

# Guest Editorial

## Special Section on Multimedia and Communication

**M**ULTIMEDIA and associated communication technology have emerged in the industrial environment for the enhancement of productivity. Video, image, and audio compression technologies enable the storage and communication of vast quantities of real-world information. Multimedia technologies hold great promise for changing the infrastructure of industrial automation, due to the availability of a vast quantity of information and its associated management. The emerging high-performance computer networks, such as switched local area networks (LAN's), asynchronous transfer mode (ATM) switches, and the broad-band Integrated Service Digital Network (BISDN), provide the means for communicating voice, data, and video in real time. Wireless LAN and personal communication systems (PCS's) mobilize communication for factory cells and field service using personal digital assistants (PDA's). Consequently, these emerging technologies enable applications which foster the development of industrial automation and its associated information management. The intent of this special section is to provide a forum for addressing both the fundamental and applied aspects of this viable technology.

A tutorial paper, which describes both the technology and standards associated with multimedia and multimedia communication, will permit readers unfamiliar with this area to quickly grasp the significance of this rapidly advancing technology. An invited paper presents one of the newest developments in Motion Picture Expert Group-4 (MPEG-4), i.e., a content-based approach to video compression. This special section includes both theoretical and experimental contributions in the following subjects: 1) multimedia encoding techniques, as well as multimedia communication including video on demand (VOD); 2) ATM connection admission control; 3) ATM available bit rate (ABR) control; and 4) a transport layer used in broad-band multimedia communication.

The Guest Editors would like to express their appreciation to the authors for the high quality of their contributions, which document the state of the art in multimedia and multimedia communication. Special thanks are due to Prof. Joachim Holtz, Editor of the IEEE TRANSACTIONS ON INDUSTRIAL ELECTRONICS and Prof. James C. Hung, former Editor of this TRANSACTIONS, for their support and encouragement, which made this Special Section possible. The Guest Editors are also indebted to the referees who performed their assigned tasks in a very timely manner, which permitted this Special Section to go to press on schedule.

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