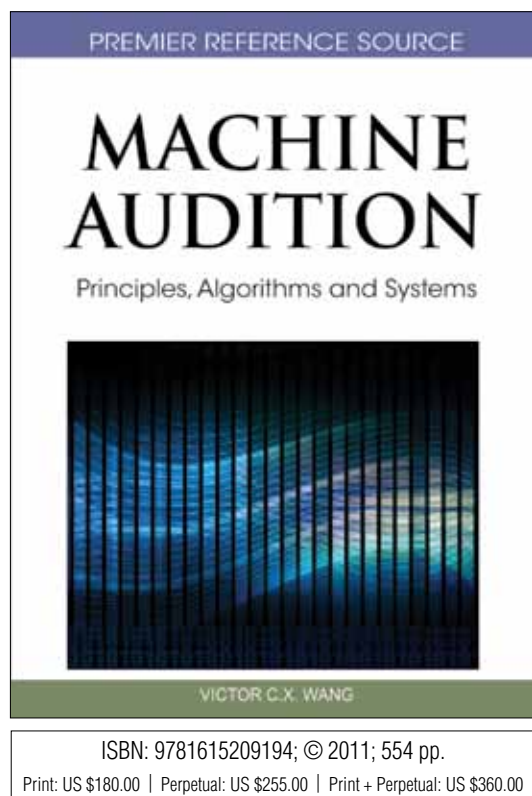


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Machine Audition: Principles, Algorithms and Systems



Wenwu Wang (University of Surrey, UK)

Machine audition is the study of algorithms and systems for the automatic analysis and understanding of sound by machine. It has recently attracted increasing interest within several research communities, such as signal processing, machine learning, auditory modeling, perception and cognition, psychology, pattern recognition, and artificial intelligence. However, the developments made so far are fragmented within these disciplines, lacking connections and incurring potentially overlapping research activities in this subject area.

Machine Audition: Principles, Algorithms and Systems contains advances in algorithmic developments, theoretical frameworks, and experimental research findings. This book is useful for professionals who want an improved understanding about how to design algorithms for performing automatic analysis of audio signals, construct a computing system for understanding sound, and learn how to build advanced human-computer interactive systems.

Topics Covered:

- Audio source separation
- Functional requirements of auditory systems
- Nonnegative matrix factorization
- Pattern recognition techniques
- Alaryngeal speech signals
- Machine-based multi-channel source separation
- Acoustic transmission channels
- Music information retrieval
- Multimodal emotion recognition
- Automatic sound source localization

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.

Wenwu Wang is a Lecturer at Centre for Vision Speech and Signal Processing, University of Surrey, where he joined since May 2007. Prior to this, he was a Postdoctoral Research Associate at King's College London (from May 2002 to December 2003) and Cardiff University (from January 2004 to April 2005). He also worked in UK industry, first as a DSP Engineer at Tao Group Ltd (now Antix Labs Ltd) (from May 2005 to August 2006), then as an R&D engineer at Creative Labs (from September 2006 to April 2007). During spring 2008, he has been a visiting scholar at the Perception and Neurodynamics Lab and the Center for Cognitive Science, The Ohio State University. He is part of the MOD University Defense Research Centre in Signal Processing. He obtained the PhD degree in April 2002 from Harbin Engineering University, China. His research interests include blind signal processing, audio-visual signal processing, machine learning and perception, and machine audition (listening). He is a member of the IEEE, and belongs to the IEEE Signal Processing, and Circuits and Systems Societies.