

# 11th International Workshop on Numerical Software Verification

## CALL FOR PAPERS

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

## 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 ENTCS style, including bibliography and well-marked appendices: <http://www.entcs.org/prelim.html>

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.

All accepted papers (except short papers based on ideas published elsewhere) will be published electronically by Elsevier in the Electronic Notes in Theoretical Computer Science series (ENTCS).

## Chairs

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

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