
Invitation to the Special Session on **Development of Automation Systems: The impact of IEC standards**

13th IEEE International Conference on Emerging Technologies and
Factory Automation; September 15-18, 2008, Hamburg, Germany.
Conference web site: <http://www.etfa2008.org/>

Technical outline of the session / Topics of the special session

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 the increased demand 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. The integration with existing process and automation engineering methodologies and tools is also a great challenge in this domain.

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

The interest from academia and industry to 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](#) and [2nd](#) Special Session on the IEC61499). 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
- Discussions on strengths and weaknesses of standards
- Industrial acceptance

AUTHOR'S SCHEDULE

Authors should contact the Special Session Organizers, as soon as possible

Deadline for submission:	April 30, 2008
Notification of papers acceptance:	June 1, 2008
Final manuscripts due:	July 1, 2008

SUBMISSION OF PAPERS

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

SESSION ORGANIZERS

Prof. Kleanthis Thramboulidis, Univ. of Patras, Greece. (thrambo@ece.upatras.gr)
Prof. Georg Frey, University of Kaiserslautern, Germany. (frey@eit.uni-kl.de)
