

# Preface

This volume contains the proceedings of the first joint PAPM-PROBMIV Workshop, held at the Rheinisch-Westfälische Technische Hochschule (RWTH) Aachen, Germany, 12–14 September 2001.

The PAPM-PROBMIV workshop results from the combination of two workshops: PAPM (Process Algebras and Performance Modeling) and PROBMIV (Probabilistic Methods in Verification). The aim of the joint workshop is to bring together the researchers working across the whole spectrum of techniques for the modeling, specification, analysis, and verification of probabilistic systems. Probability is widely used in the design and analysis of software and hardware systems, as a means to derive efficient algorithms (e.g. randomization), as a model for unreliable or unpredictable behavior (as in the study of fault-tolerant systems and computer networks), and as a tool to study performance and dependability properties. The topics of the workshop include specification, models and semantics of probabilistic systems, analysis and verification techniques, probabilistic methods for the verification of non-probabilistic systems, and tools and case studies.

The first PAPM workshop was held in Edinburgh in 1993; the following ones were held in Regensburg (1994), Edinburgh (1995), Torino (1996), Enschede (1997), Nice (1998), Zaragoza (1999), and Geneva (2000). The first PROBMIV workshop was held in Indianapolis, Indiana (1998); the next one took place in Eindhoven (1999). In 2000, PROBMIV was replaced by a Dagstuhl seminar on Probabilistic Methods in Verification.

The PAPM-PROBMIV workshop is held in conjunction with two other workshops: 11th GI/ITG Conference on Measuring, Modeling, and Evaluation of Computer and Communications Systems (MMB), and the 9th International Workshop on Petri Nets and Performance Models (PNPM). Together, these three workshops form the *2001 Aachen Multiconference on Measurement, Modeling, and Evaluation of Computer-Communication Systems*. We hope that this setting fosters the exchange of ideas with neighboring research fields and allows for a comparison of different viewpoints towards similar problems.

Of the 23 regular papers, 12 were accepted for presentation at the workshop and are included in the present volume. The workshop is preceded by three tutorials, given by Joost-Pieter Katoen (University of Twente) on *Probabilistic verification of Markov chains*, by Marina Ribaudó (University of Torino) on *An introduction to stochastic process algebras*, and by Roberto Segala (University of Bologna) on *Nondeterminism in probabilistic verification*. The workshop includes three invited presentations, by Shankar Sastry (University of California, Berkeley), Markus Siegle (Friedrich-Alexander Universität Erlangen-Nürnberg), and Frits Vaandrager (University of Nijmegen).

We thank all the members of the program committee, and their sub-referees, for selecting the papers to be presented. Special thanks are due to Boudewijn

Haverkort (University of Aachen), the general chair of the multi-conference and local organization, and Peter Kemper (University of Dortmund), the tool session chair. Our thanks go to the following organizations for their generous sponsorship of the Aachen multiconference: German Research Association (DFG), IBM Deutschland, Siemens AG München (Information and Communication Networks), T-Nova Deutsche Telekom Innovationsgesellschaft mbH, and TENOVIS. Our thanks also go to all the authors for meeting the tight deadlines which we set without compromising on the rigor or clarity of their papers.

July 2001

Luca de Alfaro  
Stephen Gilmore

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