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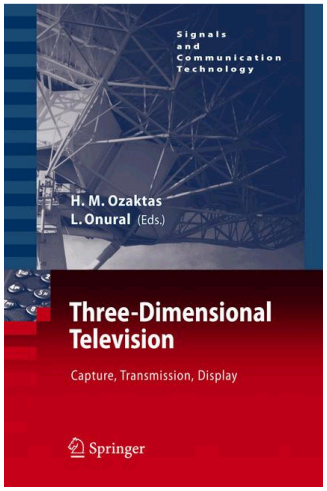

Haldun M. Ozaktas and Levent Onural
Bilkent University, Ankara, Turkey (Eds.)

Three-Dimensional Television

Capture, Transmission, Display

Advances in optical technology and computing power are bringing life-like 3DTV closer, with potential applications not only in entertainment, but also in education, scientific research, industry, medicine, and many other areas. 3DTV will require the integration of a diversity of key technologies from computing to graphics, imaging to display, and signal processing to communications. The scope of this book reflects this diversity: different chapters deal with different stages of an end-to-end 3DTV system such as capture, representation, coding, transmission, and display. Both autostereoscopic techniques which eliminate the need for special glasses and allow viewer movement, and holographic approaches which have the potential to provide the truest three-dimensional images, are covered. Some chapters discuss current research trends in 3DTV technology, while others address underlying topics. This book is essential to those with an interest in 3DTV-related research or applications, and also of interest to those who, while not directly working on 3DTV, work in areas which developments in 3DTV may touch, such as multimedia, computer games, virtual reality, medical imaging, and scientific simulation.

Contents: Three-dimensional television: from science-fiction to reality.- A backward-compatible, mobile, personalized 3DTV broadcasting system based on T-DMB.- Reconstructing human shape, motion and appearance from multi-view video.- Utilization of the texture uniqueness cue in stereo.- Pattern projection profilometry for 3D coordinates measurement of dynamic scenes.- Three-dimensional scene representations: modelling, animation, and rendering techniques.- Modeling, animation, and rendering of human figures.- A survey on coding of static and dynamic 3D meshes.- Compression of multi-view video and associated data.- Efficient transport of 3DTV.- Multiple description coding and its relevance to 3DTV.- 3D watermarking: techniques and directions.- Solving the 3D problem – The history and development of viable domestic 3-dimensional video displays.- An immaterial pseudo-3D display with 3D interaction.- Holographic 3DTV displays using spatial light modulators.- Materials for holographic 3DTV display applications.- Three-Dimensional Television: Consumer, Social, and Gender Issues.

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