

IEEE INTERNATIONAL CONFERENCE ON INDUSTRIAL INFORMATICS INDIN'16

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Special Session on

“Modern Software Engineering Methods for Industrial Automation Systems”

Organized by

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Call for Papers

Theme:

Software is playing an increasingly important role in assuring effective and efficient operation of industrial automation engineering systems. However software engineering methods applied in this field lag behind the conventional software engineering methods, where tremendous progress has been made in the last years.

The aim of this session is to present new approaches and methods for the design of software for use in factory and energy automation which follows the latest trends from the software engineering domain. Additionally, the session will address the challenges in adopting state-of-the-art software engineering tools and techniques to the automation domain and discuss various approaches to tackle the issues.

Topics of interest include, but are not limited to:

Software engineering methods for automation, control and SCADA systems

- Component-based design of automation and control systems
- Programming languages and tools for automation systems
- Visual programming
- Model-driven design of automation and control systems
- Test-driven software quality assurance of automation and control systems
- Quality assurance methods: testing, simulation, formal verification, defect analysis
- Execution semantics of automation software
- Latest developments of standards (e.g., IEC 61131-3, IEC 61499, IEC 61850, etc.)
- Metrics of success in software development in automation
- Program analysis techniques for industrial applications (e.g., Dynamic analysis, Static analysis, Impact analysis)
- Tools and techniques for automated testing of IEC61131-3 language programs
- Testing frameworks for automation systems (test beds for unit testing, integration testing, regression testing, etc.)

IES Technical Committee Sponsoring the Special Session:

Not Applicable

Organizer Profiles

Dr. Birgit Vogel-Heuser is the Chair of Automation and Information Systems at Technische Universität München. Her research interests include Modeling of distributed embedded systems in automation and control regarding dependability and usability and Human Machine Interaction in process engineering of complex machines and plants.

Dr. Herbert Prähofer is a professor at Johannes Kepler University Linz, Austria and one of the leading researchers in the field of Automation systems. His varied research interests include Object oriented and component-based programming, Application frameworks, Object oriented analysis and design, Domain specific languages and generative programming, Software development tools, Software product lines and Software engineering in the automation domain.

Dr. Alois Zoitl received his PhD in electrical engineering at the Vienna University of Technology in 2007. At fortiss he is currently leading the research group Industrial Automation. His research interests include adaptive production systems, distributed control architectures, dynamic reconfiguration of control applications as well as software development and software quality assurance methods for industrial automation.

Dr. Anil Nair received his PhD in software reliability from Indian Institute of technology Bombay, India. Currently he is leading the Research and Development at Toshiba Software India Pvt Ltd, Bangalore. His research interest include software engineering, software reliability, industrial automation, data analytics and computer vision.

Dr. Raoul Jetley is a Principal Scientist with ABB Corporate Research, Bangalore. He has been part of several industry consortia and co-ordination groups, and has served on review panels for federal

agencies like NSF, US FDA and NASA. His areas of expertise include program analysis, formal methods and industrial automation.