



Kai Koskimies (Ed.)

# Compiler Construction

7th International Conference, CC'98

Held as Part of the Joint European Conferences  
on Theory and Practice of Software, ETAPS'98

Lisbon, Portugal, March 28 - April 4, 1998

Proceedings



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## Foreword

The European conference situation in the general area of software science has long been considered unsatisfactory. A fairly large number of small and medium-sized conferences and workshops take place on an irregular basis, competing for high-quality contributions and for enough attendees to make them financially viable. Discussions aiming at a consolidation have been underway since at least 1992, with concrete planning beginning in summer 1994 and culminating in a public meeting at TAPSOFT'95 in Aarhus.

On the basis of a broad consensus, it was decided to establish a single annual federated spring conference in the slot that was then occupied by TAPSOFT and CAAP/ESOP/CC, comprising a number of existing and new conferences and covering a spectrum from theory to practice. ETAPS'98, the first instance of the European Joint Conferences on Theory and Practice of Software, is taking place this year in Lisbon. It comprises five conferences (FoSSaCS, FASE, ESOP, CC, TACAS), four workshops (ACoS, VISUAL, WADT, CMCS), seven invited lectures, and nine 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 natural development from its predecessors. It is a loose confederation in which each event retains its own identity, with a separate programme 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 have hitherto been addressed in separate meetings.

ETAPS'98 has been superbly organized by José Luis Fiadeiro and his team at the Department of Informatics of the University of Lisbon. The ETAPS steering committee has put considerable energy into planning for ETAPS'98 and its successors. Its current membership is:

André Arnold (Bordeaux), Egidio Astesiano (Genova), Jan Bergstra (Amsterdam), Ed Brinksma (Enschede), Rance Cleaveland (Raleigh), Pierpaolo Degano (Pisa), Hartmut Ehrig (Berlin), José Fiadeiro (Lisbon), Jean-Pierre Finance (Nancy), Marie-Claude Gaudel (Paris), Tibor

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Other people were influential in the early stages of planning, including Peter Mosses (Aarhus) and Reinhard Wilhelm (Saarbrücken). ETAPS'98 has received generous sponsorship from:

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I would like to express my sincere gratitude to all of these people and organizations, and to José in particular, as well as to Springer-Verlag for agreeing to publish the ETAPS proceedings.

Edinburgh, January 1998

Donald Sannella  
 ETAPS Steering Committee chairman

## Preface

This volume contains the papers presented at the 7<sup>th</sup> International Conference on Compiler Construction (CC '98), held in Lisbon, Portugal, April 1–3, 1998. CC has been traditionally organized every two years, beginning in middle 1980s. Previous instances have been held in Linköping, Sweden (1996), Edinburgh, Scotland (1994), and Paderborn, Germany (1992). Since 1994 CC has been synchronized with other related conferences (CAAP and ESOP). This kind of cooperation has been found fruitful, and it has been further extended and formalized so that CC '98 instance will be held under the umbrella of ETAPS, a new joint conference organization. To a considerable degree, the success of this effort is due to the excellent work of Don Sannella and José Luis Fiadeiro.

The scope of CC is centered around topics related to computer languages and their processors, with an emphasis on practical methods and tools. Traditionally, papers discussing various compilation techniques have been the core of CC, but the scope covers also other aspects of language processing like interpretation, editing, and debugging. The term “language” includes not only programming languages in the narrow sense but also application-oriented languages and visual languages. I expect that in the future CC instances there will be more and more papers outside of the core area of CC, compilation of traditional programming languages. Exciting future topics within the scope of CC are, to name a few, language processing in the Internet (e.g., just-in-time compilation in Java), visualization of programs and processing visual languages, tools for the implementation of application-oriented languages, producing code for multiprocessor architectures, etc.

The program committee of CC '98 selected 19 of the 50 submitted papers to be presented at the conference. The overall quality of the submitted papers was exceptionally high, resulting in the rejection of many good papers. To relieve this problem, the authors of some rejected papers were given the opportunity to present their results in a poster session. The papers of this session are published separately. In addition to the 19 accepted papers, this volume contains four summaries of tool demos presented at the conference and the abstract of an invited lecture by Margaret M. Burnett.

I wish to thank all the authors who submitted their papers to CC '98, and I hope they will support this conference in the future, too. I also thank the members of the program committee and the additional reviewers for their highly competent work. Finally, I wish to thank the organizers of ETAPS for providing an ideal environment for CC '98.

January 1998

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