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Nota di contenuto	Discovering Wavelets; Preface; Acknowledgments; Contents; 1 Wavelets, Fingerprints, and Image Processing; 1.1 Problems of the Digital Age; 1.2 Digitizing Fingerprint Images; 1.3 Signals; 1.4 The Haar Wavelet Family; 1.5 Processing Signals; 1.6 Thresholding and Compression of Data; 1.7 The FBI Wavelet/Scalar Quantization Standard; 2 Wavelets and Orthogonal Decompositions; 2.1 A Lego World; 2.2 The Wavelet Sons; 2.3 Sibling Rivalry: Two Bases for Vn; 2.4 Averaging and Differencing; 2.5 Projecting Functions Onto Wavelet Spaces; 2.6 Function Processing and Image Boxes 2.7 A Summary of Two Approaches to Wavelets3 Multiresolutions, Cascades, and Filters; 3.1 Extending the Haar Wavelets to the Real Line; 3.2 Other Elementary Wavelet Families; 3.3 Multiresolution Analysis; 3.4 The Haar Scaling Function Rediscovered; 3.5 Relationships Between the Mother and Father Wavelets; 3.6 Daubechies Wavelets; 3.7 High and Low Pass Filters; 3.8 More Problems of the Digital Age: Compact Discs; 4 Sample Projects; 4.1 Introduction: Overview of Projects; 4.2 Linear Algebra Project: Image Processing and Compression; 4.3 A Wavelet-Based Search Engine; 4.4 B-Splines

	4.5 Processing with the D4 Wavelets4.6 Daubechies Wavelets with Six Refinement Coefficients; Appendix A Vector Spaces and Inner Product Spaces; A.l Vector Spaces; A.2 Subspaces; A.3 Inner Product Spaces; A.4 The Orthogonal Decomposition Theorem; Appendix B Maple Routines; B.1 Matrix Generator; B.2 Processing Sampled Data; B.3 Projections onto Wavelet Spaces; B.4 The Cascade Algorithm; B.5 Processing an Image from Pixel Images; Appendix C Answers to Selected Problems; Appendix D Glossary of Symbols; References; Index
Sommario/riassunto	An accessible and practical introduction to waveletsWith applications in image processing, audio restoration, seismology, and elsewhere, wavelets have been the subject of growing excitement and interest over the past several years. Unfortunately, most books on wavelets are accessible primarily to research mathematicians. Discovering Wavelets presents basic and advanced concepts of wavelets in a way that is accessible to anyone with only a fundamental knowledge of linear algebra.The basic concepts of wavelet theory are introduced in the context of an explanation of how the FBI u