

September, 22-26 2009, Palma de Mallorca, Spain

## Call for Papers / Invitation to Special Session SS03

### DEVELOPMENT OF AUTOMATION SYSTEMS: THE IMPACT OF IEC STANDARDS

Special Session co-Chairs

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Today's rapidly changing market requirements impose the need of improving the agility of manufacturing systems. The development of the software counterpart of these systems is basically driven by programming-centric approaches adopting application-specific programming languages (e.g., IEC 61131). However, the dramatic increase of complexity, the increased demand for security and safety requirements, as well as for inter-networking, reuse and shortened development cycles impose the need for more abstract models to be applied in the engineering process of industrial automation systems. Integration with existing process and automation engineering methodologies and tools is also a great challenge in this domain.

The International Electrotechnical Commission (IEC) in order to improve productivity in terms of re-use, reliability, flexibility and interoperability has defined a number of standards (61131, 61499, 61512, 61804, 62424, ...). These standards attempt to reduce engineering cost and system implementation time, as well as to increase reliability and maintainability of the whole system through simplified migration from existing systems and adoption of current software engineering technologies.

The interest from academia and industry in these standards is growing in recent years and a lot of approaches that utilize these are in evolution (see for example the reports of the 1st, 2nd and 3rd Special Session on the IEC 61499).

The main objective of this Special Session is to assess the use of IEC and other standards in coping with the current needs of systems development, as well as to investigate how standardized models can be combined with further techniques like formal analysis, simulation, and software engineering processes to allow efficient development of dependable automation systems. Theoretical issues related to the specifications as well as their use in practice will be presented and discussed.

More specifically **topics** include but are not limited to the following:

- System architectures, development processes, design alternatives that exploit IEC standards,
- Case studies and comparative evaluations,
- Extensions and modifications to the IEC models,
- Integration of IEC standards with UML,
- Migration of proven designs to new standards (e.g. from IEC 61131 or IEC 61499),
- Integration or combination of IEC standards (e.g. IEC 61499 with IEC 61512),
- Experimental developments, real-world examples, experience reports, industrial acceptance,
- Discussions on strengths and weaknesses of standards.

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### **SUBMISSION OF PAPERS**

Papers are to be submitted electronically. For further details, please consult the conference web pages.

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### **AUTHOR'S SCHEDULE**

Deadline for submission of papers:	May 10, 2009
Notification of papers acceptance:	June 8, 2009
Final manuscripts due:	July 5, 2009

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### **SESSION ORGANIZERS**

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