DSD 2018

21st Euromicro Conference on Digital System Design
Prague, Czech Republic, Aug. 29th - 31st, 2018

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SPECIAL SESSION ON DESIGN OF CYBER-PHYSICAL SYSTEMS

SPECIAL SESSION SCOPE

Cyber-Physical Systems (CPS) are characterized by tight coupling and interaction between computation, communication and control elements (cyber part), and physical processes such as motion, heating/cooling, vibration, wear and tear (physical part). Currently, design of such systems is composed of largely isolated phases involving different disciplines (mechanical, electrical, control and software engineering). The new CPS design paradigm advocates for integrative design trajectories allowing for tradeoffs between various design domains and concerns (e.g., cost, quality, reliability, security, safety, fault-tolerance) coping with the tight coordination between the cyber and the physical components. Special session on Design of Cyber-Physical Systems (DCPS) deals with challenges associated with the new design paradigm.

Topics of interest include, but are not limited to, the following:
1. Model-based analysis, design and synthesis of cyber-physical systems – e.g., multi-domain modeling and simulation techniques; modeling and analysis of extra-functional properties such as cost, performance and other quality aspects; FMI/FMU compositional analysis; analog/mixed-signal modeling.
2. Multi-objective optimization, system-level (co-)design approaches, trade-off analysis and design-space exploration for cyber-physical systems.
3. Formal methods for cyber-physical systems – e.g., hybrid automata; verification; model checking; correct-by-construction control synthesis; abstraction and refinement.
4. Reliable, and fault-tolerant design for cyber-physical systems – fault modeling; monitoring; fault detection; reliability analysis; fault-tolerant design (the focus should be on the system-level aspects rather than individual component-level).
5. Safety, dependability, privacy and security in cyber-physical systems (the focus should be on the system-level aspects rather than individual component-level).
6. Design, synthesis, simulation and verification of distributed, networked, intelligent embedded systems (e.g., IoT, sensor networks, intelligent information gathering, machine learning, supervisory control systems, predictive maintenance, energy harvesting and management, HW design for wireless protocols).
7. Design methodologies for cyber-physical systems from various domains, e.g., automotive systems, avionics, robotic systems, large-scale manufacturing and processing plants, and intelligent transportation system.
8. Software, platforms and tools for cyber-physical systems.
9. Submissions reporting the results obtained under the activities performed in various European Union funded projects (e.g., oCPS – ocps-itn.eu) along the above directions are highly encouraged.

SUBMISSION GUIDELINES

Authors are encouraged to submit their manuscripts to https://easychair.org/conferences/?conf=dsd2018. Should an unexpected web access problem be encountered, please contact the Program Chair by email (dsd2018@easychair.org).

Each manuscript should include the complete paper text, all illustrations, and references. The manuscript should conform to the IEEE format: single-spaced, double column, US letter page size, 10-point size Times Roman font, up to 8 pages. In order to conduct a blind review, no indication of the authors' names should appear in the manuscript, references included.

IEEE Conference Publishing Services (CPS) will publish accepted papers in the conference proceedings and the proceedings will be submitted to the IEEE Xplore Digital library and indexing services. Extended versions of selected best papers will be published in a special issue of the ISI indexed Elsevier journal *"Microprocessors and Microsystems: Embedded Hardware Design"*.

IMPORTANT DATES
Deadline for paper submission: April 1st
Notification of acceptance: May 15th
Camera ready papers: June 15th

MORE INFORMATION (WEB PAGES)
- DSD 2018: http://dsd-seaa2018.fit.cvut.cz/main/index.php#page-top
- Euromicro: www.euromicro.org