CALL FOR PAPERS

11th International Workshop on Numerical Software Verification
July 18-19, 2018
Federated Logic Conference (FLoC) 2018
Oxford, UK

Web Page: https://nsv-2018.github.io/nsv2018/

Important Dates

Submissions deadline: April 15, 2018
Notification: May 15, 2018
Final version: June 15, 2018
Workshop: July 18-19, 2018

Description of the Workshop

Numerical computations are ubiquitous in digital systems:
supervision, prediction, simulation and signal processing rely
heavily on numerical calculus to achieve desired goals. Design and
verification of numerical algorithms has a unique set of challenges,
which set it apart from rest of software verification. To achieve
the verification and validation of global properties, numerical
techniques need to precisely represent local behaviors of each
component. The implementation of numerical techniques on modern
hardware adds another layer of approximation because of the use of
finite representations of infinite precision numbers that usually
lack basic arithmetic properties such as commutativity and
associativity. Finally, the development and analysis of cyber-
physical systems (CPS) which involve the interacting continuous and
discrete components pose a further challenge. It is hence imperative
to develop logical and mathematical techniques for the reasoning
about programmability and reliability. The NSV workshop is dedicated
to the development of such techniques.

Topics

The scope of the workshop includes, but is not restricted to, the
following topics:

- Quantitative and qualitative analysis of hybrid systems
- Models and abstraction techniques
- Optimal control of dynamical systems
- Parameter identification for hybrid systems
- Numerical optimization methods
- Hybrid systems verification
- Applications of hybrid systems to systems biology
- Propagation of uncertainties, deterministic and probabilistic
models
- Specifications of correctness for numerical programs
- Formal specification and verification of numerical programs
- Quality of finite precision implementations
- Numerical properties of control software

– Validation for space, avionics, automotive and real-time applications
– Validation for scientific computing programs

Confirmed invited speakers

– Alberto Ferrari/Orlando Ferrante (United Technologies Research Center, Italy)
– Pierre-Loïc Garoche (ONERA Toulouse, France)
– Laurent Raffaeli (Naval Group, France)
– Andrew Raynolds (University of Iowa, USA)
– Paolo Zuliani (Newcastle University, UK)

Submission information

We solicit regular and short papers.Paper submission must be performed
via the EasyChair system: http://easychair.org/conferences/?conf=nsv2018

Regular papers must describe original work, be written and presented in English, and must not substantially overlap with papers that have been published or that are simultaneously submitted to a journal or a conference with refereed proceedings. Submitted papers will be judged on the basis of significance, relevance, correctness, originality, and clarity. They should clearly identify what has been accomplished and why it is significant.

Regular paper submissions should not exceed 15 pages in LNCS style, including bibliography and well-marked appendices: http://www.springer.com/gp/computer-science/lncs/conference-proceedings-guidelines

Program committee members are not required to read the appendices, and thus papers must be intelligible without them.

Short papers are also welcome, they should present tools, benchmarks, case-studies or be extended abstracts of ongoing research. Short papers should not exceed 6 pages. Furthermore, in order to foster the exchange of ideas, we encourage authors to also submit short papers describing ideas which have already been reported in other venues.

Final proceedings will be edited after the workshop as a special issue.

Chairs

Alexandre Chapoutot (ENSTA ParisTech)
Nasrine Damouche (Université de Perpignan, France)
Alessandro Pinto (United Technologies Research Center)

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