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Chris Hankin (Ed.)

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7th European Symposium on Programming,
ESOP'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:

Portugal Telecom
 TAP Air Portugal
 the Luso-American Development Foundation
 the British Council
 the EU programme "Training and Mobility of Researchers"
 the University of Lisbon
 the European Association for Theoretical Computer Science
 the European Association for Programming Languages and Systems
 the Gulbenkian Foundation

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

7th European Symposium on Programming – ESOP’98

ESOP is devoted to fundamental issues in the specification, analysis, and implementation of programming languages and systems. The emphasis is on research which bridges the gap between theory and practice.

Traditionally, this has included the following non-exhaustive list of topics: software specification and verification (including algebraic techniques and model checking), programming paradigms and their integration (including functional, logic, concurrent and object-oriented), semantics facilitating the formal development and implementation of programming languages and systems, advanced type systems (including polymorphism and subtyping), program analysis (including abstract interpretation and constraint systems), program transformation (including partial evaluation and term rewriting), and implementation techniques (including compilation).

The programme committee received 59 submissions from which 17 papers were accepted. This proceedings volume also includes an invited contribution by Gert Smolka.

Programme Committee:

J. de Bakker (The Netherlands)	P. Lee (USA)
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C. Hankin (UK, chair)	D. Schmidt (USA)
P. Hartel (UK)	

I would like to thank the members of the programme committee and their sub-referees; the sub-referees are listed below. I also wish to express my gratitude to Hanne Riis Nielson, for passing on the wisdom she gained in chairing ESOP’96, and Don Sannella and José Luis Fiadeiro for the excellent job that they have done in organising ETAPS’98.

ESOP’98 was organised in cooperation with ACM SIGPLAN.

Referees for ESOP'98

S. Abramov	R. Focardi	G. Malcolm	S. Romanenko
J. Alferes	N. Francez	J. Maraist	A. Sabelfeld
S.M. Ali	M. Gaspari	L. Margara	E. Scholz
L. Augustsson	G. Gonthier	C. Mascolo	J.P. Secher
M. Beemster	A. Gordon	E. Meijer	R. Segala
W. Bibel	A. Gravell	A. Middeldorp	E. Sekerinski
B. Blanchet	C. Haack	D. Miller	P. Sestoft
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E. Boerger	M. Hanus	A. Montresor	H. Sondergaard
M. Bonsangue	J. Hatcliff	L. Moreau	C. Stone
A. Bossi	N. Heintze	J.J. Moreno Navarro	A. Stoughton
M. Bugliesi	J. Hughes	J. Mountjoy	C. Szyperski
M. Bulyonkov	M. Huth	M. Muench	A. Takano
M. Butler	H. Ibraheem	A.P. Nemytykh	P. Thiemann
L. Caires	B. Jacobs	F. Nielson	B. Thompson
M. Carlsson	J. Jeuring	R. O'Callahan	M.G.J. van den Brand
S. Cimato	T. Johnsson	E. Ohlebusch	W. van Oortmerssen
K. Claessen	J. Jørgensen	C. Okasaki	W. Vree
C. Colby	B. Jung	C. Palamidessi	H.R. Walters
J.C. Cunha	A. Klimov	F. Pfenning	J. Warners
M. Dam	O. Kullmann	D. Plump	M. Wermelinger
L. Dami	E. Lamma	M. Proietti	A. Werner
R. Davies	C. Laneve	P. Purdom	P. Wickline
S. Etalle	M. Leuschel	S. Renault	G. Zavattaro
M.C.F. Ferreira	S. Maclean	J.G. Riecke	

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