2nd International Workshop on Synthesis of Complex Parameters

SynCoP'15, April 11, 2015, London, UK

Edited by

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Preface

This volume contains the proceedings of the 2nd International Workshop on Synthesis of Complex Parameters (SynCoP'15). The workshop was held in London, UK on April 11th, 2015, as a satellite event of the 18th European Joint Conferences on Theory and Practice of Software (ETAPS'15).

SynCoP aims at bringing together researchers working on verification and parameter synthesis for systems with discrete or continuous parameters, in which the parameters influence the behavior of the system in ways that are complex and difficult to predict. Such problems may arise for real-time, hybrid or probabilistic systems in a large variety of application domains. The parameters can be continuous (e.g., timing, probabilities, costs) or discrete (e.g., number of processes). The goal can be to identify suitable parameters to achieve desired behavior, or to verify the behavior for a given range of parameter values.

The scientific subject of the workshop covers (but is not limited to) the following areas:

- parameter synthesis,
- parametric model checking,
- regular model checking,
- robustness analysis,
- parametric logics, decidability and complexity issues,
- formalisms such as parametric timed and hybrid automata, parametric time(d) Petri nets, parametric probabilistic (timed) automata, parametric Markov Decision Processes, networks of identical processes,
- interactions between discrete and continuous parameters,
- applications to major areas of computer science and control engineering.

Program

This volume contains nine contributions: two invited talks, six regular papers and three abstracts of informal presentations. The two invited talks are:

- Cut-offs in Parameterized Verification (Parosh Abdulla)
- Parameter synthesis for probabilistic real-time systems (Marta Kwiatkowska)

Each regular paper was reviewed by at least three different reviewers. The six accepted papers are:

- Consistency for Parametric Interval Markov Chains (Benoît Delahaye)
- Guaranteed control of switched control systems using model order reduction and state-space bisection (Adrien Le Coënt, Florian De Vuyst, Christian Rey, Ludovic Chamoin and Laurent Fribourg)
- Game-based Synthesis of Distributed Controllers for Sampled Switched Systems (Laurent Fribourg, Ulrich Kühne and Nicolas Markey)

- Parameter and Controller Synthesis for Markov Chains with Actions and State Labels (Bharath Siva Kumar Tati and Markus Siegle)
- Parametric Verification of Weighted Systems (Peter Christoffersen, Mikkel Hansen, Anders Mariegaard, Julian T. Ringsmose, Kim G. Larsen and Radu Mardare)
- Tuning PI controller in nonlinear uncertain closed-loop systems with interval analysis (Julien Alexandre Dit Sandretto, Alexandre Chapoutot and Olivier Mullier)

Furthermore, three informal presentations were made at the workshop:

- Discrete Parameters in Petri Nets (Nicolas David, Claude Jard, Didier Lime, and Olivier H. Roux)
- Enhanced Distributed Behavioral Cartography of Timed Automata (Étienne André, Camille Coti and Hoang Gia Nguyen)
- Parameter Synthesis with IC3 (Alessandro Cimatti, Alberto Griggio, Sergio Mover and Stefano Tonetta)

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We thank the two invited speakers for their presence and their interesting presentations, the authors for their contributions, the program committee members for reviewing and selecting the papers, and Paulo Oliva from the ETAPS organizing committee for its support.

Finally, we would like to thank the editorial board of the OASIcs proceedings.

In Villetaneuse and Grenoble,

Étienne André and Goran Frehse

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