IEEE CAS Distinguished Lecture Series 2018

2PM, 27th August, 2018, Delta Building 201R, National Tsing Hua University, Hsinchu, Taiwan

3D Video Processing for Immersive AR/VR Contents Generation

Yo-Sung Ho, Ph. D.
Professor
School of Electrical Engineering and Computer Science
Gwangju Institute of Science and Technology, South Korea

Abstract:

With the emerging market of AR/VR imaging products, 3D video has become an active area of research and development in recent years. 3D video is the key to provide more realistic and immersive perceptual experiences than the existing 2D counterpart. There are many applications of 3D video, such as 3D movie and 3DTV, which are considered the main drive of the next-generation technical revolution. Stereoscopic display is the current mainstream technology for 3DTV, while auto-stereoscopic display is a more promising solution that requires more research endeavors to resolve the associated technical difficulties.

In this lecture, we are going to cover the current state-of-the-art technologies of 3D video processing for immersive AR/VR contents generation. After defining the basic requirements for 3D realistic multimedia services, we will cover various multimodal immersive media processing techniques. We also address the depth estimation problem for natural 3D scenes and discuss several challenging issues of 3D video capturing and processing, such as camera calibration, image rectification, illumination compensation and color correction.

Biography:

Dr. Yo-Sung Ho, IEEE Fellow, received the B.S. and M.S. degrees in electronic engineering from Seoul National University, Seoul, Korea, in 1981 and 1983, respectively, and the Ph.D. degree in electrical and computer engineering from the University of California, Santa Barbara, in 1990. He joined ETRI (Electronics and Telecommunications Research Institute), Daejon, Korea, in 1983. From 1990 to 1993, he was with North America Philips Laboratories, Briarcliff Manor, New York, where he was involved in development of the Advanced Digital High-Definition Television (AD-HDTV) system. In 1993, he rejoined the technical staff of ETRI and was involved in development of the Korean DBS Digital Television and High-Definition Television systems. Since 1995, he has been with Gwangju Institute of Science and Technology (GIST), where he is currently Professor of Information and Communications Department. Since August 2003, he has been Director of Realistic Broadcasting Research Center at GIST in Korea. His research interests include digital image and video coding, advanced source coding techniques, three-dimensional image modeling and representation, three-dimensional television (3DTV) and realistic broadcasting technologies.