

Proceedings

Ninth International Conference on

DATA ENGINEERING

April 19–23, 1993
Vienna, Austria

Sponsored by
IEEE Computer Society Technical Committee on Data Engineering
Austrian Computer Society (OCG)



IEEE Computer Society Press



The Institute of Electrical and Electronics Engineers, Inc.

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In cooperation with

GI, ERCIM, INRIA, GMD, CWI, RAL FAW-A



IEEE Computer Society Press
Los Alamitos, California

Washington • Brussels • Tokyo

The papers in this book comprise the proceedings of the meeting mentioned on the cover and title page. They reflect the authors' opinions and, in the interests of timely dissemination, are published as presented and without change. Their inclusion in this publication does not necessarily constitute endorsement by the editors, the IEEE Computer Society Press, or the Institute of Electrical and Electronics Engineers, Inc.



Published by the
IEEE Computer Society Press
10662 Los Vaqueros Circle
PO Box 3014
Los Alamitos, CA 90720-1264

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IEEE Computer Society Press Order Number 3570-02
Library of Congress Number 92-75329
IEEE Catalog Number 92CH3258-1
ISBN 0-8186-3570-3 (paper)
ISBN 0-8186-3571-1 (microfiche)
ISSN 1063-6382

Additional copies can be ordered from

IEEE Computer Society Press
Customer Service Center
10662 Los Vaqueros Circle
PO Box 3014
Los Alamitos, CA 90720-1264

IEEE Service Center
445 Hoes Lane
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IEEE Computer Society
13, avenue de l'Aquillon
B-1200 Brussels
BELGIUM

IEEE Computer Society
Ooshima Building
2-19-1 Minami-Aoyama
Minato-ku, Tokyo 107
JAPAN

Production Editor: Edna Straub
Cover: Joe Daigle

Printed in the United States of America by Braun-Brumfield, Inc.



THE INSTITUTE OF ELECTRICAL AND ELECTRONICS ENGINEERS, INC.

Message from the General Chairs

Welcome to Vienna and welcome to the Ninth Meeting of the International Conference on Data Engineering. This conference provides a unique forum for the promotion and understanding of the current research activities, and for the exchange of experiences and ideas for future directions in data engineering, knowledge engineering, and the synergy of the two. Following the previous eight successful Data Engineering conferences, the 1993 meeting will cover a wide spectrum of topics ranging from theory and design to implementation and applications.

Since much of the conference deals with the cutting edge of data and knowledge engineering methods and technologies, two days of the conference are devoted exclusively to tutorials. Jointly, the tutorials and the technical program provide the attendee with an unequalled opportunity for professional growth and development.

The technical program is enhanced by two internationally known speakers and a plenary panel on "Scientific Databases." The keynote speakers are Dr. Patrick Valduriez and Dr. Dennis Tsichritzis. Recognized scholars in their fields, the speakers will inform, delight, and challenge their listeners.

The technical program of the conference has been arranged by the program committee, co-chaired by Dr. Erich Neuhold and Dr. Ahmed Elmagarmid. The committee, consisting of 10 vice-chairs and 60 members, diligently selected the papers and arranged them into the program that will be presented during the conference. Many external referees assisted in the review process. We wish to thank all of these colleagues for their dedication and hard work. Many others have assisted in the organization of the conference and we are grateful for their contributions. Their names appear in a list presented in the subsequent pages.

We hope this event will be a pleasant, informative, and fulfilling experience. Vienna, the metropolis with an imperial past and an abundance of cultural highlights and culinary delights, is certain to make this conference an exquisite and unforgettable occasion.

Forouzan Golshani
A Min Tjoa
ICDE-9 General Co-Chairs

Message from the Program Chairs

This year for the second time the International Conference on Data Engineering is held outside of the United States. Its international reputation cannot be expressed better than by the record of 286 papers submitted from 29 countries. More than half of these papers were sent from outside the United States. German submissions were 27, French submissions were 17, the Canadians produced 11, and the Austrians 9. There were 7 papers each submitted from Australia, Italy, Japan, The Netherlands, and Taiwan. Belgium, China, Denmark, Finland, Greece, Ireland, Israel, Korea, Macedonia, Norway, Poland, Russia, Singapore, Spain, Sweden, Switzerland, Turkey, and United Kingdom all contributed submissions showing a true international flavor.

Because of size limitations, the program committee had to limit the number of accepted papers to 72 and consequently very rigorous quality criteria were applied. Unfortunately, even some papers highly regarded by the referees had to be rejected. Besides the 24 sessions devoted to the accepted papers there are 3 panels and 12 tutorial sessions this year. The conference should also be a time to renew old and gain new friendships, meet new folks and enjoy in-depth discussions at the sessions, during breaks and during the numerous social events. We invite all the participants to continue this tradition of debate, inquiry, and fruitful exchange.

It was with great pleasure that we accepted the duties of Program Co-Chairs and we have tried our best to continue the tradition of excellence established in the International Conference on Data Engineering. Of course our efforts would have led to nothing without the excellent help of the 10 Vice-Chairs, E. Bertino, P. Dadam, Y. Kambayashi, W. Litwin, Y. Masunaga, J. Mylopoulos, M.T. Ozsu, A. Reuter, A. Silberschatz and R. Snodgrass. With the help of the 70 members of the program committee and the 293 reviewers who worked diligently, we tried to make the technical and scientific part of the conference a success.

Of course we would be terribly remiss if we were not to mention the General Co-Chairs of this Conference. Forouzan Golshani and A Min Tjoa, our deepest appreciation for the many hours, decisions, and attention to detail that have brought us to a successful conference in Vienna. Our thanks also go to Georg Gottlob who brought about the wide spectrum and excellence of the tutorial part of the program. Our thanks go to Y. Kambayashi and K.-Y. Whang, our Asian Coordinators; U. Dayal and J. Sharif-Askary, our Awards Committee; O. Bukhres, who handled the publicity; D. Cohen, B. Hainschink and Christine Reidl, the Industrial Program Coordinators; and T. Howell, our North American Coordinator.

We also thank Sue Barton of Purdue University, and Sabine Matthäus and Alexandra Volkheimer of GMD-IPSI for their help and support. They are indeed responsible for the organization of the meetings and correspondences. There is always the person behind the scenes. In our case it was Peter Muth. He was really our shadow, was everywhere, knew about everything and, despite his heavy research duties in Darmstadt, spent endless hours keeping track of papers, classifying them into categories, and following up on more than

1000 reviews and hundreds of email messages. I am sure he will be glad now to be able to return full time to his excellent research and the projects he is guiding.

We have tried to attract representatives from industry to contribute to the conference. We feel that we have succeeded in attracting those from R&D branches of companies.

Next year we plan to better spread the word that the Data Engineering Conference is concerned with not only scientific, but also with engineering solutions. In that way we hope to extend our scope to attract more of those involved in purely commercial database development efforts.

Ahmed K. Elmagarmid
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