
Acoustics And Psychoacoustics

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MARQUES MOYER

Sonic Virtuality Taylor & Francis Psychoacoustics - Facts and Models represents a comprehensive collection of data describing the processing of sound by the human hearing system. It includes quantitative relations between sound stimuli and auditory perception in terms of hearing sensations. In addition, quantitative psychoacoustic models of hearing sensations are given. The monograph contains a unique collection of data on the human hearing system as a receiver of acoustic information as well as many examples of the practical application of the results of basic research in fields such as audiology, noise evaluation, and sound engineering. Many helpful hints for the solution of practical problems will be of particular benefit to engineers, and the book as a whole should serve as an important benchmark in the field of psychoacoustics. The treatment given in this second edition has been thoroughly updated with recent results.

The Acoustics of Wood (1995) Springer Science & Business Media

This the first book on the physics of

sound for the nonspecialist to empower readers with a hands-on, ears-open approach that includes production, analysis, and perception of sound. The book makes possible a deep intuitive understanding of many aspects of sound, as opposed to the usual approach of mere description. This goal is aided by hundreds of original illustrations and examples, many of which the reader can reproduce and adjust using the same tools used by the author. Readers are positioned to build intuition by participating in discovery. This introduction to sound engages and informs amateur and professional musicians, performers, teachers, sound engineers, students of many stripes, and indeed anyone interested in the auditory world. The book does not hesitate to follow entertaining and sometimes controversial side trips into the history and world of acoustics, reinforcing key concepts. You will discover how musical instruments really work, how pitch is perceived, and how sound can be amplified with no external power source. **Communication Acoustics** CRC Press This sixth edition has been thoroughly updated, with more than 200 references to articles & books published since 1996. The book describes the relationships

between the characteristics of the sounds that enter the ear & the sensations that they produce.

Why You Hear what You Hear BRILL

A comprehensive, up-to-date introduction to the perception of sound and its neural basis.

Auralization Springer Science & Business Media

Soundscape Basics and Practical Implications Soundscape research represents a paradigm shift, as it involves human and social sciences and physical measurements to account for the diversity of soundscapes across countries and cultures. Moreover, it treats environmental sounds as a resource rather than a waste.

Soundscape and the Built Environment is the first book to systematically discuss soundscape in the built environment. It begins with a presentation of theory and basic background, answering questions such as: what is soundscape, how is it important, and how does it affect people in terms of their health and perception on the acoustic environment. The book then sets out tools for implementing a soundscape approach, with measurement techniques, mapping, and good soundscape practices. It also delivers a series of examples of the application of the soundscape approach in planning, design, and assessment.

Discusses soundscape and environmental noise Explores cultural variations and the way they influence soundscape Introduces binaural measurement technology and psychoacoustics Examines the physical, psychological, and physiological restorative mechanism of high-quality acoustic environments Presents soundscape mapping based on human perception of sound sources Includes real-world examples and case studies

highlighting the key issues in soundscape intervention Soundscape and the Built Environment is written by a group of leading international figures and derives from a four-year EU COST project on Soundscapes of European Cities and Landscapes. It presents a consensus on the current state of the art and is not merely a collection of different views. It is written for acoustic consultants, urban planners, designers and policy makers, as well as for graduate students and researchers.

Psychoacoustics Oxford University Press, USA

The acoustics of a space can have a real impact on the sounds you create and capture. Acoustics and Psychoacoustics, Fifth Edition provides supportive tools and exercises to help you understand how music sounds and behaves in different spaces, whether during a performance or a recording, when planning a control room or listening space, and how it is perceived by performers, listeners, and recording engineers. With their clear and simple style, Howard and Angus cover both theory and practice by addressing the science of sound engineering and music production, the acoustics of musical instruments, the ways in which we hear musical sounds, the underlying principles of sound processing, and the application of these concepts to music spaces to create professional sound. This new edition is fully revised to reflect new psychoacoustic information related to timbre and temporal perception, including an updated discussion of vocal fold vibration principles, samples of recent acoustic treatments, and a description of variable acoustics in spaces, as well as coverage of the environment's effect on production listening, sonification, and other topics.

Devoted to the teaching of musical understanding, an accompanying website (www.routledge.com/cw/howard) features various audio clips, tutorial sheets, questions and answers, and trainings that will take your perception of sound to the next level. This book will help you: Gain a basic grounding in acoustics and psychoacoustics with respect to music audio technology systems Incorporate knowledge of psychoacoustics in future music technology system designs as appropriate Understand how we hear pitch, loudness, and timbre Learn to influence the acoustics of an enclosed space through designed physical modifications

Facts and Models Acoustics and Psychoacoustics

The acoustics of a recording space can have a real impact on the sounds you create and capture. The book gives an essential grounding and understanding to how real music sounds behave and are perceived in real spaces. With a clear and simple style Howard and Angus walk you through the theory- the science of sound engineering and music production, and the practical ? how to apply it to music spaces so create professional sound, using real world examples and providing audio clips and recorded sounds to work with. Updated throughout the new edition uncovers the acoustic application for today's recording industry. The website is packed with audio clips, questions and answers, a calculation facility as well as links and resources.

Springer Handbook of Acoustics Taylor & Francis

A history of acoustics from the 19th century to the present, written by one of the pre-eminent members of the

acoustical community. The book is both a review of the major scientific advances in acoustics as well as an account of famous acousticians and their discoveries, taking in the development of the Acoustical Society of America. Acoustics is distinguished by its interdisciplinary nature and the book duly explores the fields development in its relationship to other sciences. In addition to covering the history of acoustics, the book concludes with the future of acoustics. Beautifully illustrated.

Sound as Emergent Perception Springer Acoustics and Psychoacoustics Taylor & Francis

The Acoustics and Psychoacoustics of the Guitar Springer Science & Business Media

The first book to provide comprehensive introductory coverage of the multiple topics encompassed under psychoacoustics. How hearing works and how the brain processes sounds entering the ear to provide the listener with useful information are of great interest to psychologists, cognitive scientists, and musicians. However, while a number of books have concentrated on individual aspects of this field, known as psychoacoustics, there has been no comprehensive introductory coverage of the multiple topics encompassed under the term. Music, Cognition, and Computerized Sound is the first book to provide that coverage, and it does so via a unique and useful approach. The book begins with introductory chapters on the basic physiology and functions of the ear and auditory sections of the brain, then proceeds to discuss numerous topics associated with the study of psychoacoustics, including cognitive psychology and the physics of sound. The book has a particular emphasis on

music and computerized sound. An accompanying download includes many sound examples to help explicate the text and is available with the code included in the book at <http://mitpress.mit.edu/mccs>. To download sound samples, you can obtain a unique access code by emailing digitalproducts-cs@mit.edu or calling 617-253-2889 or 800-207-8354 (toll-free in the U.S. and Canada). The contributing authors include John Chowning, Perry R. Cook, Brent Gillespie, Daniel J. Levitin, Max Mathews, John Pierce, and Roger Shepard.

Soundscape and the Built Environment

Springer Science & Business Media

The acoustics of a space can have a real impact on the sounds you create and capture. *Acoustics and Psychoacoustics, Fifth Edition* provides supportive tools and exercises to help you understand how music sounds and behaves in different spaces, whether during a performance or a recording, when planning a control room or listening space, and how it is perceived by performers, listeners, and recording engineers. With their clear and simple style, Howard and Angus cover both theory and practice by addressing the science of sound engineering and music production, the acoustics of musical instruments, the ways in which we hear musical sounds, the underlying principles of sound processing, and the application of these concepts to music spaces to create professional sound. This new edition is fully revised to reflect new psychoacoustic information related to timbre and temporal perception, including an updated discussion of vocal fold vibration principles, samples of recent acoustic treatments, and a description of variable acoustics in spaces, as well as coverage of the

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Communication Acoustics Routledge

This book comprises twelve articles which cover a range of topics from musical instrument acoustics to issues in psychoacoustics and sound perception as well as neuromusicology. In addition to experimental methods and data acquisition, modeling (such as FEM or wave field synthesis) and numerical simulation plays a central role in studies addressing sound production in musical instruments as well as interaction of radiated sound with the environment. Some of the studies have a focus on psychoacoustic aspects in regard to virtual pitch and timbre as well as apparent source width (for techniques such as stereo or ambisonics) in music production. Since musical acoustics imply subjects playing instruments or singing in order to produce sound according to musical structures, this area is also covered including a study that presents an artificial intelligent agent capable to interact with a real

('analog') player in musical genres such as traditional and free jazz.

Studies in Musical Acoustics and Psychoacoustics CRC Press

This title introduces the concept of sonic virtuality, a theory of sound that positions it as an emergent perception within a framework of virtuality. In its opposition to the acoustic or standard definition of sound, that sound is a sound wave, the thesis builds its case for a sonic aggregate as the virtual cloud of potentials from which the sound as perception emerges. This is argued for from a broad interdisciplinary perspective that assesses evidence and thinking from many fields.

Psychoacoustics Princeton University Press

Cover erroneously states: "Includes CD-ROM for MAC & PC"; it is actually an audio CD.

Physiological Acoustics and Psychoacoustics Taylor & Francis

Principles of Musical Acoustics focuses on the basic principles in the science and technology of music. Musical examples and specific musical instruments demonstrate the principles. The book begins with a study of vibrations and waves, in that order. These topics constitute the basic physical properties of sound, one of two pillars supporting the science of musical acoustics. The second pillar is the human element, the physiological and psychological aspects of acoustical science. The perceptual topics include loudness, pitch, tone color, and localization of sound. With these two pillars in place, it is possible to go in a variety of directions. The book treats in turn, the topics of room acoustics, audio both analog and digital, broadcasting, and speech. It ends with chapters on the traditional musical instruments, organized by family. The

mathematical level of this book assumes that the reader is familiar with elementary algebra. Trigonometric functions, logarithms and powers also appear in the book, but computational techniques are included as these concepts are introduced, and there is further technical help in appendices.

Creating Spaciousness for Composition, Performance, Acoustics and Perception CRC Press

Designed to follow an introductory text on psychoacoustics, this book takes readers through the mathematics of signal processing from its beginnings in the Fourier transform to advanced topics in modulation, dispersion relations, minimum phase systems, sampled data, and nonlinear distortion. While organised like an introductory engineering text on signals, the examples and exercises come from research on the perception of sound. A unique feature of this book is its consistent application of the Fourier transform, which unifies topics as diverse as cochlear filtering and digital recording. More than 250 exercises are included, many of them devoted to practical research in perception, while others explore surprising auditory illusions generated by special signals. Periodic signals, aperiodic signals, and noise -- along with their linear and nonlinear transformations -- are covered in detail. More advanced mathematical topics are treated in the appendices. A working knowledge of elementary calculus is the only prerequisite. Indispensable for researchers and advanced students in the psychology of auditory perception.

Ecological Psychoacoustics Springer

An authoritative reference on all aspects of audio engineering and technology including basic mathematics and formulae, acoustics and

psychoacoustics, microphones, loudspeakers and studio installations. Compiled by an international team of experts, the second edition was updated to keep abreast of fast-moving areas such as digital audio and transmission technology. Much of the material has been revised, updated and expanded to cover the very latest techniques. This is a new paperback version.

Acoustics and Psychoacoustics Springer Science & Business Media

In communication acoustics, the communication channel consists of a sound source, a channel (acoustic and/or electric) and finally the receiver: the human auditory system, a complex and intricate system that shapes the way sound is heard. Thus, when developing techniques in communication acoustics, such as in speech, audio and aided hearing, it is important to understand the time-frequency-space resolution of hearing. This book facilitates the reader's understanding and development of speech and audio techniques based on our knowledge of the auditory perceptual mechanisms by introducing the physical, signal-processing and psychophysical background to communication acoustics. It then provides a detailed explanation of sound technologies where a human listener is involved, including audio and speech techniques, sound quality measurement, hearing aids and audiology. Key features: Explains perceptually-based audio: the authors take a detailed but accessible engineering perspective on sound and hearing with a focus on the human place in the audio communications signal chain, from psychoacoustics and audiology to optimizing digital signal processing for human listening. Presents a wide overview of speech, from the

human production of speech sounds and basics of phonetics to major speech technologies, recognition and synthesis of speech and methods for speech quality evaluation. Includes MATLAB examples that serve as an excellent basis for the reader's own investigations into communication acoustics interaction schemes which intuitively combine touch, vision and voice for lifelike interactions.

An Introduction to Speech, Audio and Psychoacoustics CRC Press

Brimming with more than more than 1700 references, this reader-friendly and extensively revised Fourth Edition will prove invaluable to instructors and students alike-providing a unified approach to the anatomical, physiological, and perceptual aspects of audition with updated chapters on the latest developments in the field.

Sensory Evaluation of Sound Taylor & Francis

Sound Reproduction: The Acoustics and Psychoacoustics of Loudspeakers and Rooms, Third Edition explains the physical and perceptual processes that are involved in sound reproduction and demonstrates how to use the processes to create high-quality listening experiences in stereo and multichannel formats. Understanding the principles of sound production is necessary to achieve the goals of sound reproduction in spaces ranging from recording control rooms and home listening rooms to large cinemas. This revision brings new science-based perspectives on the performance of loudspeakers, room acoustics, measurements and equalization, all of which need to be appropriately used to ensure the accurate delivery of music and movie sound tracks from creators to listeners. The robust website

(www.routledge.com/cw/toole) is the perfect companion to this necessary resource.