Ed Brinksma (Ed.)

Tools and Algorithms for the Construction and Analysis of Systems

Third International Workshop, TACAS'97
Enschede, The Netherlands, April 2-4, 1997
Proceedings

Springer

Volume Editor

Ed Brinksma
University of Twente, Centre for Telematics and Information Technology
PO Box 217, 7500 AE Enschede, The Netherlands
E-mail: brinksma@cs.utwente.nl

Cataloging-in-Publication data applied for

Die Deutsche Bibliothek - CIP-Einheitsaufnahme

Tools and algorithms for the construction and analysis of systems : third international workshop ; proceedings / TACAS '97, Enschede, The Netherlands, April 2 - 4, 1997. Ed Brinksma (ed.). - Berlin ; Heidelberg ; New York ; Barcelona ; Budapest ; Hong Kong ; London ; Milan ; Paris ; Santa Clara ; Singapore ; Tokyo : Springer, 1997
(Lecture notes in computer science ; Vol. 1217)
ISBN 3-540-62790-1
NE: Brinksma, Ed [Hrsg.]; TACAS <3, 1997, Enschede>; GT

CR Subject Classification (1991): F.3, D.2.4, D.2.2, C.2.4

ISSN 0302-9743
ISBN 3-540-62790-1 Springer-Verlag Berlin Heidelberg New York

Typesetting: Camera-ready by author
SPIN 10549404 06/3142 - 5 4 3 2 1 0 Printed on acid-free paper

Foreword

This volume contains the proceedings of the Third International Workshop on *Tools and Algorithms for the Construction and Analysis of Systems*, TACAS'97, which was held at the University of Twente at Enschede, The Netherlands, April 2–4 1997. Previous workshops took place in Aarhus (1995) and Passau (1996).

It is the goal of the TACAS workshops to bring together researchers and practitioners interested in the development and application of tools and algorithms for the specification, analysis, and construction of information systems. In particular, it aims to create an atmosphere that promotes a cross-fertilization of ideas between the different communities of theorists, tool-builders, tool-users, and system designers in various specialist areas of computer science. Therefore, in addition to the more or less standard criteria for acceptability, contributions have also been selected on the basis of their conceptual significance to neighbouring areas of specialization. In order to emphasize the practical importance of tools, TACAS allows tool demonstrations to be submitted (and reviewed) on an 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 workshop, of course, also organized demonstrations of tools that were not part of the official programme.

In addition to 20 regular papers and 5 tool demonstrations that had been selected out of 54 submissions, the programme of TACAS'97 included invited lectures by three renowned scientists:

- Gérard Berry, Ecole des Mines de Paris and INRIA, Sophia-Antipolis, France, on *Hardware and Software Synthesis from Esterel Programs*,
- Kurt Jensen, University of Aarhus, Denmark, on *Coloured Petri Nets*,
- Zohar Manna, Stanford University, USA, on *Visual Verification*.

TACAS'97 also featured a satellite meeting, viz. the SPIN'97 workshop. This workshop was held at the University of Twente at Enschede following TACAS'97, on April 5, 1997. The SPIN workshops are a meeting point for the international community of users of the SPIN model checking tool.

TACAS'97 was hosted and supported by the University of Twente and its research institute, the Centre for Tele-Informatics and Information Technology. It was sponsored by the Dutch National Graduate School IPA (Institute for Programming research and Algorithmics), CMG, and Siemens-Nixdorf. TACAS'98 will be held in Lisbon as part of the new, confederated European Conference of Theory and Practice of Software, ETAPS'98.

Last, but not least, I would like to thank the TACAS'97 Programme Committee and all the referees, who assisted in the selection of the papers and tool demonstrations. On the local level I would like to thank the University Board for their ample support, and Pedro D'Argenio, Joke Lammerink, Rom Langerak, and Albert Nijmeijer for all their assistance with the organization of the workshop. Without their hard work TACAS'97 would not have been possible.

April 1997 Ed Brinksma

Programme Committee

Ed Brinksma (Chair) (NL)
Rance Cleaveland (USA)
Loe Feijs (NL)
Susanne Graf (F)
Gerard Holzmann (USA)
Kim G. Larsen (DK)
Nancy Leveson (USA)
Eric Madelaine (F)
Tom Melham (UK)
Alan Mycroft (UK)
Scott Smolka (USA)
Bernhard Steffen (D)
Wolfgang Thomas (D)
Frits Vaandrager (NL)

Referees

L. Aceto
Charles Andre
Twan Basten
Michael von der Beeck
Karen Bernstein
Nikolaj S. Bjørner
Doeko Bosscher
Amar Bouali
Frederic Boussinot
Tineke de Bunje
Pedro R. D'Argenio
Dennis Dams
Philippe Darondeau
Thierry Despeyroux
Marco Devillers
Yifei Dong
Xiaoqun Du
K. Engelhardt
Rob Gerth
Rob van Glabbeek
Stefania Gnesi
Patrice Godefroid
Georges Gonthier
Sergei Gorlatch
David Griffioen
Peter Habermehl
Klaus Havelund
J. Hedegaard Andersen
Lex Heerink
Daniel Hirschkoff
Jozef Hooman
Hans Huttel
Anna Ingolfsdottir
Claude Jard
Roel de Jong
Hans Jonkers
Thierry Jron
Joost-Pieter Katoen
Peter Kelb
Alain Kerbrat
Ralf Klasing
Bart Knaack
Kaare J. Kristoffersen
Peter Ladkin
Rom Langerak
J.M. Leon
Xinxin Liu
G. Luettgen
Markus Müller-Olm
Florence Maraninchi
Tiziana Margaria
Sjouke Mauw
Stephan Melzer
Michael Mendler
Faron Moller
Jean Moonen
Brian Nielsen
Albert Nymeyer
Catherine Parent
Paola Quaglia
Stefan Römer
Pascal Raymond
Judi Romijn
Oliver Ruething
Theo C. Ruys
Hassen Saidi
Davide Sangiorgi
Roberto Segala
Helmut Seidl
R. de Simone
Satnam Singh
Arne Skou
Konrad Slind
Jan Springintveld
Laurent Thery
P.S. Thiagarajan
Chris Tofts
Jan Tretmans
Rob Udink
Tomas E. Uribe
Antti Valmari
Carsten Weise
Thomas Wilke
Sergio Yovine
Eduard G. Zondag

Contents

Session 1: Invited Talk

Session 2: Space Reduction Techniques

Session 3: Tool Demonstrations

Session 4: Logical Techniques

Session 5: Invited Talk

Session 6: Verification Support

Session 7: Specification and Analysis

Session 8: Invited Talk

Session 9: Theorem Proving, Model Checking and Their Applications