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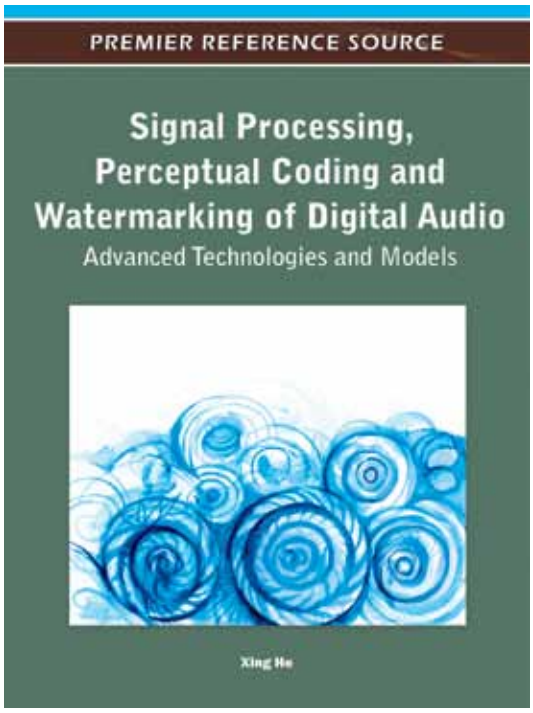
Signal Processing, Perceptual Coding and Watermarking of Digital Audio: Advanced Technologies and Models



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Xing He (BrainMedia LLC, USA)

The availability of increased computational power and the proliferation of the Internet have facilitated the production and distribution of unauthorized copies of multimedia information. As a result, the problem of copyright protection has attracted the interest of worldwide scientific and business communities.

Signal Processing, Perceptual Coding and Watermarking of Digital Audio: Advanced Technologies and Models focuses on watermarking, in which data is marked with hidden ownership information, as a promising solution to copyright protection issues. Compared to embedding watermarks into still images, hiding data in audio is much more challenging due to the extreme sensitivity of the human auditory system to changes in the audio signal. This book focuses on understanding human perception processes and including them in effective psychoacoustic models, as well as synchronization, which is an important component of a successful watermarking system.

Topics Covered:

- A Fast and Precise Synchronization Method for Digital Audio Watermarking
- A High Quality Audio Coder Using Proposed Psychoacoustic Model
- Discrete Wavelet Packet Transform
- Human Auditory System and Psychoacoustics
- Novel Applications of Digital Watermarking
- Principles of Spread Spectrum
- Survey of Spread Spectrum based Audio Watermarking Schemes
- Techniques for Improved Spread Spectrum Detection
- Watermarking Schemes

Market: This premier publication is essential for all academic and research library reference collections. It is a crucial tool for academicians, researchers, and practitioners and is ideal for classroom use.

Xing He is a senior audio research engineer in the research group at SRS Labs, Inc. located in Santa Ana, California. From January 2006 to August 2008, he was a principal systems engineer in the research group at BrainMedia, LLC located in New York City. Prior to this appointment, he was a research engineer at the Panasonic (China) Research and Development Center conducting research on Automatic Speech Recognition (ASR). He holds a PhD from the Department of Electrical and Computer Engineering at the University of Miami, in addition to his master's and bachelor's degrees from the Department of Electrical Engineering at Beijing Jiaotong University, Beijing, China. Dr. He's research focuses on digital signal processing, with emphasis on speech signal enhancement, perceptual audio coding and compression, psychoacoustic modeling, and digital audio watermarking.

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A Fast and Precise Synchronization Method for Digital Audio Watermarking

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