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3.5.2. The Least Asymmetric Daubechies' Wavelets: Symlets; 3.5.3. Approximations and Characterizations of Functional Spaces; 3.5.4. Daubechies-Lagarias Algorithm; 3.5.5. Moment Conditions; 3.5.6. Interpolating (Cardinal) Wavelets; 3.5.7. Pollen-Type Parameterization of Wavelets; 3.6. Exercises; 4. Discrete Wavelet Transformations; 4.1. Introduction; 4.2. The Cascade Algorithm; 4.3. The Operator Notation of DWT; 4.3.1. Discrete Wavelet Transformations as Linear Transformations; 4.4. Exercises; 5. Some Generalizations; 5.1. Coiflets; 5.1.1. Construction of Coiflets; 5.2. Biorthogonal Wavelets; 5.2.1. Construction of Biorthogonal Wavelets; 5.2.2. B-Spline Wavelets; 5.3. Wavelet Packets; 5.3.1. Basic Properties of Wavelet Packets; 5.3.2. Wavelet Packet Tables; 5.4. Best Basis Selection; 5.4.1. Some Cost Measures and the Best Basis Algorithm; 5.5. Decimated and Stationary Wavelet Transformations; 5.5.1. Decimated Wavelet Transformation; 5.5.2. Stationary (Non-Decimated) Wavelet Transformation; 5.6. Periodic Wavelet Transformations; 5.7. Multivariate Wavelet Transformations; 5.8. Discussion; 5.9. Exercises; 6. Wavelet Shrinkage; 6.1. Shrinkage Method; 6.2. Linear Wavelet Regression Estimators; 6.2.1. Wavelet Kernels; 6.2.2. Local Constant Fit Estimators; 6.3. The Simplest Non-Linear Wavelet Shrinkage: Thresholding; 6.3.1. Variable Selection and Thresholding; 6.3.2. Oracle Risk for Thresholding Rules; 6.3.3. Why the Wavelet Shrinkage Works; 6.3.4. Almost Sure Convergence of Wavelet Shrinkage Estimators; 6.4. General Minimax Paradigm; 6.4.1. Translation of Minimaxity Results to the Wavelet Domain; 6.5. Thresholding Policies and Thresholding Rules; 6.5.1. Exact Risk Analysis of Thresholding Rules; 6.5.2. Large Sample Properties; 6.5.3. Some Other Shrinkage Rules

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Sommario/riassunto

A comprehensive, step-by-step introduction to wavelets in statistics. What are wavelets? What makes them increasingly indispensable in statistical nonparametrics? Why are they suitable for "time-scale" applications? How are they used to solve such problems as denoising, regression, or density estimation? Where can one find up-to-date information on these newly "discovered" mathematical objects? These are some of the questions Brani Vidakovic answers in Statistical Modeling by Wavelets. Providing a much-needed introduction to the latest tools afforded statisticians by wavelet theory,

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