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Proceedings

Volume Editor

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Foreword

ETAPS 2008 was the 11th instance of the European Joint Conferences on Theory and Practice of Software. ETAPS is an annual federated conference that was established in 1998 by combining a number of existing and new conferences. This year it comprised five conferences (CC, ESOP, FASE, FOSSACS, TACAS), 22 satellite workshops (ACCAT, AVIS, Bytecode, CMCS, COCV, DCC, FESCA, FIT, FORMED, GaLoP, GT-VMT, LDTA, MBT, MOMPES, PDMC, QAPL, RV, SafeCert, SC, SLA++P, WGT, and WRLA), nine tutorials, and seven invited lectures (excluding those that were specific to the satellite events). The five main conferences received 571 submissions, 147 of which were accepted, giving an overall acceptance rate of less than 26%, with each conference below 27%. Congratulations therefore to all the authors who made it to the final programme! I hope that most of the other authors will still have found a way of participating in this exciting event, and that you will all continue submitting to ETAPS and contributing to make of it the best conference in the area.

The events that comprise ETAPS address various aspects of the system development process, including specification, design, implementation, analysis and improvement. The languages, methodologies and tools which support these activities are all well within its scope. Different blends of theory and practice are represented, with an inclination towards theory with a practical motivation on the one hand and soundly based practice on the other. Many of the issues involved in software design apply to systems in general, including hardware systems, and the emphasis on software is not intended to be exclusive.

ETAPS is a confederation in which each event retains its own identity, with a separate Programme Committee and proceedings. Its format is open-ended, allowing it to grow and evolve as time goes by. Contributed talks and system demonstrations are in synchronized parallel sessions, with invited lectures in plenary sessions. Two of the invited lectures are reserved for 'unifying' talks on topics of interest to the whole range of ETAPS attendees. The aim of cramming all this activity into a single one-week meeting is to create a strong magnet for academic and industrial researchers working on topics within its scope, giving them the opportunity to learn about research in related areas, and thereby to foster new and existing links between work in areas that were formerly addressed in separate meetings.

ETAPS 2008 was organized by the John von Neumann Computer Society jointly with the Budapest University of Technology and the Eötvös University, in cooperation with:

- ▷ European Association for Theoretical Computer Science (EATCS)
- ▷ European Association for Programming Languages and Systems (EAPLS)
- ▷ European Association of Software Science and Technology (EASST)

and with support from Microsoft Research and Danubius Hotels.

The organizing team comprised:

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Local Arrangements	László Gönczy, Gábor Huszerl, Melinda Magyar, several student volunteers.

Overall planning for ETAPS conferences is the responsibility of its Steering Committee, whose current membership is:

Vladimiro Sassone (Southampton, Chair), Luca de Alfaro (Santa Cruz), Roberto Amadio (Paris), Giuseppe Castagna (Paris), Marsha Chechik (Toronto), Sophia Drossopoulou (London), Matt Dwyer (Nebraska), Hartmut Ehrig (Berlin), Chris Hankin (London), Laurie Hendren (McGill), Mike Hinchey (NASA Goddard), Paola Inverardi (L'Aquila), Joost-Pieter Katoen (Aachen), Paul Klint (Amsterdam), Kim Larsen (Aalborg), Gerald Luettgen (York) Tiziana Margaria (Göttingen), Ugo Montanari (Pisa), Martin Odersky (Lausanne), Catuscia Palamidessi (Paris), Anna Philippou (Cyprus), CR Ramakrishnan (Stony Brook), Don Sannella (Edinburgh), João Saraiva (Minho), Michael Schwartzbach (Aarhus), Helmut Seidl (Munich), Perdita Stevens (Edinburgh), and Dániel Varró (Budapest).

I would like to express my sincere gratitude to all of these people and organizations, the Programme Committee Chairs and members of the ETAPS conferences, the organizers of the satellite events, the speakers themselves, the many reviewers, and Springer for agreeing to publish the ETAPS proceedings. Finally, I would like to thank the Organizing Chair of ETAPS 2008, Dániel Varró, for arranging for us to have ETAPS in the most beautiful city of Budapest

January 2008 Vladimiro Sassone

Preface

It is an honour to be writing the preface of this volume, containing the papers presented at the 17$^{\text{th}}$ European Symposium on Programming (ESOP 2008), which took place in Budapest, March 31–April 2, 2008. ESOP is an annual conference devoted to fundamental issues in the specification, analysis, and implementation of programming languages and systems.

This year, ESOP received 104 full submissions out of 136 preliminary submissions. For each submission, at least 3, and on average 3.6, reviews were written. After an intensive electronic meeting (minimizing our carbon footprint) over 4 weeks, the programme committee decided to accept 27 papers, 2 of which are tool presentations.

This volume also contains a summary of the ETAPS invited talk, *Verification of Higher-Order Computation: A Game-Semantic Approach*, given by Luke Ong, and an abstract of the ESOP invited talk, *Constructive Mathematics and Functional Programming*, given by Thierry Coquand.

The papers are listed in the chronological order of their presentation followed by the index of authors.

Thanks go to the authors of all the submitted papers, and to the external referees, who helped us with their excellent reviews. Very many thanks go to the program committee members, for their hard work during the reviewing and the dedicated debates during the selection process.

I am grateful to the EasyChair team for their tool, which provided robust support to all administrative sides of my task.

January 2008 Sophia Drossopoulou

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