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Nota di bibliografia	Includes bibliographical references and index.
Nota di contenuto	Preliminaries -- Haar wavelets -- Solution of ordinary differential equations (ODEs) -- Stiff equations -- Integral equations -- Evolution equations -- Solving PDEs with the aid of two-dimensional Haar wavelets -- Fractional calculus -- Applying Haar wavelets in the optimal control theory -- Buckling of elastic beams -- Vibrations of cracked Euler-Bernoulli beams -- Free vibrations on non-uniform and axially functionally graded Euler-Bernoulli beams -- Vibrations of functionally graded Timoshenko beams -- Applying Haar wavelets in damage detection using machine learning methods.
Sommario/riassunto	This is the first book to present a systematic review of applications of the Haar wavelet method for solving Calculus and Structural Mechanics problems. Haar wavelet-based solutions for a wide range of problems, such as various differential and integral equations, fractional equations, optimal control theory, buckling, bending and vibrations of elastic beams are considered. Numerical examples demonstrating the efficiency and accuracy of the Haar method are provided for all solutions.