Binaural And Spatial Hearing In Real And Virtual Environments

Thank you utterly much for downloading **Binaural And Spatial Hearing In Real And Virtual Environments**.Maybe you have knowledge that, people have look numerous times for their favorite books taking into account this Binaural And Spatial Hearing In Real And Virtual Environments, but stop going on in harmful downloads.

Rather than enjoying a good PDF following a mug of coffee in the afternoon, instead they juggled subsequent to some harmful virus inside their computer. **Binaural And Spatial Hearing In Real And Virtual Environments** is approachable in our digital library an online entrance to it is set as public appropriately you can download it instantly. Our digital library saves in complex countries, allowing you to get the most less latency epoch to download any of our books subsequent to this one. Merely said, the Binaural And Spatial Hearing In Real And Virtual Environments is universally compatible with any devices to read.

KAISER LAM

Springer Science & Business Media
Handbook of Perception, Volume IV: Hearing reviews the literature on the physical, physiological, and psychological aspects of hearing. The book covers a wide array of topics relevant to hearing, including the measurement and biophysics of the cochlea, binaural and spatial hearing, and the effects of hearing impairment on the auditory system. The psychological, sociological, and physiological effects of noise are also addressed. This volume is organized into six sections encompassing 16 chapters and begins with a historical overview of the history of research on hearing, from the antiquity of acoustics to the physical and mathematical developments that gave rise to auditory facts and theories. Auditory perception, physiology, and theory are followed up to about 1940, whereas the work on analysis synthesis and perception of speech is traced up to about 1960. The chapters that follow focus on measurement, the biophysics of the cochlea, and neural coding. The underlying mechanisms of the processing of acoustic information are given consideration. The book methodically introduces the reader to the mechanisms of frequency, intensity, time, and periodicity, along with stress, trauma, and pathology. A chapter on the transient physiological effects of noise and their relation to neuroendocrine stress theory concludes the treatise. This book is intended for psychologists, biologists, and natural scientists, as well as for those who are interested in the physical, physiological, and psychological aspects of hearing.

Head-Related Transfer Function and Virtual Auditory Display Logos Verlag Berlin GmbH
This book reports on the application of advanced models of the human binaural hearing system in modern technology, among others, in the following areas: binaural analysis of aural scenes, binaural de-reverberation, binaural quality assessment of audio channels, loudspeakers and performance spaces, binaural perceptual coding, binaural processing in hearing aids and cochlea implants, binaural systems in robots, binaural/tactile human-machine interfaces, speech-intelligibility prediction in rooms and/or multi-speaker scenarios. An introduction to binaural modeling and an outlook to the future are provided. Further, the book features a MATLAB toolbox to enable readers to construct their own dedicated binaural models on demand.

Assessment of Spatial and Binaural Hearing in Hearing Impaired Listeners Springer
The Springer Handbook of Auditory Research presents a series of comprehsive and synthetic reviews of the fundamental topics in modern auditory - search. The volumes are aimed at all individuals with interests in hearing research including advanced graduate students, postdoctoral researchers, and clinical investigators. The volumes are intended to introduce new investigators to important aspects of hearing science and to help established investigators to better understand the fundamental theories and data in ?elds of hearing that they may not normally follow closely. Each volume presents a particular topic comprehensively, and each serves as a synthetic overview and guide to the literature. As such, the chapters present neither exhaustive data reviews nor original research that has not yet appeared in peer-reviewed journals. The volumes focus on topics that have developed a solid data and conceptual foundation rather than on those for which a literature is only beginning to develop. New research areas will be covered on a timely basis in the series as they begin to mature.

Auditory Perception of Sound Sources Psychology Press
Some of the most creative scientists investigating directional hearing have contributed to this volume, providing a current and comprehensive overview of their work, their research problems, and the strategies they have used to solve them. They discuss many aspects of directional hearing from neuropsychological mechanisms underlying sound localization, through the variety of ways animals locate sound in space, to normal and pathological directional hearing in humans. This is a valuable source book for hearing scientists and clinicians, as well as for scientists without specialized background in spatial hearing, including psychologists, engineers, and biologists.

Effects of Binaural Spatial Position on the Comprehension of Multiple Auditory Inputs CRC Press
This volume will provide an important contemporary reference on hearing development and will lead to new ways of thinking about hearing in children and about remediation for children with hearing loss. Much of the material in this volume will document that a different model of hearing is needed to understand hearing during development. The book is expected to spur research in auditory development and in its application to pediatric audiology.

Stereophonica Oxford University Press
The field of spatial hearing has exploded in the decade or so since Jens Blauert's classic work on acoustics was first published in English. This revised edition adds a new chapter that describes developments in such areas as auditory virtual reality (an important field of application that is based mainly on the physics of spatial hearing), binaural technology (modeling speech enhancement by binaural hearing), and spatial sound-field mapping. The chapter

also includes recent research on the precedence effect that provides clear experimental evidence that cognition plays a significant role in spatial hearing.The remaining four chapters in this comprehensive reference cover auditory research procedures and psychometric methods, spatial hearing with one sound source, spatial hearing with multiple sound sources and in enclosed spaces, and progress and trends from 1972 (the first German edition) to 1983 (the first English edition) -- work that includes research on the physics of the external ear, and the application of signal processing theory to modeling the spatial hearing process. There is an extensive bibliography of more than 900 items.
Over Stereo-akoesie. On Spatial Binaural Hearing. With a Summary in English. Academisch Proefschrift, Etc Springer Science & Business Media
Hearing – From Sensory Processing to Perception presents the papers of the latest “International Symposium on Hearing”, a meeting held every three years focusing on psychoacoustics and the research of the physiological mechanisms underlying auditory perception. The proceedings provide an up-to-date report on the status of the field of research into hearing and auditory functions. The 59 chapters treat topics such as: the physiological representation of temporal and spectral stimulus properties as a basis for the perception of modulation patterns, pitch and signal intensity; spatial hearing and the physiological mechanisms of binaural processing in mammals; integration of the different stimulus features into auditory scene analysis; physiological mechanisms related to the formation of auditory objects; speech perception; and limitations of auditory perception resulting from hearing disorders.
How and Why Does Spatial-Hearing Ability Differ among Listeners? What Is the Role of Learning and Multisensory Interactions? John Wiley & Sons
Volume 1: The Ear (edited by Paul Fuchs) Volume 2: The Auditory Brain (edited by Alan Palmer and Adrian Rees) Volume 3: Hearing (edited by Chris Plack) Auditory science is one of the fastest growing areas of biomedical research. There are now around 10,000 researchers in auditory science, and ten times that number working in allied professions. This growth is attributable to several major developments: Research on the inner ear has shown that elaborate systems of mechanical, transduction and neural processes serve to improve sensitivity, sharpen frequency tuning, and modulate response of the ear to sound. Most recently, the molecular machinery underlying these phenomena has been explored and described in detail. The development, maintenance, and repair of the ear are also subjects of contemporary interest at the molecular level, as is the genetics of hearing disorders due to cochlear malfunctions.
The Binaural Interaction Component (BIC) of the Auditory Brainstem Response (ABR) as a Candidate Biomarker for Spatial Hearing Impairments Plural Publishing
Hearing is a comprehensive, authoritative reference work covering both the physiological and perceptual aspects of hearing. Intended for researchers and advanced students in the field of hearing, it reviews major areas of research in addition to new discoveries, including active mechanisms in the cochlea, across-channel processes in auditory masking, and perceptual grouping processes. Covers both physiological and perceptual aspects of hearing Authoritative reviews by experts in the field Comprehensive up-to-date coverage An integrated work with extensive cross-references between chapters
Sound and Space in Science, Technology, and the Arts Springer Science & Business Media
The field of Binaural Hearing involves studies of auditory perception, physiology, and modeling, including normal and abnormal aspects of the system. Binaural processes involved in both sound localization and speech unmasking have gained a broader interest and have received growing attention in the published literature. The field has undergone some significant changes. There is now a much richer understanding of the many aspects that comprising binaural processing, its role in development, and in success and limitations of hearing-aid and cochlear-implant users. The goal of this volume is to provide an up-to-date reference on the developments and novel ideas in the field of binaural hearing. The primary readership for the volume is expected to be academic specialists in the diverse fields that connect with psychoacoustics, neuroscience, engineering, psychology, audiology, and cochlear implants. This volume will serve as an important resource by way of introduction to the field, in particular for graduate students, postdoctoral scholars, the faculty who train them and clinicians.
Advances in Research on Spatial and Binaural Hearing Springer Science & Business Media
Binaural hearing provides a listener with access to interaural time and interaural level differences (ITDs and ILDs). Binaural hearing aids in spatial hearing skills, such as sound localization or the ability to segregate speech in noisy environments. These spatial hearing abilities are vital for young children, as they spend a remarkable amount of time in noisy environments, such as a classrooms or playgrounds. Children with normal hearing (NH) perform well on spatial hearing tasks by the age of 4-5. Although children with bilateral cochlear implants (BiCIs) perform better than children with unilateral implants, they still perform worse than their NH peers when tested on the same tasks. Some factors that may be responsible for this gap in performance include (1) the lack of temporal fine structure present in current clinical processing, (2) neural degradation due to lack of early acoustic hearing, (3) surgical issues leading to differing depths of electrode array insertion between the two ears, and (4) the lack of temporal synchronization between the two implants. The specific aims of this dissertation are to (1) investigate the extent to which the high-rate amplitude modulated stimuli are the limiting factor in performance by studying the ability of NH children to utilize envelope ITDs as transmitted by stimuli that renders fine structure information for ITDs imperceptible, (2) examine binaural sensitivity to binaural cues in children with BiCIs using low-rate pulsatile stimuli on pitch matched pairs to understand whether children with BiCIs have the ability to utilize these cues, (3) examine the effects of perceived interaural pitch mismatch on a pitch comparison task and a task measuring ITD sensitivity to evaluate the efficacy of pitch matching in children, (4) examine the effects of stimulus rate on ITD sensitivity in order to determine if high-rate amplitude modulated stimuli can elicit ITD sensitivity, and (5) investigate cognitive factors that may predict performance on tasks of binaural sensitivity, to better understand if specific cognitive factors may be predictors of binaural performance. Together, the five aims of this dissertation are designed to provide a better insight into why children with BiCIs demonstrate poor spatial hearing abilities.
Human Auditory Development SAGE Publications
We have submitted, revised, and/or published 17 papers, chapters, and books. In addition we have made 17 presentations a various meetings. Some of the results reported in these papers ar based on the research efforts begun under

AFOSR NL-91-0289 (including work on masked detection and sound localization in noise. We continue our theoretical work on spatial hearing. We have collected new data concerning the localization of speech stimuli, the effects of the listening environment on the perception of virtual audio and auditory-aided visual search. We have developed hardware and software to support planned experiments in a number of topic areas and we have published an edited book on binaural and spatial hearing in real and virtual
Spatial Hearing Rendering in Wireless Microphone Systems for Binaural Hearing Aids MIT Press
The auditory processing of complex signals is not yet fully understood making a clearer insight into auditory system processes worth aspiring to. One approach for this purpose is to gain a better understanding of the relations between physical parameters and hearing sensations by means of psychoacoustics. Suitable measures such as loudness help to characterize the perception of sound leading to more sophisticated loudness models which could be useful in optimizing hearing devices such as cochlear implants. The scope of this thesis therefore is the suprathreshold perception of sounds with different spectral, temporal and spatial content in normal-hearing listeners and cochlear implant users. Among others, this covers the applicability of categorical loudness scaling as a fast procedure to assess partial loudness as well as binaural and spatial hearing in cochlear implant users in a free-field measurement setup providing realistic spatial cues.
Academic Press
Spatial-hearing ability has been found to vary widely across listeners. A survey of the existing auditory-space perception literature suggests that three main types of factors may account for this variability: - physical factors, e.g., acoustical characteristics related to sound-localization cues, - perceptual factors, e.g., sensory/cognitive processing, perceptual learning, multisensory interactions, - and methodological factors, e.g., differences in stimulus presentation methods across studies. However, the extent to which these–and perhaps other, still unidentified—factors actually contribute to the observed variability in spatial hearing across individuals with normal hearing or within special populations (e.g., hearing-impaired listeners) remains largely unknown. Likewise, the role of perceptual learning and multisensory interactions in the emergence of a multimodal but unified representation of “auditory space,” is still an active topic of research. A better characterization and understanding of the determinants of inter-individual variability in spatial hearing, and of its relationship with perceptual learning and multisensory interactions, would have numerous benefits. In particular, it would enhance the design of rehabilitative devices and of human-machine interfaces involving auditory, or multimodal space perception, such as virtual auditory/multimodal displays in aeronautics, or navigational aids for the visually impaired. For this Research Topic, we have considered manuscripts that: - present new methods, or review existing methods, for the study of inter-individual differences; - present new data (or review existing) data, concerning acoustical features relevant for explaining inter-individual differences in sound-localization performance; - present new (or review existing) psychophysical or neurophysiological findings concerning spatial hearing and/or auditory perceptual learning, and/or multisensory interactions in humans (normal or impaired, young or older listeners) or other species; - discuss the influence of inter-individual differences on the design and use of assistive listening devices (rehabilitation) or human-machine interfaces involving spatial hearing or multimodal perception of space (ergonomy).
The Technology of Binaural Listening
Elsevier
The binaural interaction component (BIC) is the residual auditory brainstem response (ABR) after subtracting summed monaurally-evoked from binaurally-evoked ABRs. The "DN1" peak is the first negative peak of BIC, and it may have diagnostic value: altered DN1 peak amplitudes and latencies in children and adults have been shown to correlate with and predict long-term behavioral binaural processing deficits. DN1 amplitude also depends systematically upon binaural cues to location, exhibiting maximal amplitude for interaural time differences (ITDs) of zero (midline sources), and is often undetectable outside the physiological range. While the DN1 peak of the BIC is promising as a candidate biomarker for spatial hearing impairments, discrepancies and voids remain in the current understanding of this electrophysiological potential, and apparent discrepancies persist in the literature. After reviewing what is known about the DN1 peak, its origin, characteristics and the effects of experimental parameters, the experiments presented in this dissertation are directed at improving the understanding of this candidate electrophysiological biomarker and its utility. Through investigation of DN1 peak characteristics, variability is further characterized, resulting in the proposal of an improved methodology for analysis. The origins of the DN1 peak are probed via a cross-species investigation and other approaches, which lend support for an excitatory-inhibitory (EI) mechanism of generation that is compatible with the lateral superior olive (LSO) hypothesis of origin. Greater understanding of the origins of the DN1 peak contributes to future potential clinical utility. In this vein, the DN1 peak is also experimentally explored as an indicator of conductive hearing loss as related to otitis media with effusion as a form of binaural hearing disruption, via occlusion of the ear canal. This combination of studies improves our understanding of the BIC DN1 peak and its potential, while also expanding the capacity for future lines of inquiry.
Directional Hearing MIT Press
The Auditory System and Human Sound-Localization Behavior provides a comprehensive account of the full action-perception cycle underlying spatial hearing. It highlights the interesting properties of the auditory system, such as its organization in azimuth and elevation coordinates. Readers will appreciate that sound localization is inherently a neuro-computational process (it needs to process on implicit and independent acoustic cues). The localization problem of which sound location gave rise to a particular sensory acoustic input cannot be uniquely solved, and therefore requires some clever strategies to cope with everyday situations. The reader is guided through the full interdisciplinary repertoire of the natural sciences: not only neurobiology, but also physics and mathematics, and current theories on sensorimotor integration (e.g. Bayesian approaches to deal with uncertain information) and neural encoding. Quantitative, model-driven approaches to the full action-perception cycle of sound-localization behavior and eye-head gaze control Comprehensive introduction to acoustics, systems analysis, computational models, and neurophysiology of the auditory system Full account of gaze-control paradigms that probe the acoustic action-perception cycle, including multisensory integration, auditory plasticity, and hearing impaired
Second Edition Binaural and Spatial Hearing in Real and Virtual Environments Binaural and Spatial Hearing in Real and Virtual EnvironmentsPsychology Press
The Auditory System and Human Sound-Localization Behavior Springer Nature
This book offers a computational framework for modeling active exploratory listening that assigns meaning to auditory

scenes. Understanding auditory perception and cognitive processes involved with our interaction with the world are of high relevance for a vast variety of ICT systems and applications. Human beings do not react according to what they perceive, but rather, they react on the grounds of what the percepts mean to them in their current action-specific, emotional and cognitive situation. Thus, while many models that mimic the signal processing involved in human visual and auditory processing have been proposed, these models cannot predict the experience and reactions of human users. This book presents a model that incorporates both signal-driven (bottom-up), and hypothesis-driven (top-down) processing.

Principles and Applications of Spatial Hearing Academic Press

Mots-clés de l'auteur: spatial hearing ; hearing impairment ; hearing aids ; assisting listening devices ; binaural localization ; binaural spatialization.

Nian fo zhen fa, Fo fa zhen yi he kan

Springer Science & Business Media

The current popular and scientific interest in virtual environments has provided a new impetus for investigating binaural and spatial hearing. However, the many intriguing phenomena of spatial hearing have long made it an exciting area of scientific inquiry. Psychophysical and physiological investigations of spatial hearing seem to be converging on common explanations of underlying mechanisms. These understandings have in turn been incorporated into sophisticated yet mathematically tractable models of binaural interaction. Thus, binaural and spatial hearing is one of the few areas in which professionals are soon likely to find adequate physiological explanations of complex psychological phenomena that can be reasonably and usefully approximated by mathematical and physical models. This volume grew out of the Conference on Binaural and Spatial Hearing, a four-day event held at Wright-Patterson Air Force Base in response to rapid developments in binaural and spatial hearing research and technology. Meant to be more than just a proceedings, it presents chapters that are longer than typical proceedings papers and contain considerably more review material, including extensive bibliographies in many cases. Arranged into topical sections, the chapters represent major thrusts in the recent literature. The authors of the first chapter in each section have been encouraged to take a broad perspective and review the current state of literature. Subsequent chapters in each section tend to be somewhat more narrowly focused, and often emphasize the authors' own work. Thus, each section provides overview, background, and current research on a particular topic. This book is significant in that it reviews the important work during the past 10 to 15 years, and provides greater breadth and depth than most of the previous works.