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13, Avenue de l'Aquilon
B-1200 Brussels
BELGIUM
Tel: +32-2-770-2198
Fax: +32-2-770-8505
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IEEE Computer Society
Ooshima Building
2-19-1 Minami-Aoyama
Minato-ku, Tokyo 107
JAPAN
Tel: +81-3-3408-3118
Fax: +81-3-3408-3553
tokyo.ofc@computer.org

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General Chair's Message

In times when the field of data and knowledge management undergoes major changes caused by technological advances in many areas, the Data Engineering Conference endures as one of the primary venues for researchers and engineers to present the results of their work and to learn about new developments. ICDE-12 continues the tradition of high technical quality in the program and high relevance to the needs and interests of data engineering practitioners.

Many people helped in the organization of the conference and it is my pleasant duty as the general chairman to recognize their contributions.

A conference is only as good as its technical program, so my thanks go to all authors who submitted papers to ICDE-12. Stanley Su and his colleagues in the program committee put together an excellent collection of papers reflecting some of the most exciting research topics in our field. Umesh Dayal created an industrial program that provides an insight into the current and next generations of information managements products. Arie Segev chose panels that promise to be both informative and thought-provoking, and Witold Litwin selected tutorials covering a number of important emerging technologies.

Dimitrios Georgakopoulos did an excellent job of coordinating all publicity activities for ICDE-12. Stephen Huang ably handled the financial matters of the conference, while Anne Eskilsson ensured that the registration process was carried out efficiently. We also acknowledge with gratitude technical assistance provided by the staff of IEEE Computer Society.

An important part of a conference is the local arrangements. Our people in New Orleans, Bill Buckles and Bogdan Czejdo (who also edited the Conference Proceedings), worked hard to ensure that things go smoothly, and planned all extracurricular activities. ICDE-12 promises to be an intellectually stimulating event, providing an opportunity to establish professional relationships and to meet old friends. Welcome to New Orleans!

Marek Rusinkiewicz
General Chair ICDE-12

Program Chair's Message

This proceedings contains the regular technical and industrial papers selected by review for presentation at the Twelfth International Conference on Data Engineering (ICDE'96) to be held in New Orleans, Louisiana, February 26–March 1, 1996. The ICDE conference, sponsored by the IEEE Computer Society, provides a forum for the sharing of original research results and practical engineering experiences among researchers and practitioners interested in all aspects of data and knowledge management.

In order to achieve the objectives of 1) focusing the conference on several technical areas of current interest, 2) establishing a "balanced" final program, and 3) sharing the workload among highly qualified—but busy—individuals, a somewhat non-traditional approach was taken in the organization of the program committee and the processing of the submitted papers. The following renowned researchers were appointed to serve as the eight Vice-Chairs and the Industrial Chair to head the tasks of soliciting high-quality papers in the following technical areas:

1. Data Engineering and Information Superhighways
   Prof. Gunter Schlageter, University of Hagen
2. Interoperability of Heterogeneous Information Systems
   Prof. Dennis McLeod, University of Southern California
3. Scientific and Statistical Databases and Applications
   Dr. Arie Shoshani, Lawrence Berkeley Laboratory
4. Multimedia Systems and Applications
   Prof. William Grosky, Wayne State University
5. Extensible and Active Database/Knowledge Base Systems
   Prof. Sharma Chakravarthy, University of Florida
6. Parallel and Distributed Database Systems
   Dr. Chaitanya K. Baru, IBM Toronto Labs
7. Object-oriented Databases and Software Engineering
   Prof. Luqi, Naval Postgraduate School
8. Real-time, Temporal and/or Spatial Systems
   Prof. Alex Buchmann, Technische Hochschule Darmstadt
9. Industrial Challenges in Data Engineering
   Dr. Umeshwar Dayal, Hewlett-Packard Labs

They were empowered to form nine program subcommittees by appointing their own program committee members. Each subcommittee was responsible for reviewing the papers belonging to and related to its technical area. Each subcommittee then recommended a number of good papers to the Program Chair. In the final PC meeting held in Zurich (following VLDB'95), selected papers were discussed, the scores of the recommended papers in the different areas were compared, and the final selection was made. From a total of 264 submitted papers, 60 papers were selected for the final program.

As the Program Chair, I would like to thank the Vice-Chairs, the Industrial Program Chair, and all the Program Committee members for their time, effort, dedication, cooperation, and diligence in producing the final program. Thanks also go to the additional reviewers for their kind assistance and the authors of the selected papers for their contributions to the technical program.

I would also like to thank the General Chair, Prof. Marek Rusinkiewicz, for his valuable assistance and for giving me a free hand to deal with the various tasks of putting together the final program. He was responsible for inviting the two outstanding keynote speakers and for forming the plenary panel of the conference. My deep appreciation also goes to Prof. Tamer Ozsu, Prof. Marek Rusinkiewicz, and Prof. Peter Scheuermann for serving as the reviewers for the best paper award. My long-time secretary, Ms. Sharon Grant, and my graduate assistants, Mr. Tsae-Feng Yu, Miss Fang Wang, and Mr. Xiang He, offered invaluable assistance during the entire process. Without their dedication and effort, the tasks of coordinating the activities of all the subcommittees, processing hundreds of email inquiries, mailing of papers and evaluation results, etc., would have been too heavy to bear.

It was my honor and pleasure to work with a team of dedicated people who made ICDE'96 a reality.

Stanley Y.W. Su
Program Chair ICDE-12

IN MEMORIAM

James Clifford
1950 – 1995

Jim Clifford passed away on August 21, 1995, in New York City.

Jim earned a B.A. degree in music from Yale in 1975 and M.S. and Ph.D. degrees in computer science from SUNY Stony Brook in 1982. Since 1982 he was on a faculty at New York University's Stern School of Business. Jim is recognized by the database community for his many contributions, particularly in the area of temporal database theory.

Jim will be remembered by his friends and colleagues alike for his warmth, sense of humor, concern for others, and his numerous interests and activities. In addition to his professional interests, Jim was an avid pianist and music lover, a gourmet, and a pool player. He was active in social causes, particularly in the area of gay rights. Jim was respected and loved by everyone whose lives he touched and will be missed by his friends and colleagues.

IN MEMORIAM

Gennady Antoshenkov
1944 – 1995

Gennady Antoshenkov, an author of two papers at this Data Engineering Conference, died on October 20, 1995. Gennady had for the past nine years been a software engineer working on the Rdb relational database system, in Nashua, New Hampshire, first when it was DEC Rdb and subsequently when it became Oracle Rdb. This tragedy interrupted a very successful dual career, both as a key member of the Rdb development team, and as a significant contributor to the database system state of the art as expressed in the technical literature. For his Rdb work, Gennady was named a consulting engineer at Digital, a distinguished technical position. At the time of his death, Gennady had three papers scheduled for publication.

Those who interacted with Gennady knew him both for his keen insights into the technical problems facing database systems, and as someone who would build the solution into a shipping database product. It was Gennady's rare gift of being able to generalize specific solutions that permitted him to contribute effectively to the wider technical community.

Gennady was a master of the query processing art. He was an inventor of the concept of dynamic query optimization, where the execution plan is finalized only after some partial runtime experience is gained in its execution. He wrote papers describing his query processing insights, *and* illustrating how to apply them with the Rdb query processor into which they were already embodied. Gennady invented the pseudo-ranked B-tree, in which subtrees maintain approximate record counts in a lazy fashion, thus permitting effective sampling via the tree for statistical information relevant to query optimization. When confronted with the problem of excessive index size, Gennady provided a key insight that led to very effective order preserving string compression that was an elegant and general solution to this problem. Papers on query processing and string compression appear in this conference proceedings.

Gennady came to the database field in 1983 with his employment at Wang Laboratories, which immediately preceded his Rdb job. Before that, he held a number of software engineer positions both in the United States and in the former Soviet Union. Gennady was educated at Leningrad University. He is survived by his wife Victoria.

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