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## Editor's Notes

The main portion of this issue consists of a special joint issue of SIGMOD RECORD and IEEE Data Engineering Bulletin on Directions for Future Database Research & Development. The letter from this issue editor, Won Kim, describes its purpose and contents.

Following the special issue section are the regular invited sections. Timos Sellis and Amit Sheth handled the reports on database research activities at Berkeley and Stanford respectively, and Hank Korth invited the survey on Database Security by Sushil Jajodia and Ravi Sandhu (this topic is also covered in the special issue section). This issue is concluded with calls for papers and participation including a summary of upcoming database conferences prepared by Felix Saltor.

Arie Segev



October 30, 1990

## Chair's Message

The entire elected officers of SIGMOD (myself, Vice-Chair Laura Haas, and Treasurer Mike Carey) have agreed to stay on for a second two-year term between July 1, 1991 and June 30, 1993, without an election, once our first two-year term ends on June 30, 1991. The ACM SIG Board unanimously approved this decision. (This is in accordance with provisions of the ACM Rules and Policies, and the SIGMOD Bylaws.) I have also chosen to extend the terms of the entire editorial staff of the SIGMOD RECORD and the entire SIGMOD Advisory Board. I thank them all for their past services and look forward to working with them for the next two and one half years.

I am pleased that, with the publication of this issue, I have taken one step toward realizing a tangible cooperation between ACM SIGMOD and IEEE TC (Technical Committee) on Data Engineering. I hope to be able to take this one step further, and would be appreciative of any concrete suggestions you may offer.

As I reported in the September issue of SIGMOD RECORD, SIGMOD now enjoys a fairly substantial surplus in its budget, and I have set in motion three new services to make good use of the surplus. First, SIGMOD RECORD is now expanded with 2-3 new regular features, including an invited section that summarizes worthy recent research results in selected database research areas, an invited section that provides an overview of database research activities in selected institutes around the world, and a periodic news section on database research funding. Second, SIGMOD offers up to 100 free memberships to university libraries in Third World countries (including East Europe); interested universities should write to ACM or me. Third, from 1991, students registering for the SIGMOD conference will receive both the proceedings and conference luncheon tickets.

I am working on some additional ideas at this time for other worthy uses of the surplus. I would also appreciate any reasonably developed ideas from you on this matter.

(The following summary of the financial status of SIGMOD was prepared by Mike Carey.)

During the fiscal year 1990, which ended on June 30, the total income for SIGMOD was \$149,468. The major income sources were the SIGMOD dues and the surplus from conferences that SIGMOD sponsors and co-sponsors. Some additional income came from our Institutional Sponsors, which now include DEC, ETRI (Electronics and Telecommunications Research Institute of Korea), HP Labs, IBM Almaden Research Center, MCC, and Mitsubishi Electric Company. Our total expenses for the fiscal year came to \$86,641. The bulk of the expenses were the cost of printing and distributing issues of SIGMOD Record, including the annual SIGMOD conference proceedings. The balance of the SIGMOD fund as of June 30, 1990 was \$84,246, and we had a total of 3,952 members as of that date.

Won Kim  
Austin, Texas

## Letter from the Issue Editor

This is a special joint issue of *ACM SIGMOD RECORD* and *IEEE Data Engineering Bulletin* on **Directions for Future Database Research and Development**. In the past some senior researchers, singly and collectively, attempted to provide directions for future database research in the form of so-called “manifestos” and reports of workshops sponsored by a few organizations. Further, each issue of the *IEEE Data Engineering Bulletin* during the past decade has focused on a single topic of “current” database research topics, thereby providing directions for near-term research. My objective in organizing this special joint issue is to bring these recent disparate efforts to a grand culmination with a compendium of the thoughts of some of the leading authorities in each of a dozen or so areas of database research and development that many believe to be the most important.

I have held the belief for some time that, as the report of the recent Lagunita workshop concludes also, the primary challenges facing database professionals today are to bring about the transition from the current relational database systems to the next generation of database systems in order to dramatically expand the scope of applicability of database technology to beyond the conventional transaction-oriented business data processing; to allow interoperability of a wide variety of data sources managed by existing (and emerging) database systems and file systems; and to evolve the architectures of database systems in keeping with the rapidly unfolding revolutions in hardware technology. The first challenge requires significant additional research in various subdisciplines within databases, including object-oriented databases, extensible databases, spatial databases, deductive databases, temporal databases, imprecise databases, real-time databases, scientific databases, database security, data dredging, database programming languages, and nonprogrammer’s application development environments. The second area of challenge is global or multi-database systems. The third area of challenge is parallel database systems and distributed database systems.

I selected the above areas of research, and then for each area invited a few of the leading authorities to provide a report on the current status of the area and directions for further research and development. For six of these areas, I invited one expert from academia and one expert from industry to jointly author the report to achieve a balanced view of the area. For database programming languages, I elected to include a condensed report of a recent workshop on the subject co-sponsored by the National Science Foundation (NSF) and INRIA. For heterogeneous databases and scientific databases, I invited and edited the reports of workshops on the subjects that NSF sponsored during the past year. I also invited the report of the recent Lagunita workshop, also sponsored by NSF, as the extended introduction to the joint issue. I failed to find authors willing to do a report on friendly user interfaces. (I should add that Maria Zemankova should receive at least a figurative bouquet of flowers and a case of champagne from the database community for her efforts in securing NSF funds to sponsor these three timely workshops.)

I elected to include some of the reports in both *SIGMOD RECORD* and *Data Engineering*, but others in only one of the two publications. This is to accommodate the 64–page space limit in *Data Engineering*, and to avoid repeating in the same publication any topic which was the subject of a special issue within the past few years. Further, ACM SIGMOD and IEEE TC on Data Engineering both charge membership fees to partially offset the cost of publishing and distributing their respective newsletters, and I believe that members of these professional societies would not care to see a completely overlapping joint issue. I included in both publications reports on the topics that in my view have potentially the most impact on the future of database technology, even if they may have been subjects of special issues in the recent past: the reports on imprecise databases and database security are cases in point. The following reports are included in both publications: heterogeneous databases workshop report, object–oriented databases, spatial databases, database security, and distributed databases. The following are included only in the *SIGMOD RECORD*: Lagunita workshop report, scientific databases workshop report, database programming languages workshop report, extensible databases, deductive databases, temporal databases, and parallel databases. The following reports are included only in *Data Engineering*: real–time databases, data dredging, and on the future DBMS architecture.

The contributors to this issue are all leading authorities in the areas they report on (I hope my including myself as a co–author of one of the reports will not disturb anyone’s sensibilities), making this joint issue a true “all–star” issue. It certainly was a privilege and pleasure to have worked with these outstanding professionals; all in earnest efforts and considerable time on their reports, and (more or less) met all my deadlines. I hope that this special issue will have a significant and lasting influence on the course of our field.

I request that those interested in obtaining copies of this joint issue to contact directly ACM Headquarters in New York City and IEEE Computer Society in Washington, D.C.: the demands of my job makes it impossible for me to be responsible for distributing complimentary copies of this issue to anyone who calls.

Won Kim

UniSQL, Inc.  
Austin, Texas  
October 25, 1990