

Foreword

ETAPS 2001 was the fourth 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 (FOSSACS, FASE, ESOP, CC, TACAS), ten satellite workshops (CMCS, ETI Day, JOSES, LDTA, MMAABS, PFM, RelMiS, UNIGRA, WADT, WTUML), seven invited lectures, a debate, and ten tutorials.

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 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 loose confederation in which each event retains its own identity, with a separate program committee and independent 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 2001 was hosted by the Dipartimento di Informatica e Scienze dell’Informazione (DISI) of the Università di Genova and was organized by the following team:

Egidio Astesiano (General Chair)
Eugenio Moggi (Organization Chair)
Maura Cerioli (Satellite Events Chair)
Gianna Reggio (Publicity Chair)
Davide Ancona
Giorgio Delzanno
Maurizio Martelli

with the assistance of Convention Bureau Genova. Tutorials were organized by Bernhard Rumpe (TU München). Overall planning for ETAPS conferences is the responsibility of the ETAPS Steering Committee, whose current membership is:

Egidio Astesiano (Genova), Ed Brinksma (Enschede), Pierpaolo Degano (Pisa), Hartmut Ehrig (Berlin), José Fiadeiro (Lisbon), Marie-Claude Gaudel (Paris), Susanne Graf (Grenoble), Furio Honsell (Udine), Nigel Horspool (Victoria), Heinrich Hußmann (Dresden), Paul Klint (Amsterdam), Daniel Le Métayer (Rennes), Tom Maibaum (London), Tiziana Margaria (Dortmund), Ugo Montanari (Pisa), Mogens Nielsen (Aarhus), Hanne Riis Nielson (Aarhus), Fernando Orejas (Barcelona), Andreas Podelski (Saarbrücken), David Sands (Göteborg), Don Sannella (Edinburgh), Perdita Stevens (Edinburgh), Jerzy Tiuryn (Warsaw), David Watt (Glasgow), Herbert Weber (Berlin), Reinhard Wilhelm (Saarbrücken)

ETAPS 2001 was organized in cooperation with

the Association for Computing Machinery
the European Association for Programming Languages and Systems
the European Association of Software Science and Technology
the European Association for Theoretical Computer Science

and received generous sponsorship from:

ELSAG
Fondazione Cassa di Risparmio di Genova e Imperia
INDAM - Gruppo Nazionale per l'Informatica Matematica (GNIM)
Marconi
Microsoft Research
Telecom Italia
TXT e-solutions
Università di Genova

I would like to express my sincere gratitude to all of these people and organizations, the program committee chairs and PC members of the ETAPS conferences, the organizers of the satellite events, the speakers themselves, and finally Springer-Verlag for agreeing to publish the ETAPS proceedings.

January 2001

Donald Sannella
ETAPS Steering Committee chairman

Preface

This volume contains the proceedings of the 7th TACAS, International Conference on *Tools and Algorithms for the Construction and Analysis of Systems*. TACAS 2001 took place in Genova, Italy, April 2nd to 6th, 2001, as part of the 4th European Joint Conference on Theory and Practice of Software (ETAPS), whose aims, organization, and history are detailed in the separate foreword by Donald Sannella.

It is the goal of TACAS to bring together researchers and practitioners interested in the development and application of tools and algorithms for specification, verification, analysis, and construction of software and hardware systems. In particular, it aims at creating an atmosphere that promotes a cross-fertilization of ideas between the different communities of theoreticians, tool builders, tool users, and system designers, in various specialized areas of computer science. In this respect, TACAS reflects the overall goal of ETAPS on a tool-oriented footing. In fact, the scope of TACAS intersects with all the other ETAPS events, which address more traditional areas of interest.

As a consequence, in addition to the standard criteria for acceptance, contributions have also been selected on the basis of their conceptual significance in the context of neighboring areas. This comprises the profile-driven comparison of various concepts and methods, their degree of support via interactive or fully automatic tools, and in particular case studies revealing the application profiles of the considered methods and tools.

In order to emphasize the practical importance of tools, TACAS allows tool presentations to be submitted (and reviewed) on equal footing with traditional scientific papers, treating them as ‘first class citizens’. In practice, this entails their presentation in plenary conference sessions, and the integral inclusion of a tool report in the proceedings. The conference, of course, also included informal tool demonstrations, not announced in the official program.

TACAS 2001 comprised

- **Invited Lectures** by Moshe Vardi on **Branching vs. Linear Time: Final Showdown** and by Michael Fourman, **Propositional Reasoning**, as well as
- **Regular Sessions** featuring 36 papers selected out of 125 submissions, ranging from foundational contributions to tool presentations including online demos, and
- **ETAPS Tool Demonstrations**, featuring 3 short contributions selected out of 9 submissions.

Grown itself out of a satellite meeting of TAPSOFT in 1995, TACAS 2001 featured the *ETI DAY*, a satellite event of ETAPS concerning the future development of the Electronic Tool Integration platform.

VIII Preface

TACAS 2001 was hosted by the University of Genova, and, being part of ETAPS, it shared the sponsoring and support described in Don Sannella's foreword. Like ETAPS, TACAS will take place in Grenoble next year.

Warm thanks are due to the program committee and to all the referees for their assistance in selecting the papers, to the TACAS Steering Committee, to Don Sannella for mastering the coordination of the whole ETAPS, to Egidio Astesiano, Gianna Reggio, and the whole team in Genova for their brilliant organization.

Recognition is due to the technical support team: Matthias Weiß at the University of Dortmund together with Ben Lindner and Martin Karusseit of METAFrame Technologies provided invaluable assistance to all the involved people concerning the online service during the past three months.

Finally, we are deeply indebted to Claudia Herbers for her first class support in the preparation of this volume.

January 2001

Tiziana Margaria
and Wang Yi

Steering Committee

Ed Brinksma (NL)
Rance Cleaveland (USA)
Kim G. Larsen (DK)
Bernhard Steffen (D)

Program Committee

Chair: Tiziana Margaria (Dortmund University)
Wang Yi (Uppsala University)

Rajeev Alur (University of Pennsylvania, USA)
Ed Brinksma (University of Twente, NL)
Rance Cleaveland (SUNY at Stony Brook, USA)
Hubert Garavel (INRIA Rhône-Alpes, France)
Susanne Graf (VERIMAG Grenoble, France)
Orna Grumberg (Technion Haifa, Israel)
John Hatcliff (Kansas State University, USA)
Hardi Hungar (METAFrame Research, Germany)
Claude Jard (IRISA Rennes, France)
Stuart Kent (University of Kent, UK)
Kim Larsen (University of Aalborg, Denmark)
Doron Peled (Bell Laboratories Murray Hill, USA)
Andreas Podelski (MPI Saarbrücken, Germany)
Mary Sheeran (Chalmers University, Sweden)
Bernhard Steffen (University of Dortmund, Germany)
Perdita Stevens (University of Edinburgh, UK)

Reviewers

D.H. Akehurst	Nevin Heinze	Anca Muscholl
Stuart Anderson	Holger Hermanns	Markus Nagelmann
Aurore Annichini	Jane Hillston	Kedar Namjoshi
Roy Armoni	Hyoung S. Hong	Brian Nielsen
Thomas Ball	Josef Hoomann	Flemming Nielson
Benoît Beaudry	Michael Huth	Oliver Niese
Daniele Beauquier	Mia Indrika	Thomas Noll
Bernhard Beckert	Manfred Jaeger	Marina Papatriantfilou
Saddek Bensalem	Bertrand Jeannet	Păsăreanu
Per Bjesse	Henrik Ejersbo Jensen	Noël Plouzeau
Bernard Boigelot	Peter Krogsgaard Jensen	K.V.S. Prasad
Ahmed Bouajjani	Thierry Jéron	Sriram Rajamani
Marius Bozga	Bernhard Josko	Antoine Rauzy
Julien Bradfield	Joost Pieter Katoen	Kavita Ravi
Volker Braun	Sagi Katz	Anders P. Ravn
Doron Bustan	Shmuel Katz	Wolfgang Reisig
Withold Charatonik	Sharon Keidar	Arend Rensink
Duncan Clarke	Jens Knoop	David Robertson
Dennis Dams	Juliana Küster Filipe	Oliver Rüthing
Pedro D'Argenio	Orna Kupfermann	Theo Ruys
Hans de Nivelle	Robert Kurshan	Dave Schmidt
René de Vries	Yassine Lakhnech	Natasha Sharygina
Elena Dubrova	Frederic Lang	Eli Singerman
Niklas Een	Rom Langerak	Oleg Sokolsky
Kousha Etessami	Salvatore La Torre	Colin Stirling
Martin Fränzle	Yves Le Traon	Allen Stoughton
Limor Fix	Vladimir Levin	Jitka Stribrna
Harald Ganzinger	Angelika Mader	Gadi Taubenfeld
Danny Geist	Thomas Mailund	Richard Treffer
Stephen Gilmore	Oded Maler	Jan Tretmans
Marcelo Glusman	Radu Mateescu	Bow-Yaw Wang
Alex David Groce	Richard Mayr	Gerhard Weikum
Radu Grosu	Ken McMillan	Pierre Wolper
Claudia Gsottberger	Michael J. Merritt	Haiseung Yoo
Elsa Gunter	Marius Minea	Sergio Yovine
Peter Habermehl	Laurent Mounier	Hongjun Zheng
Andreas Hagerer	Markus Müller-Olm	Nicolas Zuanon
Nicolas Halbwachs	Supratik Mukhopadhyay	

Tools and Algorithms for the Construction and Analysis
of Systems

7th International Conference, TACAS 2001 Held as Part
of the Joint European Conferences on Theory and
Practice of Software, ETAPS 2001 Genova, Italy, April
2-6, 2001 Proceedings

Margaria, T.; Yi, W. (Eds.)

2001, XIV, 594 p., Softcover

ISBN: 978-3-540-41865-8