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ADVANCES IN VIDEO AND AUDIO CODING TECHNIQUE

by

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room T2:C3-434

Lecture Abstract

Digital media find wide applications in recent years. Well-known examples are mp3, DVD, digital camera and digital TV. After a quick overview of the audio and video coding principles, we focus on the coding methods and standards developed in the past 5 years. Two types of scalable video coding techniques, interframe wavelet and layered DCT, emerged during the MPEG standard competition. The latter became the MPEG scalable codec standard. Recently, 3D video products are aggressively growing. One step further, the free-viewpoint video seems to be the next MPEG standardization item. Audio coding techniques also advance fast in the past few years. A scalable version of MPEG audio is MPEG-4 Scalable to Lossless coding; also, a very efficient parametric spatial audio codec was standardized and called MPEG Surround. In this talk, we will describe briefly our research work on these topics.

Short Bio

Hsueh-Ming Hang received the B.S. and M.S. degrees from National Chiao Tung University, Hsinchu, Taiwan, in 1978 and 1980, respectively, and Ph.D. in Electrical Engineering from Rensselaer Polytechnic Institute, Troy, NY, in 1984. From 1984 to 1991, he was with AT&T Bell Laboratories, Holmdel, NJ, and then he joined the Electronics Engineering Department of National Chiao Tung University (NCTU), Hsinchu, Taiwan, in December 1991. From 2006 to 2009, he took a leave from NCTU and was appointed as dean of the EECS College at National Taipei University of Technology (NTUT). He is currently a Distinguished Professor of the EE Dept at NCTU and an associate dean of the ECE College, NCTU. He has been actively involved in the international MPEG standards since 1984 and his current research interests include multimedia compression, image/signal processing algorithms and architectures, and multimedia communication systems.

Dr. Hang holds 16 patents (ROC, US and Japan) and has published over 160 technical papers related to image compression, signal processing, and video codec architecture. He was an associate editor (AE) of the IEEE Transactions on Image Processing (TIP, 1992-1994), the IEEE Transactions on Circuits and Systems for Video Technology (1997-1999), and currently an AE of the IEEE TIP again. He is co-editor and contributor of the Handbook of Visual Communications published by Academic Press. He is a recipient of the IEEE Third Millennium Medal and is a Fellow of IEEE and IET and a member of Sigma Xi.