

INDIN'2011

2011 9th IEEE International Conference on Industrial Informatics

PROGRAM

26-29 July 2011
Caparica, Lisbon, Portugal

Sponsored by



Welcome to INDIN'2011

It is our pleasure to welcome all participants to INDIN'2011, the 9th IEEE International Conference on Industrial Informatics, Campus of the Faculty of Sciences and Technology of Universidade Nova de Lisboa (New University of Lisbon), Portugal.

INDIN'2011 is co-sponsored by the IEEE Industrial Electronics Society (IEEE-IES) and by UNINOVA, and technically co-sponsored by Universidade Nova de Lisboa (New University of Lisbon) – Faculty of Sciences and Technology – Dep. Electrical Engineering, Schneider Electric, and O3NEIDA.

UNINOVA [Institute for the Development of New Technologies] is a private not-for-profit Research Organization admitted in 1988 as a full member of IASP [International Association of Science Parks] in recognition of the outstanding activities and initiatives pursued by the institute in close co-operation with Portuguese industry and Faculty of Sciences and Technology of New University of Lisbon. The main theme of UNINOVA is to pursue scientific research, technical development, high level training and the creation of technological innovation centres, support to the emergence of technology-based companies (spin-offs) and technology-based small size companies. The scientist and researcher staff is working closely with the national industry and universities.

INDIN'2011 features an excellent technical program, which includes keynote and plenary presentations delivered by leading authority from the industry and academia. We are fortunate to have outstanding keynote speakers: Bogdan M. 'Dan' Wilamowski, Laïla Gide, Luis M. Camarinha-Matos, and Stamatis Karnouskos.

Two tutorials are scheduled to happen in the first day, clearly addressing hot topics on the bridges of industry and academia. Also an informal meeting with the IEEE Transactions on Industrial Informatics Editor-in-Chief will occur addressing issues as important as how to get a paper accepted in IEEE TII.

The quality of the program is a combination of quality submissions and diligent work of the members of the International Program Committee. We would like to acknowledge all authors of submitted papers and all members of the Program Committee and additional Reviewers, who dedicated their time to the review of the submitted papers.

Last, but not the least, we would like to acknowledge the contribution of all members of the several committees that contribute to putting together such exciting program. We are also grateful to all members of the Local Organizing Committee who generously has spent their time to help in the organization of the event.

The success of any conference depends on the quality of the program and participation of people. We thank you all for being here. We trust that you will find the technical program intellectually stimulating and your stay in Lisbon and Caparica really enjoyable.

July, 2011

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Juan Jose Rodriguez Andina, Paulo Leitão, INDIN'2011 Special Sessions Co-Chairs

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T3- Distributed, Embedded and Networked Control

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T4- Factory Automation and Industrial Informatics

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Bojan Jerbic, University of Zagreb, Croatia

T6- Mechatronics and Robotics

Shaoping Wang, BUAA, China
Jorge Dias, Univ. Coimbra, Portugal

T7- Industrial Informatics Applications

Lyes Benyoucef, INRIA Nancy, FRANCE
Niels Lhose, University Nottingham, United Kingdom

T8- New Paradigms in Industrial Informatics

Vidy Potdar, Curtin University of Technology,
Australia
Xinghuo Yu, RMIT University, Australia

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SS01: Wireless Sensor and Actuator Networks in Industrial Automation

Mikael Gidlund, Sweden
Johan Åkerberg, Sweden

SS02: Self-X and Autonomous Control in Engineering Applications

Benjamin Klöpper, Germany
Mareen Vassholz, Germany

SS03: Agent-Directed Simulation for Industrial Applications

Iman Badr, Egypt
Paulo Leitão, Portugal

SS04: Self Recovery and Real Time Reconfiguration

Corina Popescu, Finland
Marisol Garcia Valls, Spain

SS05: Modern Software Engineering Methods and Approaches in Industrial Informatics

Alois Zoitl, Austria
Valeriy Vyatkin, New Zealand
Thomas Strasser, Austria

SS06: Knowledge Management Applications in Service Engineering

Narayan Debnath, USA
Baisakhi Chakraborty, India

SS07: Bio-Inspired Methods, Techniques and Algorithms with Application in Engineering Systems

Francisco Restivo, Portugal
Claudia-Melania Chituc, Portugal

SS08: SCADA Security

Urban Bilstrup, Sweden
Mattias Wecksten, Sweden

SS09: ICT @ SmartGrids

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Mariano Ortega, Spain
Eloy González, Spain
Angelina Espinoza, Spain

SS10: Embedded Systems & Reconfigurable SoCs

Luis Gomes, Portugal
Juan J. Rodriguez-Andina, Spain
Anikó Costa, Portugal

SS11: Behavioural Models for Embedded Systems

João Fernandes, Portugal
João P. Barros, Portugal
Ricardo Machado, Portugal

SS12: Reconfigurable Computing Trends

João Cardoso, Portugal
Michael Huebner, Germany
Luís Gomes, Portugal

SS13: I*PROMS – Innovative Production Machines and Systems

A. Soroka, United Kingdom
E.E. Eldukhri United Kingdom
A.W. Colombo, Germany

SS14: INDIN-NDS German Network of Excellence

Gerd von Colln, Germany

SS15: Supervision over Wireless Sensors and Actuators Networks

Paulo Gil, Portugal
Alberto Cardoso, Portugal
Jorge Sá Silva, Portugal

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Tutorials - Tuesday 26th of July

TU - Context-sensitive and Semantic-based Mobile Applications in Industrial Field Service

B - Room 203-IV, Tuesday 26th of July, 14:00

Lecturer/s: Markus Aleksy, ABB Corporate Research, Germany

The development of mobile applications, especially that provide context-sensitive features is a rather complex and difficult task. 'Smart' and 'context-aware' systems are great for end-users, if they are nonintrusive and have user-friendly interfaces, but they are hard to design, maintain and integrate. Additionally, the coverage of such applications requires the utilization of appropriate data transport, efficient resource management, as well as input and output techniques to consider the limitations of mobile devices. In this tutorial, a set of techniques and design patterns will be presented that helps to face these challenges. The presented techniques cover various topics, especially context and resource/data management techniques as well as the design of context-sensitive user interfaces. Furthermore, the results of several case studies carried out in the domain of industrial field service will be presented to provide feedback which of the presented techniques could be successfully applied and which challenges have still to be faced.

TU - OPC Unified Architecture (OPC UA). New Opportunities of System Integration and Information Modeling in Automation Systems

C - Room 204-IV, Tuesday 26th of July, 14:00

Lecturer/s: Dirk van der Linden, Artesis University College of Antwerp, Belgium,
Wolfgang Granzer, Vienna University of Technology, Austria,
Wolfgang Kastner, Vienna University of Technology, Austria

Since reusable software components made their entry in automation technology and replaced monolithic, customized software applications, the need of standardized interfaces for components in modern industry became very important. In the mid-1990s, the OPC Foundation was established with the goal to define a standard for Windows-based device drivers that provide a uniform way to access automation systems. After releasing the first OPC standard, later renamed to OPC Data Access (OPC DA), several others like OPC Alarm & Event (OPC A&E) or OPC HDA (Historical Data Access) followed.

Nowadays, OPC is one of the most important specifications in automation systems – meanwhile over 20,000 products are offered by more than 3,500 vendors. The main reasons of its success are the focus-oriented design and the existence of well-defined interfaces. However, the OPC specifications also introduce several drawbacks and open issues that become a major barrier in modern automation systems. Since OPC is based on Microsoft's COM/DCOM technology, it is limited to Windows based systems. In addition, COM/DCOM has limited support for routing and security, which makes it impracticable in Wide Area Networks (WANs). Another drawback is its rudimentary data model where modelling of information is only possible in a very restricted way.

To overcome the drawbacks of these so called classical OPC specifications, the OPC Foundation decided to define a new specification family referred to as OPC Unified Architecture (OPC UA). OPC UA aims at eliminating the dependency to Windows COM/DCOM by using a Service Oriented Architecture (SOA). To achieve this, OPC UA uses Web Services or a TCP based protocol for data exchange that both enable full platform-independence. In addition to this new communication concept, another key concept within OPC UA is the support of a powerful and extensible information model, which can be used to model any kind of information and data. The first parts of OPC UA were published as IEC 62541, other parts will follow soon.

This tutorial will provide the attendees with advanced knowledge on OPC UA. Starting with a comparison to classical OPC, the main features and concepts of OPC UA will be presented. Afterwards, an overview about the different parts of the OPC UA specification will be given. The next part of this tutorial is dedicated to information modelling in OPC UA. After a general introduction into the modelling concepts of OPC UA, an information model for building automation system will be presented as an example. The tutorial will be finished with an overview of the security concepts of OPC UA.

Wednesday 27th of July

CE - Opening Session

A - Grande Auditório, Wednesday 27th of July, 09:00

CE - Keynote Speech - Advantages and Problems of Soft Computing

A - Grande Auditório, Wednesday 27th of July, 09:30

Keynote Speaker: Bogdan M. Wilamowski

Abstract - Soft computing can be a very attractive alternative to a purely digital system, but there are many traps waiting for researchers trying to apply this new exciting technology. For nonlinear processing both neural networks and fuzzy systems can be used. Terrifically neural networks should provide much better solutions: smoother surfaces, larger number of inputs and outputs, better generalization abilities, faster processing time, etc. In industrial practice, however, many people are frustrated with neural networks not being aware that the reason for their frustrations are wrong learning algorithms and wrong neural network architectures. Having difficulties with neural network training, many industrial practitioner are enlarging neural networks and indeed such networks converges to solutions much faster. But at the same time such excessively large network are not able to respond correctly to new patterns which were not used for training. This paper describes how to use effective neural networks and how to avoid all reasons for frustration.

CE - Keynote Speech - ARTEMIS SRA 2011: Embedded Systems and Societal Challenges

A - Grande Auditório, Wednesday 27th of July, 14:00

Keynote Speaker: Laila Gide

Abstract - In the meeting of ARTEMIS-IA General Assembly, which took place on March 2nd 2011, the ARTEMIS Strategic Agenda (SRA) 2011 was endorsed as a recalibration of the ARTEMIS SRA 2006. The ARTEMIS SRA 2011 contains two main elements: The widely acknowledged societal challenges in the European Union and a set of innovation activities in embedded systems that goes beyond the classic scientific approach in driving research activities. Over the years the importance of Embedded Systems has been increasing and there is no doubt that this trend will continue. Embedded Systems are playing a central role in addressing the global challenges like energy and climate change by increasing energy efficiency, reducing power consumption, and contributing in reducing emissions at all levels. Recent developments in wireless networks and the Internet allow the performance of complex and large embedded systems networks to be optimized. Computations and communications are key elements of large scale systems; good examples of this are smart grids and smart cities. Connected embedded systems will form the critical infrastructures of tomorrow's society. There are plenty of other examples, smart buildings and cities of the future are obvious challenge combining many infrastructure services to add to less visible industrial systems where increased connectivity of subsystems opens up new innovative opportunities in the form of increased efficiency, new service concepts, increased safety and security and remote maintenance. All these challenges will inspire concrete research topics where the change from static networked embedded systems to highly dynamic system of systems, autonomous, self-organizing, self-healing, and self- configuring will require new architectures, new design processes, new methods and tools.

Meeting with IEEE Transactions on Industrial Informatics Editor-in-Chief

B - Room 203-IV, Wednesday 27th of July, 17: 15

How to get a paper accepted in IEEE TII

Bogdan M. Wilamowski

tt04 - Industrial Communications

B - Room 203-IV, Wednesday 27th of July, 10:50

Convergence of OPC UA and DPWS with a cross-domain Data Model

Mr. Bernard Bony, Schneider-Electric, France
Mr. Michael Harnischfeger, Schneider-Electric, France
Mr. Francois Jammes, Schneider-Electric, France

OPC-UA and DPWS Interoperability for Factory Floor Monitoring using Complex Event Processing

Mr. Jorge Garcia Izaguirre, Tampere University of Technology, Finland
Dr. Andrei Lobov, Tampere University of Technology, Finland
Prof. Jose L. Martinez Lastra, Tampere University of Technology, Finland

An EtherCAT-based Motor Drive for High Precision Motion Systems

Prof. Minyoung Sung, Sangmyung University, Korea (South)
Prof. Kanghee Kim, Soongsil University, Korea (South)
Prof. Hyun-Wook Jin, Konkuk University, Korea (South)
Prof. Taehyoun Kim, University of Seoul, Korea (South)

DPWS as Specific Communication Service Mapping for IEC 61850

Mr. Jose Lima, CTS Uninova, Portugal
Dr. Celson Lima, CTS Uninova, Portugal
Mr. Vasco Gomes, CTS Uninova, Portugal
Dr. João Martins, CTS Uninova, Portugal
Dr. José Barata, CTS Uninova, Portugal
Mr. Luís Ribeiro, CTS Uninova, Portugal
Mr. Gonçalo Cândido, CTS Uninova, Portugal

Adaptive and Robust Monitoring Approach for WSAE Environments

Prof. Luis Brito Palma, Universidade Nova de Lisboa - FCT - DEE, Portugal
Prof. Paulo Sousa Gil, Universidade Nova de Lisboa - FCT - DEE, Portugal

tt04 - Advanced Manufacturing and Maintenance Techniques

B - Room 203-IV, Wednesday 27th of July, 15:20

Process plan generation in reconfigurable manufacturing systems using adapted NSGA-II and AMOSA

Mr. Bensmaine Abderrahmane, LGIPM / INRIA Nancy Grand Est, France
Prof. Benyoucef Lyes, LGIPM / INRIA Nancy Grand Est, France
Dr. Dahane Mohammed, LGIPM / INRIA Nancy Grand Est, France

Service Oriented Computing to Self-Learning Production System

Mr. Mohammad Kamal Uddin, Tampere University of Technology, Finland
Ms. Aleksandra Dvoryanchikova, Tampere University of Technology, Finland
Prof. Jose Luis Martinez Lastra, Tampere University of Technology, Finland
Mr. Sebastian Scholze, Institut für angewandte Systemtechnik Bremen, Germany
Dr. Dragan Stokic, Institut für angewandte Systemtechnik Bremen, Germany
Mr. Gonçalo Cândido, UNINOVA - Instituto de Desenvolvimento de Novas Tecnologias, Portugal
Prof. Jose Barata, UNINOVA - Instituto de Desenvolvimento de Novas Tecnologias, Portugal

Autonomous Product Memories for Industrial Applications

Dr. Christian Seitz, Siemens AG, Germany
Dr. Joerg Neidig, Siemens AG, Germany
Prof. Thomas Runkler, Siemens AG, Germany

A Methodology for Fault Isolation and Identification in Automated Equipments

Prof. Luca Ferrarini, Politecnico di Milano, Italy
Mr. Alessio Dede', Politecnico di Milano, Italy
Mr. Massimo Allevi, Politecnico di Milano, Italy

Anomaly Detection for High Precision Foundries

Mr. Javier Nieves, DeustoTech - Computing, University of Deusto, Spain
Mr. Igor Santos, DeustoTech - Computing, University of Deusto, Spain
Mr. Xabier Ugarte-Pedrero, DeustoTech - Computing, University of Deusto, Spain
Dr. Pablo G. Bringas, DeustoTech - Computing, University of Deusto, Spain

ss05 - Software Engineering in Automation
C - Room 204-IV, Wednesday 27th of July, 10:50

Engineering Project Management Using The Engineering Cockpit: A collaboration platform for project managers and engineers

Dr. Thomas Moser, Vienna University of Technology, Austria
Dr. Richard Mordinyi, Vienna University of Technology, Austria
Mr. Dietmar Winkler, Vienna University of Technology, Austria
Prof. Stefan Biffl, Vienna University of Technology, Austria

Aspect-Oriented Programming of Video Based Systems

Mr. Nuno Cardoso, University of Minho, Portugal
Mr. Nuno Peixoto, University of Minho, Portugal
Dr. Jorge Cabral, University of Minho, Portugal
Dr. Jose Mendes, University of Minho, Portugal
Prof. Joao Monteiro, University of Minho, Portugal
Dr. Adriano Tavares, University of Minho, Portugal

A Component Based System for S-maintenance

Mr. Mohamed Hedi Karray, Femto-st, France
Dr. Brigitte Chebel-Morello, Femto-st, France
Dr. Christophe Lang, Franche-comté University, France
Prof. Nouredine Zerhouni, Femto-st, France

Protecting Know-How in Cross-Organisational Functional Mock-Up by a Service-Oriented Approach with Trust Centres

Dr. Johannes Mezger, TWT GmbH, Germany
Dr. Michael Ditze, TWT GmbH, Germany
Dr. Michael Keckeisen, TWT GmbH, Germany
Dr. Carsten Kübler, TWT GmbH, Germany
Dr. Bernd Relovsky, Daimler AG, Germany
Dr. Victor Fäßler, TWT GmbH, Germany

Sustainable Visualization Solutions in Industrial Automation with Movisa — a Case Study

Mr. Stefan Hennig, Technische Universität Dresden, Germany
Dr. Annerose Braune, Technische Universität Dresden, Germany

ss05 - Model-driven Engineering
C - Room 204-IV, Wednesday 27th of July, 15:20

Evaluating Software Engineering Methods in the Context of Automation Applications

Dr. Alpana Dubey, ABB Corporate Research, India

An IEC-61131-based Rule System for Integrated Automation Engineering: Concept and Case Study

Mrs. Tina Kraußer, RWTH Aachen University, Germany
Mr. Gustavo Quirós, RWTH Aachen University, Germany
Prof. Ulrich Epple, RWTH Aachen University, Germany

Adoption of Model-Driven methodology to aggregations design in Smart Grid

Mr. Igor Kaitovic, ALaRI/USI, Switzerland
Mr. Slobodan Lukovic, ALaRI/USI, Switzerland

Challenges in Industrial Adoption of Model Driven Technologies in Process Control Application Design

Mr. Jukka P. Peltola, Aalto University School of Electrical Engineering Department of Automation and Systems Technology, Finland
Mr. Seppo A. Sierla, Aalto University School of Electrical Engineering Department of Automation and Systems Technology, Finland
Mr. Timo Vepsäläinen, Tampere University of Technology Department of Automation Science and Engineering, Finland
Mr. Kari O. Koskinen, Aalto University School of Electrical Engineering Department of Automation and Systems Technology, Finland

An Integrated Framework for Model-based Design and Verification of discrete Automation Solutions

Mr. Mauro Mazzolini, Cnr - Itia, Italy
Mr. Alessandro Brusafferri, Cnr - Itia, Italy
Mr. Emanuele Carpanzano, Cnr - Itia, Italy

tt02 - Cognitive and Computational Intelligence in Industrial Informatics (1)**D - Room 201-IV, Wednesday 27th of July, 10:50**

Bio-Inspired Coordination and Control in Self-Organizing Logistic Execution Systems

Mr. Jan Van Belle, Katholieke Universiteit Leuven, Belgium
Dr. Paul Valckenaers, Katholieke Universiteit Leuven, Belgium
Dr. Bart Saint Germain, Katholieke Universiteit Leuven, Belgium
Mr. Rudi Bahtiar, Katholieke Universiteit Leuven, Belgium
Prof. Dirk Cattrysse, Katholieke Universiteit Leuven, Belgium

Action primitives for bionics inspired action planning system

Mr. Andreas Perner, Vienna University of Technology, Austria
Dr. Heimo Zeilinger, Vienna University of Technology, Austria

A Detection Method of FAQ Matching Inquiry E-mails by Automatic Generation of Characteristic Word Groups on Past Inquiry E-mails

Mr. Yuki Sakumichi, Osaka University, Japan
Prof. Masanori Akiyoshi, Osaka University, Japan
Dr. Masaki Samejima, Osaka University, Japan
Dr. Hironori Oka, Codetoyo Ltd., Japan

Causal Structure Learning in Process Engineering Using Bayes Nets and Soft Interventions

Mr. Christian Kuehnert, Fraunhofer IOSB, Germany
Dr. Thomas Bernard, Fraunhofer IOSB, Germany
Mr. Christian Frey, Fraunhofer IOSB, Germany

Condition Monitoring based on Kernel Classifier Ensembles

Mr. Eduardo Mendel, Universidade Federal do Espírito Santo, Brazil
Prof. Flávio M. Varejão, Universidade Federal do Espírito Santo, Brazil
Prof. Thomas Rauber, Universidade Federal do Espírito Santo, Brazil
Mr. Rodrigo J. Batista, Petroleo Brasileiro S.A. PETROBRAS, Brazil

tt02 - Cognitive and Computational Intelligence in Industrial Informatics (2)**D - Room 201-IV, Wednesday 27th of July, 15:20**

Energy efficiency improvement through context sensitive self-learning of machine availability

Mr. José Bittencourt, Bosch Rexroth AG, Germany
Dr. Ralf Bonefeld, Bosch Rexroth AG, Germany
Mr. Sebastian Scholze, Institut für angewandte Systemtechnik Bremen GmbH, Germany
Dr. Dragan Stokic, Institut für angewandte Systemtechnik Bremen GmbH, Germany
Mr. Mohammad Uddin, Tampere University of Technology, Finland
Prof. José Lastra, Tampere University of Technology, Finland

Cognitive Decision Unit Applied to Autonomous Bi-ped Robot NAO

Mr. Tobias Deutsch, Institute of Computer Technology, Vienna University of Technology, Austria
Mr. Markus Bader, Automation and Control Institute, Vienna University of Technology, Austria
Dr. Roland Lang, Bombardier Transportation, 3HETC, Germany
Dr. Heimo Zeilinger, Institute of Computer Technology, Vienna University of Technology, Austria
Mr. Clemens Muchitsch, Institute of Computer Technology, Vienna University of Technology, Austria
Prof. Markus Vincze, Automation and Control Institute, Vienna University of Technology, Austria

Real-Time Issues of Predictive Modeling for Industrial Cognitive Radios

Mr. Kaleem Ahmad, University of Applied Sciences, Germany
Mr. Ganesh m. Shrestha, University of Applied Sciences, Germany
Prof. Uwe Meier, University of Applied Sciences, Germany

Mamdani type fuzzy inference failures in navigation

Mr. Lokukaluge Perera, Technical University of Lisbon, Portugal
Prof. Joao Carvalho, Technical University of Lisbon, Portugal
Prof. Carlos Guedes Soares, Technical University of Lisbon, Portugal

Using Advanced Simulation Techniques to Improve Industrial Controller's Dependability

Prof. Eurico Seabra, University of Minho, Portugal
Prof. José Machado, University of Minho, Portugal

ss01 - Wireless Sensor and Actuator Networks in Industrial Automation**E - Room 202-IV, Wednesday 27th of July, 10:50**

Association Methods for Industrial Wireless Sensor Networks using Dynamic Hysteresis

Mr. Jae-Hyung Lee, Kumoh National Institute of Technology, Korea (South)

Mr. Eung-Soo Lee, Kumoh National Institute of Technology, Korea (South)

Prof. Dong-Sung Kim, Kumoh National Institute of Technology, Korea (South)

Future Research Challenges in Wireless Sensor and Actuator Networks Targeting Industrial Automation

Mr. Johan Akerberg, ABB Corporate Research, Sweden

Dr. Mikael Gidlund, ABB Corporate Research, Sweden

Prof. Mats Bjorkman, Malardalens University, Sweden

Inertial-Visual Fusion For Camera Network Calibration

Mr. Hadi Aliakbarpour, University of Coimbra, Institute of Systems and Robotics, Portugal

Prof. Jorge Dias, University of Coimbra, Institute of Systems and Robotics, Portugal

Hardware Challenges and Their Resolution in Advancing WirelessHART

Mr. Xiuming Zhu, University of Texas at Austin, USA

Mr. Song Han, University of Texas at Austin, USA

Prof. Aloysius Mok, University of Texas at Austin, USA

Dr. Deji Chen, Emerson Process Management, USA

Mr. Mark Nixon, Emerson Process Management, USA

Distributed Traffic Aware Routing with Multiple Sinks in Wireless Sensor Networks

Mr. Quoc-Dinh Nguyen, Kumoh National Institute of Technology, Korea (South)

Mr. Dang-Hoa Tran, Kumoh National Institute of Technology, Korea (South)

Prof. Dong-Sung Kim, Kumoh National Institute of Technology, Korea (South)

ss02 - Self-X and Autonomous Control in Engineering Applications**E - Room 202-IV, Wednesday 27th of July, 15:20**

Iterative Learning of Stochastic Disturbance Profiles Using Bayesian Networks

Mr. Dirk Bielawny, University of Paderborn, Germany

Mr. Martin Krüger, University of Paderborn, Germany

Mr. Peter Reinold, University of Paderborn, Germany

Mrs. Julia Timmermann, University of Paderborn, Germany

Prof. Ansgar Trächtler, University of Paderborn, Germany

A real-time rescheduling heuristic using decentralized knowledge-based decisions for flexible flow shops with unrelated parallel machines

Mr. Yi Tan, University of Bremen, Bremer Institut fuer Produktion und Logistik (BIBA), Germany

Mr. Mark Aufenanger, Heinz Nixdorf Institute at the University of Paderborn, Germany

Using Shape Analysis to verify Graph Transformations in Model Driven Design

Mr. Dominik Steenzen, University of Paderborn, Germany

Mr. Daniel Wonisch, University of Paderborn, Germany

Miniature Robot BeBot: Mechatronic Test Platform for Self-X Properties

Prof. Jürgen Gausemeier, Heinz Nixdorf Institute, University of Paderborn, Germany

Mr. Thomas Schierbaum, Heinz Nixdorf Institute, University of Paderborn, Germany

Mr. Roman Dumitrescu, Heinz Nixdorf Institute, University of Paderborn, Germany

Mr. Stefan Herbrechtsmeier, Heinz Nixdorf Institute, University of Paderborn, Germany

Mr. Alexander Jungmann, C-LAB, University of Paderborn, Germany

A Test Bed for Investigating Self-X Properties in Multi-Robot Societies

Mr. Alexander Jungmann, C-LAB, University of Paderborn, Germany

Mr. Jan Lutterbeck, Faculty of Computer Science, Electrical Engineering and Mathematics, University of Paderborn, Germany

Mr. Benjamin Werdehausen, Faculty of Computer Science, Electrical Engineering and Mathematics, University of Paderborn, Germany

Dr. Bernd Kleinjohann, C-LAB, University of Paderborn, Germany

Thursday 28th of July

CE - Keynote Speech - Behavioral Aspects in Collaborative Enterprise Networks A - Grande Auditório, Thursday 28th of July, 11:20

Keynote Speaker: Luis M. Camarinha-Matos

Abstract - The collaborative networks paradigm can empower enterprises with the needed agility and survival capability to face market turbulence. However, the success and sustainability of collaboration requires proper understanding and modeling of the involved behavioral aspects, a basis for sound development of support tools and governance mechanisms. Therefore a set of relevant behavior-related issues are discussed and major research challenges identified. This includes network's evolution, emotional health, incentives, conflicts preemption and negotiation, value systems alignment, collaboration readiness, and governance principles.

tt07 - Industrial Informatics Applications (1) B - Room 203-IV, Thursday 28th of July, 09:00

Maintaining Image Quality when Watermarking Grayscale Comic Images for Electronic Books

Dr. Takaaki Yamada, Hitachi., Ltd., Japan
Mr. Ryu Ebisawa, Hitachi., Ltd., Japan
Dr. Yoshiyasu Takahashi, Hitachi., Ltd., Japan

GPGPU Implementation of Adaptive Fractal Image Coding Algorithm using Index Vectors

Dr. Akiyoshi Wakatani, Konan university, Japan
Mr. Masayuki Mede, Konan university, Japan
Mr. Koujirou Tanaka, Konan university, Japan

A Generic Framework for Failure Modes and Effects Analysis of Automotive Networks

Mrs. Candice Muller, University of Genoa, Italy
Dr. Eric Armengaud, The Virtual Vehicle Competence Center, Austria
Prof. Maurizio Valle, University of Genoa, Italy
Dr. Allan Tengg, The Virtual Vehicle Competence Center, Austria

Analyzing and Exploring Feature Detectors in Images

Prof. Paulo Drews Jr, Furg, Brazil
Prof. Rodrigo de Bem, Furg, Brazil
Mr. Alexandre Melo, Ufmg, Brazil

Mobile Technology to Support Maintenance Efficiency - Mobile Maintenance in Heavy Industry

Mr. Jere Toni Kalevi Backman, VTT Technical Research Centre of Finland, Finland
Dr. Heli Susanna Helaakoski, VTT Technical Research Centre of Finland, Finland

Analysis of Maintenance Histories in Industrial Equipment with Frequent Maintenance Demand

Mr. Clemens Schwenke, Dresden University Technology, Germany
Dr. Volodymyr Vasyutynskyy, Dresden University Technology, Germany
Mr. André Röder, Dresden University Technology, Germany
Prof. Klaus Kabitzsch, Dresden University Technology, Germany

tt03 - Distributed, Embedded and Networked Control B - Room 203-IV, Thursday 28th of July, 13:50

Loosely Coupled Architecture Network Control Systems

Mr. Milton Cunguara, Deti/leeta/Ua, Portugal
Mr. Tomás Silva, Deti/leeta/Ua, Portugal
Mr. Paulo Pedreiras, Deti/lt/Ua, Portugal

Common communication model for distributed automation systems

Mr. Thomas Hadlich, Otto-von-Guericke-University Magdeburg, Germany
Prof. Christian Diedrich, Otto-von-Guericke-University Magdeburg, Germany
Mrs. Karin Eckert, Helmut Schmidt University, Hamburg, Germany
Mr. Timo Frank, Technical University Munich, Munich, Germany
Prof. Alexander Fay, Helmut Schmidt University, Hamburg, Germany
Prof. Birgit Vogel-Heuser, Technical University Munich, Munich, Germany

Monitoring Service Choreographies

Mr. André Röder, TU Dresden, Germany
Mr. Matthias Lehmann, TU Dresden, Germany
Prof. Klaus Kabitzsch, TU Dresden, Germany

From IOPT Petri nets to C: an Automatic Code Generator Tool

Mr. Rogério Campos-Rebelo, Faculdade de Ciencias e Tecnologia - Universidade Nova de Lisboa, Portugal
Mr. Fernando Pereira, Instituto Superior de Engenharia de Lisboa, Portugal
Mr. Filipe Moutinho, Faculdade de Ciencias e Tecnologia - Universidade Nova de Lisboa, Portugal
Prof. Luis Gomes, Faculdade de Ciencias e Tecnologia - Universidade Nova de Lisboa, Portugal

A IOPT-net State-Space Generator Tool

Mr. Fernando Pereira, Isel, Fct/Unl, Uninova, Portugal
Mr. Filipe Moutinho, Fct/Unl, Uninova, Portugal
Prof. Luis Gomes, Fct/Unl, Uninova, Portugal
Mr. José Ribeiro, Isel, Fct/Unl, Uninova, Portugal
Mr. Rogério Campos-Rebelo, Fct/Unl, Uninova, Portugal

tt04 - Manufacturing Automation

B - Room 203-IV, Thursday 28th of July, 15:50

Modeling and Validation based on Manufacturing Standards

Dr. Elisabet Estevez, Electronic and Automatic Engineering Department, University of Jaen, Spain
Dr. Dario Orive, ETSI of Bilbao, University of the Basque Country (UPV/EHU), Spain
Dr. Isabel Sarachaga, ETSI of Bilbao, University of the Basque Country (UPV/EHU), Spain
Prof. Marga Marcos, ETSI of Bilbao, University of the Basque Country (UPV/EHU), Spain

Toward Verification of Material Handling Systems

Mr. Thomas Klotz, Fraunhofer IIS/EAS, Germany
Prof. Bernd Straube, Fraunhofer IIS/EAS, Germany
Mrs. Eva Fordran, Fraunhofer IIS/EAS, Germany
Dr. Jürgen Haufe, Fraunhofer IIS/EAS, Germany
Dr. Frank Schulze, Technische Universität Dresden, Germany
Mr. Karsten Turek, Technische Universität Dresden, Germany
Prof. Thorsten Schmidt, Technische Universität Dresden, Germany

Controlling Discrete Manufacturing Processes Using Kanban and Heijunka Approaches

Prof. Thomas Runkler, Siemens AG, Germany

Design challenges for implementing a customer driven mass-customisation system

Dr. Anthony J Soroka, Cardiff University, United Kingdom
Dr. Le C Hieu, University of Greenwich, United Kingdom

A fuzzy based algorithm to Manage Power Consumption in Industrial Wireless Sensor Networks

Prof. Mario Collotta, Kore University of Enna, Italy
Mr. Giovanni Pau, Kore University of Enna, Italy
Mr. Valerio Mario Salerno, Kore University of Enna, Italy
Mr. Gianfranco Scatà, Kore University of Enna, Italy

ss12 - Reconfigurable Computing Trends

C - Room 204-IV, Thursday 28th of July, 09:00

Parallel Paradigms and Run-time Management Techniques for Many-core Architectures: The 2PARMA Approach

Prof. Cristina Silvano, Politecnico di Milano, Italy
et al , ,

ERA - Embedded Reconfigurable Architectures

Prof. Stephan Wong, Delft University of Technology, Netherlands
Dr. Anthony Brandon, Delft University of Technology, Netherlands
Dr. Fakhhar Anjam, Delft University of Technology, Netherlands
Dr. Roel Seedorf, Delft University of Technology, Netherlands
Prof. Roberto Giorgi, University of Siena, Italy
Prof. Zhibin Yu, University of Siena, Italy

Dr. Nikola Puzovic, University of Siena, Italy
Prof. Sally A. Mckee, Chalmers University of Technology, Sweden
Dr. Magnus Sjaelander, Chalmers University of Technology, Sweden
Dr. Georgios Keramidas, Industrial Systems Institute, Greece

Implementation of an ultra-high speed 256-point FFT for Xilinx Virtex-6 devices

Mr. Michael Dreschmann, Kit-Itiv, Germany
Mr. Joachim Meyer, Kit-Itiv, Germany
Dr. Michael Huebner, Kit-Itiv, Germany
Mr. Rene Schmogrow, Kit-Ipq, Germany
Mr. David Hillerkuss, Kit-Ipq, Germany
Prof. Juergen Becker, Kit-Itiv, Germany
Prof. Juerg Leuthold, Kit-Ipq, Germany
Prof. Wolfgang Freude, Kit-Ipq, Germany

Programming Safety Requirements in the REFLECT Design Flow

Mr. Zlatko Petrov, Honeywell International s.r.o., Czech Republic
Mr. Kamil Krátký, Honeywell International s.r.o., Czech Republic
Dr. João Cardoso, Universidade do Porto, Portugal
Dr. Pedro Diniz, Inesc-Id, Portugal

Reconfigurable MPSoC versus GPU: Performance, Power and Energy Evaluation

Mrs. Diana Goehringer, Fraunhofer IOSB, Germany
Mr. Matthias Birk, Karlsruhe Institute of Technology (KIT), Germany
Mr. Yves Dasse-Tiyo, Fraunhofer IOSB, Germany
Dr. Nicole Ruitter, Karlsruhe Institute of Technology (KIT), Germany
Dr. Michael Huebner, Karlsruhe Institute of Technology (KIT), Germany
Prof. Juergen Becker, Karlsruhe Institute of Technology (KIT), Germany

ss05 - Modelling, Simulation, Verification

C - Room 204-IV, Thursday 28th of July, 13:50

Modeling and Simulating the controller behavior of an Automated People Mover using IEC 61850 Communication Requirements

Mr. Guilherme Kunz, Unioeste, Brazil
Dr. Eduardo Perondi, Ufrgs, Brazil
Dr. José Machado, Uminho, Portugal

Preventive Maintenance Manager design pattern for component based machine tools

Mr. Felix Serna, Universidad de Zaragoza, Spain
Mr. Carlos Catalan, Universidad de Zaragoza, Spain
Dr. Alfonso Blesa, Universidad de Zaragoza, Spain
Mr. Josep M. Rams, Tuomas group, Spain
Dr. José-Manuel Colom, Universidad de Zaragoza, Spain

A new Model Structure based Synthesis Approach for Distributed Discrete Process Control

Mr. Thomas Winkler, Martin Luther University Halle-Wittenberg, Germany
Mr. Hans-Christian Lapp, Martin Luther University Halle-Wittenberg, Germany
Prof. Hans-Michael Hanisch, Martin Luther University Halle-Wittenberg, Germany

Observer Based Verification of IEC 61499 Function Blocks

Mr. Zeeshan Ejaz Bhatti, University of Auckland, New Zealand (Aotearoa)
Dr. Roopak Sinha, Inria, France
Dr. Partha S. Roop, University of Auckland, New Zealand (Aotearoa)

Distributed Execution and Cyber-Physical Design of Baggage Handling Automation with IEC 61499

Mr. Jeffrey Yan, Univ of Auckland, New Zealand (Aotearoa)
Dr. Valeriy Vyatkin, Univ of Auckland, New Zealand (Aotearoa)

ss05 - IEC 61499

C - Room 204-IV, Thursday 28th of July, 15:50

Progress in PLC Programming for Distributed Automation Systems Control

Dr. Francesco Basile, DIEII - Università di Salerno, Italy
Prof. Pasquale Chiacchio, DIEII - Università di Salerno, Italy

Mr. Diego Gerbasio, DIEII - Università di Salerno, Italy

Generic and Reconfigurable IEC 61499 Function Blocks for Advanced Platform Independent Engineering

Mr. Gerhard Ebenhofer, PROFACTOR GmbH, Austria

Dr. Martijn Rooker, PROFACTOR GmbH, Austria

Mr. Simon Falsig, University of Southern Denmark, Denmark

IEC 61499 Ontology Model for Semantic Analysis and Code Generation

Mr. Wenbin Dai, University of Auckland, New Zealand (Aotearoa)

Dr. Victor Dubinin, University of Penza, Russian Federation

Prof. Valeriy Vyatkin, University of Auckland, New Zealand (Aotearoa)

Building Hierarchical Automation Solutions in the IEC 61499 Modeling Language

Dr. Alois Zoitl, Vienna University of Technology, Automation and Control Institute, Austria

Dr. Herbert Prähofer, Johannes Kepler University, Institute for System Software, Austria

Time-Complemented Event-Driven Control Framework for Distributed Motion Control Systems Based on IEC 61499 and IEEE 1588

Mr. Cheng Pang, The University of Auckland, New Zealand (Aotearoa)

Dr. Valeriy Vyatkin, The University of Auckland, New Zealand (Aotearoa)

Prof. Cesare Fantuzzi, The University of Modena and Reggio Emilia, Italy

tt06 - Mechatronics and Robotics

D - Room 201-IV, Thursday 28th of July, 09:00

Inverters with Reduced Switching Losses for Industrial Applications

Prof. Valery Vodovozov, Tallinn University of Technology, Estonia

Mr. Mikhail Egorov, Tallinn University of Technology, Estonia

Mrs. Zoja Raud, Tallinn University of Technology, Estonia

Prof. Tonu Lehtla, Tallinn University of Technology, Estonia

A new Approach for Robot Motion Planning using Rapidly-exploring Randomized Trees

Mr. Lukas Krammer, Vienna University of Technology, Austria

Dr. Wolfgang Granzer, Vienna University of Technology, Austria

Prof. Wolfgang Kastner, Vienna University of Technology, Austria

Low-cost Motion Control Solution for Industrial Manufacturing Systems

Prof. Radu E. Breaz, Lucian Blaga University of Sibiu, Romania

Prof. Octavian C. Bologa, Lucian Blaga University of Sibiu, Romania

Ms. Melania Tera, Lucian Blaga University of Sibiu, Romania

Dr. Cristian Deac, Lucian Blaga University of Sibiu, Romania

Passivity-Based Speed Control of PMSM with the Online Estimation of Unknown Resistance and Torque

Dr. Shuanghe Yu, Dalian Maritime University, China

Dr. Zhenqiang Yang, Dalian University of Technology, China

Dr. Sheng Qiang, Harbin Institute of Technology, China

Dr. Jialu Du, Dalian Maritime University, China

Feed drive control considering multi-axis coupling effects and extension to contouring control

Prof. Naoki Uchiyama, Toyohashi University of Technology, Japan

Prof. Shigenori Sano, Toyohashi University of Technology, Japan

A Mechatronic Device for Spasticity Quantification

Mr. João Ferreira, University of Minho, Portugal

Dr. Vitor Moreira, Hospital of Braga, Portugal

Prof. José Machado, University of Minho, Portugal

Prof. Filomena Soares, University of Minho, Portugal

tt08 - New Paradigms in Industrial Informatics

D - Room 201-IV, Thursday 28th of July, 13:50

A Generic Simulation Environment for Agent-Based FMS Scheduling

Dr. Iman Badr, Helwan University, Egypt

Prof. Peter Göhner, Institute of Industrial Automation, University of Stuttgart, Germany

Simulation of Multi-agent Manufacturing Systems using Agent-based Modelling Platforms

Mr. José Barbosa, Polytechnic Institute of Bragança, Portugal

Prof. Paulo Leitão, Polytechnic Institute of Bragança, Portugal

Stigmergy based Autonomous Shop Floor Control with Wireless Sensor Networks

Dr. Ke Shi, Huazhong University of Science and Technology, China

Mrs. Xuan Qin, Huazhong University of Science and Technology, China

Modeling System of Systems: A Generic Method Based on System Characteristics and Interface

Mrs. Bo Zhou, Tampere University of Technology, Finland

Dr. Aleksandra Dvoryanchikova, Tampere University of Technology, Finland

Dr. Andrei Lobov, Tampere University of Technology, Finland

Prof. Jose Luis Martinez Lastra, Tampere University of Technology, Finland

Prospecting Tools for Mechatronic Multiagent-based Systems

Mr. Luis Ribeiro, Cts-Uninova, Portugal

Dr. Jose Barata, Cts-Uninova, Portugal

tt02 - Cognitive and Computational Intelligence in Industrial Informatics (3)

D - Room 201-IV, Thursday 28th of July, 15:50

Risk Based Decision Support System for Life Cycle Management of Industrial Plants

Ms. Maria Marques, UNINOVA - Instituto de Desenvolvimento de Novas Tecnologias, Portugal

Dr. Rui Neves-Silva, DEE/FCT- Universidade Nova de Lisboa, Portugal

Support Vector Machines versus Artificial Neural Networks in Data Classification

Dr. E. A. Zanaty, Taif University, Saudi Arabia

Dr. Sultan Aljhdali, Taif University, Saudi Arabia

A high-speed generation of goal-oriented scenarios using combination of bidirectional propagation on qualitative and quantitative hybrid model

Dr. Masaki Samejima, Osaka University, Japan

Mr. Yoshihiro Morita, Osaka University, Japan

Prof. Masanori Akiyoshi, Osaka University, Japan

Digital Print Workflow Optimization Under Due-Dates, Opportunity Cost and Resource Constraints

Mr. Mukesh Agrawal, Duke University, USA

Ms. Qing Duan, Duke University, USA

Dr. Krishnendu Chakrabarty, Duke University, USA

Dr. Jun Zeng, Hewlett-packard Co., USA

Dr. I-Jong Lin, Hewlett-packard Co., USA

Mr. Gary Dispoto, Hewlett-packard Co., USA

Dr. Yuan-Shin Lee, North Carolina State University, USA

ss06 - Knowledge Management Applications in Service Engineering (1)

E - Room 202-IV, Thursday 28th of July, 09:00

Predicting the Characteristics of People Living in the South USA Using Logistic Regression and Decision Tree

Dr. Gongzhu Hu, Central Michigan University, USA

Ms. Ramona Serban, Central Michigan University, USA

Mr. Andrzej Kupraszewicz, Central Michigan University, USA

Shale-Gas Ontology, a robust data modeling methodology for integrating and connecting fractured reservoir petroleum ecosystems that affect production complexities

Dr. Shastri L. Nimmagadda, Curtin University, Australia

Prof. Heinz Dreher, Curtin University, Australia

Message Adaptor Code Generation

Mr. Ivan Gibbs, University of Nevada, Reno, USA

Mr. Husam Ghazaleh, University of Wisconsin-Milwaukee, USA

Dr. Sergiu Dascalu, University of Nevada, Reno, USA

Seasonal Rainfall Forecast using a Neo-Fuzzy Neuron Model

Mr. Thiago Castro, Federal University of Ceara, Brazil

Mr. Francisco Souza, University of Coimbra, Portugal

Dr. Jose Alves, Funceme, Brazil

Dr. Ricardo Pontes, Federal University of Ceara, Brazil

Mr. Mosefran Firmino, Companhia de Gestão de Recursos Hídricos, Brazil

Mr. Thiago Pereira, Federal University of Ceara, Brazil

Application of Case-Based Reasoning for Ship turning Emergency to prevent Collision

Mrs. Baisakhi Chakraborty, National Institute of Technology, Durgapur, India

Prof. Narayan Debnath, Winona State University, Winona, USA

A software application to improve human rights watching activities and to prepare police stations to face an ISO 9001:2008 certification procedure

Prof. Narayan C. Debnath, Winona State University, Winona, USA

Dr. Roberto Uzal, Universidad de Buenos Aires, Argentina

Dr. German Montejano, Universidad Nacional de San Luis, Argentina

Dr. Daniel Riesco, Universidad Nacional de San Luis, Argentina

ss06 - Knowledge Management Applications in Service Engineering (2)

E - Room 202-IV, Thursday 28th of July, 13:50

Towards a Software Framework for Model Interoperability

Dr. Sergiu Dascalu, University of Nevada, Reno, USA

Mr. Eric Fritzinger, University of Nevada, Reno, USA

Mr. Sohei Okamoto, University of Nevada, Reno, USA

Dr. Frederick Harris, University of Nevada, Reno, USA

Application of CBR on Viral Fever Detection System(VFDS)

Mrs. Baisakhi Chakraborty, National Institute of Technology, Durgapur, India

Mr. Samaresh Deyashi, National Institute of Technology, Durgapur, India

Mr. Debrup Banerjee, National Institute of Technology, Durgapur, India

Dr. Debidas Ghosh, National Institute of Technology, Durgapur, India

Prof. Joyati Debnath, Winona State University, Winona, USA

Multidimensional Data Warehousing & Mining of Diabetes & Food-domain Ontologies for e-Health

Dr. Shastri L. Nimmagadda, Curtin University, Australia

Ms. Sashi K. Nimmagadda, Australian Federal Government Department of Health and Aging, Australia

Prof. Heinz Dreher, Curtin University, Australia

Deployment of Service Oriented Architecture in MANET: A Research Roadmap

Mr. Prasenjit Choudhury, Department of Computer Applications, National Institute of Technology, Durgapur, India

Dr. Anirban Sarkar, Department of Computer Applications, National Institute of Technology, Durgapur, India

Dr. Narayan C Debnath, Department of Computer Science, Winonan State University, USA

Management of Software Development Projects Based on SmallRUP Methodology through a Standard Workflow Engine

Prof. Narayan C. Debnath, Winona State University, Winona, USA

Dr. Fabio Zorzan, Universidad Nacional de Río Cuarto, Argentina

Dr. Germán Montejano, Universidad Nacional de San Luis, Argentina

Dr. Daniel Riesco, Universidad Nacional de San Luis, Argentina

ss11 - Behavioural Models for Embedded Systems

E - Room 202-IV, Thursday 28th of July, 15:50

An Ecore based Petri net Type Definition for PNML IOPT Models

Mr. José Ribeiro, Instituto Superior de Engenharia de Lisboa, Portugal

Mr. Filipe Moutinho, Universidade Nova de Lisboa - Faculdade de Ciências e Tecnologia, Portugal

Mr. Fernando Pereira, Instituto Superior de Engenharia de Lisboa, Portugal

Dr. João Paulo Barros, Instituto Politécnico de Beja, Portugal

Prof. Luís Gomes, Universidade Nova de Lisboa - Faculdade de Ciências e Tecnologia, Portugal

IOPT Petri Net State Space Generation Algorithm with Maximal-Step Execution Semantics

Mr. Fernando Pereira, Isel, Fct/Unl, Uninova, Portugal

Mr. Filipe Moutinho, Fct/Unl, Uninova, Portugal

Prof. Luis Gomes, Fct/Unl, Uninova, Portugal

Mr. Rogério Campos-Rebelo, Fct/Unl, Uninova, Portugal

Obtaining Formal Models from Ladder Diagrams

Prof. Elthon Oliveira, Federal University of Alagoas (Campus Arapiraca), Brazil

Dr. Leandro Silva, Federal University of Alagoas, Brazil

Dr. Angelo Perkusich, Federal University of Campina Grande, Brazil

Dr. Kyller Gorgônio, Federal University of Campina Grande, Brazil

Mr. Aldenor Martins, Federal University of Campina Grande, Brazil

Dataflow Model Property Verification Using Petri net Translation Techniques

Mr. José Rocha, Escola Superior de Tecnologia de Setúbal, Portugal

Prof. Luís Gomes, Faculdade de Ciências e Tecnologia, Campus da FCT/UNL, Portugal

Prof. Octávio Dias, Escola Superior de Tecnologia de Setúbal, Portugal

Dynamic Reconfigurable Multicast Interconnections by using Radix-4 Multistage Networks in FPGA

Prof. Ricardo Ferreira, Univ. Federal Vicosa, Brazil

Mr. Julio Vendramini, Univ. Federal Vicosa, Brazil

Prof. Mauro Rocha, Univ. Federal de Vicosa, Brazil

Friday 29th of July

CE - Keynote Speech - Cyber-Physical Systems in the SmartGrid

A - Grande Auditório, Friday 29th of July, 11:20

Keynote Speaker: Stamatis Karnouskos

Abstract - Radical changes are expected to occur in the next years in the electricity domain and the grid itself which has been almost unchanged the last 100 years. Value is created when interactions exist and this is the main thrust of the emerging SmartGrid which will heavily rely on IT technologies at several layers for monitoring and control. The basic building blocks are the existing efforts in the domain of the Internet of Things and Internet of Services, that come together with cooperation as the key enabler. The SmartGrid is a complex ecosystem of heterogeneous cooperating entities that interact in order to provide the envisioned functionality. Advanced business services will take advantage of the near real-time information flows among all participants. In order to realize the SmartGrid promise we will have to heavily depend on Cyber-Physical Systems (CPS) that will be able to monitor, share and manage information and actions on the business as well as the real world. CPS is seen as an integral part of the SmartGrid, hence several open issues will need to be effectively tackled.

tt05 - Human, Computer and Machine Interface

B - Room 203-IV, Friday 29th of July, 09:00

Physically Based Simulation of Heterogeneous Deformable Models Using XFEM

Mrs. Sara Farag, Deakin University, Australia
Mr. Wael Abdelrahman, Deakin University, Australia
Prof. Saeid Nahavandi, Deakin University, Australia
Dr. Douglas Creighton, Deakin University, Australia

Virtual Reality-Aided Planning for Energy-Autonomous Factories

Prof. Reimund Neugebauer, Fraunhofer IWU, Germany
Mrs. Franziska Pürzel, TU Chemnitz, Germany
Mrs. Antje Schreiber, Fraunhofer IWU, Germany
Mr. Tino Riedel, TU Chemnitz, Germany

Auditory decorator of complex sounds for teleoperation systems

Mr. Hirohiko Kuramata, Department of system design engineering, Keio University, Japan
Prof. Takahiro Yakoh, Department of system design engineering, Keio University, Japan

Towards context adaptive HMIs in process industries

Prof. Leon Urbas, TU Dresden, PLT, Germany
Mr. Stefan Hennig, TU Dresden, AT, Germany
Mr. Henning Hager, TU Dresden, AT, Germany
Mr. Falk Doherr, TU Dresden, PLT, Germany
Dr. Annerose Braune, TU Dresden, AT, Germany

SidneyChart: a statechart GUI for SOA Orchestration in Autonomous Industrial Systems.

Mr. Pedro Malaca, Coimbra, Portugal
Prof. Germano Veiga, Coimbra, Portugal
Prof. Norberto Pires, Coimbra, Portugal

tt07 - Industrial Informatics Applications

B - Room 203-IV, Friday 29th of July, 13:50

My_Easy_Shop_System

Dr. Joao Ferreira, Isel, Portugal

Service-oriented Computing in Manufacturing Automation: A SWOT Analysis

Dr. Marco Mendes, Faculty of Engineering - University of Porto, Portugal
Prof. Paulo Leitao, Polytechnic Institute of Bragança, Portugal
Prof. Armando W. Colombo, University of Applied Sciences Emden/Leer, Germany

Modeling of Energy-Sensitive Manufacturing Processes

Mr. Björn Krellner, Chemnitz University of Technology, Germany
Dr. Raphael Kunis, Chemnitz University of Technology, Germany

Prof. Gudula Rünger, Chemnitz University of Technology, Germany

Asymptotic Tracking and Disturbance Rejection of Servo Systems

Dr. Sheng Qiang, Harbin Institute of Technology, China

Dr. Xinglin Chen, Harbin Institute of Technology, China

Dr. Shuanghe Yu, Dalian Maritime University, China

Smart Power Strip Network and Visualization Server to Motivate Energy Conservation in office

Mr. Fumihiko Nakazawa, Fujitsu Laboratories LTD, Japan

Mr. Hiromitsu Soneda, Fujitsu Laboratories LTD, Japan

Mr. Osamu Tsuboi, Fujitsu Laboratories LTD, Japan

Mr. Akinori Iwakawa, Fujitsu Laboratories LTD, Japan

Mr. Masahiko Murakami, Fujitsu Laboratories LTD, Japan

Mr. Masahiro Matsuda, Fujitsu Laboratories LTD, Japan

Mr. Naoyuki Nagao, Fujitsu Component LTD, Japan

ss10 - Embedded Systems and Reconfigurable SoCs

C - Room 204-IV, Friday 29th of July, 09:00

A FPGA based C runtime hardware accelerator

Mr. Paulo Garcia, University of Minho, Portugal

Mr. Filipe Salgado, University of Minho, Portugal

Dr. Paulo Cardoso, University of Minho, Portugal

Dr. Jorge Cabral, University of Minho, Portugal

Dr. Mongkol Ekpanyamong, Asian Institute of Technology, Thailand

Dr. Adriano Tavares, University of Minho, Portugal

System development using Petri net based modules

Prof. Aniko Costa, Universidade Nova de Lisboa, Portugal

Prof. Luis Gomes, Universidade Nova de Lisboa, Portugal

Processor's micro-architectural support for runtime environment

Mr. Paulo Garcia, University of Minho, Portugal

Mr. Tiago Gomes, University of Minho, Portugal

Mr. Filipe Salgado, University of Minho, Portugal

Dr. Jorge Cabral, University of Minho, Portugal

Dr. Adriano Tavares, University of Minho, Portugal

Prof. Joao Monteiro, University of Minho, Portugal

GPU acceleration of Automated Speech Recognition for Mobile Devices

Mr. Richard Veitch, Queen's University Belfast, United Kingdom

Prof. Roger Woods, Queen's University Belfast, United Kingdom

Dr. Louis-Marie Aubert, Queen's University Belfast, United Kingdom

Introducing Model-based Development within the Reengineering of a Smart House Controllers System

Mr. Mauro Reis, Faculdade de Ciencias e Tecnologia - Universidade Nova de Lisboa, Portugal

Mr. Rogério Campos-Rebelo, Faculdade de Ciencias e Tecnologia - Universidade Nova de Lisboa, Portugal

Prof. Luís Gomes, Faculdade de Ciencias e Tecnologia - Universidade Nova de Lisboa, Portugal

Real-Time Low-Cost Industrial Acquisition System

Mr. Vítor Silva, University of Minho, Portugal

Mr. Tiago Malheiro, University of Minho, Portugal

Dr. Jorge Cabral, University of Minho, Portugal

Dr. Jose Mendes, University of Minho, Portugal

Dr. Adriano Tavares, University of Minho, Portugal

tt01 - Infrastructure and Technology in Industrial Informatics

C - Room 204-IV, Friday 29th of July, 13:50

Service-Oriented Application Integration for Condition-Based Maintenance with OPC Unified Architecture

Dr. Ilkka Seilonen, Aalto University, Finland

Mr. Antti Tuomi, Aalto University, Finland

Mr. Jari Olli, Metropolia University of Applied Science, Finland

Prof. Kari Koskinen, Aalto University, Finland

Optimal Gradient Routing with Two-hop Information for Industrial Sensor Networks

Mr. Quang Pham, Kumoh National Institute of Technology, Korea (South)

Prof. Dong-Sung Kim, Kumoh National Institute of Technology, Korea (South)

Mr. Ho-Kyoun Lee, Kumoh National Institute of Technology, Korea (South)

Agent Based Decision Support System for Optimizing Logistical Processes in Agricultural Production

Mr. Julian Quindt, UAS Osnabrueck, Germany

Mr. Eike Reetz, UAS Osnabrueck, Germany

Mrs. Vanessa Kukuck, UAS Osnabrueck, Germany

Prof. Ralf Tönjes, UAS Osnabrueck, Germany

Prof. Clemens Westerkamp, UAS Osnabrueck, Germany

Comparing KNXnet/IP Forwarding Rules in Congestion Conditions

Prof. Salvatore Cavalieri, University of Catania, Italy

ss14 - INDIN-NDS German Network of Excellence

D - Room 201-IV, Friday 29th of July, 09:00

Smart least-resolution imager for industrial applications

Prof. Carsten Koch, HS Emden-Leer, Germany

Mr. Tim Niemeyer, HS Emden-Leer, Germany

Mr. Christian Linck, HS Emden-Leer, Germany

Prof. Ewald Matull, HS Emden-Leer, Germany

Embedded Vision System for Robotics and Industrial Automation

Prof. Reinhard Gerndt, Ostfalia University Wolfenbuettel, Germany

Mr. Soeren Michalik, Technical University Braunschweig, Germany

Mr. Stefan Krupop, Ostfalia University Wolfenbuettel, Germany

Design Level Debugging of Timing Behavior in Embedded Systems: Using a Model-Based Approach

Mrs. Padma Iyengar, Software Engineering Research Group, University of Osnabrueck, Germany

Prof. Clemens Westerkamp, Institute of Computer Engineering, UAS, Osnabrueck, Germany

Prof. Juergen Wuebbelmann, Institute of Computer Engineering, UAS, Osnabrueck, Germany

Prof. Elke Pulvermueller, Software Engineering Research Group, University of Osnabrueck, Germany

Applicability of an Integrated Model-Based Testing Approach for RTES

Mrs. Padma Iyengar, Institute of Computer Engineering, UAS, Osnabrueck, Germany

Mr. Michael Spieker, Institute of Computer Engineering, UAS, Osnabrueck, Germany

Mr. Pablo Tecker, Institute of Computer Engineering, UAS, Osnabrueck, Germany

Prof. Juergen Wuebbelmann, Institute of Computer Engineering, UAS, Osnabrueck, Germany

Prof. Clemens Westerkamp, Institute of Computer Engineering, UAS, Osnabrueck, Germany

Mr. Walter van der Heiden, Willert Software Tools GmbH, Germany

Mr. Andreas Willert, Willert Software Tools GmbH, Germany

Availability Calculation of Meshed, Ethernet based Automation Networks

Prof. Karl-Heinz Niemann, University of Applied Sciences and Art, Germany

Applied Shop Floor Scheduling and Sequencing in an Agent-Controlled Production

Mr. Kristian Virkus, I2ar, Germany

Mr. Matthias Barkhoff, I2ar, Germany

Mr. Tobias Stöckmann, I2ar, Germany

Prof. Uwe Schmidtman, I2ar, Germany

Prof. Gerhard Kreutz, I2ar, Germany

Prof. Armando Walter Colombo, I2ar, German

ss04 - Self Recovery and Real Time Reconfiguration

D - Room 201-IV, Friday 29th of July, 13:50

Real-time reconfiguration in complex embedded systems: a vision and its reality

Prof. Marisol Garcia-Valls, Univ. Carlos III de Madrid, Spain

Mr. Francisco Gómez-Molinero, Visual Tools, S.A., Spain

An Adaption of OSA-CBM Architecture for Human-Computer Interaction through Mixed Interface

Prof. Danubia Espindola, Federal University of Rio Grande, Brazil

Prof. Luca Fumagalli, Politecnico di Milano, Italy
Dr. Marco Garetti, Politecnico di Milano, Italy
Dr. Silvia Botelho, Federal University of Rio Grande, Brazil
Dr. Carlos Pereira, Federal University of Rio Grande do Sul, Brazil

Embedded service oriented monitoring, diagnostics and control: towards the asset-aware and self-recovery factory

Mr. Axel Vidales Ramos, Tampere University of Technology, Finland
Dr. Ivan M. Delamer, Inico Technologies Ltd., Canada
Prof. Jose L. M. Lastra, Tampere University of Technology, Finland

Data aggregation at field device level for industrial ambient monitoring using web services

Ms. Angelica Nieto Lee, Tampere University of Technology, Finland
Prof. José L. Martínez Lastra, Tampere University of Technology, Finland

Safe Online Reconfiguration of Time- and Space-Partitioned Systems

Mr. Joaquim Rosa, University of Lisbon, Faculty of Sciences, LaSIGE, Portugal
Mr. João Craveiro, University of Lisbon, Faculty of Sciences, LaSIGE, Portugal
Dr. José Rufino, University of Lisbon, Faculty of Sciences, LaSIGE, Portugal

ss09 - ICT @ SmartGrids

E - Room 202-IV, Friday 29th of July, 09:00

ENERGOS: Integral smart grid management

Dr. Yoseba K. Peña, DeustoTech - University of Deusto, Spain
Dr. Juan Garbajosa, Upm, Spain
Dr. Mariano Ortega, Indra, Spain
Mr. Eloy González, Indra Software Labs, Spain

Towards a Distributed Intelligent ICT Architecture for the Smart Grid

Dr. Mariano Ortega de Mues, Indra Sistemas S.A., Spain
Mr. Alejandro Álvarez Acero, Indra Sistemas S.A., Spain
Dr. Angelina Espinosa, Universidad Politécnica de Madrid, Spain
Dr. Juan Garbajosa, Universidad Politécnica de Madrid, Spain

Software-Intensive Systems Interoperability in Smart Grids: A Semantic Approach

Dr. Angelina Espinoza, Technical University of Madrid, Spain
Dr. Mariano Ortega, Indra Sistemas, Spain
Mr. Carlos Fernandez, Technical University of Madrid, Spain
Prof. Juan Garbajosa, Technical University of Madrid, Spain
Mr. Alejandro Alvarez, Indra Sistemas, Spain

Harmonization of Semantic Data Models of Electric Data Standards

Dr. Juan Carlos Nieves, Universitat Politècnica de Catalunya, Spain
Dr. Mariano Ortega de Mues, INDRA Sistemas, Spain
Dr. Angelina Espinoza, Technical University of Madrid, Spain
Mr. Daniel Rodríguez-Álvarez, INDRA Software Labs, Spain

Distributed Semantic Repositories in Smart Grids

Mr. Aitor Peña, DeustoTech, Spain
Dr. Yoseba K. Peña, DeustoTech - University of Deusto, Spain

General Information

Venue information

The conference will be held at Campus of Caparica, Faculty of Sciences and Technology of Universidade Nova de Lisboa

How to go to the conference site

From Entrecampos area:

Hotel Vip Executive Zurique
Hotel Vip Inn Berna
Hotel Vip Executive Barcelona
Hotel Vip executive - Villa Rica
Hotel Alif Campo Pequeno

1. Walk about 100 to 400 meters to the train station "Entrecampos"
2. Get the train (Fertagus) from "Entrecampos" station to "Pragal" station. Is about 20 minutes and costs 1.7€ for a single ticket. More information at <http://www.fertagus.pt> (English option at the left bottom of the page)
3. At "Pragal" station you must get the tram to "Universidade", last station. Is about 20 minutes. and costs 0.85€. You can get more information at: <http://www.mts.pt/> (no English available)

From Sete Rios area:

Hotel SANA Malhoa Hotel

1. Walk about 400 meters to train station at "Sete Rios"
2. Catch the train (Fertagus) from "Sete Rios" station to "Pragal" station. Is about 20 minutes and costs 1.7€ for a single ticket. Discounts for multiple tickets. More information at <http://www.fertagus.pt> (English option at the left bottom of the page)
3. At "Pragal" station you must get the tram to "Universidade", last station. Is about 20 minutes. and costs 0.85€. You can get more information at: <http://www.mts.pt/> (no English available)

From Costa da Caparica:

Hotel Costa da Caparica

You could:

- Ask for a taxi at the reception. Costs about 6€
- Or you can get the bus number 124 ("Costa da Caparica / Cacilhas") and get out at stop "Torre da Caparica (Univ/FCT)". More information at: <http://www.tsuldotejo.pt/?page=viajar&sub=viajar&categoria=2&subcategoria=&carreira=865&idioma=2>

There are other buses, that go by IC20 (which is 400 meters away from the campus), with destination to Cacilhas (Bus number 135, from company TST) or any other that goes to Lisbon (Praça de Espanha:152 or Areeiro:161).

From Lisbon Airport

Using public transportation

There is a special shuttle bus (Carris nr 91), that takes passengers to Lisbon downtown in 20 minutes. This bus also stops at "Cais do Sodré" Train Station, next to the Ferry Station, where you can take a ferryboat to "Cacilhas". Once in "Cacilhas" you can take a

tram to “Universidade”, hopping off on its terminus (located near one of the campus entrances).

In Cacilhas you can also take one of the following TST buses: “Marisol”, “Fonte da Telha” or “Costa de Caparica – via Almada”. They all stop next to the FCT main entrance. (In the airport there are other town bus lines: 5, 22, 44, 45 and 83 to Lisbon).

By Taxi

There are always plenty of taxis at the Arrivals and Departures Halls. All the taxis have meters, a ride to FCT/UNL costs approximately €30, depending on the traffic. During weekends, nights, and holidays there is a 20% surcharge.

From Lisbon (Praça de Espanha)

By car

Follow the directions to “A2 Sul”. Cross the “25 de Abril” bridge towards south (“Sul”), take the first exit after the bridge, entering the expressway to Caparica (IC20), follow the sign “Universidade”.

Using public transportation

You can use the TST bus to “Costa da Caparica” and get out at the bus stop located right in front of FCT main entrance.

From Lisbon (Cais do Sodré)

Using public transportation

In the “Cais do Sodré” Ferry Station, you can take a ferryboat to “Cacilhas”. Once in Cacilhas you take a tram to “Universidade”, hopping off on its terminus (located near one of the campus entrances).

In Cacilhas you can also take one of the following TST buses: “Marisol”, “Fonte da Telha” or “Costa de Caparica – via Almada”. They all stop next to the FCT main entrance.

From Lisbon (Santa Apolónia Train Station)

Using public transportation

Metro to “Amadora Este” (blue line), get out in “Jardim Zoológico” station. Take the Fertagus train to “Coima” or “Setúbal” and get out in “Pragal”. Once there, take the tram to “Universidade”, hopping off on its terminus (located near one of the campus entrances).

By Taxi

There are always plenty of taxis outside the station. All the taxis have meters, a ride to FCT/UNL costs approximately €25, depending on the traffic. During weekends, nights, and holidays there is a 20% surcharge.

From Lisbon (Belém)

Using public transportation

Take the ferry to “Trafaria”. Once there, take the TST bus to “Cacilhas”, getting out on the bus stop next to FCT.

Welcome reception

Wednesday, July 27, 17:45

Library building at Campus of FCT-UNL

Gala Dinner

Thursday, July 28, 19:30

Lisbon Oceanarium

Meeting point: Oceanarium Ticketing

Please do not forget to take your ticket

Pick-up points for buses to the Gala Dinner

Hour	Departure
18:30	Costa da Caparica Hotel
18:50	Hotel SANA Malhoa Hotel
19:00	Hotel VIP Executive Zurique

Using Metro Network: destination station Oriente

Line	Directions
Yellow	Rato—Odivelas
Blue	Amadora Este—Santa Apolónia
Green	Cais do Sodré—Telheiras
Red	Oriente—São Sebastião

Registration

Registration will be open starting Tuesday 13:30, at room 110-IV

INDIN'2011 Secretariat

Universidade Nova de Lisboa
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INDIN'2011 Conference web site

<http://www.uninova.pt/indin2011/>

