1. Record Nr. UNINA9910254342903321

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Titolo	Foundations of Computer Vision : Computational Geometry, Visual Image Structures and Object Shape Detection / / by James F. Peters
Pubbl/distr/stampa	Cham : , : Springer International Publishing : , : Imprint : Springer, , 2017
ISBN	3-319-52483-6
Edizione	[1st ed. 2017.]
Descrizione fisica	1 online resource (XVII, 431 p. 354 illus., 301 illus. in color.)
Collana	Intelligent Systems Reference Library, , 1868-4394 ; ; 124
Disciplina	006.37
Soggetti	Computational intelligence Optical data processing Artificial intelligence Physics Computational Intelligence Image Processing and Computer Vision Artificial Intelligence Applications of Graph Theory and Complex Networks
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Nota di bibliografia	Includes bibliographical references and index.
Nota di contenuto	Basics Leading to Machine Vision -- Working with Pixels -- Visualising Pixel Intensity Distributions -- Linear Filtering -- Edges, Lines, Corners, Gaussian kernel and Voronoï Meshes -- Delaunay Mesh Segmentation -- Video Processing. An Introduction to Real-Time and Oine Video Analysis -- Lowe Keypoints, Maximal Nucleus Clusters, Contours and Shapes -- Postscript. Where Do Shapes t into the Computer Vision Landscape?.
Sommario/riassunto	This book introduces the fundamentals of computer vision (CV), with a focus on extracting useful information from digital images and videos. Including a wealth of methods used in detecting and classifying image objects and their shapes, it is the first book to apply a trio of tools (computational geometry, topology and algorithms) in solving CV problems, shape tracking in image object recognition and detecting the repetition of shapes in single images and video frames. Computational geometry provides a visualization of topological structures such as

neighborhoods of points embedded in images, while image topology supplies us with structures useful in the analysis and classication of image regions. Algorithms provide a practical, step-by-step means of viewing image structures. The implementations of CV methods in Matlab and Mathematica, classication of chapter problems with the symbols (easily solved) and (challenging) and its extensive glossary of key words, examples and connections with the fabric of CV make the book an invaluable resource for advanced undergraduate and rst year graduate students in Engineering, Computer Science or Applied Mathematics. It offers insights into the design of CV experiments, inclusion of image processing methods in CV projects, as well as the reconstruction and interpretation of recorded natural scenes.