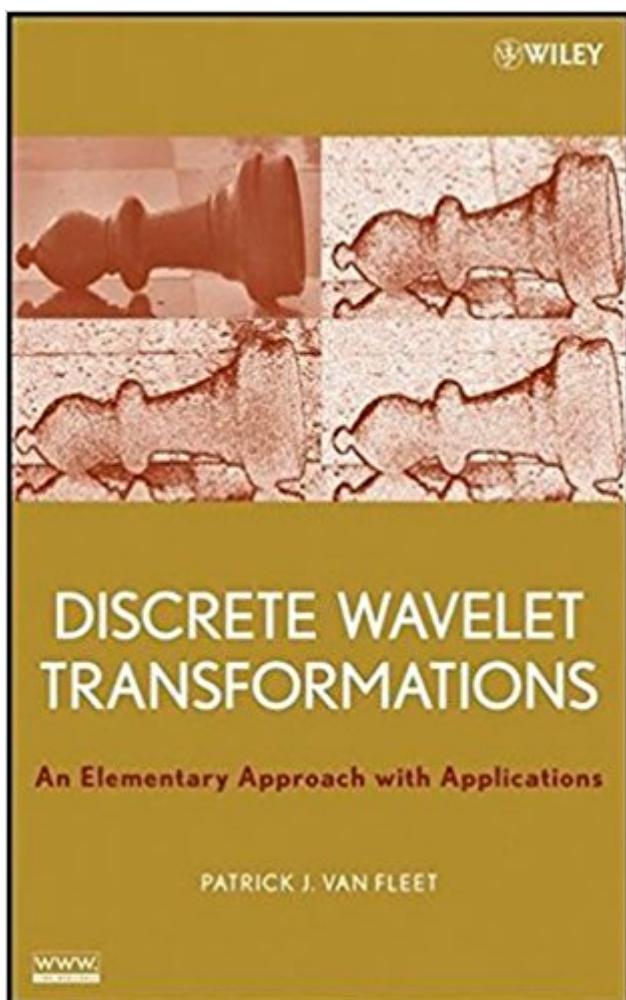


The book was found

# Discrete Wavelet Transformations: An Elementary Approach With Applications



## Synopsis

An "applications first" approach to discrete wavelet transformations Discrete Wavelet Transformations provides readers with a broad elementary introduction to discrete wavelet transformations and their applications. With extensive graphical displays, this self-contained book integrates concepts from calculus and linear algebra into the construction of wavelet transformations and their various applications, including data compression, edge detection in images, and signal and image denoising. The book begins with a cursory look at wavelet transformation development and illustrates its allure in digital signal and image applications. Next, a chapter on digital image basics, quantitative and qualitative measures, and Huffman coding equips readers with the tools necessary to develop a comprehensive understanding of the applications. Subsequent chapters discuss the Fourier series, convolution, and filtering, as well as the Haar wavelet transform to introduce image compression and image edge detection. The development of Daubechies filters is presented in addition to coverage of wavelet shrinkage in the area of image and signal denoising. The book concludes with the construction of biorthogonal filters and also describes their incorporation in the JPEG2000 image compression standard. The author's "applications first" approach promotes a hands-on treatment of wavelet transformation construction, and over 400 exercises are presented in a multi-part format that guide readers through the solution to each problem. Over sixty computer labs and software development projects provide opportunities for readers to write modules and experiment with the ideas discussed throughout the text. The author's software package, *DiscreteWavelets*, is used to perform various imaging and audio tasks, compute wavelet transformations and inverses, and visualize the output of the computations. Supplementary material is also available via the book's related Web site, which includes an audio and video repository, final project modules, and software for reproducing examples from the book. All software, including the *DiscreteWavelets* package, is available for use with Mathematica®, MATLAB®, and Maple. *Discrete Wavelet Transformations* strongly reinforces the use of mathematics in digital data applications, sharpens programming skills, and provides a foundation for further study of more advanced topics, such as real analysis. This book is ideal for courses on discrete wavelet transforms and their applications at the undergraduate level and also serves as an excellent reference for mathematicians, engineers, and scientists who wish to learn about discrete wavelet transforms at an elementary level.

## Book Information

Hardcover: 572 pages

Publisher: Wiley-Interscience; 1 edition (January 18, 2008)

Language: English

ISBN-10: 047018311X

ISBN-13: 978-0470183113

Product Dimensions: 6.5 x 1.3 x 9.6 inches

Shipping Weight: 2 pounds (View shipping rates and policies)

Average Customer Review: 5.0 out of 5 stars 1 customer review

Best Sellers Rank: #942,154 in Books (See Top 100 in Books) #61 in Books > Science & Math > Mathematics > Infinity #338 in Books > Science & Math > Mathematics > Pure Mathematics > Discrete Mathematics #807 in Books > Engineering & Transportation > Engineering > Electrical & Electronics > Circuits

## **Customer Reviews**

"The book is a valuable reference for wavelet applications and the theory of underlying 2-band filterbanks." (Mathematical Reviews, Issue 2009g)

An "applications first" approach to discrete wavelet transformations Discrete Wavelet Transformations provides readers with a broad elementary introduction to discrete wavelet transformations and their applications. With extensive graphical displays, this self-contained book integrates concepts from calculus and linear algebra into the construction of wavelet transformations and their various applications, including data compression, edge detection in images, and signal and image denoising. The book begins with a cursory look at wavelet transformation development and illustrates its allure in digital signal and image applications. Next, a chapter on digital image basics, quantitative and qualitative measures, and Huffman coding equips readers with the tools necessary to develop a comprehensive understanding of the applications. Subsequent chapters discuss the Fourier series, convolution, and filtering, as well as the Haar wavelet transform to introduce image compression and image edge detection. The development of Daubechies filters is presented in addition to coverage of wavelet shrinkage in the area of image and signal denoising. The book concludes with the construction of biorthogonal filters and also describes their incorporation in the JPEG2000 image compression standard. The author's "applications first" approach promotes a hands-on treatment of wavelet transformation construction, and over 400 exercises are presented in a multi-part format that guide readers through the solution to each problem. Over sixty computer labs and software development projects provide opportunities for

readers to write modules and experiment with the ideas discussed throughout the text. The author's software package, *DiscreteWavelets*, is used to perform various imaging and audio tasks, compute wavelet transformations and inverses, and visualize the output of the computations. Supplementary material is also available via the book's related Web site, which includes an audio and video repository, final project modules, and software for reproducing examples from the book. All software, including the *DiscreteWavelets* package, is available for use with Mathematica®, MATLAB® and Maple. *Discrete Wavelet Transformations* strongly reinforces the use of mathematics in digital data applications, sharpens programming skills, and provides a foundation for further study of more advanced topics, such as real analysis. This book is ideal for courses on discrete wavelet transforms and their applications at the undergraduate level and also serves as an excellent reference for mathematicians, engineers, and scientists who wish to learn about discrete wavelet transforms at an elementary level.

Book was in shrink wrap and met all my needs and wants. Fast delivery. Will buy from buyer in the future.

[Download to continue reading...](#)

Discrete Wavelet Transformations: An Elementary Approach with Applications The Illustrated Wavelet Transform Handbook: Introductory Theory and Applications in Science, Engineering, Medicine and Finance, Second Edition From Antiquities to Heritage: Transformations of Cultural Memory (Time and the World: Interdisciplinary Studies in Cultural Transformations) Discrete Mathematics: Elementary and Beyond (Undergraduate Texts in Mathematics) Laboratory Applications in Microbiology: A Case Study Approach: Laboratory Applications in Microbiology: A Case Study Approach Discrete Mathematics with Applications Discrete Mathematics and Its Applications Seventh Edition (Higher Math) Discrete Mathematics and Its Applications (Higher Math) Discrete Mathematics and Its Applications Cryptography: Theory and Practice, Third Edition (Discrete Mathematics and Its Applications) Discrete Mathematics and Applications, Second Edition (Textbooks in Mathematics) Student's Solutions Guide to Accompany Discrete Mathematics and Its Applications, 7th Edition Introduction to Mathematical Logic, Sixth Edition (Discrete Mathematics and Its Applications) Introduction to Mathematical Logic, Fourth Edition (Discrete Mathematics and Its Applications) CRC Standard Mathematical Tables and Formulae, 29th Edition (Discrete Mathematics and Its Applications) ELEMENTARY SCIENCE 2000 TRADE LIBRARY WHATS THE BIG IDEA BEN FRANKLIN COPYRIGHT 2000 (Elementary Science Trade Library) Striker Jones: Elementary Economics for Elementary Detectives (Striker Jones Economics for Kids Mysteries

Book 1) A Simply Classic Nutcracker: For Elementary to Late Elementary Pianists Praxis II  
Elementary Education Multiple Subjects 5001 Study Guide: Test Prep & Practice Test Questions for the Praxis 2 Elementary Education Multiple Subjects 5001 Exam Student Solutions Manual to accompany Boyce Elementary Differential Equations 10e & Elementary Differential Equations with Boundary Value Problems 10e

[Contact Us](#)

[DMCA](#)

[Privacy](#)

[FAQ & Help](#)