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Autore	Zhang Yu-Jin <1954->
Titolo	3D Computer Vision : Foundations and Advanced Methodologies / / by Yu-Jin Zhang
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ISBN	9789811976032
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Descrizione fisica	1 online resource (479 pages)
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Soggetti	Computer vision Image processing - Digital techniques Image processing Computer Vision Computer Imaging, Vision, Pattern Recognition and Graphics Image Processing Visió per ordinador Processament digital d'imatges Llibres electrònics
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Nota di bibliografia	Includes bibliographical references and index.
Nota di contenuto	Chapter 1 Introduction -- Chapter 2 Camera Imaging and Calibration -- Chapter 3 Depth Image Acquisition -- Chapter 4 Binocular Stereo Vision -- Chapter 5 Multi-Ocular Stereo Vision -- Chapter 6 Monocular Multi-Image Scene Restoration -- Chapter 7 Monocular Single-Image Scene Restoration -- Chapter 8 Point Cloud Data Processing -- Chapter 9 Simultaneous Location and Mapping -- Chapter 10 Generalized Matching -- Chapter 11 Understanding of Spatial-Temporal Behavior.
Sommario/riassunto	This book offers a comprehensive and unbiased introduction to 3D Computer Vision, ranging from its foundations and essential principles to advanced methodologies and technologies. Divided into 11 chapters, it covers the main workflow of 3D computer vision as follows: camera imaging and calibration models; various modes and means of 3D image acquisition; binocular, trinocular and multi-ocular stereo vision matching techniques; monocular single-image and multi-image scene

restoration methods; point cloud data processing and modeling; simultaneous location and mapping; generalized image and scene matching; and understanding spatial-temporal behavior. Each topic is addressed in a uniform manner: the dedicated chapter first covers the essential concepts and basic principles before presenting a selection of typical, specific methods and practical techniques. In turn, it introduces readers to the most important recent developments, especially in the last three years. This approach allows them to quickly familiarize themselves with the subject, implement the techniques discussed, and design or improve their own methods for specific applications. The book can be used as a textbook for graduate courses in computer science, computer engineering, electrical engineering, data science, and related subjects. It also offers a valuable reference guide for researchers and practitioners alike.