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FME 2001: Formal Methods for Increasing Software Productivity

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Proceedings



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Preface

FME 2001 is the tenth in a series of meetings organized every eighteen months by Formal Methods Europe (FME), an independent association whose aim is to stimulate the use of, and research on, formal methods for software development. It follows four VDM Europe Symposia, four other Formal Methods Europe Symposia, and the 1999 World Congress on *Formal Methods in the Development of Computing Systems*. These meetings have been notably successful in bringing together a community of users, researchers, and developers of precise mathematical methods for software development.

FME 2001 took place in Berlin, Germany and was organized by the Computer Science Department of the Humboldt-Universität zu Berlin. The theme of the symposium was *Formal Methods for Increasing Software Productivity*. This theme recognizes that formal methods have the potential to do more for industrial software development than enhance software quality – they can also increase productivity at many different points in the software life-cycle.

The importance of the theme is borne out by the many contributed papers showing how formal methods can make software development more efficient. There is an emphasis on tools that find errors automatically, or with relatively little human effort. There is also an emphasis on the use of formal methods to assist with critical, labor-intensive tasks such as program design and test-case generation.

The many application areas addressed in the various parts of the symposium (tutorials, workshops, contributed papers, and invited papers) include smart cards, avionic and satellite computers, financial contracts, E-commerce, middleware, security, telecommunications, and the FireWire standard. Many contributions involve multi-disciplinary teams of researchers coming from both industry and academia. We are pleased to see this evidence of the spreading influence of formal methods.

In addition to the 32 papers selected for presentation by the program committee (out of 72 submissions involving authors from 25 countries), this volume contains the abstracts of three invited talks: *Lightweight Formal Methods*, by Daniel Jackson (Laboratory for Computer Science, MIT); *A Programming Model for Wide-Area Computing*, by Jayadev Misra (University of Texas at Austin); and *Composing Contracts: An Adventure in Financial Engineering* by Simon Peyton Jones (Microsoft Research Ltd).

January 2001

José Nuno Oliveira
Pamela Zave

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We are very grateful to the members of the program committee and their referees for their care and diligence in reviewing the submitted papers. We are also grateful to the local organizers and the sponsoring institutions.

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External Referees

All submitted papers were reviewed by members of the program committee and a number of external referees, who produced extensive review reports and without whose work the quality of the symposium would have suffered. To the best of our knowledge the list below is accurate. We apologize for any omissions or inaccuracies.

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Marcel Verhoef
Vladimir Zadorozhny
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Lenore Zuck

Tutorials and Workshops

The following tutorials were scheduled for the two days preceding the research symposium:

SDL 2001 — J. Fischer, Andreas Prinz, and Eckhardt Holz (Humboldt-Universität zu Berlin and DResearch Digital Media Systems GmbH)

Modeling for Formal Methods — Mícheál Mac an Airchinnigh, Andrew Butterfield, and Arthur Hughes (University of Dublin)

From UML to Z, Support for Requirements Engineering with RoZ — Yves Ledru and Sophie Dupuy (LSR/IMAG)

Beyond Model Checking: Formal Specification and Verification of Practical Mission-Critical Systems — Ramesh Bharadwaj (Naval Research Laboratory, USA)

We are grateful to all those who kindly submitted tutorial proposals. In addition, two international workshops were co-located with the symposium tutorials:

First International Workshop on Automated Verification of Infinite-State Systems (AVISS'01) — organized by Ramesh Bharadwaj (Naval Research Laboratory, USA) and Steve Sims (Reactive-Systems, Inc.)

Formal Approaches to the IEEE 1394 (FireWire) Identify Protocol — organized by Carron Shankland, Savi Maharaj (University of Stirling), and Judi Romijn (University of Nijmegen).

We thank the organizers of these events for their interest in sharing the atmosphere of the symposium.

Table of Contents

Lightweight Formal Methods	1
<i>Daniel Jackson</i>	
Reformulation: A Way to Combine Dynamic Properties and B Refinement	2
<i>F. Bellegarde, C. Darlot, J. Julliand, O. Kouchnarenko</i>	
Mechanized Analysis of Behavioral Conformance in the Eiffel Base Libraries	20
<i>Steffen Helke, Thomas Santen</i>	
Proofs of Correctness of Cache-Coherence Protocols	43
<i>Joseph Stoy, Xiaowei Shen, Arvind</i>	
Model-Checking Over Multi-valued Logics	72
<i>Marsha Chechik, Steve Easterbrook, Victor Petrovykh</i>	
How to Make FDR Spin: LTL Model Checking of CSP by Refinement	99
<i>Michael Leuschel, Thierry Massart, Andrew Currie</i>	
Avoiding State Explosion for Distributed Systems with Timestamps	119
<i>Fabrice Derepas, Paul Gastin, David Plainfossé</i>	
Secrecy-Preserving Refinement	135
<i>Jan Jürjens</i>	
Information Flow Control and Applications – Bridging a Gap –	153
<i>Heiko Mantel</i>	
A Rigorous Approach to Modeling and Analyzing E-Commerce Architectures	173
<i>Vasu S. Alagar, Zheng Xi</i>	
A Formal Model for Reasoning about Adaptive QoS-Enabled Middleware	197
<i>Nalini Venkatasubramanian, Carolyn Talcott, Gul Agha</i>	
A Programming Model for Wide-Area Computing	222
<i>Jayadev Misra</i>	
A Formal Model of Object-Oriented Design and GoF Design Patterns	223
<i>Andres Flores, Richard Moore, Luis Reynoso</i>	
Validation of UML Models Thanks to Z and Lustre	242
<i>Sophie Dupuy-Chessa, Lydie du Bousquet</i>	

Components, Contracts, and Connectors for the Unified Modelling Language UML	259
<i>Claus Pahl</i>	
An Integrated Approach to Specification and Validation of Real-Time Systems	278
<i>Adnan Sherif, Augusto Sampaio, Sérgio Cavalcante</i>	
Real-Time Logic Revisited	300
<i>Stephen E. Paynter</i>	
Improvements in BDD-Based Reachability Analysis of Timed Automata . .	318
<i>Dirk Beyer</i>	
Serialising Parallel Processes in a Hardware/Software Partitioning Context	344
<i>Leila Silva, Augusto Sampaio, Geraint Jones</i>	
Verifying Implementation Relations	364
<i>Jonathan Burton, Maciej Koutny, Giuseppe Pappalardo</i>	
An Adequate Logic for Full LOTOS	384
<i>Muffy Calder, Savi Maharaj, Carron Shankland</i>	
Towards a Topos Theoretic Foundation for the Irish School of Constructive Mathematics (M_C^*)	396
<i>Micheál Mac an Airchinnigh</i>	
Faithful Translations among Models and Specifications	419
<i>Shmuel Katz</i>	
Composing Contracts: An Adventure in Financial Engineering	435
<i>Simon Peyton Jones</i>	
From Complex Specifications to a Working Prototype. A Protocol Engineering Case Study	436
<i>Manuel J. Fernández Iglesias, Francisco J. González-Castaño, José M. Pousada Carballo, Martín Llamas Nistal, Alberto Romero Feijoo</i>	
Coverage Directed Generation of System-Level Test Cases for the Validation of a DSP System	449
<i>Laurent Ardití, Hédi Boufaïed, Arnaud Cavaníé, Vincent Stehlé</i>	
Using Formal Verification Techniques to Reduce Simulation and Test Effort	465
<i>O. Laurent, P. Michel, V. Wiels</i>	
Transacted Memory for Smart Cards	478
<i>Pieter H. Hartel, Michael J. Butler, Eduard de Jong, Mark Longley</i>	

Houdini, an Annotation Assistant for ESC/Java	500
<i>Cormac Flanagan, K. Rustan M. Leino</i>	
A Heuristic for Symmetry Reductions with Scalarsets	518
<i>Dragan Bošnački, Dennis Dams, Leszek Holenderski</i>	
View Updatability Based on the Models of a Formal Specification	534
<i>Michael Johnson, Robert Rosebrugh</i>	
Grammar Adaptation	550
<i>Ralf Lämmel</i>	
Test-Case Calculation through Abstraction	571
<i>Bernhard K. Aichernig</i>	
A Modular Approach to the Specification and Validation of an Electrical Flight Control System	590
<i>M. Doche, I. Vernier-Mounier, F. Kordon</i>	
A Combined Testing and Verification Approach for Software Reliability ...	611
<i>Natasha Sharygina, Doron Peled</i>	
Author Index	629