

1. Record Nr.	UNINA9910800035203321
Autore	Bjelkhagen Hans I.
Titolo	Ultra-realistic imaging : advanced techniques in analogue and digital colour holography // Hans Bjelkhagen, David Brotherton-Ratcliffe
Pubbl/distr/stampa	Boca Raton : , : CRC Press, Taylor & Francis Group, , 2013
ISBN	0-429-15121-7 1-4398-2800-8
Descrizione fisica	1 online resource (651 p.)
Classificazione	TEC019000SCI055000
Altri autori (Persone)	Brotherton-RatcliffeDavid
Disciplina	621.36/75
Soggetti	Holography Image processing - Digital techniques
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	Description based upon print version of record.
Nota di bibliografia	Includes bibliographical references.
Nota di contenuto	Front Cover; Contents; Foreword; Preface; Acknowledgments; Authors; Chapter 1 - Ultra-Realistic Imaging and Its Historical Origin in Display Holography; Chapter 2 - Lippmann Photography; Chapter 3 - Continuous Wave Lasers for Colour Holography; Chapter 4 - Recording Materials for Colour Holography; Chapter 5 - Analogue Colour Holography; Chapter 6 - Pulsed Lasers for Holography; Chapter 7 - Digital Colour Holography; Chapter 8 - Digital Holographic Printing: Data Preparation, Theory and Algorithms; Chapter 9 - Digital Holographic Printing: Computational Methods for Full-Parallax Holograms Chapter 10 - Image Data Creation and Acquisition for Digital Display Holograms Chapter 11 - Theoretical Basis for High-Fidelity Display Holograms; Chapter 12 - Diffraction Efficiency: An Alternative Approach Using the PSM Model; Chapter 13 - Illumination of Colour Holograms; Chapter 14 - Applications of Ultra-Realistic Holographic Imaging; Chapter 15 - Acronyms; Appendix 1: Historical Origins of Display Holography: Spreading Awareness; Appendix 2: History of the Geola Organisation; Appendix 3: Active Cavity Length Stabilisation in Pulsed Neodymium Lasers Appendix 4: Aberration Correction by Image Predistortion in Digital Holograms Appendix 5: MAXScript Holocam Program; Appendix 6: Design Study of Compact RGB LED Hologram Illumination Source;

Sommario/riassunto

Ultra-high resolution holograms are now finding commercial and industrial applications in such areas as holographic maps, 3D medical imaging, and consumer devices. Ultra-Realistic Imaging: Advanced Techniques in Analogue and Digital Colour Holography brings together a comprehensive discussion of key methods that enable holography to be used as a technique of ultra-realistic imaging. After a historical review of progress in holography, the book: Discusses CW recording lasers, pulsed holography lasers, and reviews optical designs for many of the principal laser types with emphasis on attaining the parameters necessary for digital and analogue holography. Gives a full review of current photosensitive materials for colour holography. Covers modern methods of analogue holography and digital holographic printing. Introduces mathematical and geometrical notation for horizontal parallax-only holograms and practical computational algorithms for the full-parallax case. Reviews systems and the image processing algorithms required to convert the raw image data to the format required by digital printers. Develops the physical theory of the holographic grating and the hologram. Provides an up-to-date review of illumination sources, including LED and laser diode sources. Written by leaders in dynamic holography, this handbook provides complete coverage of real-time colour holographic processes, including applications. The book covers not only the optics and theory behind such holographic systems, but also laser technologies, recording devices, data acquisition and processing techniques, materials for reproduction, and current and developing applications--

This book is devoted to a discussion of how the goal of ultra-realistic imaging may be attained through the application of the interferential methods of modern analogue and digital holography - and in particular through volume phase holography--