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February 23–27, 1998
Orlando, Florida

Sponsored by the
IEEE Computer Society Technical Committee on Data Engineering

IEEE COMPUTER SOCIETY

Proceedings

14th International Conference on Data Engineering

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ICDE '98 General Chair's Message

It is my great pleasure to welcome you to the 14th International Conference on Data Engineering. This year's conference will continue its tradition of being a premier forum for the presentation of research results and advanced data-intensive applications, and the discussion of issues on data and knowledge engineering.

The success of a conference depends on the time and energy of many people. The Program Co-Chairs, Susan D. Urban and Elisa Bertino, and the program committee members, have done a great job to put together an excellent technical program. Surajit Chaudhuri organized the industrial session, providing insight into the current and next generation information products. Calton Pu selected panels to discuss emerging technologies. Tamer Ozsu organized tutorial sessions covering a wide range of exciting topics. The keynote speeches by Andrew Mendelsohn and Hector Garcia-Molina will shed light on the future of database research and development.

Special thanks go to Kate Kinsley and Ali Orooji for local arrangements, Kun-lung Wu for finance, George Karabatis for publicity, Karen Davis for publication, Vijay Atluri for registration, Wolfgang Klas as European coordinator, Ben Chen Ooi as Far East coordinator, Ling Liu for publisher exhibits and Sharma Chakravarthy for research exhibits.

I would also like to express my thanks to the ICDE steering committee for their support.

I welcome you to Orlando!

Philip S. Yu
ICDE-14 General Chair

ICDE '98 Program Co-Chairs' Message

The IEEE Computer Society Fourteenth International Conference on Data Engineering, held in Orlando, Florida in February of 1998, continues in its mission of fostering close relationships and exchange of ideas and research results between academia and industry in an important area. This is well reflected in these proceedings containing the research and industry track papers that were accepted for presentation at the conference.

This year's program committee was organized into 10 different technical areas, including data management on the World Wide Web, management of uncertainty and information quality, interoperability and cooperative information systems, multimedia systems and digital libraries, extensible and active database systems, parallel and distributed database systems/mobile computing, object-oriented database systems, temporal and spatial database systems, data mining/warehousing, and transaction processing and real-time systems. It also included an industry track subcommittee.

A total of 252 papers were submitted to the conference from 27 different countries. After a thorough review process, the program committee accepted 56 papers. The program was rounded off with invited speakers from industry in the areas of data warehousing, data mining, and database engines, as well as panel discussions in the areas of data warehousing, the Internet, legacy systems, and future research directions. We were also fortunate to have research prototype demonstrations on topics such as deductive and object-oriented databases and active database systems, in addition to keynote addresses by Andrew Mendelsohn of Oracle on databases and network computing and Hector Garcia-Molina of Stanford University on digital libraries. ICDE98 has therefore provided a well-rounded program with original research results and practical engineering experience in key research areas of data engineering.

It is impossible to organize such a successful program without the help of many individuals. We owe special thanks to the vice chairs and industry track chair that have contributed to the organization and quality of the program. In particular, we would like to thank Daniel Barbara, Ami Motro, Dimitrios Georgakopoulos, Kien Hua, Masaru Kitsuregawa, Stefano Ceri, Elke Rundensteiner, Christian Jensen, Umesh Dayal, Andreas Reuter, and Surajit Chaudhuri. Everyone did an excellent job at assembling a distinguished group of program committee members who provided a timely and meaningful review process. We would also like to thank Tamer Ozsu for organization of the tutorial program, Calton Pu for organization of the panel sessions, and Sharma Chakravarthy for organization of the research prototype demos. A special thanks is also due to Taoufik Ben Abdellatif, Naman Nair, and Elena Ferrari for their support in the processing of the papers.

In addition to those who contributed to the review process and preparation of the program, there are always others that help to make the conference a success. We would especially like to thank George Karabitis for his efforts in advertising the conference as well as Karen Davis for an excellent job in the production of the proceedings. We also thank Ling Liu for organizing the publisher exhibits. A special round of applause is due to Kate Kinsley and Ali Orooji for their work with the local arrangements.

Finally, we would like to thank Philip Yu, the ICDE 98 general chair, for handling all of the financial matters and keeping us in line with the budget. Joseph Urban was especially helpful with advice about conference organization. Special thanks are also due to Oracle Corporation for their generous contribution to the conference reception.

It has truly been a pleasure to work with such a great group of people!

Susan D. Urban and Elisa Bertino
ICDE-14 Program Co-Chairs

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