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Compiler Construction

10th International Conference, CC 2001
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on Theory and Practice of Software, ETAPS 2001
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Proceedings



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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

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

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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

The International Conference on Compiler Construction (CC) is a forum for the presentation and discussion of recent developments in programming language implementation. It emphasizes practical methods and tools. CC 2001 was the tenth conference in the series.

The CC conference originated as a series of workshops started by Günter Riedewald in East Germany in 1986. In 1992 the series was relaunched by Uwe Kastens in Paderborn. In 1994 CC joined ESOP and CAAP in Edinburgh as it did 1996 in Linköping. CC federated with ESOP, FOSSACS, and TACAS to form ETAPS in 1998 and became annual. The number of submissions has shown a nice increase. The program committee received 69 submissions for CC 2001, from which 22 high-quality papers were selected for presentation. These papers are included in these proceedings. The areas of program analysis and architecture received the highest number of submissions and were rewarded with the highest number of accepted papers. Exploiting the intra-processor parallelism and improving the locality of memory referencing remain challenging problems for the compiler.

The invited speaker at CC 2001 was Ole Lehrman Madsen, whose talk was entitled *Virtual Classes and Their Implementation*. An abstract of the invited talk opens these proceedings.

The work of the CC 2001 program committee was conducted entirely by electronic means. We used the START conference management software from the University of Maryland. This proved to be very supportive for the work of the PC. Christian Probst did a remarkable job in setting it up, adding more functionality, and managing the technicalities of the submission and the reviewing process.

I am glad to acknowledge the hard work and friendly cooperation of the members of the program committee. I also wish to thank the much larger number of additional reviewers who helped us to read and evaluate the submitted papers. I appreciated very much the support and advice of the ETAPS chair, Don Sannella. Finally, I wish to thank all the authors of submitted papers for their continued interest, without which the CC conference could not thrive.

January 2001

Reinhard Wilhelm

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