Lecture Notes in Computer Science   12974

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Lu Feng · Dana Fisman (Eds.)

Runtime Verification

21st International Conference, RV 2021
Virtual Event, October 11–14, 2021
Proceedings

Springer

Editors
Lu Feng (ID)
University of Virginia
Charlottesville, VA, USA

Dana Fisman (ID)
Ben-Gurion University of the Negev
Be'er Sheva, Israel

Preface

This volume contains the refereed proceedings of the 21st International Conference on Runtime Verification (RV 2021), virtually held during October 11–14, 2021. The RV series is a sequence of annual meetings that brings together scientists from both academia and industry interested in investigating novel lightweight formal methods to monitor, analyze, and guide the runtime behavior of software and hardware systems. Runtime verification techniques are crucial for system correctness, reliability, and robustness; they provide an additional level of rigor and effectiveness compared to conventional testing, and are generally more practical than exhaustive formal verification. Runtime verification can be used prior to deployment, for testing, verification, and debugging purposes, and after deployment for ensuring reliability, safety, and security, for providing fault containment and recovery, and for online system repair.

RV started in 2001 as an annual workshop and turned into a conference in 2010. The workshops were organized as satellite events of established forums, including the Conference on Computer-Aided Verification and ETAPS. The proceedings of RV from 2001 to 2005 were published in Electronic Notes in Theoretical Computer Science. Since 2006, the RV proceedings have been published in Springer's Lecture Notes in Computer Science. Previous RV conferences took place in Istanbul, Turkey (2012); Rennes, France (2013); Toronto, Canada (2014); Vienna, Austria (2015); Madrid, Spain (2016); Seattle, USA (2017); Limassol, Cyprus (2018); and Porto, Portugal (2019). The conferences last year and this year were planned to take place in Los Angeles, USA, but were held virtually due to COVID-19.

This year we received 40 submissions, 29 as regular contributions and 11 as short, tool, or benchmark papers. Each of these submissions went through a rigorous single-blind review process as a result of which most papers received four reviews and all papers received at least three review reports. The committee selected 18 contributions, 11 regular and 7 short/tool/benchmark papers, for presentation during the conference and inclusion in these proceedings. The evaluation and selection process involved thorough discussions among the members of the Program Committee (PC) and external reviewers through the EasyChair conference manager, before reaching a consensus on the final decisions.

The conference featured three keynote speakers:

– Patricia Bouyer-Decitre, LSV, CNRS and ENS Paris-Saclay, France
– Radu Grosu, Technische Universität Wien, Austria
– Holger Hermanns, Saarland University, Germany

The conference also included one tutorial:

– "Formal Analysis of AI-Based Autonomy: From Modeling to Runtime Assurance" by Hazem Torfah, Sebastian Junges, Daniel Fremont, and Sanjit A. Seshia.

RV 2021 is the result of the combined efforts of many individuals to whom we are deeply grateful. In particular, we thank the PC members and sub-reviewers for their accurate and timely reviewing, all authors for their submissions, and all attendees of the conference for their participation. We thank Jyotirmoy V. Deshmukh and Dejan Ničković, chairs of RV 2020, for their generous help answering our many questions, and the RV Steering Committee for their support.

August 2021

<div align="right">
Lu Feng
Dana Fisman
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