Message from the Co-Chairs

Dissemination and assimilation of visual information has played a most important role in the evolution of civilization. In prehistoric times, humans used hieroglyphics, stone engravings, sometimes simply patterned rock placements, to declare their territorial claims, make proclamations, and convey messages to the heavens. During early recorded history, the sophistication of a society was measured by the complexity and beauty of the visual patterns created by its master craftsman on its pottery and jewelry. As civilizations advanced, and with the discovery of the print medium, the recording, archiving, and retrieving of visual information acquired additional roles—in planning, building, and communication of visual events. And now here we are, in an age in which visual information has become central to practically every aspect of human existence—entertainment, practice of medicine, broadcast of mundane and cataclysmic events. We have seemingly reached a stage in the evolution of our technological sophistication in which textual information alone is insufficient for us to fully appreciate the importance of an event—we must also be able to see the associated images and video.

It is in this context that we wish to welcome you to the 1999 IEEE Workshop on Content-Based Access of Image and Video Libraries. Research interest in this area has skyrocketed during the last half-dozen years, fueled on one hand by the ever-increasing power of affordable computing and, on the other, by the plummeting cost of mass storage. Also feeding into this exploding interest is the realization that content-based retrieval of image and video databases is now a necessity in many domains. For example, it is now widely believed that the practice of diagnostic medicine would be much improved if, upon seeing a suspicious-looking region in an image, a physician could recall previously collected images with similar looking pathology-bearing regions. Gas and oil exploration would be expedited if the seismic and other sensory data could be searched and retrieved on the basis of visual similarities. Site-specific crop management and yield prediction in precision agriculture would become more feasible with the help of content-based search and retrieval of remotely sensed images. Environmental and public health risks due to global climate change could be more readily assessed by using content-based access of satellite image archives. Video libraries could be put to better use if we could successfully extract segments containing items of interest. In fact, both industrial and academic communities have already begun to focus their attention on the interoperability issues among potentially heterogeneous multimedia repositories. The emerging effort on MPEG-7, which attempts to standardize content description for multimedia data, is a good indication of this trend.

The workshop reports recent progress in technologies and applications in content-based image and video library access. Six papers present new methods of image analysis and low-level feature extraction for color, texture, and shape features. Another five papers address the problems of deriving higher level understanding of the visual information by analyzing the visual features. Six papers present techniques for improving retrieval results in libraries of images and video. Finally, a number of papers address specific content-based access applications in the domains of medical imagery, video, and graphical presentation material.

In closing, we would like to express our deep appreciation to Technical Program Chair Dr. John R. Smith for organizing the technical program, and to the entire technical program committee for reviewing the papers.

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