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Maurice Nivat (Ed.)

Foundations of Software Science and Computation Structures

First International Conference, FoSSaCS'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

Gyimothy (Szeged), Chris Hankin (London), Stefan Jähnichen (Berlin), Uwe Kastens (Paderborn), Paul Klint (Amsterdam), Kai Koskimies (Tampere), Tom Maibaum (London), Hanne Riis Nielson (Aarhus), Fernando Orejas (Barcelona), Don Sannella (Edinburgh, chair), Bernhard Steffen (Dortmund), Doaitse Swierstra (Utrecht), Wolfgang Thomas (Kiel)

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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the University of Lisbon
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the European Association for Programming Languages and Systems
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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

The conference FoSSaCS, Foundations of Software Science and Computation Structures was not created ex nihilo: For 20 years the same group of people has been organizing a conference called CAAP, Colloque sur les Arbres en Algèbre et en Programmation, whose french acronym is explained by the fact that it was created in France at Lille and held more frequently in France than in any other country. The last CAAP took place in Lille in April 1997.

The fact that FoSSaCS appears as part of ETAPS, linked to conferences dedicated to more applied aspects of computer science is not new either: Every two years, CAAP used to join with the conference TAPSOFT, a conference on programming, to form a series of joint conferences which were initiated in Berlin and ended last year also in Lille. The reorganization which led to the new name FoSSaCS and the inclusion of FoSSaCS into ETAPS has been discussed at length by many people including a majority of past organizers and PC chairmen of the former CAAP. The idea which was eventually shared by all is that while remaining a conference for theorists and, say, mathematically trained and minded people, FoSSaCS should focus on the part of theoretical computer science that aims at modeling and understanding phenonema linked with the design and validation of software and descibes and studies structures useful to run actual and effective computations.

Our hope is that not only theoretical computer scientists find some interest in the present collection of 19 papers but also more applied ones. We hope that since participants to the various components of ETAPS will be gathered for one week in Lisbon, some who came for other conferences will listen to talks presented in FoSSaCS and some FoSSaCS participants will listen to talks in the other conferences.

Personally, as chairman of the pogram committee of FoSSaCS 1998, I would like to thank the PC members for agreeing to stand in the committee, for their evaluation work, and for helping to select these contributions from the 44 submitted papers. The discussion which led to this choice, which was also a discussion on what FoSSaCS should be and what kind of theories and formalisms are useful to software researchers and engineers, was a courteous, vigorous, and enriching one where each participant made use of good purely scientific arguments. Among the members of the PC, I wish to mention the special role played by André Arnold and Wolfgang Thomas who are also the 2 theoreticians in the steering committee of ETAPS.

January 1998 Maurice Nivat

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