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Titolo	Digital Image Processing : An Algorithmic Introduction Using Java / / by Wilhelm Burger, Mark J. Burge
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Descrizione fisica	1 online resource (XXIII, 811 p. 413 illus., 141 illus. in color.)
Collana	Texts in Computer Science, , 1868-0941
Disciplina	621.367
Soggetti	Optical data processing Signal processing Image processing Speech processing systems Computational intelligence Image Processing and Computer Vision Signal, Image and Speech Processing Computational Intelligence
Lingua di pubblicazione	Inglese
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Nota di contenuto	Digital Images -- ImageJ -- Histograms and Image Statistics -- Point Operations -- Filters -- Edges and Contours -- Corner Detection -- Finding Simple Curves: The Hough Transform -- Morphological Filters -- Regions in Binary Images -- Automatic Thresholding -- Color Images -- Color Quantization -- Colorimetric Color Spaces -- Filters for Color Images -- Edge Detection in Color Images -- Edge-Preserving Smoothing Filters -- Introduction to Spectral Techniques -- The Discrete Fourier Transform in 2D -- The Discrete Cosine Transform (DCT) -- Geometric Operations -- Pixel Interpolation -- Image Matching and Registration -- Non-Rigid Image Matching -- Scale-Invariant Feature Transform (SIFT) -- Fourier Shape Descriptors -- Appendix A: Mathematical Symbols and Notation -- Appendix B: Linear Algebra -- Appendix C: Calculus -- Appendix D: Statistical Prerequisites -- Appendix E: Gaussian Filters -- Appendix F: JavaNotes.
Sommario/riassunto	This modern, self-contained textbook provides an accessible introduction to the field from the perspective of a practicing

programmer, supporting a detailed presentation of the fundamental concepts and techniques with practical exercises and fully worked out implementation examples. This much-anticipated new edition of the definitive textbook on Digital Image Processing has been completely revised and expanded with new content and improved teaching material. Topics and features: Contains new chapters on automatic thresholding, filters and edge detection for color images, edge-preserving smoothing filters, non-rigid image matching, and Fourier shape descriptors. Includes exercises at the end of every chapter, and provides additional supplementary material at an associated website. Uses ImageJ for all examples, a widely used open source imaging system that can run on all major platforms and be easily ported to other programming languages. Describes each solution in a stepwise manner in mathematical form, as abstract pseudocode algorithms, and as complete Java programs. Presents suggested outlines for a one- or two-semester course in the preface. Advanced undergraduate and graduate students will find this comprehensive and example-rich textbook will serve as the ideal introduction to digital image processing. It will also prove invaluable to researchers and professionals seeking a practically focused self-study primer.