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2.7.3 Introductory wavelets 2.7.3.1 Gabor wavelet; 2.7.3.2 Haar wavelet; 2.7.4 Other transforms; 2.8 Applications using frequency domain properties; 2.9 Further reading; 2.10 References; 3 Basic image processing operations; 3.1 Overview; 3.2 Histograms; 3.3 Point operators; 3.3.1 Basic point operations; 3.3.2 Histogram normalization; 3.3.3 Histogram equalization; 3.3.4 Thresholding; 3.4 Group operations; 3.4.1 Template convolution; 3.4.2 Averaging operator; 3.4.3 On different template size; 3.4.4 Gaussian averaging operator; 3.4.5 More on averaging; 3.5 Other statistical operators 3.5.1 Median filter 3.5.2 Mode filter; 3.5.3 Anisotropic diffusion; 3.5.4 Force field transform; 3.5.5 Comparison of statistical operators; 3.6 Mathematical morphology; 3.6.1 Morphological operators; 3.6.2 Gray-level morphology; 3.6.3 Gray-level erosion and dilation; 3.6.4 Minkowski operators; 3.7 Further reading; 3.8 References; 4 Low-level feature extraction (including edge detection); 4.1 Overview; 4.2 Edge detection; 4.2.1 First-order edge-detection operators; 4.2.1.1 Basic operators; 4.2.1.2 Analysis of the basic operators; 4.2.1.3 Prewitt edge-detection operator 4.2.1.4 Sobel edge-detection operator 4.2.1.5 The Canny edge detector; 4.2.2 Second-order edge-detection operators; 4.2.2.1 Motivation; 4.2.2.2 Basic operators: the Laplacian; 4.2.2.3 The Marr-Hildreth operator; 4.2.3 Other edge-detection operators; 4.2.4 Comparison of edge-detection operators; 4.2.5 Further reading on edge detection; 4.3 Phase congruency; 4.4 Localized feature extraction; 4.4.1 Detecting image curvature (corner extraction); 4.4.1.1 Definition of curvature; 4.4.1.2 Computing differences in edge direction; 4.4.1.3 Measuring curvature by changes in intensity (differentiation) 4.4.1.4 Moravec and Harris detectors

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## Sommario/riassunto

This book is an essential guide to the implementation of image processing and computer vision techniques, with tutorial introductions and sample code in Matlab. Algorithms are presented and fully explained to enable complete understanding of the methods and techniques demonstrated. As one reviewer noted, "The main strength of the proposed book is the exemplar code of the algorithms." Fully updated with the latest developments in feature extraction, including expanded tutorials and new techniques, this new edition contains extensive new material on Haar wavelets, Viola-Jones, bilateral fi

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