
Real-time Adaptive Concepts in Acoustics

Blind Signal Separation and
Multichannel Echo Cancellation

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Real Time Adaptive Concepts In Acoustics Blind Signal Separation And Multichannel Echo Cancellation

Jacob Benesty, Yiteng Huang



Real Time Adaptive Concepts In Acoustics Blind Signal Separation And Multichannel Echo Cancellation:

Real-Time Adaptive Concepts in Acoustics D.E. Schobben, 2012-12-06 Blind Signal Separation BSS deals with recovering filtered versions of source signals from an observed mixture thereof. The term blind relates to the fact that there are no reference signals for the source signals and also that the mixing system is unknown. This book presents a new method for blind signal separation which is developed to work on microphone signals. Acoustic Echo Cancellation AEC is a well known technique to suppress the echo that a microphone picks up from a loudspeaker in the same room. Such acoustic feedback occurs for example in hands free telephony and can lead to a perceived loud tone. For an application such as a voice controlled television a stereo AEC is required to suppress the contribution of the stereo loudspeaker setup. A generalized AEC is presented that is suited for multi channel operation. New algorithms for Blind Signal Separation and multi channel Acoustic Echo Cancellation are presented. A background is given in array signal processing methods, adaptive filter theory and fast filtering in the frequency domain. The included CD ROM can be played using any compact disc player to play the simulation results that are described in the text. When inserted into a computer it furthermore gives Matlab implementations of the new algorithms along with audio data with which to experiment. This makes the book suited to researchers, engineers and university students who want to get acquainted with these emerging fields.

The Journal of the Acoustical Society of America Acoustical Society of America, 2004 Fundamentals of Voice-Quality Engineering in Wireless Networks Avi

Perry, 2007 Publisher description Adaptive Signal Processing Jacob Benesty, Yiteng Huang, 2013-03-09 By adaptive signal processing we mean in general adaptive filtering. In known environments where we need to model, identify or track time varying channels, adaptive filtering has been proven to be an effective and powerful tool. As a result, this tool is now in use in many different fields. Since the invention by Widrow and Ho in 1959 of one of the first adaptive filters, the so-called least mean square, many applications appeared to have the potential to use this fundamental concept. While the number of applications using adaptive algorithms has been and keeps flourishing with time thanks to several successes, the need for more sophisticated adaptive algorithms became obvious as real world problems are more complex and more demanding. Even though the theory of adaptive filtering is already a well established topic in signal processing, new and improved concepts are discovered every year by researchers. Some of these recent approaches are discussed in this book. The goal of this book is to provide for the first time a reference to the hottest real world applications where adaptive filtering techniques play an important role. To do so, we invited top researchers in different fields to contribute chapters addressing their specific topic of study. Thousands of pages would probably not be enough to describe all the practical applications utilizing adaptive algorithms. Therefore, we limited the topics to some important applications in acoustics, speech, wireless and networking where research is still very active and open. Audio Signal Processing for Next-Generation Multimedia Communication Systems Yiteng (Arden) Huang, Jacob Benesty, 2007-05-08 Audio Signal Processing for Next Generation Multimedia Communication Systems

presents cutting edge digital signal processing theory and implementation techniques for problems including speech acquisition and enhancement using microphone arrays new adaptive filtering algorithms multichannel acoustic echo cancellation sound source tracking and separation audio coding and realistic sound stage reproduction This book s focus is almost exclusively on the processing transmission and presentation of audio and acoustic signals in multimedia communications for telecollaboration where immersive acoustics will play a great role in the near future

The British National Bibliography Arthur James Wells,2001 *Efficient Adaptive Multi-channel Concepts in Acoustics* Daniël Willem Elisabeth Schobben,1999 *Subject Guide to Books in Print* ,1991 *Handbook on Array Processing and Sensor Networks* Simon Haykin,K. J. Ray Liu,2010-02-12 A handbook on recent advancements and the state of the art in array processing and sensor Networks Handbook on Array Processing and Sensor Networks provides readers with a collection of tutorial articles contributed by world renowned experts on recent advancements and the state of the art in array processing and sensor networks Focusing on fundamental principles as well as applications the handbook provides exhaustive coverage of wavelets spatial spectrum estimation MIMO radio propagation robustness issues in sensor array processing wireless communications and sensing in multi path environments using multi antenna transceivers implicit training and array processing for digital communications systems unitary design of radar waveform diversity sets acoustic array processing for speech enhancement acoustic beamforming for hearing aid applications undetermined blind source separation using acoustic arrays array processing in astronomy digital 3D 4D ultrasound imaging technology self localization of sensor networks multi target tracking and classification in collaborative sensor networks via sequential Monte Carlo energy efficient decentralized estimation sensor data fusion with application to multi target tracking distributed algorithms in sensor networks cooperative communications distributed source coding network coding for sensor networks information theoretic studies of wireless networks distributed adaptive learning mechanisms routing for statistical inference in sensor networks spectrum estimation in cognitive radios nonparametric techniques for pedestrian tracking in wireless local area networks signal processing and networking via the theory of global games biochemical transport modeling estimation and detection in realistic environments and security and privacy for sensor networks Handbook on Array Processing and Sensor Networks is the first book of its kind and will appeal to researchers professors and graduate students in array processing sensor networks advanced signal processing and networking

Books In Print 2004-2005 Ed Bowker Staff,Staff Bowker, Ed,2004

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Introduction

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