Ronald Schoop  
Vice-President Architectures & Platforms, Schneider Electric, Germany

Stefan Svensson  
World-Wide Manager for the Industrial Communication Program, ABB Corporate Research, Sweden

Karl Weber  
Fraunhofer, Germany

Tuesday, 18 September 2012

Track 1-1 (Room A, 120 min): PLC languages  
Co-chairs: Rainer Drathand and Georg Frey

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Product Metrics for IEC 61131-3 languages  
Anil Nair

Data-Type Checking of IEC61131-3 ST and IL Applications  
Mario de Sousa

Opportunities and Challenges of Static Code Analysis of IEC 61131-3 Programs  
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Georg Frey, Rainer Drath, Bastian Schlich and Robert Eschbach
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Optimizing Stack Memory Requirements for Real-Time Embedded Applications
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Closed-Loop Modelling for Design and Validation of Reactive Systems in Discrete Control
Co-chairs: Valeriy Vyatkin and Dariusz Kościelnik

Formal Verification of Intelligent Mechatronic Systems with Decentralized Control Logic
Sandeep Patil, Valeriy Vyatkin and Majid Sorouri

Closed-loop System Modeling, Validation, and Verification
Sebastian Preusse, Hans-Christian Lapp and Hans-Michael Hanisch

State-Vector Transition Model Applied to Supervisory Control
Bengt Lennartson, Sajed Miremadi, Zhennan Fei, Mona Noori Hosseini, Martin Fabian and Knut Akesson

Hierarchical and Distributed Discrete Event Control of Manufacturing Processes
Olaf Stursberg

Coupling Timed Plant and Controller Models without Introducing Dead-Locks
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Co-chairs: Ramon Vilanova and Jerome Mendes

Performance Monitoring of PID Controllers Through Unfalsified Control Theory
Daniel Gomez, Jose R. Janeiro, Enrique Baeyens and Eduardo J. Moya

Generation of Multiplatform Control for Transitic Systems using a Component-Based Approach
Romain Bevan, Mickael Adam, Pascal Berruet, Florent de Lamotte, Olivier Cardin and Pierre Castagna

On the Disturbance Decoupling of Linear Singular Multi-Delay Systems
Fotis Koumboulis

Set-Point Weight Selection for Robustly Tuned PI/PID Regulators for Over Damped Processes
Victor Alfaro and Ramon Vilanova

Conversion Formulae and Performance Capabilities of Two-Degree-of-Freedom PID Control Algorithms
Victor Alfaro and Ramon Vilanova

SS01 (Room F, 120 min): Distributed and Autonomous Intelligent Systems
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Test-Driven Agent-Oriented Software Development
Munir Merdan, Pavel Vrba and Martin Melik-Merkumians

Towards an Increased Reusability of Distributed Control Applications Modeled in IEC 61499
Ingo Hegny, Thomas Strasser, Martin Melik-Merkumians, Monika Wenger, and Alois Zoitl

Towards OPC UA as Portable SOA Middleware Between Control Software and External Added Value Applications
Martin Melik-Merkumians, Thomas Baier, Michael Steinegger, Wilfried Lepuschitz, Ingo Hegny and Alois Zoitl
Deployment of Multi-agent Systems for Industrial Applications
Arnaldo Pereira, Nelson Rodrigues and Paulo Leitao

Semantics for Self-configurable Distributed Diagnostics
Vaclav Jirkovsky, Petr Kadera and Pavel Vrba

Keynote 1 (Room A)
Mastering Complexity in Heterogenous Industrial Systems
Ronald Schoop Schneider Electric AG, Germany

Track 1-2 (Room A, 90 min): Process Modeling
Co-chairs: Andreas Schüller and Alexander Fay

PandIX - Exchanging P&I diagram model data
Andreas Schueller and Ulrich Epple

Concept for managing multiple semantics with AutomationML- maturity level
concept of semantic standardization
Rainer Drath and Mike Barth

An NA 114 Conformant Support System for Automatic Generation of
Communication Structures
Falk Doherr and Leon Urbas

Modeling Change and Structural Dependencies of Automation Systems
Markus Goring and Alexander Fay

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Co-chairs: Roman Obermaisser and Michael Short

MS-Aloha: Preliminary Analysis of its Suitability for Wireless Automation
Hector Agustin Cozzetti, Daniele Brevi, Riccardo Scopigno, Paolo Ferrari, Emiliano Sisinni and Alessandra Flammini
Implementation of WirelessHART in NS-2 Simulator  
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Predictive Opportunistic Spectrum Access Using Markov Models  
*Kaleem Ahmad, Uwe Meier and Stefan Witte*

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*Co-chairs: Stefano Dalpez and Marco Di Natale*

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*Gianluca Franchino and Giorgio Buttazzo*

Priority Handling Aggregation Technique (PHAT) for Wireless Sensor Networks  
*Dimitris Tsitsipis, Sofia Maria Dima, Angeliki Kritikakou, Christos Panagiotou, John Gialelis, Harris Michail and Stavros Koubias*

Performance Enhancement in WSN through Data Cache Replacement Policies  
*Christos Panagiotou, Christos Antonopoulos and Stavros Koubias*

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Assisted Engineering for Mechatronic Manufacturing Systems Based on a Modularization Concept  
*Michael Weyrich and Philipp Klein*
Development of a method for the implementation of interoperable tool chains applying mechatronical thinking - Use case engineering of logic control
Arndt Lüder and Lorenz Hundt

ISO 15926 vs. IEC 62424 - Comparison of Plant Structure Modeling Concepts
Thomas Holm, Lars Christiansen, Markus Göring, Tobias Jäger and Alexander Fay

Domain Dependant Matching of MES Knowledge and Domain Independent Mapping of AutomationML Models
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An Approach for a Component-based Visualization of Heterogeneous Manufacturing Data Sources
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Improvement on Control Performance using FPGAs over Software-based Platforms
Marco Santos and Jorge Ferreira

Bumpless Transfer Multi-controller Architecture for Switched-mode Processes
Nagore Iriondo, Marga Marcos and Elisabet Estevez

Safety Critical Supervision for Steel Industry Robotic Applications
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Fault detection for Sequential Interindustry Models
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Control Toolbox for Industrial Programmable Analog Controller - Embedding State Feedback Controller
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An Approach to Identification Procedures for PID Control with PLC Implementation
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On the Anti-windup Schemes for Fractional-order PID Controllers
Antonio Visioli, Fabrizio Padula and Manuel Pagnoni

Optimal Control in the Presence of State Uncertainty
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Direct Deployment of Component-Based Automation Systems
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PI+CI tuning for integrating plus deadtime systems
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A Test Facility for Experimental HIL Analysis of Industrial Embedded Control Systems
Fathi Abugchem, Michael Short and Donglai Xu

Force Control Approach for the Automation of Cashew-Shelling Operation
Naoki Uchiyama, Hirofumi Yamanaka, Shigenori Sano, Phat Minh Ho and Son Doan Tran

Design and Experimental Evaluation of an Extended Data-Driven PID Controller
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Studies on the Yarn Mass Parameters Determination using Image Processing Techniques
Nuno Goncalves, Vitor Carvalho, Filomena Soares and Rosa Vasconcelos
Design, Implementation and Evaluation of a Hybrid Approach for Software Agents in Automation
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Fixed-budget Kernel Least Mean Squares
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Artificial Neural Network Approach for Detection and Diagnosis of Valve Stiction
Allan R. S. Venceslau, Luiz Affonso Guedes and Diego Silva

Proposal of Automation of the Collaborative Modeling and Evaluation of Business Processes Using a Semantic Wiki
Grzegorz J. Nalepa, Krzysztof Kluza and Urszula Ciaputa

Proposal of a Rule-Based Testing Framework for the Automation of the Unit Testing Process
Grzegorz J. Nalepa and Krzysztof Kaczor

Agent-based Approaches for Exploration and Pathfinding in Unknown Environments
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Interactive 3D Scan-Matching Using RGB-D Data
Pedro Vieira and Rodrigo Ventura

Development of Robotic Solutions for Oil/Gas, Aluminum and Manufacturing Industry
Ingrid Schjolberg
L-PTP: a Novel Clock Synchronization Protocol for Powerline Networks
Lucia Lo Bello, Antonio Raucea, Gaetano Patti and Orazio Mirabella

Towards IEEE 802.1 Ethernet AVB for Advanced Driver Assistance Systems:
a preliminary assessment
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An FPGA based Approach for the Enhancement of COTS Switch ASICs with Real-Time Ethernet Functions
Holger Flatt, Sebastian Schriegel, Jurgen Jasperselte and Frank Schewe

A Software Tool for Efficient Configuration of EtherCAT Networks
Mladen Knezic, Branko Dokic and Zeljko Ivanovic

A Stochastic Activity Networks Model for the Performance Evaluation of the KNXnet/IP Flow Control Mechanism
Salvatore Cavalieri and Ferdinando Chiacchio

Multicasting for Cascaded Fault-Tolerant Wireless Networked Control Systems in Noisy Industrial Environments
Yomna El Faramawy, Mohamed Ibrahim, Hassan Halawa, Ahmed Elhamy, Ehab Abdel Reheem, Tarek Refaat, Ramez Daoud and Hassanein Amer

Robotic Solutions for Footwear Industry
Inaki Maurtua, Aitor Ibarguren and Alberto Tellaech

Keynote 2 (Room A)

Kai Hansen, ABB
Wednesday, 19 September 2012

Track 1-3 (Room A, 90 min): Automation Architectures
Co-chairs: Susanne Röscher and Leon Urbas

Beyond App-Chaining: Mobile App Orchestration for Efficient Model Driven Software Generation
Jens Ziegler, Markus Graube, Johannes Pfeffer and Leon Urbas

Evaluation of the Openness of Automation Tools for Interoperability in Engineering Tool Chains
Mike Barth, Rainer Drath, Alexander Fay, Florian Zimmer and Karin Eckert

Fault-Centric System Modeling using SysML for Reliability Testing
Andreas Thoma, Benjamin Kormann and Birgit Vogel-Heuser

Data Distribution Service for Industrial Automation
Jinsong Yang, Kristian Sandstrom, Thomas Nolte and Moris Behnam

Track 2-3 (Room B, 90 min): CAN & RTE
Co-chairs: Paulo Portugal and Julian Proenza

Performance Comparison of Mechanisms to Reduce Bit Stuffing Jitters in Controller Area Networks Automation
Gianluca Cena, Ivan Cibrario Bertolotti, Tingting Hu and Adriano Valenzano

Dynamic Configuration of a Time-Triggered Router for Controller Area Network
Roland Kammerer, Roman Obermaisser and Bernhard Froemel

Performance Evaluation and Improvement of the CPU-CAN Controller Interface for Low-Jitter Communication
Gianluca Cena, Ivan Cibrario Bertolotti, Tingting Hu and Adriano Valenzano

Improved Architecture for Profinet IRT devices
Christoph Felser, Max Felser and Hassan Kaghazchi
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Co-chairs: Rolf Ernst and Magnus Jonsson

An Improved Timed Automata Approach for Computing Exact Worst-Case Delays of AFDX Sporadic Flows
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Frame Packing Strategy within Gateways for Multi-Cluster Avionics Embedded Networks
Hamdi Ayed, Ahlem Mifdaoui and Christian Fraboul

Schedulability Analysis of Multi-Packet Messages in Segmented CAN
Ekain Azketa, Javier Gutierrez, Michael Gonzalez Harbour, Carlos Palencia, Luis Almeida and Marga Marcos

Worst-Case Response-Time Analysis for Mixed Messages with Offsets in Controller Area Network
Saad Mubeen, Jukka Maki-Turja and Mikael Sjodin

SS06-2 (Room D, 90 min): Mechatronical Engineering
Co-chairs: Thomas Moser and Arndt Lüder

Extending Mechatronic Objects for Automation Systems Engineering in Heterogeneous Engineering Environments
Thomas Moser, Richard Mordinyi and Dietmar Winkler

Residual Load Sway Suppression for Rotary Cranes Using Simple Dynamics Model and S-Curve Trajectory
Shigenori Sano, Huimin Ouyang, Naoki Uchiyama

Potentials of Mechatronic Objects for Improving Mechatronic Engineering: Results and Insights from an Online Survey
Adrian Koehlein, Birthe Boehm, Juergen Elger, Norbert Gewald, Fritz Stallinger, Robert Neumann, Reinhold Ploesch and Peter Hehenberger
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Evolutionary Fuzzy Models for Nonlinear Identification
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A Declarative Approach to Cyclic Processes Coupling and Scheduling
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Francisco Souza and Rui Araujo

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Co-chairs: Mario Sousa and Nuno Cardoso

An Agile Software Product Line Model-Driven Design Environment for Video Surveillance Systems
Nuno Cardoso, Pedro Rodrigues, oscar Ribeiro, Jorge Cabral, João Monteiro, Jose Mendes and Adriano Tavares

Layered Architecture for Production and Logistics Cockpits
Volodymyr Vasyutynskyy, Christian Hengstler, Jessica McCarthy, Karl G. Brennan, Dražen Nadoveza and Alexander Dennert

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