Call for Contributions

Submission:
1. Inform the Chairs: with the Title of your Contribution
2. Submission URL:
https://www.iariasubmit.org/conferences/submit/newcontribution.php?event=VALID+2018+Special
Please select Track Preference as **rCPS**

Special track

rCPS: Robustness in Cyber-Physical Systems

Chair and Coordinator
Dr. Nima Roohi, University of Pennsylvania, USA
roohi2@cis.upenn.edu

along with

VALID 2018, The Tenth International Conference on Advances in System Testing and Validation Lifecycle
October 14, 2018 to October 18, 2018 - Nice, France
http://www.iaria.org/conferences2018/VALID18.html

Cyber-physical systems (CPS) are an indispensable part of our lives and validating their behavior, especially when they are used in safety critical systems (e.g. avionics, self-driving cars, smart grids, etc.), is of utmost importance. Most often we use ordinary differential equations to model behavior of physical systems. But, it is known for more than 50 years that "the rate of change of physical systems depends not only on their present state, but also on their past history". Therefore, our models often do not represent the behavior of physical systems precisely. It is also very well-known that safety verification for all but very restricted classes of these systems is undecidable. Unfortunately, this is not the end. Even if we can verify safety of a model, it is often the case that the controllers part of the model cannot be implemented; this fact that is true even for many models expressed using time automata.

Robustness has been shown to be an invaluable remedy for these problems. For example, robustness is used to prove relative completeness in CEGAR algorithms, it is used to provide an NP complete algorithm for a very large subclass of the first order theory of ordered reals with addition, multiplication, trigonometric, and exponential functions, it is used to show implementability of models given in timed automata, it is used in monitoring signal temporal logic, it is used in statistical verification of stochastic systems, and more.

Research contributions can report new results as well as experimental evaluations and comparisons of existing techniques.

The issue should relate to any of the following topics, but not limited to:

- Mathematical foundation of robustness;
- Robust validation of cyber-physical systems;
- Testing robust cyber-physical systems;
- Techniques for robust modeling and synthesizing;
- Robustly monitoring dynamical systems;
- Robust verification of metric and signal temporal logic;
- Robust statistical methods;
- Implementability of robust cyber-physical models;

- Robustness in security and privacy of cyber-physical systems;
- Abstraction and Robustness;
- Software tools that take leverage of robustness assumptions.

Important Deadlines

- Inform the Chair (see Contacts below): as soon as you decide to contribute
- Submission: ~~June 28~~ September 5
- Notification: ~~July 28~~ September 20
- Registration: ~~August 11~~ September 30
- Camera ready: ~~August 22~~ September 30

Contribution Types

- Regular papers [in the proceedings, digital library]
- Short papers (work in progress) [in the proceedings, digital library]
- Posters: two pages [in the proceedings, digital library]
- Posters: slide only [slide-deck posted on www.iaria.org]
- Presentations: slide only [slide-deck posted on www.iaria.org]
- Demos/Tools: two pages [posted on www.iaria.org]

Paper Format

- See: http://www.iaria.org/format.html
- Before submission, please check and comply with the editorial rules: http://www.iaria.org/editorialrules.html

Publications

- Extended versions of selected papers will be published in IARIA Journals: http://www.iariajournals.org
- Print proceedings will be available via Curran Associates, Inc.: http://www.proceedings.com/9769.html
- Articles will be archived in the free access ThinkMind Digital Library: http://www.thinkmind.org

Paper Submission

https://www.iariasubmit.org/conferences/submit/newcontribution.php?event=VALID+2018+Special

Please select Track Preference as **rCPS**

Registration

- Each accepted paper needs at least one full registration, before the camera-ready manuscript can be included in the proceedings.
- Registration fees are available at http://www.iaria.org/registration.html

Contacts

Chair: Nima Roohi, roohi2@cis.upenn.edu
ICSNC logistics: steve@iaria.org