset Dynamics, 10-12 June 2015, Bari, Italy : IKFAD 2015

Publisher: Institute of Knowledge Asset Management & Arts for Business Institute

ISBN (Electronic): 978-88-96687-07-9

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

### **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

### **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

## Meeting radical change: SMEs and innovation capabilities and strategic foresight

### General information

Publication status: Published  
MoE publication type: A4 Article in a conference publication  
Organisations: Pori Department, Research group: Business Ecosystems, Networks and Innovations, University of Örebro Business School, University of Exeter Business School, Tampere Univ Technol, Tampere University of Technology  
Contributors: Aramo-Immonen, H., Bessant, J., Heinonen, T., Öberg, C., Trifilova, A.  
Publication date: 16 Jun 2015

### Host publication information

Title of host publication: The Proceedings of the XXVI ISPIM Conference – Shaping the Frontiers of Innovation Management, Budapest, Hungary on 14-17 June 2015  
Publisher: International Society for Professional Innovation Management ISPIM  
ISBN (Print): 978-952-265-779-4  
Research output: Chapter in Book/Report/Conference proceeding › Conference contribution › Scientific › peer-review

## Second-harmonic generation from thermally-evaporated indium selenide thin films

### General information

Publication status: Published  
MoE publication type: B3 Non-refereed article in conference proceedings  
Organisations: Department of Physics, Research group: Nonlinear Optics, Research area: Optics  
Contributors: Slablab, A., Divya, S., Koskinen, K., Czaplicki, R., Kailasnath, M., Radhakrishnan, P., Kauranen, M.  
Pages: CE\_12\_4  
Publication date: 21 Jun 2015

### Host publication information

Title of host publication: The European Conference on Lasers and Electro-Optics 2015 : Munich Germany 21–25 June 2015  
Publisher: Optical Society of America  
ISBN (Electronic): 978-1-4673-7475-0  
URLs:  
[http://www.osapublishing.org/abstract.cfm?URI=CLEO\\_Europe-2015-CE\\_12\\_4](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

## 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 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

#### Impact of Axial Profile of the Gain Medium on the Mode Instability in Lasers: Regular Versus Tapered Fibers

The presented paper describes the new concept for suppression of mode instability in high power fiber lasers and amplifiers based on tapered (i.e. axially non-regular) double-clad few-mode gain architecture.

#### General information

Publication status: Published

MoE publication type: A4 Article in a conference publication

Organisations: Optoelectronics Research Centre, Research group: Ultrafast and intense lasers, Institute of Radio Engineering and Electronics, Russian Academy of Sciences (IRE RAS), Russian Acad Sci, Russian Academy of Sciences, Kotelnikov Inst Radio Engn & Elect

Contributors: Filippov, V., Ustimchik, V., Chamorovskiy, Y., Golant, K., Vorotynskii, A., Okhotnikov, O.

Publication date: 24 Jun 2015

#### Host publication information

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

Publisher: OSA

Article number: CJ-10.5

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

Keywords: FIBER LASER

URLs:

[https://www.osapublishing.org/abstract.cfm?uri=CLEO\\_Europe-2015-CJ\\_10\\_5](https://www.osapublishing.org/abstract.cfm?uri=CLEO_Europe-2015-CJ_10_5)

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

#### Single-mode 1180 nm GaInNAs/GaAs DBR laser diode for frequency doubling to 590 nm: paper CB\_11\_4

#### 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

Contributors: Korpijärvi, V., Viheriälä, J., Aho, A., Guina, M.  
Publication date: 24 Jun 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: DBR laser, GaInNAs

URLs:

[https://www.osapublishing.org/abstract.cfm?uri=cleo\\_europe-2015-CB\\_11\\_4](https://www.osapublishing.org/abstract.cfm?uri=cleo_europe-2015-CB_11_4)

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

#### 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

### **Studies of Physical Phase State of Aerosol Nanoparticles**

Aerosol particles produced in the atmosphere have major effects on the life on Earth: cloud formation starts on seed particles, often formed by photochemical oxidation of biogenic volatile organic compounds; visibility, corrosion, and health problems are caused by anthropogenic hydrocarbon and sulfur emission processed into particles by the atmosphere and the sun.

Naturally occurring secondary organic aerosol (SOA) particles can produce up to a half of the non-refractory mass of aerosol particles of less than micrometer in size. This makes SOA a large contributing factor to the climate system of the Earth. The actual effect that these particles have is, however, not well known, compared to the other effects affecting the climate. The research effort to increase the understanding and reduce the uncertainties around the climate effects of SOA encompasses an interdisciplinary research community.

The recent advance made by the observation of a solid phase of SOA by Virtanen et al. (2010) was the starting point for this thesis. The solid phase of SOA particles means that a long-held assumption of a partition equilibrium between the condensed phase and the gas phase of the semivolatile species may be wrong and produce too low a timescale for the particle chemical reaction rates and uptake coefficients.

This work consists of new developments in the instrumentation of particle properties as well as new observations of laboratory-generated secondary organic aerosol. The method development has two branches, one concentrates on finding more information from the measurement signal of an electrical low pressure impactor (ELPI) used in a somewhat unconventional way, whereas the other consists of a new detection method for particle bounce and response to different humidity and phase hysteresis induced by a carefully controlled humidity history.

The methods and observations made during this work are by no means the final word on the subject, but they are being used and further developed by the scientific community. Study of the particle phase and bounce as well as SOA mechanical properties and kinetics is well underway, and its results will be used to further refine the understanding of both aerosol fundamentals as well as the climate system.

### **General information**

Publication status: Published

MoE publication type: G5 Doctoral dissertation (article)

Organisations: Department of Physics, Research area: Aerosol Physics

Contributors: Saukko, E.

Number of pages: 51

Publication date: 26 Jun 2015

### **Publication information**

Publisher: Tampere University of Technology

ISBN (Print): 978-952-15-3544-4

ISBN (Electronic): 978-952-15-3608-3

Original language: English

### **Publication series**

Name: Tampere University of Technology. Publication

Publisher: Tampere University of Technology

Volume: 1308

ISSN (Print): 1459-2045

Electronic versions:

saukko\_1308

URLs:

<http://URN.fi/URN:ISBN:978-952-15-3608-3>

### **Bibliographical note**

Awarding institution: Tampere University of Technology

Versio ok 16.12.2015

### **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

### **Network archetypes in the network formation phase - case new market entry of Finnish maritime network**

A theory of co-opetition in supply networks with specified four archetypes has been proposed in the earlier literature. As the model is not yet exhaustive, this study examines it in a case network in its formation phase. The findings bring new contribution to understanding the model of supply network archetypes and the utility of its four interrelated elements in forming strategic supply networks. The results provide novel evidence that competing situation within network and network organizations' co-opetitive or non-collaborative strategies with competitors, are essential information when forming a network, determining its network level objectives and governance.

#### **General information**

Publication status: Published

MoE publication type: D3 Professional conference proceedings

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

Contributors: Suominen, A., Breite, R.

Number of pages: 10

Publication date: 29 Jun 2015

#### **Host publication information**

Title of host publication: 22nd International Annual EurOMA Conference Neuchâtel, Switzerland 28 June – 1 July 2015

ASJC Scopus subject areas: Business, Management and Accounting(all)

Keywords: supply network archetype, co-opetition, network governance model

## Bibliographical note

xoa

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

### 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

### 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., Subramaniyam, 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

### **On the threshold based neuronal spike detection, and an objective criterion for setting the threshold**

In this paper, we investigate the workings of threshold (TH) based spike detection for neuronal extracellular field potential spikes. Thresholding is the most used spike detection method. In general, it is employed by setting the TH as per convention and without considering either the undetected or spurious spikes. In this paper, we provide insight in to the workings of thresholding, and proposed a new objective way to set the TH based on spike count histogram analysis. We illustrate the method with 2D and 3D simulations and analysis of measured data.

#### **General information**

Publication status: Published

MoE publication type: A4 Article in a conference publication

Organisations: Department of Electronics and Communications Engineering, Research group: Computational Biophysics and Imaging Group, BioMediTech, Integrated Technologies for Tissue Engineering Research (ITTE), BioMediTech

Contributors: Tanskanen, J. M. A., Kapucu, F. E., Hyttinen, J. A. K.

Number of pages: 4

Pages: 1016-1019

Publication date: 1 Jul 2015

#### **Host publication information**

Title of host publication: International IEEE/EMBS Conference on Neural Engineering, NER

Publisher: IEEE COMPUTER SOCIETY PRESS

ISBN (Print): 9781467363891

ASJC Scopus subject areas: Artificial Intelligence, Mechanical Engineering

DOIs:

10.1109/NER.2015.7146799

Source: Scopus

Source ID: 84940384726

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

### **Recurrence network analysis of wide band oscillations of local field potentials from the primary motor cortex reveals rich dynamics.**

Aggregate signals that reflect activities of a large number of neurons in the cerebral cortex, local field potentials (LFPs) have been observed to mediate gross functional activities of a relatively small volume of the brain tissues. There are several bands of the oscillations frequencies in LFPs that have been observed across multiple brain areas. The signature oscillation band of the LFPs in the primary motor cortex (MI) is over  $\beta$  range and it has been consistently observed both in human and non-human primates around the time of visual cues and movement onsets. However, its dynamical behavior has not been well characterized. Furthermore, dynamics of  $\beta$  oscillations has been documented based on the phase locking of  $\beta$  oscillations, but not in terms of the inherent dynamics of the oscillations themselves. Here, we used the complexity measure derived from cluster coefficients of a recurrence network and analyzed a pair of wide-band signals, one including  $\beta$  band of the LFPs and the other ranging the low  $\gamma$  band in MI recorded from a non-human primate. We show rather unique temporal profiles of the evoked responses using complexity of the dynamical behavior in both bands of the oscillation, either of which is not simply resembling either the power of the oscillation or the phase locking of  $\beta$  oscillations. Therefore, the current method can reveal a new type of dynamics of the underlying network complexity during the task simply based on event evoked potentials of wide-band oscillatory signals.

#### **General information**

Publication status: Published

MoE publication type: A4 Article in a conference publication

Organisations: Department of Electronics and Communications Engineering, Research group: Computational Biophysics and Imaging Group, BioMediTech, Integrated Technologies for Tissue Engineering Research (ITTE), Department of Organismal Biology and Anatomy, University of Chicago

Contributors: Subramaniyam, N. P., Hyttinen, J., Hatsopoulos, N. G., Takahashi, K.

Number of pages: 4

Pages: 960-963

Publication date: 1 Jul 2015

#### **Host publication information**

Title of host publication: International IEEE/EMBS Conference on Neural Engineering, NER

Publisher: IEEE COMPUTER SOCIETY PRESS

ISBN (Print): 9781467363891

ASJC Scopus subject areas: Artificial Intelligence, Mechanical Engineering

Keywords: event evoked potentials, functional connectivity, Local field potentials, motor cortex, recurrence network, temporal dynamics

DOIs:

10.1109/NER.2015.7146785

Source: Scopus

Source ID: 84940371617

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

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

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

#### **General information**

Publication status: Published

MoE publication type: A4 Article in a conference publication

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

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

Number of pages: 8

Pages: 261-268

Publication date: 1 Jul 2015

#### **Host publication information**

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

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

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

DOIs:

10.1109/AIM.2015.7222542

Source: Bibtex

Source ID: urn:a1ad44c17a4d88dc0b2e6fb580e7e7f2

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

### **Enablers and barriers of inter-organizational network's formation for new market entry: case Finnish maritime industry**

Failures of networking attempts are rarely reported in the literature. This study examined an intentionally formed, non-successful case network in its formation phase by using Lowensberg' holistic conceptual model for strategic alliance issues that links six organizational theories to the network management processes. This empirical study of a whole network at network level involved one survey (n=20) and 61 semi-structured interviews in more than 20 Finnish maritime industry organizations and observations in six workshops, while the network aimed at joint market entry. The paper presents 11 enablers

and six barriers discovered in the networks formation phase. The findings contribute to understanding the enablers and barriers in network formation affecting failure, especially the significance of network strategy formulation and communication to network organizations in intentionally formed networks. Presenting conclusions for academics and managers, the paper fulfils the gap in the literature of whole networks, particularly their failures in their formation phase.

#### **General information**

Publication status: Published

MoE publication type: D3 Professional conference proceedings

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

Contributors: Suominen, A.

Number of pages: 30

Publication date: 3 Jul 2015

#### **Host publication information**

Title of host publication: 31st EGOS Colloquium, General Theme, Organizations and the Examined Life: Reason, Reflexivity and Responsibility, July 2–4, 2015 Athens, Greece  
Publisher: SAGE Publications

#### Publication series

Name: Organization Studies  
ISSN (Print): 0170-8406  
ISSN (Electronic): 1741-3044  
ASJC Scopus subject areas: Social Sciences(all), Business, Management and Accounting(all)  
Keywords: network strategy, network formation, network failure, whole network, market entry

#### Bibliographical note

xoa Enablers and barriers of inter-organizational networks formation 14.7.2015 ei tarkistettu, siirretty kohdasta additional files

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

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

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

#### General information

Publication status: Published  
MoE publication type: A3 Part of a book or another research book  
Organisations: Department of Pervasive Computing, Research area: User experience  
Contributors: Vainio, T., Walsh, T.  
Number of pages: 18  
Pages: 79-96  
Publication date: 13 Jul 2015

#### Host publication information

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

#### Bibliographical note

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

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

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

#### General information

Publication status: Published

MoE publication type: A4 Article in a conference publication

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

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

Number of pages: 7

Pages: 81-86

Publication date: 19 Jul 2015

### Host publication information

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

Editors: Klemas, T., Chan, S.

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

### Bibliographical note

AUX=ase,"Anttila, Eero"

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

### Microrobotic platform with integrated force sensing microgrippers for characterization of fibrous materials: Case study on individual paper fibers

Mechanical characterization of micro-scale fibrous materials determines the key parameters which affect the quality of products such as composites, textile and paper. The current laboratory tests are mainly based on bulk measurements. This thesis introduces a microrobotic platform to handle and to characterize micro-scale fibers (MF), with the dimensions of few micrometers to hundreds of micrometers, at individual fiber level. The platform facilitates handling and specimen preparation of micro-scale fibrous material. A major challenge in mechanical characterization of MF is lack of proper force sensing microgrippers in the market. MF do not need a lot of force to manipulate, but their ultimate tensile strength is high and relatively large forces are required to perform a micro-tensile test. In this thesis, three force sensing microgrippers are developed and they are integrated into the mentioned microrobotic platform. Two of them are developed to measure the bonding forces between individual pulp fibers, normal to the bonded area (Z-direction) and parallel to the bonded area (shear-mode). Their force sensing solution is based on bending polyvinylidene fluoride (PVDF) films and their force range is up to 10mN. The third one, with the force range of 20mN, is developed to perform micro-tensile tests on MF. It uses a microspring and a magnetic encoder to measure the force. The force range of this force sensing microgripper can easily be increased by changing its microspring to a stiffer one. This feature makes the proposed force sensing approach adaptable to a wide range of MF. Even though pulp and paper fibers are used as a case study in this thesis, the applications of microrobotic solutions presented here are not limited to pulp and paper fibers for the following reason: pulp and paper fibers are natural fibers with random morphology, therefore if a microrobotic solution is capable of handling these morphologically challenging fibers, it is easily adaptable to synthetic fibers which have uniform morphology. The prototypes of all three force sensing microgrippers are calibrated and their performance are validated.

### General information

Publication status: Published

MoE publication type: G4 Doctoral dissertation (monograph)

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

Contributors: Saketi, P.

Number of pages: 116

Publication date: 21 Jul 2015

### Publication information

Place of publication: Tampere

Publisher: Tampere University of Technology

ISBN (Print): 978-952-15-3545-1

ISBN (Electronic): 978-952-15-3550-5

Original language: English

### Publication series

Name: Tampere University of Technology. Publication

Publisher: Tampere University of Technology

Volume: 1309

ISSN (Print): 1459-2045

Electronic versions:

saketi\_1309

URLs:

<http://URN.fi/URN:ISBN:978-952-15-3550-5>

### Bibliographical note

Awarding institution: Tampere University of Technology

Versio ok 16.12.2015

### **Customized service solutions for project business**

Project-based firms are supplementing their technology-based offerings with services, to build continuity into their customer relationships and add customer value. Project-related services can be offered using multiple business model options. Where different customers may require customized service solutions, suppliers need to consider whether and how they can customize service-related offerings efficiently. The purpose of this study is to increase understanding on customization and the use of customer information in project-related service design and delivery processes. We employed a qualitative multiple-case research design, to explore the customization and use of customer information in project deliveries. The results show that companies engage in additive and subtractive customization in their project-related services, despite their increasing pursuit of standardization. They also engage in resource intensive search for customer information, while remote monitoring is foreseen as a strong option for the future. The results illustrate the need for different approaches towards customization for different types of services and during the different stages of the project life cycle.

#### **General information**

Publication status: Published

MoE publication type: D3 Professional conference proceedings

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

Contributors: Martinsuo, M., Momeni, K.

Number of pages: 21

Publication date: Aug 2015

#### **Host publication information**

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

Publisher: Nordic Academy of Management

Keywords: project business, services, customization, remote monitoring system

URLs:

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

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

### **Defining product end-of-life strategies in new product development.**

New product development is about creating new offerings to the market and new business for the supplier. At the same time, it needs to consider the end-of-life options for the product, due to increasing legal and regulatory requirements towards eco-friendly product designs. Even if sustainability has become a relevant concern in product development, previous research does not sufficiently cover how end-of-life strategies can be taken into account in new product development processes. This study explores the ways in which environmentally conscious manufacturing firms consider end-of-life strategies in their product development processes. A pre-study with two companies and their external service provider is reported, covering the different practices for identifying end-of-life options and factors relevant in considering product end-of-life strategies during new product development. The results open up avenues for focused studies on the front end of innovation that is identified as the crucial phase for initiating material choices and other end-of-life considerations.

#### **General information**

Publication status: Published

MoE publication type: D3 Professional conference proceedings

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

Contributors: Martinsuo, M., Sukanen, I., Kivilä, J.

Number of pages: 16

Publication date: Aug 2015

#### **Host publication information**

Title of host publication: 23rd Nordic Academy of Management Conference NFF 2015- Business in society : NFF 2015

Publisher: Nordic Academy of Management

Keywords: product end-of-life, end-of-life strategy, product development, sustainability

URLs:

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

#### **Bibliographical note**

AUX=tta,"Sukanen, Ilmari"

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

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

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

#### **General information**

Publication status: Unpublished

MoE publication type: D3 Professional conference proceedings

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

Contributors: Väyrynen, H., Helander, N.

Number of pages: 27

Pages: 1-27

Publication date: Aug 2015

#### **Host publication information**

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

Publisher: Nordic Academy of Management

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

Electronic versions:

NFF conference paper KM operationalization

URLs:

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

URLs:

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

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

### **Project control toward lifecycle value at the front end of delivery projects**

The lifecycle value of delivery projects is defined in the early phases of the project, and it implies benefits both for the supplier and the customer. Companies increasingly expect value beyond tangible technologies, for example through project-related services. This study develops new knowledge on creating lifecycle value in delivery projects and how lifecycle value creation is controlled in the early phases of the project. An embedded case study with two delivery cases in an engineering firm is conducted, to map the means of controlling the creation of lifecycle value. The results demonstrate that suppliers promote and control lifecycle value particularly through sales argumentation, relationship management, and contracting processes. We contribute by identifying and categorizing the relevant dimensions of project control used for promoting lifecycle value at the front end of delivery projects. This pilot study will pave way toward a broader multiple-case study covering different companies and delivery project types.

#### **General information**

Publication status: Published

MoE publication type: D3 Professional conference proceedings

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

Contributors: Martinsuo, M., Vuorinen, L.

Number of pages: 21

Publication date: Aug 2015

#### **Host publication information**

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

Publisher: Nordic Academy of Management

Keywords: delivery project, lifecycle value, project control, front end

URLs:

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

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

### **Identifying critical technology actors in waste flow management**

Waste flow business ecosystems include numerous actors ranging from regulatory bodies actively involved in numerous business and non-governmental actors. High amount of actors can be considered as an entry barrier for new technological actors. Yet, business potential that relates on waste flow management is enormous globally but without conceptualizing the ecosystem in detail level, the business potential might not be fully discovered. In the present study we followed

existent insights in literature and applied business ecosystem theories into Brazilian waste flow business. Based on our framework, critical technology actors can be identified in the waste flow management and possibilities they enable may be revealed. We also discuss fruitful avenues to continue the research further.

#### General information

Publication status: Published

MoE publication type: A4 Article in a conference publication

Organisations: Department of Industrial Management, Research group: Center for Innovation and Technology Research, Managing digital industrial transformation (mDIT)

Contributors: Peltola, T., Mäkinen, S.

Number of pages: 5

Pages: 2027-2031

Publication date: 1 Aug 2015

#### Host publication information

Title of host publication: PICMET'15 Conference, Management of the Technology Age : August 2-6, 2015, Hilton Portland and Executive Tower, Portland, Oregon, USA

Place of publication: United States

Publisher: Portland International Center for Management of Engineering and Technology

ISBN (Electronic): 978-1-890843-32-8

Keywords: waste management, Brazilian waste flow business ecosystem, critical technology actor identification, regulatory bodies, technological actors, waste flow management, Biological system modeling, Business, Ecosystems, Recycling, Sorting, Technological innovation, Waste management

DOIs:

10.1109/PICMET.2015.7273123

URLs:

<http://www.picmet.org/new/conferences/2015/>

Source: Bibtex

Source ID: urn:b11223303bbc0bbd3eb69fadff81ef94

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

### Towards a Classification Schema for Development Technologies: an Empirical Study in the Avionic Domain

#### General information

Publication status: Published

MoE publication type: A1 Journal article-refereed

Organisations: University of Kaiserslautern, Free University of Bozen-Bolzano, Free University of Bolzano-Bozen, Liebherr-Aerospace

Contributors: Taibi, D., Lenarduzzi, V., Dieudonne, L., Plociennik, C.

Number of pages: 11

Pages: 125-135

Publication date: 1 Aug 2015

Peer-reviewed: Yes

#### Publication information

Journal: INTERNATIONAL JOURNAL ON ADVANCES IN SOFTWARE

Volume: 8

Issue number: 1&2

ISSN (Print): 1942-2628

Original language: English

Electronic versions:

[Towards a Classification Schema for Development Technologies an Empirical Study in the Avionic Domain](#)

URLs:

<http://urn.fi/URN:NBN:fi:ty-201802091204>

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

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

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

#### General information

Publication status: Unpublished

MoE publication type: D3 Professional conference proceedings

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

Contributors: Väyrynen, H., Vasell, T., Helander, N., Boedeker, M., Andersson, T.  
Number of pages: 1  
Pages: 146  
Publication date: 12 Aug 2015

#### Host publication information

Title of host publication: 23rd Nordic Academy of Management Conference : NFF 2015  
Publisher: Nordic Academy of Management  
Article number: 24.02  
URLs:

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

#### Bibliographical note

AUX=tlo,"Vasell, Tytti"

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

### 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

### Developing commercialization plans through stakeholder interaction: Patterns identified from Public-Private Innovation Projects

#### General information

Publication status: Published  
MoE publication type: D3 Professional conference proceedings  
Organisations: Department of Industrial Management, University of Southern Denmark  
Contributors: Höjbjerg Clarke, A., Rostgaard Evald, M., Aarikka-Stenroos, L.  
Number of pages: 20  
Publication date: 27 Aug 2015

#### Host publication information

Title of host publication: The 31st Annual IMP Conference and Doctoral Colloquium 2015, Kolding, Denmark.  
Editors: Vagn Freytag, P., Höjbjerg Clarke, A.  
Keywords: stakeholders, commercialization , innovation, Public sector, private  
URLs:

<http://www.impconference2015.com/>

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

### Initiation processes and initiation contributors illustrated by Norwegian-South Korean business relationships

#### General information

Publication status: Published  
MoE publication type: D3 Professional conference proceedings  
Organisations: Department of Industrial Management, Norwegian University of Science and Technology, NTNU  
Contributors: Aarikka-Stenroos, L., Aaboen, L., Rolfsen, A.  
Number of pages: 28

Publication date: 27 Aug 2015

#### Host publication information

Title of host publication: The 31st IMP Conference 2015, Kolding, Denmark.

Place of publication: Kolding, Denmark

Editors: Vagn Freytag, P., Höjbjerg Clarke, A.

Keywords: initiation, international business, marketing

URLs:

<http://www.impconference2015.com/>

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

#### Institutionalizing a service innovation in complex networks: The case of developing and diffusing electronic prescription in Finland.

##### General information

Publication status: Published

MoE publication type: D3 Professional conference proceedings

Organisations: Department of Industrial Management, University of Turku, Turku School of Economics, Deloitte

Contributors: Jaakkola, E., Aarikka-Stenroos, L., Salmivalli, L.

Number of pages: 12

Publication date: 27 Aug 2015

##### Host publication information

Title of host publication: The 31st Annual IMP Conference and Doctoral Colloquium 2015, Kolding, Denmark.

Editors: Vagn Freytag, P., Höjbjerg Clarke, A.

Keywords: Public sector, Innovation, Service providers

URLs:

<http://www.impconference2015.com/>

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

#### Älykäs kaupunkilogistiikka – CityLog

During the spring of 2014 Transport Research Centre Verne from the Tampere University of Technology carried out an urban logistics study, where the current challenges and future development needs of city logistics was studied. In the study, this problem is approached from the perspective of shops and services located into the city centre. A part of the inner city centre of Tampere was chosen as a case area of the study. The main research methods were survey and expert interviews.

According to the results, the biggest challenges in the city logistics from the perspective of shop and service office owners are narrow loading and unloading areas, problems related on delivery time schedules and minor possibilities to affect logistics actions. In general, lack of communication and the sharing of information are seen be poorly used in the city logistics. However, retailers and service carries do not see logistics as their weakness nor their main business area. According to the findings, in future the development of city logistics should be done more with a close relationship with transportation companies and the public sector. The future research and development needs should focus on communication between transport companies and their customers, optimization of loading and unloading areas and the impacts of rapidly increasing e-commerce. Highly automated and real-time communication solutions could offer significant benefits for unconsciousness in delivery times for example. Also the potential of underground logistics connections should be studied together with loading and unloading optimization.

##### General information

Publication status: Published

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

Organisations: Department of Information Management and Logistics

Contributors: Nykänen, L., Kallionpää, E., Liimatainen, H.

Number of pages: 20

Publication date: Sep 2015

##### Publication information

Publisher: Tampereen teknillinen yliopisto. Liikenteen tutkimuskeskus Verne.

ISBN (Electronic): 978-952-15-3588-8

Original language: Finnish

##### Publication series

Name: Tampereen teknillinen yliopisto. Liikenteen tutkimuskeskus Verne. Tutkimusraportti  
ISSN (Print): 2242-3486  
ASJC Scopus subject areas: Engineering(all)  
Keywords: city logistics, urban logistics, intelligent transport system, e-commerce, future transport system  
Electronic versions:  
alykas\_kaupunkilogistiikka\_citylog  
URLs:  
<http://URN.fi/URN:ISBN:978-952-15-3588-8>

### **Bibliographical note**

Lupa ja versio kunnossa 12.1.2016 /KK  
Research output: Book/Report > Commissioned report > Professional

## **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  
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

## **Exhaust Particles and NOx Emission Factors of a Modern Heavy Duty Truck equipped with the SCR in Real-world Driving Conditions**

### **General information**

Publication status: Published

MoE publication type: D3 Professional conference proceedings

Organisations: Department of Physics, Research area: Aerosol Physics, Research group: The Instrumentation, Emissions, and Atmospheric Aerosols Group, Metropolia University of Applied Sciences

Contributors: Saari, S., Karjalainen, P., Pirjola, L., Ntziachristos, L., Keskinen, J., Rönkkö, T.

Publication date: Sep 2015

### **Host publication information**

Title of host publication: EAC 2015, European Aerosol Conference, 6-11 September, 2015, Milan, Italy

URLs:

<http://www.eac2015.it/index.php/final-programme>

### **Bibliographical note**

ISBN kysytty, HO.

Ei ole, HO.

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

## **Generation of Characteristic Traffic Emission Aerosol in Particulate Filter Collection Efficiency Tests**

### **General information**

Publication status: Published

MoE publication type: D3 Professional conference proceedings

Organisations: Department of Physics, Research area: Aerosol Physics, VTT Technical Research Centre of Finland

Contributors: Saari, S., Karjalainen, P., Kalliohaka, T., Taipale, A., Rönkkö, T.

Publication date: Sep 2015

### **Host publication information**

Title of host publication: EAC 2015, European Aerosol Conference, 6-11 September, 2015, Milan, Italy

URLs:

<http://www.eac2015.it/index.php/final-programme>

### **Bibliographical note**

ISBN kysytty, HO.

Ei ole, HO.

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

## **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

## **Personal constructs concerning safety and atmosphere**

### **General information**

Publication status: Published

MoE publication type: A4 Article in a conference publication

Organisations: Pori Department, Department of Industrial Management, Research group: Safety Management and Engineering

Contributors: Porkka, P., Laukkanen, I., Kivistö-Rahnasto, J.

Publication date: Sep 2015

#### Host publication information

Title of host publication: WOS 8th international conference - Book of Abstracts

ISBN (Print): 978-989-98203-5-7

URLs:

<http://www.wos2015.net/index.asp?pag=tp>

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

#### 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=tta,"Poikonen, Elina"

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

#### Two-turns antenna and magnetic materials for effective powering of mm-size implant in wireless brain-machine interface system

#### 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)

Contributors: Khan, W., Björninen, T., Ukkonen, L., Sydänheimo, L.

Number of pages: 2

Pages: 103-104

Publication date: Sep 2015

#### Host publication information

Title of host publication: 2015 IEEE MTT-S 2015 International Microwave Workshop Series on RF and Wireless Technologies for Biomedical and Healthcare Applications (IMWS-BIO)

Publisher: IEEE

ISBN (Print): 9781479985432

DOIs:

10.1109/IMWS-BIO.2015.7303798

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

### **Use of equipment lifecycle data in industrial services**

Manufacturing firms can use equipment lifecycle data to enable industrial services. With the increased centrality of information technology, they may need cooperation with software providers, and this cooperation is still poorly understood. This study pursues increased understanding on the use of equipment lifecycle data in industrial services. An exploratory study with four software providers and two manufacturing firms reveals unexploited opportunities for industrial services through intensified triadic cooperation and clarifies the task division between manufacturing firms and software providers. A framework is suggested, on the conditions enabling and promoting success in the services based on equipment lifecycle data.

#### **General information**

Publication status: Published

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

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

Contributors: Ocaña Flores, M., Martinsuo, M.

Number of pages: 20

Publication date: Sep 2015

#### **Host publication information**

Title of host publication: RESER 2015 : 25th Annual RESER Conference

Place of publication: Copenhagen

Publisher: RESER European Association for Research on Services

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

Keywords: equipment lifecycle, lifecycle data, industrial services

URLs:

<http://www.reser.net/conference/past-conferences/2015-copenhagen-denmark>

#### **Bibliographical note**

AUX=tta,"Ocaña Flores, Moramay"

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

### **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

### **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

### 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

### 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

## 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

## Risk Assessment of Major Storm Situation in Distribution System

Risk and reliability have a significant connection in meaning; both of them are the facts for one inference. High level of risk is resource of lower reliability. Risk management in power system has a variety of different subjects including models, methods and applications. Risk is a mixture of probability of disturbance event and the negative effect of that occurrence. Usually it counted for random accident which has harmful effect on people's life and environment. In this paper risks study of storm situation modelled. Random failures in power system are the origin of risk and cannot control by staff. Monte-Carlo Simulation (MCS) has used to model the fault frequencies and outage time of customers. The two tools which use in financial studies to make investment decision and applicable in power systems are Value-at-Risk (VaR) and Conditional Value-at-Risk (CVaR) Result of study compared to the actual reliability which confirm the improvement in the reliability of system. It is not possible to predict the precise amount of load value, Concerns of power outage in local area and possibility of a general blackout.

### 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: Dehghani, N., Supponen, A., Repo, S.

Publication date: 1 Sep 2015

### Host publication information

Title of host publication: 2015 50th International Universities Power Engineering Conference (UPEC)

Publisher: IEEE

ISBN (Print): 978-1-4673-9682-0

DOIs:

10.1109/UPEC.2015.7339808

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

#### 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

#### Knowledge Management and Emerging Collaborative Networks in Tourism Business Ecosystems

If we critically look at the evolution of the Tourism Industry (TI), we can note that, in the past decade, nothing has changed as much as ICTs and the Internet which caused an extensive transformation of the TI. Both demand and supply of ICT, together with innovation in transportation and international trade agreements, have evolved the tourism sector in operational workflows, management and marketing of new of tourism experiences. The massive use of new technologies has facilitated the rise of new flat organizational models where traditional brokers have disappeared, replaced by direct connections between local providers and tourists, or they have been reconfigured into new forms of dynamic and web-based tourism package providers. The depicted industry evolution shows potential, unthinkable just a few years ago, for local service providers usually marginalized from main tourism flows, due to their small sizes, and who are unable to compete in the globalized market. In many regions characterized by a niche tourism vocation, local tourism operators have started organizing themselves spontaneously in Collaborative Networks in order to create aggregate tourism offers that are able to compete with big tourism operators thus transforming regions with potential and vocation in real tourism destinations. The main socialeffect of instantiating these tourism partnerships, is the stimulus towards Tourism Business Ecosystems (TBEs) giving local tourism service providers a means for economic growth. The aim of this paper is to describe how the organizational paradigm of CNs, applied to the TBEs knowledge management and supported by ICTs, can be the key means for the growth of emerging TBEs. Such models are able to reengineer the tourism destination management model in order to gain much more flexibility in service provision and provide tourists the possibility to live an augmented tourism experience. In this paper we point out that tourism destinations, in an effort to give services able to actively support each phase of the 2.0 tourist lifecycle, can benefit from collaborative network models.

##### 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: Ammirato, S., Michele Felicetti, A., Della Gala, M., Aramo-Immonen, H., Jussila, J.

Number of pages: 7

Pages: 19-26

Publication date: 3 Sep 2015

##### Host publication information

Title of host publication: Proceedings of the 16th European Conference on Knowledge Management (ECKM 2015), University of Udine, Italy, 3-4 September 2015

Place of publication: Reading, UK  
Publisher: Academic Conferences and Publishing International Limited  
Editors: Massaro, M., Garlatti, A.  
ISBN (Print): 978-1-910810-46-0  
ISBN (Electronic): 978-1-910810-47-7  
Keywords: tourism business ecosystem, collaborative network, ICT, tourist 2.0 lifecycle

### **Bibliographical note**

ORG=pla,0.5

ORG=tlo,0.5

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

### **Abstracting Application Development for Resource Constrained Wireless Sensor Networks**

Ubiquitous computing is a concept whereby computing is distributed across smart objects surrounding users, creating ambient intelligence. Ubiquitous applications use technologies such as the Internet, sensors, actuators, embedded computers, wireless communication, and new user interfaces. The Internet-of-Things (IoT) is one of the key concepts in the realization of ubiquitous computing, whereby smart objects communicate with each other and the Internet. Further, Wireless Sensor Networks (WSNs) are a sub-group of IoT technologies that consist of geographically distributed devices or nodes, capable of sensing and actuating the environment.

WSNs typically contain tens to thousands of nodes that organize and operate autonomously to perform application-dependent sensing and sensor data processing tasks. The projected applications require nodes to be small in physical size and low-cost, and have a long lifetime with limited energy resources, while performing complex computing and communications tasks. As a result, WSNs are complex distributed systems that are constrained by communications, computing and energy resources. WSN functionality is dynamic according to the environment and application requirements. Dynamic multitasking, task distribution, task injection, and software updates are required in field experiments for possibly thousands of nodes functioning in harsh environments.

The development of WSN application software requires the abstraction of computing, communication, data access, and heterogeneous sensor data sources to reduce the complexities. Abstractions enable the faster development of new applications with a better reuse of existing software, as applications are composed of high-level tasks that use the services provided by the devices to execute the application logic.

The main research question of this thesis is: What abstractions are needed for application development for resource constrained WSNs? This thesis models WSN abstractions with three levels that build on top of each other: 1) node abstraction, 2) network abstraction, and 3) infrastructure abstraction. The node abstraction hides the details in the use of the sensing, communication, and processing hardware. The network abstraction specifies methods of discovering and accessing services, and distributing processing in the network. The infrastructure abstraction unifies different sensing technologies and infrastructure computing platforms.

As a contribution, this thesis presents the abstraction model with a review of each abstraction level. Several designs for each of the levels are tested and verified with proofs of concept and analyses of field experiments. The resulting designs consist of an operating system kernel, a software update method, a data unification interface, and all abstraction levels combining abstraction called an embedded cloud.

The presented operating system kernel has a scalable overhead and provides a programming approach similar to a desktop computer operating system with threads and processes. An over-the-air update method combines low overhead and robust software updating with application task dissemination. The data unification interface homogenizes the access to the data of heterogeneous sensor networks. A unification model is used for various use cases by mapping everything as measurements. The embedded cloud allows resource constrained WSNs to share services and data, and expand resources with other technologies. The embedded cloud allows the distributed processing of applications according to the available services. The applications are implemented as processes using a hardware independent description language that can be executed on resource constrained WSNs. The lessons of practical field experimenting are analyzed to study the importance of the abstractions. Software complexities encountered in the field experiments highlight the need for suitable abstractions.

The results of this thesis are tested using proof of concept implementations on real WSN hardware which is constrained by computing power in the order of a few MIPS, memory sizes of a few kilobytes, and small sized batteries. The results will remain usable in the future, as the vast amount, tight integration, and low-cost of future IoT devices require the combination of complex computation with resource constrained platforms.

### **General information**

Publication status: Published

MoE publication type: G5 Doctoral dissertation (article)

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

Contributors: Laukkarinen, T.

Number of pages: 104  
Publication date: 4 Sep 2015

### Publication information

Place of publication: Tampere  
Publisher: Tampere University of Technology  
ISBN (Print): 978-952-15-3542-0  
ISBN (Electronic): 978-952-15-3567-3  
Original language: English

### Publication series

Name: Tampere University of Technology. Publication  
Publisher: Tampere University of Technology  
Volume: 1306  
ISSN (Print): 1459-2045  
Electronic versions:  
laukkarinen\_1306  
URLs:  
<http://URN.fi/URN:ISBN:978-952-15-3567-3>

### Bibliographical note

Awarding institution: Tampere University of Technology  
Versio ok 16.12.2015  
Research output: Book/Report > Doctoral thesis > Collection of Articles

### Detection and Assessment of Sleep-Disordered Breathing with Special Interest of Prolonged Partial Obstruction

Sleep-disordered breathing (SDB) has become more common and puts more strain on public health services than ever before. Obstructive sleep apnea (OSA) and its health consequences such as different cardiovascular diseases are nowadays well recognized. In addition to OSA, attention has recently been paid to another SDB; prolonged partial obstruction. However, it is often undiagnosed and easily left untreated because of the low number of respiratory events during polysomnography recording. This patient group has found to present with more atypical subjective symptoms than OSA patients.

Polysomnography (PSG) is considered to be the gold standard in reference methods in SDB diagnostics. PSG is a demanding and laborious multichannel recording method and often requires subjects to spend one night in a sleep laboratory. There is long tradition in Finland to use mattress sensors in SDB diagnostics. Recently, smaller electromechanical film transducer (Emfit) mattresses have replaced the old Static Charge-Sensitive Bed (SCSB) mattresses. However, a proper clinical validation of Emfit mattresses in SDB diagnostics has not been carried out.

In this work, the use of Emfit recording in the detection of sleep apneas, hypopneas, and prolonged partial obstruction with increased respiratory effort was evaluated. The general aim of the thesis is to develop and improve the diagnostic methods for sleep-related breathing disorders.

Comparisons with both PSG with nasal pressure recording and transesophageal pressure were made. Special attention was paid to the existence of the spiking phenomenon in the Emfit mattress in relation to changes in negative intrathoracic pressure in estimating increased respiratory effort. This entails monitoring the esophageal pressure as a part of nocturnal polysomnography. The recording method is demanding and uncomfortable and is usually not used with ordinary sleep laboratory patients. Thus, reliable and easy indirect quantification methods for respiratory effort are needed in clinical work. According to the results presented in this work, the Emfit signal reveals increased respiratory effort as well as apneas/hypopneas.

To find out the prevalence and consequences of prolonged partial obstruction among sleep laboratory patients was another aim of this thesis. This was done by retrospective analyses of sleep laboratory patients from one year. The prevalence of patients with prolonged partial obstruction was 11%. They were as sleepy as OSA patients, but their life quality was worse, as assessed by a survey. These results, along with the findings of the heart rate variation evaluation carried out in this thesis, suggest that prolonged partial obstruction and OSA should be considered as different entities of SDB.

With the Emfit mattress sensor, the SDB types can be differentiated, which is expected to enhance the accuracy of diagnostics. However, there is increasing need for easy and cheap screening methods to evaluate nocturnal breathing. In this respect, the usability of compressed tracheal sound signal scoring in SDB screening was estimated. The method reveals apneas and hypopneas but, according to the present findings, it can also be used in the detection of prolonged partial obstruction. The findings encourage the use of compressed tracheal sound analysis in screening different SDB.

The analysis of sleep recordings is still based on a doctor's subjective and visual estimation. To date, no generally accepted and sufficiently reliable automatic analysis method exists. Robust, automatic quantification methods with easier

techniques for non-invasive sleep recording would enable the analysis methods to be also used for screening purposes. In this technology-orientated world, people could take much more responsibility and take care of themselves better by following their own biosignals and by changing their health habits earlier. The need for good sleep as a necessity for good life and health is widely recognized.

#### **General information**

Publication status: Published

MoE publication type: G5 Doctoral dissertation (article)

Organisations: Department of Electronics and Communications Engineering

Contributors: Tenhunen, M.

Number of pages: 77

Publication date: 4 Sep 2015

#### **Publication information**

Place of publication: Tampere

Publisher: Tampere University of Technology

ISBN (Print): 978-952-15-3531-4

ISBN (Electronic): 978-952-15-3556-7

Original language: English

#### **Publication series**

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Publisher: Tampere University of Technology

Volume: 1304

ISSN (Print): 1459-2045

Electronic versions:

tenhunen\_1304

URLs:

<http://URN.fi/URN:ISBN:978-952-15-3556-7>

#### **Bibliographical note**

Awarding institution: Tampere University of Technology

Versio ok 16.12.2015

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

### **Environment Interpretation for Business Continuity in a Project Supplier's Networks – Critical Factors in International Industrial Upgrades**

Project suppliers operate in temporary networks of stakeholders with limited visibility outside of the project's dyadic relationships. Environment interpretation can reveal opportunities but also fatal risks in complex networks. Therefore, a wider view is needed for the project supplier to develop their business continuity in networks.

Environment interpretation and business continuity of project suppliers have been given limited attention in project business and industrial networks literature, especially from business opportunity and risk recognition perspectives. This research pursues an increased understanding and introduces the concept and process of network picture alignment in a temporary project's business as a possible tool for environment interpretation and a source of business continuity in networks. The goal is to construct a framework for a project supplier's network picture alignment in a value system. A qualitative, constructivist research design was selected to study a real life problem, and to advance the scientific knowledge in management both in international project business and in industrial marketing in networks.

The market research collects and analyses data to comprehend the significance of a business environment change in the paper industry and its influence on the paper machinery business. Thereafter, as a special case, six similar paper machinery upgrade projects from Finland to Italy are empirically studied to perceive critical factors in temporary projects. The critical factors are deductively established for the development of network picture alignment framework. The developed framework on network picture alignment is evaluated with three industrial change cases as post mortem analysis.

The market research revealed that the competitive situation among three dominant paper machinery project suppliers changed significantly between 2008 and 2012. The Austrian Andritz suffered the most from the economic downturn but they were capable of interpreting the business environment and rapidly reached the two market dominators, the Finnish Metso and the German Voith. Andritz concentrated successfully on uncertain upgrade projects and managed to change the situation in competition.

The empirical contribution was the map of the critical factors and steps to construct the framework of market-driven network picture alignment. The theoretical contribution is that a project supplier needs to critically interpret the environment and broaden their temporary projects' and project business boundaries outside of the focal project networks for business opportunity recognition and risk reveal. Moreover, a supplier or other focal stakeholder in the value system is

suggested to align its situated network picture to other stakeholders' network pictures in dyadic, triadic and extended networked collaboration and relationships for continuous cooperation, with the constructed market-driven network picture alignment framework. In addition, network pictures are conceptually suggested to become flexible and dynamic, with market-driven mindsets and consecutive successful network picture alignments in the context specific value system.

The business opportunity identification for a machinery upgrade requires tight interactive technical collaboration in a customer's production process. Continuous cooperation can be reached with harmonious relationships and repetitive network picture alignments between stakeholders. However, cultural distance matters in the reach of business objectives. A project supplier's organization and persons have to follow a market-driven mindset in context specific network picture alignment. A market-driven mindset attached to collectivistic, and entrepreneurial activities advances the business performance. Thus, a supplier can create their own path for continuous business utilizing market-driven network picture alignment framework as the core of the strategic market management in networks.

Forthcoming research should study the question "why" salience is caused in global level environment interpretation in addition to "what" and "who" cause stakeholder salience. Moreover, network picture alignments should be studied in other social interaction processes, for example in business acquisition integrations. When the situated network picture version is the focus of this research, the representationalist and mentalist alignment versions would need further understanding. As the dissertation reveals network picture dynamization and consecutive network picture alignments as features of evolving project businesses, they are suggested as topics of future research.

### **General information**

Publication status: Published

MoE publication type: G4 Doctoral dissertation (monograph)

Organisations: Department of Industrial Management

Contributors: Halinoja, M.

Number of pages: 237

Publication date: 4 Sep 2015

### **Publication information**

Place of publication: Tampere

Publisher: Tampere University of Technology

ISBN (Print): 978-952-15-3557-4

ISBN (Electronic): 978-952-15-3566-6

Original language: English

### **Publication series**

Name: Tampere University of Technology. Publication

Publisher: Tampere University of Technology

Volume: 1313

ISSN (Print): 1459-2045

Electronic versions:

halinoja\_1313\_errata

halinoja\_1313

URLs:

<http://URN.fi/URN:ISBN:978-952-15-3566-6>

### **Bibliographical note**

Awarding institution: Tampere University of Technology

Versio ok 14.12.2015

Research output: Book/Report > Doctoral thesis > Monograph

### **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

## Modelling new particle formation and growth using combined power law and log-normal distribution model

### General information

Publication status: Published

MoE publication type: D3 Professional conference proceedings

Organisations: Department of Physics, Research area: Aerosol Physics

Contributors: Olin, M., Dal Maso, M.

Publication date: 8 Sep 2015

### Host publication information

Title of host publication: EAC 2015, European Aerosol Conference

Place of publication: Milan, Italy

Publisher: Italian Aerosol Society

ASJC Scopus subject areas: Pollution

URLs:

<http://www.eac2015.it/> (Conference website)

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

## 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

### Recognition of shading events caused by moving clouds and determination of shadow velocity from solar radiation measurements

Fast variability of solar radiation is the main cause of fluctuating photovoltaic (PV) power production and shadows caused by overpassing clouds are the main reason of such variability. Fast irradiance transitions caused by the edges of shadows can lead to situations where the grid inverter is not able to follow the global maximum power point (MPP) causing extra losses. Further, fast fluctuations of the power fed to the electric grid can cause, for example, power balance and quality problems. This paper presents a method to recognize shading events caused by moving clouds from measured irradiance data. The developed recognition method has been used to analyse shading events from 15 months of full-time irradiance recordings and the results of the analysis are presented. Further, the Linear Cloud Edge (LCE) method has been used to determinate velocities of the shadows.

### General information

Publication status: Published

MoE publication type: A4 Article in a conference publication

Organisations: Department of Electrical Engineering, Research area: Power engineering

Contributors: Lappalainen, K., Valkealahti, S.

Number of pages: 6

Pages: 1568-1573

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/EUPVSEC20152015-5AO.7.5

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

### Building new computational models to support health behavior change and maintenance: new opportunities in behavioral research

Adverse and suboptimal health behaviors and habits are responsible for approximately 40 % of preventable deaths, in addition to their unfavorable effects on quality of life and economics. Our current understanding of human behavior is largely based on static “snapshots” of human behavior, rather than ongoing, dynamic feedback loops of behavior in response to ever-changing biological, social, personal, and environmental states. This paper first discusses how new technologies (i.e., mobile sensors, smartphones, ubiquitous computing, and cloud-enabled processing/computing) and emerging systems modeling techniques enable the development of new, dynamic, and empirical models of human behavior that could facilitate just-in-time adaptive, scalable interventions. The paper then describes concrete steps to the creation of robust dynamic mathematical models of behavior including: (1) establishing “gold standard” measures, (2) the creation of a behavioral ontology for shared language and understanding tools that both enable dynamic theorizing across disciplines, (3) the development of data sharing resources, and (4) facilitating improved sharing of mathematical models and tools to support rapid aggregation of the models. We conclude with the discussion of what might be incorporated into a “knowledge commons,” which could help to bring together these disparate activities into a unified system and structure for organizing knowledge about behavior.

### General information

Publication status: Published

MoE publication type: A1 Journal article-refereed

Organisations: Department of Signal Processing, Research group: Personal Health Informatics-PHI, Research Community on Data-to-Decision (D2D), University of Southern California, Arizona State University, Northeastern University, National Institutes of Health, Bethesda, Northwestern University, Wharton School, University of Pennsylvania, Scientific Institute Hospital San Raffaele, Valencia Polytechnical University, Columbia University in the City of New York, VTT Technical Research Centre of Finland

Contributors: Spruijt-Metz, D., Hekler, E., Saranummi, N., Intille, S., Korhonen, I., Nilsen, W., Rivera, D. E., Spring, B., Michie, S., Asch, D. A., Sanna, A., Salcedo, V. T., Kukakfa, R., Pavel, M.

Number of pages: 12  
Pages: 335-346  
Publication date: 17 Sep 2015  
Peer-reviewed: Yes

#### Publication information

Journal: Translational Behavioral Medicine  
Volume: 5

Issue number: 3  
ISSN (Print): 1869-6716

Ratings:

Scopus rating (2015): CiteScore 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

#### Protective Spinel Coatings for Solid Oxide Fuel Cell Interconnectors by Thermal Spray Processes: From Conventional Dry Powder to Novel Solution Precursor Thermal Spraying

Protective coatings are used on ferritic stainless steel interconnectors to prevent the transport of the harmful  $\text{CrO}_3(\text{g})$  and  $\text{CrO}_2(\text{OH})_2(\text{g})$  compounds in solid oxide fuel cells. These compounds are transported on the triple-phase boundary of the cathode, and electrically reduce back to  $\text{Cr}_2\text{O}_3$  causing degradation of the cell. The most promising materials to be used as protective coatings are  $(\text{Mn},\text{Co})_3\text{O}_4$  spinels. However, in order to provide good protectiveness in long-term use (5 years or more), these coatings should have a dense microstructure, good adhesion with the substrate and good chemical stability at high temperature in an oxidizing atmosphere. Several deposition techniques have been studied, for example various wet-ceramic processes and thin film techniques. However, the studies have shown that the coatings produced with these methods are not dense, and therefore their long-term protectiveness is questionable.

In this study, protective  $(\text{Mn},\text{Co})_3\text{O}_4$  and  $(\text{Mn},\text{Co},\text{Fe})_3\text{O}_4$  spinel coatings were manufactured with conventional atmospheric plasma spraying (APS) and novel high velocity solution precursor flame spraying (HVSPFS). The aim was to obtain a dense microstructure. Since the HVSPFS process is a novel deposition method, the coating build-up mechanism and materials synthesis were studied more closely. The as-sprayed coatings were oxidized in order to obtain more detailed information about the Cr barrier and electrical properties during the oxidation cycles.

The spinel coatings with a dense microstructure were sprayed using the APS and the HVSPFS processes. The deposition methods caused the as-sprayed coatings to sinter during the oxidation cycles. The sintering was a consequence of the metastable phase structure and the small particle and crystallite size. Due to the dense microstructure and fully recovered spinel phases, the coatings provided a good Cr barrier and electrical properties, even in a relatively harsh environment. It can be stated that  $\text{Mn}_{1.5}\text{Co}_{1.5}\text{O}_4$  and  $\text{MnCo}_{1.9}\text{Fe}_{0.1}\text{O}_4$  spinel coatings, manufactured either by conventional thermal spraying using agglomerated cermet powder, or by solution precursor thermal spraying, are good candidates for use as protective coatings on metallic interconnectors.

#### General information

Publication status: Published

MoE publication type: G5 Doctoral dissertation (article)

Organisations: Department of Materials Science, Research group: Surface Engineering

Contributors: Puranen, J.

Number of pages: 81

Publication date: 18 Sep 2015

#### Publication information

Place of publication: Tampere

Publisher: Tampere University of Technology

ISBN (Print): 978-952-15-3569-7

ISBN (Electronic): 978-952-15-3587-1

Original language: English

### Publication series

Name: Tampere University of Technology. Publication

Publisher: Tampere University of Technology

Volume: 1322

ISSN (Print): 1459-2045

Electronic versions:

puranen\_1322

URLs:

<http://URN.fi/URN:ISBN:978-952-15-3587-1>

### Bibliographical note

Awarding institution: Tampere University of Technology

Version: 16.12.2015

Research output: [Book/Report](#) > [Doctoral thesis](#) > [Collection of Articles](#)

### 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](#)

### The 13th Nordic Steel Construction Conference (NSCC.2015)

#### General information

Publication status: Published

MoE publication type: C2 Edited books

Organisations: Department of Civil Engineering, Research group: Structural Mechanics, Research group: Metal and Lightweight structures

Contributors: Heinisuo, M. (ed.), Mäkinen, J. (ed.)

Publication date: 23 Sep 2015

#### Publication information

Place of publication: Tampere

Publisher: Tampere University of Technology

ISBN (Print): 978-952-15-3578-9

ISBN (Electronic): 978-952-15-3579-6

Original language: English

Research output: [Book/Report](#) > [Anthology](#) > [Scientific](#) > [peer-review](#)

### **Benchmarking of Factory Level ESD Control**

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

#### **General information**

Publication status: Published

MoE publication type: A4 Article in a conference publication

Organisations: Department of Electronics and Communications Engineering, ABB Oy, Drives, Nokia Corporation, Cascade Metrology

Contributors: Viheriäkoski, T., Kohtamäki, J., Peltoniemi, T., Tamminen, P.

Number of pages: 7

Publication date: 27 Sep 2015

#### **Host publication information**

Title of host publication: Electrical Overstress/Electrostatic Discharge Symposium Proceedings 2015

Volume: 2015

Place of publication: USA

Publisher: IEEE COMPUTER SOC

Article number: 6B.1

ISBN (Print): 9781479988952

ASJC Scopus subject areas: Engineering(all)

Keywords: Surface Resistivity, dissipative material, measurement

Electronic versions:

PID3769119

DOIs:

10.1109/EOSESD.2015.7314769

URLs:

<http://urn.fi/URN:NBN:fi:tty-201603013595>

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

### **ESD and Disturbance Cases in Electrostatic Protected Areas**

Electrostatic protected area (EPA) can effectively prevent ESD failures from charged operators, work benches and tools. However, electrical disturbances and ESD events from other sources can still exist in well-built EPAs. In this paper failures found in electronic assembly environments are analyzed to improve coverage of ESD control programs.

#### **General information**

Publication status: Published

MoE publication type: A4 Article in a conference publication

Organisations: Sensing Systems for Wireless Medicine (MediSense), Department of Electronics and Communications Engineering, Research group: Wireless Identification and Sensing Systems Research Group, Cascade Metrology

Contributors: Tamminen, P., Viheriäkoski, T., Ukkonen, L., Sydänheimo, L.

Number of pages: 7

Publication date: 27 Sep 2015

#### **Host publication information**

Title of host publication: Electrical Overstress / Electrostatic Discharge Symposium Proceedings 2015

Volume: 2015

Place of publication: USA

Publisher: IEEE COMPUTER SOC

Article number: 5B.2

ISBN (Print): 9781479988952

ASJC Scopus subject areas: Engineering(all)

Keywords: EPA, ESD, DISTURBANCES, EMI, failure

Electronic versions:

5B.2\_Tamminen\_2015

DOIs:

10.1109/EOSESD.2015.7314792

URLs:

<http://urn.fi/URN:NBN:fi:tty-201603013599>

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

### **The effect of USB ground cable and product dynamic capacitance on IEC61000-4-2 qualification**

EC61000-4-2 discharge stress levels are studied with varying product capacitance and ground connections. Stress levels are evaluated based on the measured and simulated peak current, peak power, pulse rise time, and energy transfer along to the USB cable. These stress parameters can be significantly affected by adjusting the test setup.

#### **General information**

Publication status: Published

MoE publication type: A4 Article in a conference publication

Organisations: Sensing Systems for Wireless Medicine (MediSense), Department of Electronics and Communications Engineering, Research group: Wireless Identification and Sensing Systems Research Group

Contributors: Tamminen, P., Ukkonen, L., Sydänheimo, L.

Number of pages: 10

Publication date: 27 Sep 2015

#### **Host publication information**

Title of host publication: Electrical Overstress / Electrostatic Discharge Symposium Proceedings 2015

Volume: 2015

Place of publication: USA

Publisher: IEEE COMPUTER SOC

Article number: 7B.2

ISBN (Print): 9781479988952

ASJC Scopus subject areas: Engineering(all)

Keywords: USB, IEC61000-4-2, ESD, EMC, cable

Electronic versions:

7B2\_Tamminen

DOIs:

10.1109/EOESD.2015.7314766

URLs:

<http://urn.fi/URN:NBN:fi:tyy-201603013600>

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

### **Uncertainties in Charge Measurements of ESD Risk Assessment**

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

#### **General information**

Publication status: Published

MoE publication type: A4 Article in a conference publication

Organisations: Department of Electronics and Communications Engineering, ABB Oy, Drives, Cascade Metrology, Nokia Corporation

Contributors: Viheriäkoski, T., Kohtamäki, J., Peltoniemi, T., Tamminen, P.

Number of pages: 8

Publication date: 27 Sep 2015

#### **Host publication information**

Title of host publication: Electrical Overstress / Electrostatic Discharge Symposium Proceedings 2015

Volume: 2015

Place of publication: USA

Publisher: IEEE COMPUTER SOC

Article number: 6B.3

ISBN (Print): 9781479988952

ASJC Scopus subject areas: Engineering(all)

Keywords: ESD, charge, measurement, Uncertainty estimation

Electronic versions:

PID3768707

DOIs:

10.1109/EOESD.2015.7314802

URLs:

<http://urn.fi/URN:NBN:fi:tyy-201603013596>

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

### **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

## Generation of characteristic traffic emission aerosol in particulate filter collection efficiency tests

### General information

Publication status: Published

MoE publication type: D3 Professional conference proceedings

Organisations: Department of Physics, Research area: Aerosol Physics, Urban circular bioeconomy (UrCirBio), VTT Technical Research Centre of Finland

Contributors: Saari, S., Karjalainen, P., Kalliohaka, T., Taipale, A., Rönkkö, T.

Publication date: Oct 2015

### Host publication information

Title of host publication: The 11th International Conference on Industrial Ventilation, Shanghai, China

URLs:

<http://www.scopus.com/inward/record.url?scp=84988008282&partnerID=8YFLogxK>

### Bibliographical note

ISBN kysytty, HO.

Ei ole, HO.

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

## 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/@I912/@web/@p/documents/liit/x124266.pdf>

### Bibliographical note

AUX=rak,"Lemberg, Antti-Matti"

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

## 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

#### **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

#### **A NLOS-robust TOA positioning filter based on a skew-t measurement noise model**

A skew-t variational Bayes filter (STVBF) is applied to indoor positioning with time-of-arrival (TOA) based distance measurements and pedestrian dead reckoning (PDR). The proposed filter accommodates large positive outliers caused by occasional non-line-of-sight (NLOS) conditions by using a skew-t model of measurement errors. Real-data tests using the fusion of inertial sensors based PDR and ultra-wideband based TOA ranging show that the STVBF clearly outperforms the extended Kalman filter (EKF) in positioning accuracy with the computational complexity about three times that of the EKF.

#### **General information**

Publication status: Published

MoE publication type: A4 Article in a conference publication

Organisations: Department of Automation Science and Engineering, Research group: Positioning, Wireless Communications and Positioning (WICO)

Contributors: Nurminen, H., Ardeshiri, T., Piche, R., Gustafsson, F.

Number of pages: 7

Pages: 1-7

Publication date: 1 Oct 2015

#### **Host publication information**

Title of host publication: 2015 International Conference on Indoor Positioning and Indoor Navigation (IPIN)

Publisher: IEEE

ISBN (Print): 978-1-4673-8402-5

Keywords: Approximation methods, Computational modeling, Distance measurement, Gaussian distribution, Measurement errors, Noise measurement, Position measurement, NLOS, TOA, UWB, indoor positioning, robust filtering, skew t, skewness, variational Bayes

Electronic versions:

IPIN2015\_postprint

DOIs:

10.1109/IPIN.2015.7346786

URLs:

<http://urn.fi/URN:NBN:fi:tty-201603183702>

Source: Bibtex

Source ID: urn:e960458d3c3e7f01508ed799f1fbe96d

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

## **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

## **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

## **Enterprise architecture as strategy, practice, or approach**

### **General information**

Publication status: Published

MoE publication type: D3 Professional conference proceedings

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

Contributors: Pekkola, S.

Publication date: 13 Oct 2015

### **Host publication information**

Title of host publication: 4th Innovation in Information Infrastructures (III) Workshop

Place of publication: Warwick, UK

Publisher: University of Warwick

URLs:

<http://www.wbs.ac.uk/events/view/4751>

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

## **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"  
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

## 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

## Kapillaaristen vedenimuominaisuuksien 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

## 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

## Laastien vedenimukertoimen määrittämisen virhelähdekoeket

### 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

### **Onnistumistekijät valtion tukemissa homekorjaushankkeissa**

Kosteus- ja homevaurioiden sekä muiden sisäilmaongelmien korjaaminen on haastavaa. Monet kuntien korjaushankkeet ovat epäonnistuneet poistamaan käyttäjien kokemat sisäilmaongelmat. Usein syynä on, että korjaukset eivät ole riittävän kokonaisvaltaisia tai laadunvarmistus on puutteellista. Yleinen syy suppeisiin korjauksiin ja puutteelliseen laadunvarmistukseen on, että hankkeen suunnittelua ei ole tehty riittävän perusteellisesti. Puutteellinen suunnittelu johtuu usein riittämättömistä kuntotutkimuksista tai siitä, etteivät niissä tehdyt havainnot saati puutteet ole olleet korjaussuunnittelijan tiedossa. Tyypillisesti kuntotutkimusten puuttumiseen, tiedon hukkumiseen ja puutteelliseen hankevalmisteluun on syynä tilaajan osaamattomuus tai joissakin tapauksissa myös poliittinen ja taloudellinen päätöksenteko, johon tässä artikkelissa ei kuitenkaan perehdytä. Väärin valittu toteutustapa, kosteusteknisiä riskejä sisältävä suunnitteluratkaisu, vakavat tietokatkokset, isot yllätykset purku-/korjausvaiheessa, rakentamisvirheet tai huoltotehtävien laiminlyönti tulevat kunnalle huomattavasti kalliimmiksi, kuin perusteellinen kuntotutkimus, huolellinen toteutustapojen vertailu, suunnitelmien ulkopuolinen tarkastus, toteutuksen laadunvarmistus, aktiivinen valvonta ja suunnitelmallinen kiinteistönpito.

#### **General information**

Publication status: Published

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

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

Contributors: Marttila, T., Suonketo, J., Kero, P., 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

### **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

### **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

### 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/@I912/@web/@p/documents/liit/x124266.pdf>

#### Bibliographical note

ORG=rak,0.8

ORG=ark,0.2

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

### Uusi Rakennusfysiikan käsikirja - perustiedot rakennusfysikaalisesta 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

## 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/@I912/@web/@p/documents/liit/x124266.pdf>  
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>  
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

### Value Creation in Private Equity: A Case Study of Outperforming Buyouts in the Nordic Countries

A number of studies have reported that the returns from acquisitions made by private equity (PE) firms have exceeded those of the public markets, e.g. the S&P 500. The outperformance displayed in the buyouts made by private equity firms is perplexing, particularly given the underperformance and high failure rate typically reported in studies of traditional corporate mergers and acquisitions (M&A). This dissertation strives to shed a light on the dichotomy by examining the activities in a select sample of buyouts during the pre-buyout phase, holding period, and the exit transaction. The study makes a number of significant contributions. It contributes to the theoretical and conceptual understanding of private equity buyouts by materially extending previous models of value creation into a novel taxonomy and cohesive structure. It contributes empirically by filling an important research gap concerning the subset of buyouts that exhibited exceptional outperformance compared to peer firms in PE portfolios. The inductive multiple-case study approach in combination with access to proprietary interview data permitted an in-depth analysis of the factors conducive to buyout value creation. The analysis indicates the key factors resulting in the outperformance were timing the entry and exit transaction to the business and industry cycles, identifying and executing the apposite business strategy, utilizing alternative modes of debt financing, discerning the pre-buyout target firm characteristics, implementing a pervasive array of operational improvements, and lastly, achieving high-levels of employee motivation and commitment across the organization.

#### General information

Publication status: Published

MoE publication type: G4 Doctoral dissertation (monograph)

Organisations: Department of Industrial Management

Contributors: Hannus, S.

Number of pages: 180

Publication date: 24 Oct 2015

#### Publication information

Publisher: Tampere University of Technology

ISBN (Print): 978-952-15-3589-5

ISBN (Electronic): 978-952-15-3614-4

Original language: English

### Publication series

Name: Tampere University of Technology. Publication

Publisher: Tampere University of Technology

Volume: 1328

ISSN (Print): 1459-2045

Electronic versions:

hannus\_1328

URLs:

<http://URN.fi/URN:ISBN:978-952-15-3614-4>

### Bibliographical note

Awarding institution: Tampere University of Technology

Versio ok 14.12.2015

Research output: Book/Report > Doctoral thesis > Monograph

### 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

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Keywords: retrofits;

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10.1016/j.egypro.2015.11.008

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

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

### Fractional Ornstein-Uhlenbeck Processes

In this monograph, we are mainly studying Gaussian processes, in particularly three different types of fractional Ornstein – Uhlenbeck processes. Pioneers in this field may be mentioned, e.g. Kolmogorov (1903-1987) and Mandelbrot (1924-2010). The Ornstein – Uhlenbeck diffusion can be constructed from Brownian motion via a Doob transformation and also

from a solution of the Langevin stochastic differential equation. Both of these processes have the same finite dimensional distributions. However the solution of the Langevin stochastic differential equation, which driving process is fractional Brownian motion and a Doob transformation of fractional Ornstein – Uhlenbeck process do not have same finite dimensional distributions. Indeed we verify, that the covariance of the fractional Ornstein – Uhlenbeck process of the first kind (which we call the solution of the Langevin stochastic differential equation in which the driving process is fractional Brownian motion) behaves at infinity like a power function and the covariance of the fractional Ornstein –Uhlenbeck process (constructed by a Doob transformation of fractional Brownian motion) behaves at infinity like an exponential function. Moreover we study the behaviour of the covariances of these fractional Ornstein – Uhlenbeck processes. We also calculate the spectral density function for the Doob transformation of fractional Brownian motion using a Bochner theorem. We present the Doob transformation of fractional Brownian motion via solution of the Langevin stochastic differential equation. One of the main aims of our research is to analyse its driving process. This driving process is  $Y^\alpha(t) = e^{-\alpha t} x_{\tau_t}$ , where  $\tau_t = (H e^{\alpha t})/\alpha$  and  $\{Z_t: t \geq 0\}$  is fractional Brownian motion. We find out that the process  $Y^\alpha(t) := \{Y_t^\alpha(t): t \geq 0\}$ , if scaled properly, has the same finite dimensional distributions as the process  $Y^1(t) := \{Y_t^1(t): t \geq 0\}$ . The main result in this monograph is that we define a stationary fractional Ornstein – Uhlenbeck process of the second kind as a process with a two-sided driving process  $\{Y_t^1(t): t \in \mathbb{R}\}$  and create a new family of fractional Ornstein-Uhlenbeck processes. We study many properties of the fractional Ornstein – Uhlenbeck process of the second kind. For example, we show that the fractional Ornstein – Uhlenbeck process of the second kind is Hölder continuous of any order  $\beta < H$  and find the kernel representation of its covariance. We research many properties of the processes  $Y^\alpha(t)$  and  $Y^1(t)$  since they are quite interesting themselves. We represent these processes as stochastic integrals with respect to Brownian motion and prove that the sample paths of the process  $Y^\alpha(t)$  are Hölder continuous of any order  $\beta < H$ . In the case  $H \in (1/2, 1)$ , we find out the covariance kernel of increment process of  $Y^\alpha(t)$ , and using that we investigate the covariance of  $Y^\alpha(t)$  and the variance of  $Y^\alpha(t)$ , when  $t$  tends to infinity. One of our main results is that the increment process of  $Y^\alpha(t)$  is short-range dependent. We also study weak convergence and tightness and then finally prove that  $1/\alpha Y_{at}^\alpha(t)$  converges weakly to scaled Brownian motion. In the case  $H \in (1/2, 1)$ , fractional Brownian motion and the fractional Ornstein – Uhlenbeck process of the first kind both exhibit a long-range dependence, but the fractional Ornstein–Uhlenbeck process of the second kind exhibits a short-range dependence. This offers more opportunities to model network traffic or economic time series via tractable fractional processes. The fractional Ornstein – Uhlenbeck process of the first kind and the fractional Ornstein – Uhlenbeck process of the second kind are quite similar to simulate, since they can both be represented via stochastic differential equations.

#### General information

Publication status: Published

MoE publication type: G4 Doctoral dissertation (monograph)

Organisations: Department of Mathematics

Contributors: Kaarakka, T.

Number of pages: 102

Publication date: 6 Nov 2015

#### Publication information

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Research output: Book/Report > Doctoral thesis > Monograph

#### Social Media in Business-to-Business Companies' Innovation

Regarding the increasingly important paradigm of open innovation, it is recognized that valuable innovation-related knowledge is distributed ever more widely to various actors outside the company borders, such as users, customers, and communities. Various types of novel collaborative web tools and approaches, such as social media, can enable and significantly increase the use of distributed knowledge both within and outside company borders.

It is a common assumption that it is much more difficult to utilize social media in business-to-business (B2B) innovation

and the customer interface because of the significant differences in B2B markets, B2B products, and product development, for example. Despite the growing number of company experiments and academic studies, social media are still new to many businesses. The opportunities and benefits of social media are not well understood in business, especially in B2B context. Despite the recent increasing interest in the use of social media in B2B marketing, it has received little attention from the innovation perspective.

The general purpose of this thesis is to study and help to understand the use of social media in B2B companies' innovation. The thesis focuses on the innovation process, customer interface and the related perspective of the creation and sharing of customer knowledge. The main objectives of the dissertation are to understand the challenges, new opportunities, use and benefits, as well as, functions and roles of social media in B2B innovation. The choice of carrying out the dissertation as an article thesis has offered the researcher the opportunity to study from multiple perspectives a phenomenon that has been little researched or understood. The thesis combines quantitative and qualitative research. Quantitative research approach was used to determine the current use and perceived potential of social media tools in innovation, as well as to identify challenges of social media use in B2B company innovation. Qualitative research was used to gain a deep understanding of the challenges and benefits, and roles and functions of social media in B2B innovation.

The thesis contributes to the increasing understanding on the rather little understood topic of social media and its potential in B2B companies' innovation. Based on the research, new understanding was gained on the challenges that B2B companies face in using social media in innovation, on the new possibilities and benefits that social media provide for innovation, as well as on the applications and the roles of social media in B2B innovation.

In addition, models and theories were developed for enhancing social media use: based on the qualitative research, for example, a Social Customer Learning model was built, which aims to help researchers and managers to identify and evaluate different social media approaches in business-to-business customer interface and innovation; modifications and improvements were proposed for media richness theory and channel expansion theory for the better consideration of the social media and the innovation contexts.

#### **General information**

Publication status: Published

MoE publication type: G5 Doctoral dissertation (article)

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

Contributors: Jussila, J.

Number of pages: 70

Publication date: 6 Nov 2015

#### **Publication information**

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Original language: English

#### **Publication series**

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<http://URN.fi/URN:ISBN:978-952-15-3621-2>

#### **Bibliographical note**

Awarding institution: Tampere University of Technology

Versio ok 14.12.2015

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

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

A financial model plays a key role in the valuation and risk management of financial derivatives, and it serves as an important tool for investors to measure the risk exposure of their portfolios and make predictions and decisions. However, the popular affine stochastic volatility models without jumps, such as the Heston model, have been questioned in the finance literature in terms of their appropriateness for modelling stock prices and pricing derivatives. Many alternative model specifications have been proposed in recent decades, including the specification of non-affine variance dynamics and the inclusion of Lévy jumps. However, the complexity introduced by further model specifications leads to poor

probabilistic properties, and hence most popular estimation methods are not applicable. The Bayesian estimation method is among the few that work. In this thesis, I discuss the role of new model specifications and investigate the performance of Bayesian estimation methods. First, I use an extensive empirical data set to study how the use of infinite-activity Lévy jumps in stock returns and variance improves model performance. The stock returns and variance are driven by diffusions and different Lévy jumps, including the finite-activity compound Poisson jump and infinite-activity Variance Gamma and Normal Inverse Gaussian (NIG) jumps. Moreover, the non-affine linear variance process is compared to the affine square-root stochastic process. With the conventional Markov Chain Monte Carlo (MCMC) algorithms, including the Gibbs sampler and Metropolis-Hastings (MH) methods, and the Damien-Wakefield-Walker method to cope with complicated posteriors, eighteen different model specifications are estimated using the joint information of the S&P 500 index and the VIX index for 1996 – 2009. There is clear evidence that in terms of the goodness of fit and option pricing performance, a relatively parsimonious model with infinite-activity NIG jumps in returns and non-affine variance dynamics is particularly competitive. In the second part of the thesis, I examine the performance of advanced MCMC algorithms. The efficiency of the MH algorithm has been questioned because of its slow mixing speed, especially in the presence of high dimensions and a strong dependence between model parameters and state variables. Generally, a class of algorithms seeks to improve the MH by constructing more effective proposals, and another combines the MCMC with the Sequential Monte Carlo algorithms. To investigate, I first conduct simulation studies to compare the estimation performance of seven advanced Bayesian estimation methods against the MH. Specifically, I use the affine Heston model, the affine Bates model, and an affine model with NIG return jumps, and examine whether the different jump structures affect the estimation results. Second, I estimate the non-affine model with NIG return jumps using the joint information of the S&P 500 index and the VIX for 2002–2005 with selected algorithms that perform well in the simulation studies. The results of the simulation and empirical studies are mixed about the performance of the algorithms. The Fast Universal Self-tuned Sampler algorithms are particularly competitive in generating virtually independent samples and achieving the fastest mixing with a fixed number of MCMC runs, and their performance is stable regardless of the model specifications. However, they are computationally expensive. The computational costs of the Particle Markov Chain Monte Carlo (PMCMC) methods are much cheaper and also efficient in mixing, and they perform best when estimating the models without jumps/with NIG jumps in the simulation studies, as well as in the fit to the VIX in the empirical studies. However, the PMCMC methods are more vulnerable to model specifications than the other algorithms; in particular, the rare large compound Poisson jumps in the Bates model significantly reduce the acceptance rate and worsen the estimation performance of the PMCMC methods.

#### **General information**

Publication status: Published

MoE publication type: G4 Doctoral dissertation (monograph)

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

Contributors: Yang, H.

Number of pages: 107

Publication date: 13 Nov 2015

#### **Publication information**

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#### **Bibliographical note**

Awarding institution: Tampere University of Technology

Versio ok 16.12.2015

Research output: Book/Report > Doctoral thesis > Monograph

#### **MYSTERY SHOPPERS RECOGNISING KNOWLEDGE SHARING BARRIERS IN HIGHER EDUCATION**

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

emerging from the material into three larger domains, namely, individual barriers, technological barriers and organisational barriers.

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

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

#### **General information**

Publication status: Published

MoE publication type: A4 Article in a conference publication

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

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

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

#### **Bibliographical note**

ORG=kie,0.5

ORG=tlo,0.5

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

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

#### **General information**

Publication status: Published

MoE publication type: A4 Article in a conference publication

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

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

Number of pages: 7

Pages: 7589-7595

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URLs:

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

#### **Bibliographical note**

ORG=kie,0.5

ORG=tlo,0.5

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

### **Organic Chromophores in Self-Assembled Monolayers and Supramolecular Arrays**

Large aromatic chromophores, e.g. phthalocyanines or perylene derivatives are widely used in modern photonic applications. For these systems, well-organized films of the chromophores are very important. One of the ways to ensure the order on molecular level is to bind the organic dyes covalently to a solid substrate with a suitable anchor group. Expanding the concept, multilayered supramolecular assemblies can be built on surfaces as well.

In the present Thesis various chromophores with a capability to anchor onto a solid surface were prepared. Synthesized molecules were porphyrins, phthalocyanines, and perylene mono- and diimides with different substituents. The anchor-surface pairs were of several types, and the chromophores were attached to a surface by one- or two-step methods.

Two of the perylene monoimide derivatives were found to be a perfect basement for construction of multilayered films.

Using a metal-ligand interaction it was possible to prepare stable double layers, as well ten molecules thick stable deeply colored multilayer films. The developed approach is versatile and will allow in future to expand the capabilities of molecular film architecture.

#### **General information**

Publication status: Published

MoE publication type: G5 Doctoral dissertation (article)

Organisations: Department of Chemistry and Bioengineering, Research group: Supramolecular photochemistry

Contributors: Sariola-Leikas, E.

Number of pages: 58

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#### **Bibliographical note**

Awarding institution: Tampere University of Technology

Version: 16.12.2015

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

#### **What Engineering Scientists Know and How They Know It: Towards Understanding the Philosophy of Engineering Science in Finland**

Knowledge, research and science are all concepts into which every member of the scientific community must have some kind of insight. Although nowadays there appears to be a general consensus that engineering science is a scientific enterprise in and of its own, this has not been the case for very long. As a scientific discipline, engineering science has been somewhat neglected from the standpoint of epistemology and philosophy.

This study aims at understanding the prevailing philosophy of engineering science in Finland. It strives to comprehend the essence and challenges of knowledge and knowledge-creation processes in the field. It is hoped that the resulting comprehension will improve the research community's possibilities 1) to reflect critically upon its procedures, 2) to discuss what should be studied and how, and 3) to determine on what bases the processes and results should be evaluated. It is also expected to assist in developing doctoral education and to result in better supervision by providing a framework and vocabulary for philosophical and methodological discussion.

The cognitive interest in this study is practical, and the orientation hermeneutic. The process follows the general lines of qualitative research and applies the method of qualitative content analysis. As an empirical inquiry, this study belongs to the realm of science and technology studies. The phenomenon was studied in the context of Finland in the guise of a single-case study, with Tampere University of Technology as the case.

The final results support the view that engineering science certainly is a scientific discipline in and of its own, characterised by its own technical matrix. Most engineering science research can be classified as design science. Scientific inquiry in engineering science often requires building conceptual—but also material—constructs, as well as developing new methods for different purposes (analyses, design, implementation, evaluation). Consequently, the contributions recognised in research are of many types (artefacts, methods, declarative knowledge, proposals), but they are not always the kind of knowledge adhering to technical norms. Arriving at new theories or linking knowledge to existing theories seems to be even rarer than arriving at technical norms.

Engineering science is a discipline of considerable diversity. The objectives, methods, empirical processes and results pertaining to one type of inquiry can be very different from those found in other types of investigation. This study uncovered five distinct research profiles, but there may well be more to discover.

At the moment, the philosophy of engineering science has not raised significant interest, as it appears not to have many direct consequences; yet, there are challenges that engineering scientists face that may well be rooted in the lack of

common understanding about the epistemic, ontological and methodological issues of the topic.

#### General information

Publication status: Published  
MoE publication type: G4 Doctoral dissertation (monograph)  
Organisations: Department of Information Management and Logistics  
Contributors: Naukkarinen, J.  
Number of pages: 205  
Publication date: 20 Nov 2015

#### Publication information

Publisher: Tampere University of Technology  
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ISBN (Electronic): 978-952-15-3641-0  
Original language: English

#### Publication series

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naukkarinen\_1344  
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#### Bibliographical note

Awarding institution: Tampere University of Technology  
Research output: Book/Report > Doctoral thesis > Monograph

#### 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

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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:

### **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

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Ratings:

Scopus rating (2015): SNIP 0.101

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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

### **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

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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

### 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

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Peer-reviewed: Yes

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

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### Bibliographical note

ORG=mol,0.5  
ORG=keb,0.5  
Source: Scopus  
Source ID: 84945244937  
Research output: Contribution to journal › Article › Scientific › peer-review

## **Platform Competences to Enhance Network Effects in Business Ecosystems**

### **General information**

Publication status: Published  
MoE publication type: A4 Article in a conference publication  
Organisations: Pori Department, Research group: Business Ecosystems, Networks and Innovations, Queensland University of Technology QUT, VTT Technical Research Centre of Finland  
Contributors: Seppänen, M., Dedeheyir, O., Still, K., Valkokari, K., Suominen, A.  
Publication date: 8 Dec 2015

### **Host publication information**

Title of host publication: 2015 ISPIM Innovation Summit in Brisbane, Australia - 6-9 December 2015  
Publisher: International Society for Professional Innovation Management ISPIM  
ISBN (Electronic): 978-1-911136-00-2  
Research output: Chapter in Book/Report/Conference proceeding › Conference contribution › Scientific › peer-review

## **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

## **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 conclusion 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

#### Method of data compression for traffic monitoring

In this paper a problem of compressing data containing information on basic parameters of network traffic is considered. Six test sets with different types of network traffic for known monitoring tool Wireshark are formed. Analysis of compression efficiency for these datasets by widely used archivers is carried out. It is shown that the main part of memory in compressed data relates to timestamps. A method for compressing timestamps that consists in delta calculation, Burrows-Wheeler transform (BWT), distance coding (DC) and recursive group coding (RGC) at the final stage is proposed. It is demonstrated that the use of RGC at the final stage provides more efficient coding compared to known methods. It is also shown that the proposed method of timestamps coding produces about twice larger compression ratio than WinRar.

#### 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: Kozhemiakina, N., Lukin, V., Ponomarenko, N., Akulynichev, A., Astola, J., Egiazarian, K.

Number of pages: 4

Pages: 153-156

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: Burrows-Wheeler transform, data compression, distance coding, traffic monitoring and analysis tools

DOIs:

10.1109/INFOCOMMST.2015.7357299

Source: Scopus

Source ID: 84962870220

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

#### Turvallisuuden johtajat - Esimiesten johtajuus, osaaminen ja sitoutuminen

##### General information

Publication status: Published

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

Organisations: Department of Industrial Management, Research group: Safety Management and Engineering

Contributors: Tappura, S., Hyytinen, T., Kivistö-Rahnasto, J., Nenonen, N., Vasara, J.

Number of pages: 144

Publication date: 30 Dec 2015

##### Publication information

Place of publication: Tampere

Publisher: Tampereen teknillinen yliopisto; Tampereen yliopisto  
ISBN (Electronic): 978-952-15-3662-5  
Original language: Finnish  
Electronic versions:

Loppuraportti\_kaikki  
URLs:

<http://URN.fi/URN:ISBN:978-952-15-3662-5>

Research output: Book/Report › Commissioned report › Professional

### **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 M<sub>2</sub> 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

### **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 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](https://doi.org/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 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

### 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

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

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

#### General information

Publication status: Published

MoE publication type: A4 Article in a conference publication

Organisations: Department of Civil Engineering, Research group: Metal and Light-weight structures, KU Leuven

Contributors: Van Mellaert, R., Mela, K., Tiainen, T., Heinisuo, M., Lombaert, G., Schevenels, M.

Number of pages: 14

Pages: 3395-3408

Publication date: 2016

#### Host publication information

Title of host publication: ECCOMAS Congress 2016 - Proceedings of the 7th European Congress on Computational Methods in Applied Sciences and Engineering : Crete; Greece; 5 June 2016 through 10 June 2016  
Volume: 2

Publisher: National Technical University of Athens

ISBN (Electronic): 9786188284401

ASJC Scopus subject areas: Artificial Intelligence, Applied Mathematics

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

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

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

Source: Scopus

Source ID: 84995387507

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

### **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](https://doi.org/10.2507/26th.daaam.proceedings.094)

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

### **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

### **A unified lcf-hcf model based on continuum mechanics**

In this work, a unified low- and high-cycle fatigue model based on continuum mechanics is developed. The high-cycle part of the model is based on the concepts of a moving endurance surface in the stress space with an associated evolving isotropic damage variable. The low-cycle part of the model is formulated as a traditional nonlinear isotropic and kinematic hardening J2-plasticity model. The LCF- and HCF-models are connected via the damage evolution equation. Performance of the model is demonstrated with a numerical example.

#### **General information**

Publication status: Published

Organisations: Department of Mechanical Engineering and Industrial Systems, Research area: Applied Mechanics, Department of Civil Engineering, Lund University

Contributors: Kouhia, R., Holopainen, S., Ottosen, N. S., Matti, R., Saksala, T.

Number of pages: 4

Publication date: 2016

Peer-reviewed: Unknown

Event: Paper presented at Nordic Seminar on Computational Mechanics, .

URLs:

<http://www.chalmers.se/en/conference/nscm29/Pages/default.aspx>

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

### **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

## **Benefits of digitally guided buying in B2B markets**

### **General information**

Publication status: Published

MoE publication type: D3 Professional conference proceedings

Organisations: Department of Industrial Management, Research group: Cost Management Center

Contributors: Ojala, M., Mahlamäki, T.

Publication date: 2016

### **Host publication information**

Title of host publication: 25th annual IPSERA Conference : Dortmund, Sunday 20 March - Wednesday 23 March 2016

Place of publication: Dortmund

URLs:

<http://www.ipsera.com/event-1902575>

<http://www.ipsera2016.lfo.tu-dortmund.de/welcome-to-ipsera-2016/>

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

## **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

## **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

#### **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

### **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](http://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

### **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/pyrhonen-computer-supported-collaborative-learning--praxes-223.pdf](http://www.sefi.be/conference-2016/papers/Engineering_Skills/pyrhonen-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

### 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)

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

### 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

JUFID=72540

Source: Scopus

Source ID: 84952003607

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

#### 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

#### 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

#### 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

#### **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

#### **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

### **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/pyrhoneh-enhancing-old-laboratory-experiment-using-flipped-learning--towards-self-regulating-collaborative-.pdf](http://www.sefi.be/conference-2016/papers/Sustainability_and_Engineering_Education/pyrhoneh-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

### **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

### **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

### **Fabrication and characterization of broadband superluminescent diodes for 2 µm wavelength**

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

#### **General information**

Publication status: Published

MoE publication type: A4 Article in a conference publication  
Organisations: Optoelectronics Research Centre, Research group: Semiconductor Technology and Applications  
Contributors: Zia, N., Viheriälä, J., Koskinen, R., Koskinen, M., Suomalainen, S., Guina, M.  
Publication date: 2016

#### Host publication information

Title of host publication: Light-Emitting Diodes: Materials, Devices, and Applications for Solid State Lighting XX  
Publisher: SPIE  
Article number: 97680Q  
ISBN (Electronic): 9781510600034

#### Publication series

Name: Proceedings of SPIE  
Volume: 9768  
ISSN (Print): 0277-786X  
ISSN (Electronic): 1996-756X  
ASJC Scopus subject areas: Applied Mathematics, Computer Science Applications, Electrical and Electronic Engineering, Electronic, Optical and Magnetic Materials, Condensed Matter Physics  
Keywords: Gallium antimonide, SLD design, Superluminescent diodes, Tilt waveguide  
Electronic versions:  
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

#### 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

### **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

#### **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

#### **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

## 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

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

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

## General information

Publication status: Published

MoE publication type: A4 Article in a conference publication

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

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

Number of pages: 7

Publication date: 2016

## Host publication information

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

Publisher: SPIE  
Article number: 97330Q  
ISBN (Electronic): 9781628419689

#### Publication series

Name: SPIE Conference Proceedings  
Publisher: SPIE  
Volume: 9733  
ISSN (Print): 0277-786X  
ASJC Scopus subject areas: Applied Mathematics, Computer Science Applications, Electrical and Electronic Engineering, Electronic, Optical and Magnetic Materials, Condensed Matter Physics  
Keywords: 1550 nm laser diode, DBR, Power scaling, Tapered laser diode  
DOIs:  
10.1117/12.2207423

#### Bibliographical note

INT=orc,"Aho, Antti T."  
JUFOID=71479  
Source: Scopus  
Source ID: 84978785955  
Research output: Chapter in Book/Report/Conference proceeding › Conference contribution › Scientific › peer-review

### High-temperature sliding wear behaviour of thermally sprayed Cr<sub>3</sub>C<sub>2</sub>-based coatings

#### General information

Publication status: Published  
MoE publication type: D3 Professional conference proceedings  
Organisations: Materials Science, Research group: Surface Engineering, Univ Modena & Reggio Emilia, Universita di Modena e Reggio Emilia, Dept Engr Enzo Ferrari, University of Modena and Reggio Emilia, Dipartimento di Ingegneria Enzo Ferrari  
Contributors: Matikainen, V., Bolelli, G., Koivuluoto, H., Sassatelli, P., Lusvarghi, L., Vuoristo, P.  
Number of pages: 10  
Publication date: 2016

#### Host publication information

Title of host publication: Proceedings of The 17th Nordic Symposium on Tribology - NORDTRIB 2016  
Keywords: Thermal spraying, sliding wear, Cr<sub>3</sub>C<sub>2</sub>, HVOF, HVAF  
Electronic versions:  
Matikainen et al\_Nordtrib2016  
URLs:  
<http://urn.fi/URN:NBN:fi:tty-201712082313>  
Research output: Chapter in Book/Report/Conference proceeding › Conference contribution › Professional

### 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 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

### 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

### Improved properties for packaging materials by nanoscale surface modification and ALD barrier coating

#### General information

Publication status: Published

MoE publication type: A4 Article in a conference publication

Organisations: Department of Materials Science, Research group: Paper Converting and Packaging, Metsä Board, Bemis, LUT Energy, Masaryk University

Contributors: Lahti, J., Lavonen, J., Lahtinen, K., Johansson, P., Seppänen, T., Cameron, D. C.

Number of pages: 23  
Pages: 684-706  
Publication date: 2016

#### **Host publication information**

Title of host publication: TAPPI International Conference on Nanotechnology for Renewable Materials 2016  
Volume: 2

Publisher: TAPPI Press

ISBN (Electronic): 9781510828001

ASJC Scopus subject areas: Biotechnology, Biomaterials, Materials Chemistry, Surfaces, Coatings and Films

URLs:

<http://www.scopus.com/inward/record.url?scp=84992694476&partnerID=8YFLogxK> (Link to publication in Scopus)

Source: Scopus

Source ID: 84992694476

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

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