



Call for Participation in a Competition Jury for Verification of Continuous and Hybrid Systems CPSWeek 2017, Pittsburgh, USA, April, 2017

Call for Participation in the Competition Jury

In the spirit of friendly competitions of scientific software (see e.g. SV-COMP, <https://sv-comp.sosy-lab.org/2016/>), the organizers of the ARCH workshop (<http://cps-vo.org/group/ARCH>) are setting up a friendly competition for the verification of continuous and hybrid systems. Groups who are interested in joining the competition have to become a member of the competition jury—this will also be the only way to join the jury. We envision the following procedure for selecting, executing, and evaluating the benchmarks. Please note that all of these points will be open for debate within the jury. In the first year, we are not planning to create surprise benchmarks, but only benchmarks that are known in advance.

Benchmark selection

- Each jury member can propose one benchmark that is known in advance.
- Benchmarks should be primarily selected from ARCH benchmarks.

Benchmark execution

- To keep it simple, benchmarks will be executed by each participant on her/his own machine. Parameter tuning is allowed, as long as no partial solutions are provided.
- Chosen parameters, the software, and the hardware specification have to be released.

Benchmark evaluation

- The results of the known benchmarks will be submitted by each group.
- We will not rank the results, but only list them to provide guidelines for which categories certain algorithms are especially competitive.

Competition Categories (tentative)

It will be the task of the jury to create a set of competition categories from useful combinations of system and problem categories. Below, we provide a list of possible categories:

- **System categories:** discrete-time affine dynamics, continuous-time affine dynamics, continuous-time polynomial dynamics, continuous-time non-polynomial dynamics, continuous-time DAE, hybrid piecewise constant dynamics, hybrid piecewise affine dynamics, hybrid nonlinear dynamics, stochastic systems, systems with uncertain parameters.
- **Problem categories:** reachability (unbounded time), bounded model checking (bounded time and events), falsification, stability, synthesis, games.

Notification of Interest

If you are interested in joining the jury, please write one email to the organizers listed below before **August 15, 2016**.

Organizers

- Program chairs: **Matthias Althoff**, Technische Universität München, Germany, althoff@in.tum.de
Goran Frehse, UGA-Verimag, France, goran.frehse@imag.fr
- Publicity chair: **Sergiy Bogomolov**, Institute of Science and Technology Austria, Austria, sergiy.bogomolov@ist.ac.at
- Evaluation chair: **Taylor T. Johnson**, University of Texas at Arlington, USA, taylor.johnson@gmail.com