V²CPS

1ST INTERNATIONAL WORKSHOP ON VERIFICATION AND VALIDATION OF CYBER-PHYSICAL SYSTEMS

at the 12th International Conference on integrated Formal Methods (iFM 2016),

Reykjavic, Iceland, 4-5 June 2016

http://www.cs.ox.ac.uk/conferences/VVCPS16/

CALL FOR PAPERS

V²CPS is targeted at models and methods related to different aspects of cyber-physical systems with an emphasis on non-functional properties initiated from the physical world. A cyber-physical system (CPS) is an integration of networked computational and physical processes with meaningful inter-effects; the former monitors, controls, and affects the latter, while the latter affects the decisions of the former. Some sources of impacts initiated from the physical world include energy arrival in energy-harvesting CPSs, unpredicted workload, environmentally initiated faults, etc. which might be impacted by/have inter-effects with some cyber-initiated effects like the running application, operating system, hardware properties, energy storage, and system configuration. CPSs have applications in a wide-range of systems spanning robotics, transportation, communication, infrastructure, energy, and manufacturing. The advanced capabilities of CPSs require complex software and synthesis algorithms, which are hard to verify, i.e., to show that the system behaves as specified. In fact, most of the interesting problems in this area are undecidable. Thus, a major research activity is to discover algorithmically tractable abstractions describing the partial/overall behaviors of CPSs while respecting key properties. The ultimate goal of this event is to bring together researchers and experts of the fields of formal verification and CPSs to cover the theme of this workshop, through verification and validation methods including (but not limited to) control, simulation, and formal methods.

Topics of interest include (but are not limited to):

- Abstractions of CPSs for formal verification
- Formal modeling and verification of hybrid systems
- Resource management and processor scheduling
- Power/Energy/Temperature-Aware modeling and verification of CPSs
- Approaches towards non-classic formal control methods in CPSs
- CPSs and fault-tolerance
- Fault-injection and test of CPSs
- Resiliency in CPSs
- Dependability of CPSs
- Hardware/Software co-design for CPSs
- CPS and natural models of computation (quantum, biological, …)
- Semantics of CPSs

Program Chairs:

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Important Dates:

Paper submission: Mar. 15, 2016
Author Notification: Apr. 15, 2016
Camera ready version: Apr. 30, 2016
Conference iFM 2016: Jun. 1-3, 2016
V²CPS 2016: Jun. 4, 2016

Program Committee:

Ebrahim Ardeshir-Larijani, *IPM, Iran*
Enrico Bini, *SSSUP, Italy*
Muffy Calder, *Uni. Of Glasgow, UK*
Ali Ebnenasir, *Mich. Tech. Uni., USA*
Md. Reza Mousavi, *Halmstad, Sweden*
Ali Movaghar, *Sharif Uni. Of Tech., Iran*
Hessam Sarjoughian, *ASU, USA*
Krishna Shankarnarayanan, *IITB India*
Joseph Sifakis, *EPFL, Switzerland*
Oleg Sokolsky, *UPenn, USA*
Sadegh Soudjani, *Uni. Of Oxford, UK*
Ramin Tavakoli Kolagari, *Technische Hochschule Nürnberg, Germany*
Ufuk Topcu, *UT Austin, USA*

Publication:

All contributions will be evaluated by at least three reviewers chosen by the Program Committee. The PC will select the best papers based on their quality, relevance to the workshop, and potential to instigate discussion. All accepted papers will be included in the workshop proceedings, which will be published in the EPTCS series.

PAPER SUBMISSION:

We solicit the submission of original and unpublished contributions not under review for publication elsewhere. All papers must be prepared in LaTeX using the EPTCS style. Full papers should not exceed 15 pages. Short papers should not exceed 8 pages. Additional details omitted due to space limitations may be included in a clearly marked appendix. Contributions should be submitted in PDF format through the EasyChair online submission system. Submission of a paper involves a firm commitment that at least one of the authors will attend and participate in the workshop in case that the paper was accepted.