ICME 2003 Special Session on

Multistream Audio and Video Processing for Telepresence

Session Organizer: ***Rainer Lienhart***, Microprocessor Research Labs, Intel, USA
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Motivation:

This special session focuses on creatively deploying multi-stream multimedia inputs and outputs to enhance personal "telepresence" experience. Many academic and industrial researchers and technologists in recent years have started to explore the vast dimension and opportunities offered by the rich media, in multiple streams, from multiple channels of audio, to audio combined with visual data, and/or video and synthetic data. Microphone arrays are emerging and will soon become a reality for desktop and mobile computing platforms, and camera arrays are in transition from being highly sophisticated prototypes to becoming affordable consumer devices. Thanks to increasing CPU power of general-purpose computers and higher bandwidth in wired and wireless networks, it now becomes possible to perform array signal processing of audio and video using networked sensors, actuators and computers. We are surrounded by numerous audio, visual and other types of sensors and actuators that can now perform advanced collaborative tasks. This offers not only new possibilities for signal processing, but also poses many new interesting questions. Several important questions will be discussed in this session:

- How to intelligently combine multiple video inputs for creating panoramic views
- How to jointly process array audio and visual input data for immerse audio and video
- How to enhance signal quality in the case of multiple input and output audio and video streams
- What are the ways to synchronize distributed multimedia platforms and adapt DSP algorithms to general-purpose processors.

The answers on some of those and other important questions will be presented by recognized experts in the field of audio and video signal processing representing best academic and industrial research labs.

Speakers (By Invitation Only):

The following list of well-known researchers in this area will be invited to present their research in this special session:

- D. L. Jones, University of Illinois at Urbana-Champaign, Four-dimensional sound source recovery from arbitrary acoustic arrays
- Walter Kellermann, University of Erlangen-Nuremberg, Full-duplex communication systems using loudspeaker arrays and microphone arrays
- Parham Aarabi, University of Toronto, Joint Speaker Localization and Orientation Estimation
- A. Ankur, V. Raykar and R. Duraiswami, University of Maryland, College Park, Using computer vision to generate customized spatial audio
- Q. Liu, D. Kimber, C. Liao and J. Foote, FXPAL, Smart mixing of multi-channel audio/video signals for immersive conferencing
- D. Li and N. Dimitrova, Philips Research

Important Deadlines

Initial paper submission:	2/1/2003
Final paper submission:	3/31/2003