

*Wavelet theory and neural networks unite!*

**NEW!**

# Foundations of Wavelet Networks and Applications

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## THE FIRST INTEGRATED TREATMENT OF WAVELETS AND NEURAL NETS

Traditionally, neural networks and wavelet theory have been two separate disciplines, taught separately and practiced separately. In recent years the offspring of wavelet theory and neural networks—wavelet networks—have emerged and grown vigorously both in research and applications. Yet the material needed to learn or teach wavelet networks has remained scattered in various research monographs.

**Foundations of Wavelet Networks and Applications** unites these two fields in a comprehensive, integrated presentation of wavelets and neural networks. It begins by building a foundation, including the necessary mathematics. A transitional chapter on recurrent learning then leads to an in-depth look at wavelet networks in practice, examining important applications that include using wavelets as stock market trading advisors, as classifiers in electroencephalographic drug detection, and as predictors of chaotic time series. The final chapter explores concept learning and approximation by wavelet networks.

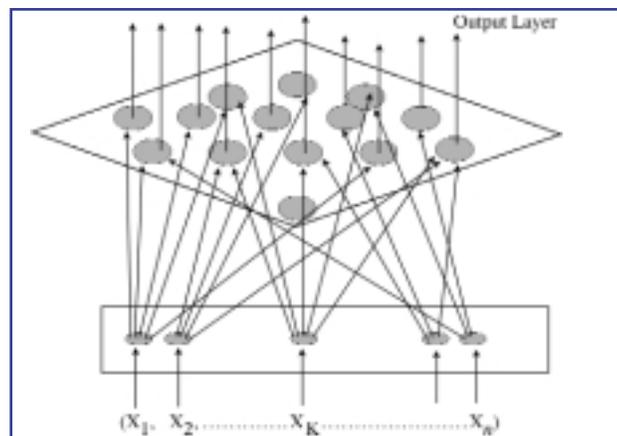
The potential of wavelet networks in engineering, economics, and social science applications is rich and still growing. **Foundations of Wavelet Networks and Applications** prepares and inspires its readers not only to help ensure that potential is achieved but also to open new frontiers in research and applications.

### FEATURES

- Provides the first comprehensive, self-contained treatment of wavelet networks
- Focuses on establishing insight and understanding rather than rigorous mathematical foundations
- Presents a variety of neural architectures to inspire new ideas and build a foundation for adapting wavelets to still other neural architectures
- Includes in each chapter exercises sets that help solidify understanding
- Contains a full bibliography that forms a rich resource for further explorations

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**Figure 3.17** Kohonen Self-Organizing Maps

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