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Autore	Bjelkhagen Hans I.
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Design Study of Compact RGB LED Hologram Illumination Source; Appendix 7: Bilinear and Bicubic Interpolation; Appendix 8: Rigorous Coupled Wave Theory of Simple and Multiplexed Gratings; Appendix 9: Recent Developments; Back Cover

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 holographyGives a full review of current photosensitive materials for colour holographyCovers modern methods of analogue holography and digital holographic printingIntroduces mathematical and geometrical notation for horizontal parallax-only holograms and practical computational algorithms for the full-parallax caseReviews systems and the image processing algorithms required to convert the raw image data to the format required by digital printersDevelops the physical theory of the holographic grating and the hologramProvides an up-to-date review of illumination sources, including LED and laser diode sourcesWritten 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 though volume phase holography--