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Nota di contenuto	3D Displays; Contents; Preface; Series Preface; Introduction; 1 The Physiology of 3D Perception; 1.1 Binocular Viewing or Human Stereopsis; 1.2 The Mismatch of Accommodation and Disparity and the Depths of Focus and of Field; 1.3 Distance Scaling of Disparity; 1.4 Interocular Crosstalk; 1.5 Psychological Effects for Depth Perception; 1.6 High-Level Cognitive Factor; Acknowledgments; References; 2 Stereoscopic Displays; 2.1 Stereoscopic Displays with Area Multiplexing; 2.1.1 Retarders for the generation of polarizations; 2.1.2 Wire grid polarizers for processing of the second view 2.1.3 Stereoscopic display with two LCDs2.2 Combined Area and Time Division Multiplex for 3D Displays; 2.3 Stereoscopic Time Sequential Displays; 2.3.1 Time sequential viewing with an active retarder; 2.3.2 Fast time sequential 3D displays by the use of OCB LCDs; 2.3.3 Time sequential 3D displays with black insertions; 2.4 Special Solutions for Stereoscopic Displays; 2.5 Stereoscopic Projectors; 2.6 Interleaved, Simultaneous, and Progressive Addressing of AMOLEDs and AMLCDs; 2.7 Photo-Induced Alignment for Retarders and Beam Splitters; Acknowledgments; References; 3 Autostereoscopic Displays 3.1 Spatially Multiplexed Multiview Autostereoscopic Displays with Lenticular Lenses3.2 Spatially Multiplexed Multiview Autostereoscopic

Displays with Switchable Lenticular Lenses; 3.3 Autostereoscopic Displays with Fixed and Switchable Parallax Barriers; 3.4 Time Sequential Autostereoscopic Displays and Directional Backlights; 3.4.1 Time sequential displays with special mirrors or 3D films; 3.4.2 Time sequential displays with directionally switched backlights; 3.5 Depth-Fused 3D Displays; 3.6 Single and Multiview 3D Displays with a Light Guide
3.7 Test of 3D Displays and Medical ApplicationsAcknowledgments; References; 4 Assessment of Quality of 3D Displays; 4.1 Introduction and Overview; 4.2 Retrieving Quality Data from Given Images; 4.3 Algorithms Based on Objective Measures Providing Disparity or Depth Maps; 4.3.1 The algorithm based on the sum of absolute differences; 4.3.2 Smoothness and edge detection in images; 4.4 An Algorithm Based on Subjective Measures; 4.5 The Kanade-Lucas-Toman (KLT) Feature Tracking Algorithm; 4.6 Special Approaches for 2D to 3D Conversion; 4.6.1 Conversion of 2D to 3D images based on motion parallax
4.6.2 Conversion from 2D to 3D based on depth cues in still pictures4.6.3 Conversion from 2D to 3D based on gray shade and luminance setting; 4.7 Reconstruction of 3D Images from Disparity Maps Pertaining to Monoscopic 2D or 3D Originals; 4.7.1 Preprocessing of the depth map; 4.7.2 Warping of the image creating the left and the right eye views; 4.7.3 Disocclusions and hole-filling; 4.7.4 Special systems for depth image-based rendering (DIBR); Acknowledgments; References; 5 Integral Imaging; 5.1 The Basis of Integral Imaging
5.2 Enhancement of Depth, Viewing Angle, and Resolution of 3D Integral Images

Sommario/riassunto

This book addresses electrical engineers, physicists, designers of flat panel displays (FDPs), students and also scientists from other disciplines interested in understanding the various 3D technologies. A timely guide is provided to the present status of development in 3D display technologies, ready to be commercialized as well as to future technologies. Having presented the physiology of 3D perception, the book progresses to a detailed discussion of the five 3D technologies: stereoscopic and autostereoscopic displays; integral imaging; holography and volumetric displays, and: In