C.C 01-429.

Lecture Notes in Computer Science

Edited by G. Goos and J. Hartmanis

429

BIBLIOTHEQUE DU CERIST

A. Miola (Ed.)

Design and Implementation of Symbolic Computation Systems

International Symposium DISCO '90
Capri, Italy, April 10–12, 1990
Proceedings

Springer-Verlag
Berlin Heidelberg New York London Paris Tokyo Hong Kong

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Alfonso Miola
Dipartimento di Informatica e Sistemistica
Università di Roma "La Sapienza"
Via Buonarroti, 12, I-00185 Roma, Italy

5453

CR Subject Classification (1987): D.1, D.2.1, D.2.10, D.3, I.1, I.2.2-3, I.2.5, I.3.5-6

ISBN 3-540-52531-9 Springer-Verlag Berlin Heidelberg New York
ISBN 0-387-52531-9 Springer-Verlag New York Berlin Heidelberg

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Printed in Germany

Printing and binding: Druckhaus Beltz, Hemsbach/Bergstr.
2145/3140-543210 – Printed on acid-free paper

Foreword

The growing importance of systems for symbolic computation has greatly influenced the decision to organize the International Symposium on Design and Implementation of Symbolic Computation Systems, DISCO '90. It takes place in Capri, Italy, April 10-12, 1990, and is the first international event in the field, organized and sponsored by Italian Universities, Institutes of the Italian National Research Council and industry.

DISCO '90 focuses mainly on the most innovative methodological and technological aspects of hardware and software system design and implementation for symbolic and algebraic computation, automated reasoning, geometric modeling and computation, and automatic programming.

The symposium has grown out of the research developed within a five-year national project on software systems and parallel computing, funded by the Italian National Research Council, and of the unanimous intention of presenting and discussing new trends in the development of symbolic computation systems, according to the projects funded by the Italian Ministry of University and Research.

The international research communities have recognized the relevance of the proposed objectives and topics which are generally not well covered in other conferences in the areas of symbolic and algebraic computation, automated reasoning, geometric modeling and computation, and automatic programming.

DISCO '90 includes papers on theory, languages, software environments, architectures and in particular, papers on the design and the development of significant running systems.

The general objective of DISCO '90 is to present an up-to-date view of the field, while encouraging the scientific exchange among academic, industrial and user communities on the development of systems for symbolic computation. Therefore it is devoted to researchers, developers and users from academia, scientific institutions, and industry who are interested in the most recent advances and trends in the field of symbolic computation.

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The Program Chairman received 91 contributions to DISCO '90 and organized the reviewing process with the cooperation of the Program Committee. Each paper was sent to two Program Committee members and it was then carefully reviewed by at least three independent referees, including Program Committee members. The Program Committee met on 3 to 4 January, 1990 at the Scuola Superiore G. Reiss Romoli, L'Aquila (Italy), to reach the final decision on acceptance of the submitted papers. During the meeting a deep discussion on the scope of DISCO allowed us to design and build this new conference in a very precise way. The resulting DISCO '90 Scientific Program corresponds well to the initial objectives.

Among the submissions, 25 papers were selected as full contributions for presentation at the conference, as well as in this volume, under classified sections. Ten further papers were selected as contributions for a short presentation at the conference, concerning work in progress or running systems relevant to the themes of the symposium. Short papers are presented at the conference in the appropriate scientific sections, while in this volume they are included in a separate section.

All my personal appreciation goes to both the Program Committee and the Organizing Committee members for their indefatigable and valuable cooperation.

On behalf of the Program Committee, I would like to thank the authors of the submitted papers for their significant response to our proposal, the invited speakers for having agreed to make their outstanding contributions to DISCO '90, and the referees for their cooperation in timely and precisely reviewing the papers.

I would also like to express all my recognition to our sponsors which have made this event possible; in particular, University "La Sapienza", Roma, the Italian National Research Council, which also supported the preparation of the present volume, Olivetti Systems and Networks, Ivrea, and Fondazione Ugo Bordoni, Roma, especially for having supported the students' attendance.

Roma, February 1990 Alfonso Miola

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Symposium Topics

Theory:

- Specification and verification logics
- Specification languages
- Abstract data types and type inference
- Executable specifications

Languages:

- Language design
- Language implementation
- Language constructs for different computing paradigms (numeric, non-numeric, logic)
- Integration of programming paradigms

Software Environments:

- System design and implementation
- Software development tools
- Systems for different computing paradigms (numeric, non-numeric, logic)
- Visual and graphic tools
- User interface

Architectures:

- Parallel and specialized architectures
- Software/Hardware interface

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