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Nota di contenuto	Part I Fundamentals -- A brief history / Introduction -- Encoding optical signals in image acquisition -- Convex optimization for image reconstruction -- Machine learning for coded optical imaging -- Single-pixel imaging / Computational ghost imaging -- Diffractive neural network -- Temporally encoded illumination -- Coded-aperture ptychography -- Spatial frequency domain imaging -- Wavefront encoding -- Part III Depth imaging -- Fringe projection profilometry -- Stripe / Grid indexing-based profilometry -- Amplitude-modulated continuous wave (AMCW) time-of- flight (ToF) range imaging -- Lensless 3D imaging -- Coded-aperture diffraction optical tomography -- PSF engineering for 3D super-resolution microscopy -- Multi-shot coded aperture light field imaging using SLMs -- Light field background oriented Schlieren (LF-BOS) photography -- Light-filed imaging using a static color-coded aperture -- Light-field imaging with structured illumination -- Part V Temporal imaging -- Compressive

sensing multi-aperture CMOS camera -- Shuffled rolling shutter camera -- Compressed ultrafast photography -- Coded-aperture ultrahigh-speed imaging using CCD -- Coded time-stretching imaging -- Multiplexed Structured Image Capture (MUSIC) -- Sampling streak camera -- Part VI Spectral imaging -- Coded-Aperture Snapshot Spectral Imaging -- Spatial frequency multiplexing in spectroscopy -- Multi-aperture snapshot compressive hyperspectral camera -- Multi-foci illumination Raman spectroscopy -- Encoded diffractive optics for hyperspectral imaging -- Part VII Polarization imaging -- Bio-inspired camera -- Full-Stokes Polarimetric Imaging using metasurface -- Polarization structured illumination microscopy (pSIM) -- Optical image encryption using polarization encoding. .

Sommario/riassunto

This book provides a comprehensive survey of coded optical imaging. Illustrated with 386 figures, it takes readers from the fundamental concepts and theories to the latest research and applications in this field. It can be used in graduate-level courses in optics and photonics. It can also benefit scientists and engineers in optical imaging, computer graphics, and other related disciplines. This book starts from a brief history of coded optical imaging and key operations in its data acquisition and image reconstruction. It then presents the latest progress in technological development and applications in the areas of biomedicine, materials science, industrial inspection, optical physics, imaging science, information theory, and more. Chapters describe the most representative techniques, exposing readers to key research themes, including: · Optical signal encoding · Image reconstruction techniques · Compressed sensing · Artificial intelligence · Metasurface · Structured light · Lensless imaging · Holography · Tomography · Light-field imaging · Utrafast imaging · Hyperspectral imaging · Polarization imaging · Super-resolution imaging.