

Head-Related Transfer Function and Acoustic Virtual Reality

This book covers all aspects of head-related transfer function (HRTF), from the fundamentals through to the latest applications, such as 3D sound systems. An introductory chapter defines HRTF, describes the coordinate system used in the book, and presents the most recent research achievements in the field. HRTF and sound localization in the horizontal and median planes are then explained, followed by discussion of individual differences in HRTF, solutions to this individuality (personalization of HRTF), and methods of sound image control for an arbitrary 3D direction, encompassing both classic theory and state of the art data. The relations between HRTF and sound image distance and between HRTF and speech intelligibility are fully explored, and measurement and signal processing methods for HRTF are examined in depth. Here, supplementary material is provided to enable readers to measure and analyze HRTF by themselves. In addition, some typical HRTF databases are compared. The final two chapters are devoted to the principles and applications of acoustic virtual reality. This clearly written book will be ideal for all who wish to learn about HRTF and how to use it in their research.

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171,19 €

159,99 € (zzgl. MwSt.)

Lieferfrist: bis zu 10 Tage

Artikelnummer: 9789811397448

Medium: Buch

ISBN: 978-981-13-9744-8

Verlag: Springer

Erscheinungstermin: 07.11.2019

Sprache(n): Englisch

Auflage: 1. Auflage 2019

Produktform: Gebunden

Gewicht: 625 g

Seiten: 234

Format (B x H): 155 x 235 mm

