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Nota di contenuto	Foreword -- Preface -- Acknowledgements -- Introduction -- Fundamentals of Imaging -- The Pinhole Camera Model -- Camera Calibration -- Absolute and Exterior Orientation -- Two-view Geometry -- Relative Orientation -- Reconstruction from Two Images -- Nonlinear Regression -- Stereopsis: geometry -- Stereopsis: matching -- Renge Sensors -- Multiview Euclidean Reconstruction -- 3D Registration -- Multiview Projective Reconstruction and Autocalibration -- Multi-View Stereo Reconstruction -- Image-based Rendering -- A Notions of linear algebra -- B Matrix Differential Calculation -- C Regression -- D Notions of Projective Geometry -- D Math Lab code -- Index.
Sommario/riassunto	From facial recognition to self-driving cars, the applications of computer vision are vast and ever-expanding. Geometry plays a fundamental role in this discipline, providing the necessary mathematical framework to understand the underlying principles of how we perceive and interpret visual information in the world around

us. This text explores the theories and computational techniques used to determine the geometric properties of solid objects through images. It covers the basic concepts and provides the necessary mathematical background for more advanced studies. The book is divided into clear and concise chapters covering a wide range of topics including image formation, camera models, feature detection and 3D reconstruction. Each chapter includes detailed explanations of the theory as well as practical examples to help the reader understand and apply the concepts presented. The book has been written with the intention of being used as a primary resourcefor students on university courses in computer vision, particularly final year undergraduate or postgraduate computer science or engineering courses. It is also useful for self-study and for those who, outside the academic field, find themselves applying computer vision to solve practical problems. The aim of the book is to strike a balance between the complexity of the theory and its practical applicability in terms of implementation. Rather than providing a comprehensive overview of the current state of the art, it offers a selection of specific methods with enough detail to enable the reader to implement them. .