

# Preface

This volume contains the proceedings of the 4th International Conference on Verification, Model Checking, and Abstract Interpretation (VMCAI 2003), held in New York city, January 9–11, 2003. The purpose of VMCAI was to provide a forum for researchers from three communities—Verification, Model Checking, and Abstract Interpretation—that will facilitate interaction, cross-fertilization, and the advance of hybrid methods that combine the three areas. With the growing need for formal tools to reason about complex, infinite-state, and embedded systems, such hybrid methods are bound to be of great importance.

Topics covered by VMCAI include program verification, static analysis techniques, model checking, program certification, type systems, abstract domains, debugging techniques, compiler optimization, embedded systems, and formal analysis of security protocols.

VMCAI 2003 was the fourth VMCAI meeting. The previous three were held as workshops (Port Jefferson 1997, Pisa 1998, and Venice 2002). It is the success of the last meeting, and the wide response it generated, that made it clear the time had come to make it an annual conference.

The program committee selected 20 papers out of 43 submitted, on the basis of at least four reviews. The principal criteria were relevance and quality. The program of VMCAI 2003 included, in addition to the research papers, two invited talks, by Amir Pnueli (Weizmann and NYU) on *Model-Checking and Abstraction to the Aid of Parameterized Systems*, and Andreas Podelski (MPI) on *Software Model Checking with Abstraction Refinement*, and three tutorials, by Patrick Cousot (ENS) on *Automatic Verification by Abstract Interpretation*, A. Prasad Sistla (UIC) on *Symmetry Reductions in Model-Checking*, and Bernhard Steffen (Dortmund) on *Behaviour-Based Model Construction*. We would like to thank the Program Committee members and the reviewers, without whose dedicated effort the conference would not have been possible. Our thanks also to the Steering Committee members for helpful advice. Thanks to Radu Grosu, the local arrangement chair. Special thanks are due to Ittai Balaban for installing, managing, and taking care of the START software and to Yi Fang for handling the website. Alfred Hofmann and his team at Springer-Verlag were very helpful in preparing the proceedings. We remain extremely grateful to Supratik Mukhopadhyay for help in the initial stages of this conference, and to Paul Attie and Agostino Cortesi for assistance in editing this volume.

Special thanks are due to the institutions that helped sponsor this event: the National Science Foundation (NSF), the Office of Naval Research (ONR), New York University, Ca'Foscari University of Venice, the Max Planck Institute, and the State University of New York at Stony Brook. We would like to thank Marcia Saito Eckel, Lourdes Santana, and Daisy Calderon for their administrative assistance.

# Organization

## Conference Chair

Lenore D. Zuck (New York University)

## Program Committee

Rajeev Alur (University of Pennsylvania)  
Paul C. Attie (Northeastern University)  
Annalisa Bossi (Università Ca' Foscari di Venezia)  
Agostino Cortesi (Università Ca' Foscari di Venezia)  
Radhia Cousot (École Polytechnique)  
Javier Esparza (University of Edinburgh)  
Andrew D. Gordon (Microsoft Research Cambridge)  
Radu Grosu (SUNY Stony Brook)  
Joshua D. Guttman (Mitre)  
Barbara König (Technische Universität München)  
Salvatore LaTorre (Università di Salerno)  
Giorgio Levi (Università di Pisa)  
Michael Lowry (NASA Ames)  
Supratik Mukhopadhyay (University of West Virginia)  
Doron A. Peled (University of Warwick)  
Colin P. Sterling (University of Edinburgh)  
Lenore D. Zuck (New York University)

## Local Arrangement Chair

Radu Grosu (SUNY Stony Brook)

## Steering Committee

Agostino Cortesi (Università Ca' Foscari di Venezia)  
Allen E. Emerson (University of Texas at Austin)  
Giorgio Levi (Università di Pisa)  
Andreas Podelski (Max-Planck-Institut für Informatik)  
Thomas W. Reps (University of Wisconsin-Madison)  
David A. Schmidt (Kansas State University)

## Reviewers

Tuomas Aura	Jérôme Feret	Laurent Mauborgne
Roberto Barbuti	Gianluigi Ferrari	Antoine Miné
Clark Barrett	Gilberto Filé	David Monniaux
Massimo Benerecetti	Riccardo Focardi	Aniello Murano
Stefan Berghofer	Cédric Fournet	Jan Obdrzalek
Bruno Blanchet	Roberto Giacobazzi	Paritosh Pandya
Chiara Bodei	Roberta Gori	Carla Piazza
Chiara Braghin	David Harel	Amir Pnueli
Luca Cardelli	Sara Kalvala	Antonino Salibra
Witold Charatonik	Ruggero Lanotte	Francesco Tapparo
Stelvio Cimato	Martin Lange	C.R. Ramakrishnan
Patrick Cousot	Ranko Lazik	Jean-Francois Raskin
Bojan Cukic	Martin Leucker	Stefan Roemer
Thao Dang	Francesca Levi	Alessandro Roncato
Roberto De Prisco	Annie Liu	Sabina Rossi
Pierpaolo Degano	Monika Maidl	Abhik Roychoudhury
Giorgio Delzanno	Rupak Majumdar	Stefan Schwoon
Catalin Dima	Matthieu Martel	Scott Stoller
Allen Emerson	Moreno Marzolla	Enea Zaffanella
Kousha Etessami	Andrea Masini	
Marco Faella	Damien Masse	
Yi Fang	Barbara Masucci	

## Sponsoring Institutions

National Science Foundation (NSF)  
Office of Naval Research (ONR)  
New York University (NYU)  
Università Ca' Foscari di Venezia  
Max Planck Institute (MPI)  
State University of New York at Stony Brook