

Preface

This volume contains the proceedings of the 16th International Conference on Runtime Verification (RV 2016), which was held September 23–30, 2016, at La Residencia de Estudiantes of the Spanish Council for Scientific Research (CSIC) in Madrid, Spain.

During the first half of the twentieth century, La Residencia was a prestigious cultural institution that helped foster and create the intellectual environment for young thinkers, writers, and artists. It was one of the most vibrant and successful experiences of scientific and artistic creation and exchange of interwar Europe. Some of the brightest minds of the time, like Albert Einstein, Marie Curie, and Salvador Dalí, visited La Residencia in this early epoch. In the last few years there has been a very intense attempt to recover the memory of La Residencia and its founding principles, and to promote new cultural and scientific activities based on the spirit of cooperation and sharing of knowledge. We hope that the attendees of RV 2016 enjoyed this unique venue.

The RV conference is concerned with all aspects of monitoring and analysis of hardware, software, and more general system executions. Runtime verification techniques are lightweight techniques to assess correctness, reliability, and robustness; these techniques are significantly more powerful and versatile than conventional testing, and more practical than exhaustive formal verification.

RV started in 2001 as an annual workshop and turned into an annual conference in 2010. The proceedings from 2001 to 2005 were published in the *Electronic Notes in Theoretical Computer Science*. Since 2006, the RV proceedings have been published in Springer's *Lecture Notes in Computer Science*. The previous five editions of the RV conference took place in San Francisco, USA (2011), Istanbul, Turkey (2012), Rennes, France (2013), Toronto, Canada (2014), and Vienna, Austria (2015).

RV 2016 received 72 submissions, 49 of which were regular papers, ten short papers, six regular tool papers, two tool demonstration papers, and five tutorial proposals. Most papers were reviewed by four reviewers. The Program Committee accepted 18 regular papers, four short papers, three regular tool papers, two tool demonstration papers, and the five submitted tutorials.

The evaluation and selection process involved thorough discussions among the members of the Program Committee and external reviewers through the EasyChair conference manager, before reaching a consensus on the final decisions.

This year, the RV conference also included the organization of The First International Summer School on Runtime Verification, co-organized and sponsored by EU COST Action IC1402 “ArVi: Runtime Verification Beyond Monitoring.” Additionally, the Third International Competition on Runtime Verification, also sponsored by EU COST Action IC1402, was colocated with RV 2016.

The conference program included the presentation of the peer-reviewed papers and tool demonstrations, tutorials, and invited keynote speeches. The conference program spanned over four rich days (see <http://rv2016.imag.fr>).

We are pleased to have hosted three top invited speakers:

- Gul Agha, Professor of Computer Science at the University of Illinois at Urbana-Champaign, talked about how to build dependable concurrent systems through probabilistic inference, predictive monitoring, and self-adaptation.
- Oded Maler, Research Director of CNRS at Verimag, talked about how to monitor qualitative and quantitative properties, in real and virtual executions of systems, in the online and offline approaches of runtime verification.
- Fred B. Schneider, Professor of Computer Science and Chair of Cornell’s CS Department, talked about tag specification languages for policy enforcement.

The conference included the following five tutorials:

- Doron Peled presented a tutorial on “Using Genetic Programming for Software Reliability”
- Nikolai Kosmatov and Julien Signoles presented a tutorial on “Frama-C, a Collaborative Framework for C Code Verification”
- Philip Daian, Dwight Guth, Chris Hathhorn, Yilong Li, Edgar Pek, Manasvi Saxena, Traian Florin Serbanuta, and Grigore Rosu presented a tutorial on “Runtime Verification at Work”
- Sylvain Hallé presented a tutorial on “When RV Meets CEP”
- Borzoo Bonakdarpour and Bernd Finkbeiner presented a tutorial on “Runtime Verification for HyperLTL”

We would like to thank the authors of all submitted papers, the members of the Program Committee, and the external reviewers for their exhaustive task of reviewing and evaluating all submitted papers. We would like to thank Christian Colombo for co-organizing the Summer School and Sylvain Hallé and Giles Reger for co-organizing the third edition of the competition on Runtime Verification (CRV 2016).

We would also like to thank Universidad Carlos III and the IMDEA Software Institute for their administrative support and their generous monetary contribution to the conference, the Laboratoire d’Informatique de Grenoble for its IT support, and La Residencia for sharing their facilities to hold the conference at reduced prices. We highly appreciate EasyChair for its system to manage submissions. Finally, we would like to extend our special thanks to the chair of the Steering Committee, Klaus Havelund, for his support during the organization of RV 2016.

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