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Open Invited Track on

Tools and demonstrators for Discrete Event and Hybrid Systems

Organizers:

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Abstract: This open invited track is focused on the exhibition of tools and demonstrators for Discrete Event and Hybrid Systems. It aims at providing an opportunity to exhibit and promote realizations implementing formal techniques from discrete-event and hybrid systems theory.

IFAC technical committee for evaluation: TC 1.3 (Discrete Event and Hybrid Systems)

Detailed description:

The scope for this open invited track concerns the IFAC technical committee TC 1.3 (Discrete Event and Hybrid Systems) from the CC 1 cluster (Systems and Signals).

The interdisciplinary field of Discrete Event and Hybrid Systems (DEHS) combines different formalisms, methodologies and tools from control, computer science and operations research. DEHS is now a mature field with many interesting applications in manufacturing, process control, supervisory systems, software engineering, transportation, and so on.

This open invited track aims at exhibiting tools and demonstrators for DEHS. This covers all implementations of formal techniques from DEHS theory including (but not limited to): software tools, devices, applications.

The contribution in the elaborated demonstrator can lie at different levels: design, development, assembling and/or dedicated implementation.

Tools and demonstrators covering all topics in DEHS field are welcome, including (but not limited to):
- Modeling and identification
- Simulation
- Optimization and scheduling
- Automation methods
- Analysis and performance evaluation
- Verification and validation
- Control

- Diagnosis.

The objectives pursued by the tools can also be diverse, including:
- (industrial) applications,
- implementation and validation of researches advances,
- teaching and illustration of methodologies and formalisms.

The open invited track devoted to *Tools and demonstrators for Discrete Event and Hybrid Systems* is meant to bring engineers, teachers, researchers and industrial partners together to share results, practices, attractive challenges, and network. Organizers aim at providing a lively session to get fruitful exchanges and proposals for future collaborative research.

Such context is addressed in IFAC events such as
- IFAC - IEEE International Workshop on Discrete Event Systems (WODES)
- IFAC Analysis and Design of Hybrid Systems (ADHS)
- IFAC International Workshop on Dependable Control of Discrete Systems (DCDS)

Academic researchers and lecturers in control, R&D specialists in instrumentation, control and industrial automation, and practicing control engineers from a variety of industrial sectors are invited to submit their work and to carefully detail formal aspects related to DEHS.

Contributions can be mainly focused on application aspects. For such presentations, we may suggest the "extended abstract" submission type. A specific international scientific committee will be in charge of evaluation of these contributions.

If you intend to bring your demonstrator device to the world congress, please provide an additional document describing the needed space and needed infrastructure. Our staff will contact you in order to satisfy your specific needs. You can also contact us: demonstrators@ifac2017.org

About organizers

Sébastien Lahaye was born in France, in 1973. He received the Ph.D. degree in automatic control in 2000 from the University of Angers, France. He is currently a Professor at the University of Angers. His research and teaching interests include modeling, simulation and control of discrete event systems, with a particular attention to applications to transportation networks and manufacturing systems. He co-chairs a French working group on discrete event systems in GDR MACS of CNRS.

Cristian Mahulea received the B.S. and M.Sc. degrees in control engineering from the Technical University of Iasi, Romania, in 2001 and 2002, respectively, and the Ph.D. degree in systems engineering from the University of Zaragoza, Spain, in 2007. He is currently an Assistant Professor with the Department of Computer Science and Systems Engineering, University of Zaragoza, Spain. He has participated in the development and implementation of Petri Net Toolbox and SimHPN, two MATLAB softwares for simulation, analysis and synthesis of discrete-event systems modeled with Petri nets. He has been a Visiting Professor at the University of Cagliari, Italy, and a Visiting Researcher at the University of Sheffield, UK, and Boston University, MA, USA. His research interests include discrete event systems, hybrid systems, automated manufacturing, Petri nets, mobile robotics and healthcare systems. Prof. Mahulea is currently an associate editor of the IEEE TRANSACTIONS ON AUTOMATION SCIENCE AND ENGINEERING.

Laurent Piétrac received the B.Sc. Degree in mechanical engineering and the M.Sc. degree in flexible manufacturing systems from the University of Paris VI, Paris, France, in 1990 and 1993,

respectively, and the Ph.D. degree in automatic control from the Ecole Normale Suprieure de Cachan, Cachan, France, in 1999.

Since 2003, he has been an Associate Professor at the Lyon 1 University, National Institute of Applied Science, Lyon, France, in the Department in the Department of Industrial Engineering.

His research interests include discrete-event systems (DESs), supervisory control theory (SCT), operating mode management and manufacturing execution systems (MESs). Applications are in relation with control applications in manufacturing processes, electrical systems and embedded systems.