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# Diffusion-Driven Wavelet Design for Shape Analysis

By Tingbo Hou, Hong Qin

Apple Academic Press Inc. Hardback. Book Condition: new. BRAND NEW, Diffusion-Driven Wavelet Design for Shape Analysis, Tingbo Hou, Hong Qin, From Design Methods and Generation Schemes to State-of-the-Art Applications Wavelets are powerful tools for functional analysis and geometry processing, enabling researchers to determine the structure of data and analyze 3D shapes. Suitable for researchers in computer graphics, computer vision, visualization, medical imaging, and geometric modeling as well as graduate and senior undergraduate students in computer science, Diffusion-Driven Wavelet Design for Shape Analysis presents recent research results in wavelet designs on 3D shapes and their applications in shape analysis. It explains how to apply the design methods to various types of 3D data, such as polygonal meshes, point clouds, manifolds, and volumetric images. Extensions of Wavelet Generation on Volumetric and Manifold Data The first part of the book introduces design methods of wavelets on manifold data, incorporating interdisciplinary knowledge from differential geometry, functional analysis, Fourier transform, spectral graph theory, and stochastic processes. The authors show how wavelets are purely determined by the shape geometry and how wavelet transforms are computed as inner products of wavelet kernels and input functions. Wavelets for Solving Computer Graphics Problems The second part presents applications in...



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