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Proceedings of the 29th International Symposium (SAS 2022)

Gagandeep Singh, Caterina Urban

► **To cite this version:**

Gagandeep Singh, Caterina Urban. Proceedings of the 29th International Symposium (SAS 2022). Springer Nature Switzerland, 13790, 2022, Lecture Notes in Computer Science, 10.1007/978-3-031-22308-2 . hal-04249999

HAL Id: hal-04249999

<https://inria.hal.science/hal-04249999>

Submitted on 19 Oct 2023

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Static Analysis

29th International Symposium, SAS 2022
Auckland, New Zealand, December 5–7, 2022
Proceedings

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ISSN 0302-9743

ISSN 1611-3349 (electronic)

Lecture Notes in Computer Science

ISBN 978-3-031-22307-5

ISBN 978-3-031-22308-2 (eBook)

<https://doi.org/10.1007/978-3-031-22308-2>

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Preface

This volume contains the proceedings of the 29th edition of the International Static Analysis Symposium, SAS 2022, held during December 5–7, 2022, in Auckland, New Zealand. The conference was a co-located event of SPLASH, the ACM SIGPLAN conference on Systems, Programming, Languages, and Applications: Software for Humanity. Travel restrictions as a result of the COVID-19 pandemic forced us to organize the conference in a hybrid form.

Static analysis is widely recognized as a fundamental tool for program verification, bug detection, compiler optimization, program understanding, and software maintenance. The series of Static Analysis Symposia has served as the primary venue for the presentation of theoretical, practical, and application advances in the area. Previous symposia were held in Chicago, Porto, Freiburg, New York, Edinburgh, Saint-Malo, Munich, Seattle, Deauville, Venice, Perpignan, Los Angeles, Valencia, Kongens Lyngby, Seoul, London, Verona, San Diego, Madrid, Paris, Santa Barbara, Venice, Pisa, Paris, Aachen, Glasgow, and Namur.

SAS 2022 called for papers on topics including, but not limited to, abstract interpretation, automated deduction, data flow analysis, debugging techniques, deductive methods, emerging applications, model checking, data science, program optimizations and transformations, program synthesis, program verification, machine learning and verification, security analysis, tool environments and architectures, theoretical frameworks, type checking, and distributed or networked systems. Besides the regular papers, the authors were encouraged to submit short submissions in the NEAT category to discuss experiences with static analysis tools, industrial reports, and case studies, along with tool papers, brief announcements of work in progress, well-motivated discussions of new questions or new areas, etc. Authors were encouraged to submit artifacts accompanying their papers to strengthen evaluations and the reproducibility of results.

The conference employed a double-blind reviewing process with an author response period, supported on EasyChair. This year, SAS had 48 submitted papers (43 regular and five NEAT). Of these, five were desk rejected due to not being in scope for SAS. The Program Committee used a two-round review process, where each remaining submission received at least three first-round reviews, which the authors could then respond to. The author response period was followed by a two-week Program Committee discussion where consensus was reached on the papers to be accepted, after a thorough assessment of the relevance and the quality of the work. Overall, 18 papers were accepted for publication (16 regular and two NEAT) and appear in this volume. The submitted papers were authored by researchers around the world: Canada, China, France, Germany, India, Israel, Italy, Singapore, the UK, the USA, and several other countries.

We view the artifacts as being equally important for the success and development of static analysis as the written papers. It is important for researchers to be able to

independently reproduce experiments, which is greatly facilitated by having the original artifacts available. Marc Chevalier, the artifact committee chair, set up the artifact committee. In line with SAS 2021, the authors could submit either the Docker or Virtual Machine images as artifacts. A public archival repository for the artifacts is available on Zenodo, hosted at <https://zenodo.org/communities/sas-2022>. The artifacts have badges awarded at three levels: Validated (correct functionality), Extensible (with source code), and Available (on the Zenodo repository). The artwork for the badges is by Arpita Biswas (Harvard University) and Suvam Mukherjee (Microsoft). SAS 2022 had 16 valid artifact submissions, of which one was desk rejected as the authors did not submit a valid artifact. The review process for the artifacts was similar to those for the papers. Each artifact was evaluated by three members of the artifact evaluation committee, and eight out of 15 valid artifacts were accepted.

In addition to the contributed papers, SAS 2022 also featured three invited talks by distinguished researchers: Suguman Bansal (Georgia Tech, USA), Bernhard Scholz (University of Sydney, Australia), and Nengkun Yu (University of Technology Sydney, Australia). The Program Committee also selected the recipient of the Radhia Cousot Young Researcher Best Paper Award, given to a paper with a significant contribution from a student. This award was instituted in memory of Radhia Cousot, for her fundamental contributions to static analysis and having been one of the main promoters and organizers of the SAS series of conferences.

The SAS program would not have been possible without the efforts of many people. We thank them all. The members of the Program Committee, the artifact evaluation committee, and the external reviewers worked tirelessly to select a strong program, offering constructive and helpful feedback to the authors in their reviews. The organizing committee of SPLASH 2022, chaired by Alex Potanin (Australian National University, Australia), and the hybridization committee, chaired by Jonathan Aldrich (CMU, USA) and Youyou Kong (Tokyo Institute of Technology, Japan), were tremendously helpful in navigating the conference through these difficult times. The SAS steering committee provided much-needed support and advice. Finally, we thank Springer for their support of this event as well as for publishing these proceedings.

October 2022

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