



# V<sup>2</sup>CPS

## 2<sup>ST</sup> INTERNATIONAL WORKSHOP ON VERIFICATION AND VALIDATION OF CYBER- PHYSICAL SYSTEMS

at the 13<sup>th</sup> International Conference on integrated Formal Methods (iFM 2017),  
Torino, Italy, 19 September 2017

<https://v2cps17.mpi-sws.org/>

### CALL FOR PAPERS

V<sup>2</sup>CPS is targeted at verification, validation, and synthesis 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 CPS, 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. CPS have applications in a wide-range of systems spanning robotics, transportation, communication, infrastructure, energy, and manufacturing. The advanced capabilities of CPS 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 CPS while respecting key properties. The ultimate goal of this event is to bring together researchers and experts of the fields of formal methods, control theory, and CPS to cover the theme of this workshop, through verification, validation, and synthesis methods for different aspects of safe and secure cyber-physical systems.

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

- Modeling and simulation of CPS
- Monitoring and testing of CPS
- Formal Verification and Synthesis methods for CPS
- Security and Resiliency in CPS
- Dependability of CPS
- Hardware/Software co-design for CPS
- CPS and natural models of computation (quantum, biological, ...)
- Semantics of CPS
- Power/Energy/Temperature-Aware modeling and verification of CPS
- Approaches towards non-classic formal control methods in CPS
- CPS and fault-tolerance
- Resource management and processor scheduling

### Program Chairs:

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### Important Dates:

Paper submission: June 30, 2017

Author Notification: July 21, 2017

Camera ready version: Aug 21, 2017

Conference iFM: Sep. 20-22, 2017

V<sup>2</sup>CPS 2017: Sep. 19, 2017

### Program Committee:

Houssam Abbas, *Uni. of Pennsylvania, USA*

Ebrahim Ardesir-Larijani, *IPM, Iran*

Franck Cassez, *Macquarie Uni., Australia*

Milan Ceska, *Brno Uni., Czech Republic*

Gilles Geeraerts, *Uni. Bruxelles, Belgium*

Taylor T. Johnson, *Vanderbilt Uni., USA*

Mehdi Kargahi, *Uni. of Tehran, Iran*

Mohammad R. Mousavi, *Halmstad Uni., SE*

Pavithra Prabhakar, *Kansas Uni., USA*

Ramesh S., *General Motors, USA*

Mickael Randour, *Uni. Bruxelles, Belgium*

Annalisa Scacchioli, *Rutgers Uni., USA*

Sven Schewe, *University of Liverpool, UK*

Krishna S., *ITT Bombay, India*

Jeremy Sproston, *U. Torino, Italy*

Dominik Wojtczak, *Uni. of Liverpool, UK*

Majid Zamani, *TU Munich, Germany*

### 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.