

Auditory Neuroscience: Making Sense of Sound (MIT Press)

By Jan Schnupp, Israel Nelken, Andrew J. King

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Every time we listen -- to speech, to music, to footsteps approaching or retreating -- our auditory perception is the result of a long chain of diverse and intricate processes that unfold within the source of the sound itself, in the air, in our ears, and, most of all, in our brains. Hearing is an "everyday miracle" that, despite its staggering complexity, seems effortless. This book offers an integrated account of hearing in terms of the neural processes that take place in different parts of the auditory system. Because hearing results from the interplay of so many physical, biological, and psychological processes, the book pulls together the different aspects of hearing -- including acoustics, the mathematics of signal processing, the physiology of the ear and central auditory pathways, psychoacoustics, speech, and music -- into a coherent whole.

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Editorial Review

Review

This excellent book is valuable in providing a detailed view of auditory neuroscience.

(Joseph Lehmann *Pragmatics and Cognition*)

This book is unique in its elegant unification of a broad view of the fundamentals of hearing with a highly sophisticated account of the current state of auditory neuroscience. Each chapter is a self-contained, coherent, and comprehensive account of a major attribute or function of hearing that takes the reader through an exciting journey of discovery, beginning with basic definitions and ending with a balanced critique of the diverse opinions and ideas that are typical of a lively field of investigation. In such a scientific endeavor, this book is a valuable guide for the novice and the expert alike.

(Shihab Shamma, Professor of Electrical Engineering, University of Maryland, College Park)

From the Author
Hearing is the telepathic sense that we take for granted. Think about it: you might be sitting somewhere quietly when suddenly some fantastically small ripples of air pressure wiggle your ear drums by just fractions of a micrometer, and within a fraction of a second your brain will have deduced from those pressure ripples that someone on the table next to you has dropped a spoon, or that a phone is ringing, or a dog is barking. Or you might be rapt in conversation, listening to a friend's latest exploits. When you do that, you are effectively reconstructing your friend's thoughts and emotions from the train of invisible vibrations that emanate from your friend's vocal apparatus. It's nothing if not miraculous. In this book,we try to explain how this all works. We are aiming mostly at an audience of undergraduate students in the biomedical sciences, psychology, audiology or biomedical engineering, but the book ought to be accessible to many interested laymen too.

We have also put together a website to accompany the book with accompanying mutlimedia content at auditoryneuroscience.com. Take a look. If you like it, tell your friends - if not, tell us.
All the best,
Jan, Andy and Eli

About the Author

Jan Schnupp is University Lecturer and Codirector of the Auditory Neuroscience Research Group in the Department of Physiology, Anatomy, and Genetics at Oxford University and a Fellow of St. Peter's College. Israel Nelken is Associate Professor and Head of the Laboratory of Auditory Neurophysiology in the Department of Neurobiology in the Andrew Silberman Institute of Life Sciences at Hebrew University of Jerusalem. Andrew King is Professor of Neurophysiology, Wellcome Trust Principal Research Fellow, and Codirector of the Auditory Neuroscience Research Group in the Department of Physiology, Anatomy, and Genetics at Oxford University and a Fellow of Merton College.

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