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Sommario/riassunto	The new edition of Discrete Wavelet Transformations continues to guide readers through the abstract concepts of wavelet theory by using Dr. Van Fleet’s highly practical, application-based approach, which reflects how mathematicians construct solutions to challenges outside the classroom. By introducing the Haar, orthogonal, and biorthogonal filters without the use of Fourier series, Van Fleet allows his audience to connect concepts directly to real-world applications at an earlier point than other publications in the field. Leveraging extensive graphical displays, this self-contained volume integrates concepts from calculus and linear algebra into the constructions of wavelet transformations

and their applications, including data compression, edge detection in images and denoising of signals. Conceptual understanding is reinforced with over 500 detailed exercises and 24 computer labs. The second edition discusses new applications including image segmentation, pansharpening, and the FBI fingerprint compression specification. Other notable features include: Two new chapters covering wavelet packets and the lifting method; A reorganization of the presentation so that basic filters can be constructed without the use of Fourier techniques; A new comprehensive chapter that explains filter derivation using Fourier techniques; Over 120 examples of which 91 are “live examples,” which allow the reader to quickly reproduce these examples in Mathematica or MATLAB and deepen conceptual mastery; An overview of digital image basics, equipping readers with the tools they need to understand the image processing applications presented; A complete rewrite of the DiscreteWavelets package called WaveletWare for use with Mathematica and MATLAB; A website, www.stthomas.edu/wavelets, featuring material containing the WaveletWare package, live examples, and computer labs in addition to companion material for teaching a course using the book. Comprehensive and grounded, this book and its online components provide an excellent foundation for developing undergraduate courses as well as a valuable resource for mathematicians, signal process engineers, and other professionals seeking to understand the practical applications of discrete wavelet transformations in solving real-world challenges.