



Fundamentals of Wavelets: Theory, Algorithms, and Applications (Wiley Series in Microwave and Optical Engineering)

By Jaideva C. Goswami, Andrew K. Chan

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Wavelet theory originated from research activities in many areas of science and engineering. As a result, it finds applications in a wide range of practical problems. Wavelet techniques are specifically suited for nonstationary signals for which classic Fourier methods are ineffective.

Based on courses taught by the authors at Texas A&M University as well as related conferences, *Fundamentals of Wavelets* is a textbook offering an up-to-date engineering approach to wavelet theory. It balances a discussion of wavelet theory and algorithms with its far-ranging practical applications in signal processing, image processing, electromagnetic wave scattering, and boundary value problems.

In a clear, progressive format, the book describes:

- * Basic concepts of linear algebra, Fourier analysis, and discrete signal analysis
- * Theoretical aspects of time-frequency analysis and multiresolution analysis
- * Construction of various wavelets
- * Algorithms for computing wavelet transformations.

Concluding chapters present interesting applications of wavelets to signal processing and boundary value problems. *Fundamentals of Wavelets* is an essential introduction to wavelet theory for students and professionals alike in a practical, real-world engineering context.

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- Sales Rank: #4756112 in Books
- Published on: 1999-02-16
- Original language: English
- Number of items: 1
- Dimensions: 9.53" h x .81" w x 6.42" l, 1.42 pounds
- Binding: Hardcover
- 324 pages

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Editorial Review

Review

"This book is well-written, the material is arranged in a logical order...it is suggested to be read by image processing experts doing image analysis and image compressions and having good mathematical background." (CIE News Vol. 58)

"...will be extremely useful for signal processing engineers and scientists, all of whom should have a copy on their bookshelves" (Electronics & Communications Engineering Journal, December 2000)

From the Back Cover

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About the Author

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ANDREW K. CHAN is on the faculty of Texas A&M University and the coauthor of Wavelets in a Box and Wavelet Toolware. Dr. Chan received his PhD in electrical engineering from the University of Washington.

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