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6.1 Constructing the Daubechies Scaling FunctionsProblems; 6.2 The Cascade Algorithm; Problems; 6.3 Orthogonal Translates, Coding, and Projections; Problems; 7 The Discrete Daubechies Transformation and Applications; 7.1 The Discrete Daubechies Wavelet Transform; Problems; 7.2 Projections and Signal and Image Compression; Problems; 7.3 Naive Image Segmentation; Problems; 8 Biorthogonal Scaling Functions and Wavelets; 8.1 A Biorthogonal Example and Duality; Problems; 8.2 Biorthogonality Conditions for Symbols and Wavelet Spaces; Problems 8.3 Biorthogonal Spline Filter Pairs and the CDF97 Filter PairProblems; 8.4 Decomposition and Reconstruction; Problems; 8.5 The Discrete Biorthogonal Wavelet Transform; Problems; 8.6 Riesz Basis Theory; Problems; 9 Wavelet Packets; 9.1 Constructing Wavelet Packet Functions; Problems; 9.2 Wavelet Packet Spaces; Problems; 9.3 The Discrete Packet Transform and Best Basis Algorithm; Problems; 9.4 The FBI Fingerprint Compression Standard; Appendix A: Huffman Coding; Problems; References; Topic Index; Author Index

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### Sommario/riassunto

A self-contained, elementary introduction to wavelet theory and applications Exploring the growing relevance of wavelets in the field of mathematics, Wavelet Theory: An Elementary Approach with Applications provides an introduction to the topic, detailing the fundamental concepts and presenting its major impacts in the world beyond academia. Drawing on concepts from calculus and linear algebra, this book helps readers sharpen their mathematical proof writing and reading skills through interesting, real-world applications. The book begins with a brief introduction to the fundamentals of com

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