Preface

TACAS 2017 was the 23rd edition of the International Conference on Tools and Algorithms for the Construction and Analysis of Systems. The conference took place during April 2017, in the Uppsala Concert and Congress Hall as part of the 19th European Joint Conferences on Theory and Practice of Software (ETAPS 2017).

TACAS is a forum for researchers, developers, and users interested in rigorously based tools and algorithms for the construction and analysis of systems. The conference aims to bridge the gaps between different communities with this common interest and to support them in their quest to improve the utility, reliability, flexibility, and efficiency of tools and algorithms for building systems.

As in former years, TACAS 2017 solicited four types of submissions:

– Research papers, identifying and justifying a principled advance to the theoretical foundations for the construction and analysis of systems, where applicable supported by experimental validation
– Case-study papers, reporting on case studies and providing information about the system being studied, the goals of the study, the challenges the system poses to automated analysis, research methodologies and approaches used, the degree to which goals were attained, and how the results can be generalized to other problems and domains
– Regular tool papers, presenting a new tool, a new tool component, or novel extensions to an existing tool, with an emphasis on design and implementation concerns, including software architecture and core data structures, practical applicability, and experimental evaluation
– Short tool-demonstration papers, focusing on the usage aspects of tools

This year, 181 papers were submitted to TACAS, among which 167 were research, case study, or tool papers, and 14 were tool demonstration papers. After a rigorous review process followed by an online discussion, the Program Committee accepted 48 full papers and four tool demonstration papers. This volume also includes an invited paper by the ETAPS unifying speaker Kim. G. Larsen titled "Validation, Synthesis, and Optimization for Cyber-Physical Systems" and an invited paper by TACAS invited speaker Dino Distefano titled "The Facebook Infer Static Analyzer."

TACAS 2017 also hosted the 6th International Competition on Software Verification (SV-COMP), chaired and organized by Dirk Beyer. The competition again had a high participation: 32 verification tools from 12 countries were submitted for the systematic comparative evaluation, including two submissions from industry. This volume includes an overview of the competition results, and short papers describing 12 of the participating verification systems. These papers were reviewed by a separate Program Committee; each of the papers was assessed by four reviewers. One session in the TACAS program was reserved for the presentation of the results: the summary by the SV-COMP chair and the participating tools by the developer teams.

Many people worked hard and offered their valuable time generously to make TACAS 2017 successful. First, the chairs would like to thank the authors for submitting their papers to TACAS 2017. We are grateful to the reviewers who contributed to nearly 550 informed and detailed reports and discussions during the electronic Program Committee meeting. We also sincerely thank the Steering Committee for their advice. We also acknowledge the work of Parosh Aziz Abdulla and the local organizers for ETAPS 2017. Furthermore, we would like to express a special thanks to Joost-Pieter Katoen, who answered many of our questions during the preparation of TACAS 2017. Finally, we thank EasyChair for providing us with the infrastructure to manage the submissions, the reviewing process, the Program Committee discussion, and the preparation of the proceedings.

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