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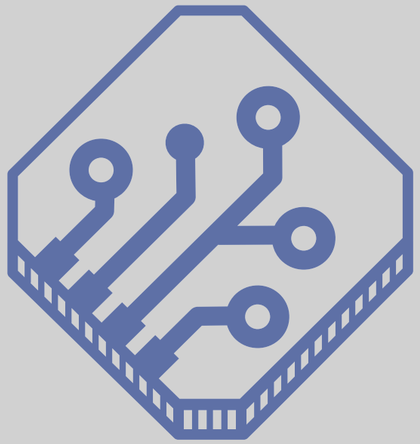

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Preface

These are the proceedings of the twenty-second International Conference on Formal Methods in Computer-Aided Design (FMCAD), which was held in Trento, Italy from October 18 – October 21, 2022. FMCAD was first held in 1996, and was a bi-annual conference until 2006, when the FMCAD and CHARME conferences merged into a single FMCAD conference, and since then has been held annually. FMCAD 2022 is the twenty-second edition in the series, covering formal aspects of computer-aided system design including verification, specification, synthesis, and testing. It provides a leading forum to researchers in academia and industry to present and discuss groundbreaking methods, technologies, theoretical results, and tools for reasoning formally about computing systems.

The program of FMCAD 2022 consists of two tutorials, two invited talks, a student forum, and the main program consisting of presentations of 40 accepted peer-reviewed papers.

The tutorial day featured two presentations:

- *On Applying Model Checking in Formal Verification* by Håkan Hjort
- *Verification of Distributed Protocols: Decidable Modeling and Invariant Inference* by Oded Padon

and the main conference featured two invited talks:

- *The seL4 Verification Journey: How Have the Challenges and OIpportunities Evolved* by June Andronick
- *Why Do Things Go Wrong (or Right)? Applications of Causal Reasoning to Verification* by Hana Chockler

FMCAD 2022 received 88 submissions out of which the committee decided to accept 40 for publication. Each submission received at least four reviews. The topics of the accepted papers include hardware and software verification, SAT, SMT, learning, synthesis, neural network verification, and others. Among the accepted papers, there are 31 regular papers (28 long and 3 short) and 9 tool/case study papers (6 long and 3 short).

FMCAD 2022 hosted the tenth edition of the Student Forum, which has been held annually since 2013 and provides a platform for graduate students at any career stage to introduce their research to the FMCAD community. The FMCAD Student Forum 2022 was organized by Mathias Preiner and featured short presentations of 21 accepted contributions. The proceedings provide a detailed description of the Student Forum and lists all accepted contributions.

Organizing this event was made possible by the support of a large number of people and our sponsors. The program committee members and additional reviewers, listed on the following pages, did an excellent job providing detailed and insightful reviews. The reviews helped us build a strong program and helped the authors improve their submissions. We thank each and everyone of them for dedicating their time and providing their expertise. We thank Martin Jonáš for acting both as the web master and as the Sponsorship Chair, and Mathias Preiner for organizing this year's FMCAD Student Forum. We thank Georg Weissenbacher both for his exceptional assistance in organizing the event, communicating to us the decisions of the steering committee, as well as being the publication chair.

Holding a conference like FMCAD would not be feasible without the financial support of our sponsors. We would like to express our gratitude to our sponsors (in alphabetical order): Amazon Web Services, Cadence, Intel, Meta, and Synopsys.

The conference proceedings are available as Open Access Proceedings published by TU Wien Academic Press, and through the IEEE Xplore Digital Library. Last but not least, we thank all authors who submitted their papers to FMCAD 2022 (accepted or not), and whose contributions and presentations form the core of the conference. We are grateful to everyone who presented their paper, gave a keynote or gave a tutorial. We thank all attendees of FMCAD for supporting the conference and making FMCAD an engaging and enjoyable event.

October 2022

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