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Sound Analysis and Synthesis with R

![Springer]

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Sound Analysis and Synthesis with R

- Details sound analysis and synthesis principles
- Opens the "black box" of sound analysis with simple and easy-to- understand language
- Shows numerous step-by-step R code examples of how to run a sound analysis
- Describes how to process automatic analysis of groups of recordings (batch analysis)

Sound is almost always around us, anywhere, at any time, reaching our ears and stimulating our brains for better or worse. Sound can be the disturbing noise of a drill, a merry little tune sung by a friend, the song of a bird in the morning or a clap of thunder at night. The science of sound, or acoustics, studies all types of sounds and therefore covers a wide range of scientific disciplines, from pure to applied acoustics. Research dealing with acoustics requires a sound to be recorded, analyzed, manipulated and, possibly, changed. This is particularly, but not exclusively, the case in bioacoustics and ecoacoustics, two life sciences disciplines that attempt to understand and to eavesdrop on the sound produced by animals. Sound analysis and synthesis can be challenging for students, researchers and practitioners who have few skills in mathematics or physics. However, deciphering the structure of a sound can be useful in behavioral and ecological research – and also very amusing. This book is dedicated to anyone who wants to practice acoustics but does not know much about sound. Acoustic analysis and synthesis are possible, with little effort, using the free and open-source software R with a few specific packages. Combining a bit of theory, a lot of step-by-step examples and a few cases studies, this book shows beginners and experts alike how to record, read, play, decompose, visualize, parametrize, change, and synthesize sound with R, opening a new way of working in bioacoustics and ecoacoustics but also in other acoustic disciplines.