

Special Section on Image and Video Databases

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This special section is devoted to image and video databases (IVD). IVD deals with methods for storing, cataloging, browsing, querying, and retrieval of visual information that increasingly rely on computers. Such methods are gaining importance as online collections of digital images and video grow in size and sites, and access to such collections through the World Wide Web continues to expand.

Six articles are published in this special section. These were selected from 14 papers that were submitted in response to a call for papers made to all the authors at the Storage and Retrieval for Image and Video Databases V conference held in February 1997. The papers published here cover several important aspects of image and video databases including issues related to security, privacy, and illegal copying of images.

The first article, "Content based navigation from images," by Paul Lewis et al., addresses the use of media content as a basis for navigation in multimedia information systems. Specifically, the use of shape and texture information is shown for creation and use of hyperlinks. The importance of this work lies in its effort to integrate hypermedia concepts in visual information management. The article "Illumination invariant image indexing using moments and wavelets," by Mandal, Panchanathan, and Aboulnasr examines histogram-based image retrieval methods and suggests two modifica-

tions to make histogram-based retrieval insensitive to image illumination.

The paper by Kobla and Doerman, "Indexing and retrieval of MPEG compressed video," looks at problems related to video indexing and retrieval and proposes methods that can work directly on compressed video without full decompression. The authors show that their approach can significantly speed up system response time for video retrieval. The next paper, "Feature integration and relevance feedback analysis in image similarity evaluation," by Celentano and Di Sciascio, describes results of a study on similarity evaluation and introduces relevance feedback as an effective tool to improve retrieval accuracy.

The last two papers in this special section focus on security and copyright protection issues. In "Fast encryption of image data using chaotic Kolmogorov flows," by Scharinger, a block-based encryption method for images is presented so that images can be transmitted or archived in a secure manner. With content in digital form that is easily available through the World Wide Web, the issue of unauthorized use of media has become critical. Digital watermarking has emerged as one approach to counter the unauthorized use of images. A digital watermarking technique signs images by introducing changes that are easily recoverable by computer but are not perceptible to the human eye. In "Digital watermarking of color images using amplitude modula-

tion," by Kutter, Jordan, and Bossen, the authors suggest one such digital watermarking method that is resistant to tampering.

All papers in this section went through two rounds of peer review, which could not have been done without the support of a group of excellent reviewers. We thank them all. We also would like to acknowledge the efforts of all the authors who submitted papers and made this special section possible. We hope our readers will find the articles in this section interesting and useful.



Ishwar K. Sethi is a Professor at Wayne State University, Detroit, Michigan, where he directs research in the Vision and Neural Networks Laboratory of the Department of Computer

Science. His research interests include decision tree-based learning, neural networks, pattern recognition, and image and video databases. He has over 120 conferences and journal publications to his credit. He serves on the editorial board of *IEEE Transactions on Pattern Analysis and Machine Intelligence*, *Pattern Recognition*, *Pattern Recognition Letters*, *Machine Vision and Applications*, and *International Journal of Knowledge-Based Intelligent Electronic*

Systems. He has served on program committees of numerous conferences. Since 1996 he has been the co-conference chair of IS&T/SPIE Conference on Storage and Retrieval for Image and Video Databases. He was the general chair of the 1997 International Conference on Conventional and Knowledge-Based Intelligence Electronic Systems, held at Adelaide, Australia. He has conducted sponsored research in the areas of computer vision, machine learning, and neural networks for various government and private organizations. He is a co-founder of Mandala Sciences, a company engaged in the applications of intelligent systems to health care.



Ramesh Jain received his BE from Nagpur University in 1969 and his PhD in 1975 from IIT, Kharagpur, India. He is currently director of the Visual Computing Laboratory and professor in the departments of Electrical and Computer Engineering and Computer Science and Engineering at the University of California, San Diego. Also a noted entrepreneur and co-founder of Imageware, Inc. (Ann Arbor, MI)

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