

# Guest Editorial

## Introduction to the Special Section

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The 1997 International Workshop Multimedia Information Systems (MIS97) was held in Como, Italy, on 25-27 September 1997. This workshop is the third of a series of international workshops on Multimedia Information Systems (MIS), jointly sponsored by the U.S. Army Research Office and the University of Maryland's Institute for Advanced Computer Studies (UMIACS). Such series have been established as a forum for discussing original unpublished research results, practical experiences, and innovative ideas in multimedia systems and to establish future directions in this area. A mission of these workshops is to foster close relationships and exchange of ideas and research results between researchers and practitioners from different areas, such as: database systems, real-time systems, operating systems, computer networks, graphics and visualization, and artificial intelligence, which are all relevant to the development of advanced multimedia information systems. Previous editions of this workshop were held in Arlington, Virginia, and West Point, New York.

Eighteen papers were presented during the three days of the workshop. These papers were selected among submitted papers by an international committee of well-known experts in the various areas involved in multimedia systems. We were also very fortunate that three distinguished experts accepted our invitation to share with us their views on multimedia information systems: Avi Silberschatz (Bell Labs, Lucent Technology) on "Multimedia Storage Systems," Jagadish Chandra (U.S. Army Research Laboratory) on "Real Time Databases for 3D Visualization," and Maria Lorenza Demarie (CSELT-Italian Telecom) on "Multimedia Data Management: New Telecommunication Services Perspective." Among the papers accepted for presentation at the workshop, two were selected among the best-rated papers for this special section. The selected papers were then subjected to a rigorous review process according to the *IEEE Transactions on Knowledge*

and *Data Engineering* review guidelines to ensure a high quality level.

Both the selected articles present approaches for resource management in multimedia applications. Golubchik, Subrahmanian, Marcus, and Biskup introduce algorithms for increasing the number of clients that a multimedia server can service simultaneously. This is accomplished by grouping user requests into so-called sync-classes, servicing each class with a single set of resources, and thus reducing the overall load on the storage subsystem. Nutt, Brandt, Griff, Siewert, Humphrey, and Berk describe a framework for soft real-time constraints. They utilize the execution levels of an application program to group its needed resource types. They demonstrate, e.g., how to implement very general dynamic negotiation on top of a best-effort operating system, including measurements to reflect its behavior.

The success of this workshop is due to the dedicated help of many volunteers who participated in the organization. In particular, we would like to thank David Hislop and Jagadish Chandra of the U.S. Army Research Office for their efforts in expediting the organization of this workshop. Special thanks are due to V. Subrahmanian, organizer of the previous editions of the workshop, for his constant advice during the process of workshop organization. We are also grateful to Silvana Castano, the local arrangement chair, for her dedication to the organization of this event.

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**Elisa Bertino** received the doctor degree in computer sciences from the University of Pisa, Italy, in 1980. She is currently a professor of database systems in the Department of Computer Science at the University of Milan, where she heads the Database Systems Group. Since October 1997, she has been the chair of the Computer Science School of the University of Milano. She has also been on the faculty of the Department of Computer and Information Science at the University of Genova, Italy. Until 1990, she was a researcher for the Italian National Research Council in Pisa, Italy, where she headed the Object-Oriented Systems Group. She has been a visiting researcher at the IBM Research Laboratory (now Almaden) in San Jose, at the Microelectronics and Computer Technology Corporation in Austin, Texas, at George Mason University, at Rutgers University, and at Purdue University.

Her main research interests include object-oriented databases, distributed databases, deductive databases, multimedia databases, interoperability of heterogeneous systems, integration of artificial intelligence and database techniques, and database security. In those areas, Professor Bertino has published several papers in major refereed journals and in proceedings of international conferences and symposia. She is a coauthor of the books *Object-Oriented Database Systems—Concepts and Architectures* (Addison-Wesley International, 1993), and *Indexing Techniques for Advanced Database Systems* (Kluwer Academic, 1997). She is a member of the advisory board of the *IEEE Transactions on Knowledge and Data Engineering* and a member of the editorial boards of the following scientific journals: *ACM Transactions on Information and System Security*, the *International Journal of Theory and Practice of Object Systems*, the *Very Large Database Systems (VLDB) Journal*, the *Parallel and Distributed Database Journal*, the *Journal of Computer Security, Data and Knowledge Engineering*, the *International Journal of Information Technology*, the *International Journal of Cooperative Information Systems*. She has been a consultant to several Italian companies on data management systems and applications and has given several courses to industries. She is involved in several European Projects sponsored by the EEC.

Dr. Bertino is a senior member of the IEEE and a member of the ACM and has been named a Golden Core Member for her service to the IEEE Computer Society. She has served as a program committee member of several international conferences, such as ACM SIGMOD, VLDB, ACM OOPSLA, as program chair of the 1996 European Symposium on Research in Computer Security (ESORICS '96), and as program cochair of the 1998 IEEE International Conference on Data Engineering (ICDE). She is currently serving as program chair of 2000 European Conference on Object-Oriented Programming (ECOOP 2000).



**Richard R. Muntz** received the BEE from Pratt Institute in 1963, the MEE from New York University in 1966, and the PhD in electrical engineering from Princeton University in 1969. He is a professor and chair of the Computer Science Department, School of Engineering and Applied Science, University of California Los Angeles. His current research interests are multimedia storage servers and database systems, distributed and parallel database systems, spatial and scientific database systems, data mining, and computer performance evaluation. He is the author of more than 150 research papers. Dr. Muntz is a member of the Board of Directors for SIGMETRICS and has been chair of IFIP WG7.3. He was a member of the Corporate Technology Advisory Board at NCR/Teradata and is a member of the Science Advisory Board of NASA's Center of Excellence in Space Data Information Systems. He was an associate editor for the *Journal of the ACM* from 1975 to 1980 and the editor-in-chief of *ACM Computing Surveys* from 1992 to 1995. He is a fellow of the ACM and a fellow of the IEEE.



**Thomas Rakow** has been a project manager in electronic publishing at Springer-Verlag, Heidelberg, since 1996. He leads technical development projects of the online services LINK Information Service and WWW.Springer.de. He also coordinates Springer's funded research projects. Before joining Springer-Verlag, Dr. Rakow headed a research group in the area of multimedia database systems at the German National Research Center for Computer Science (GMD-IPSI) in Darmstadt.