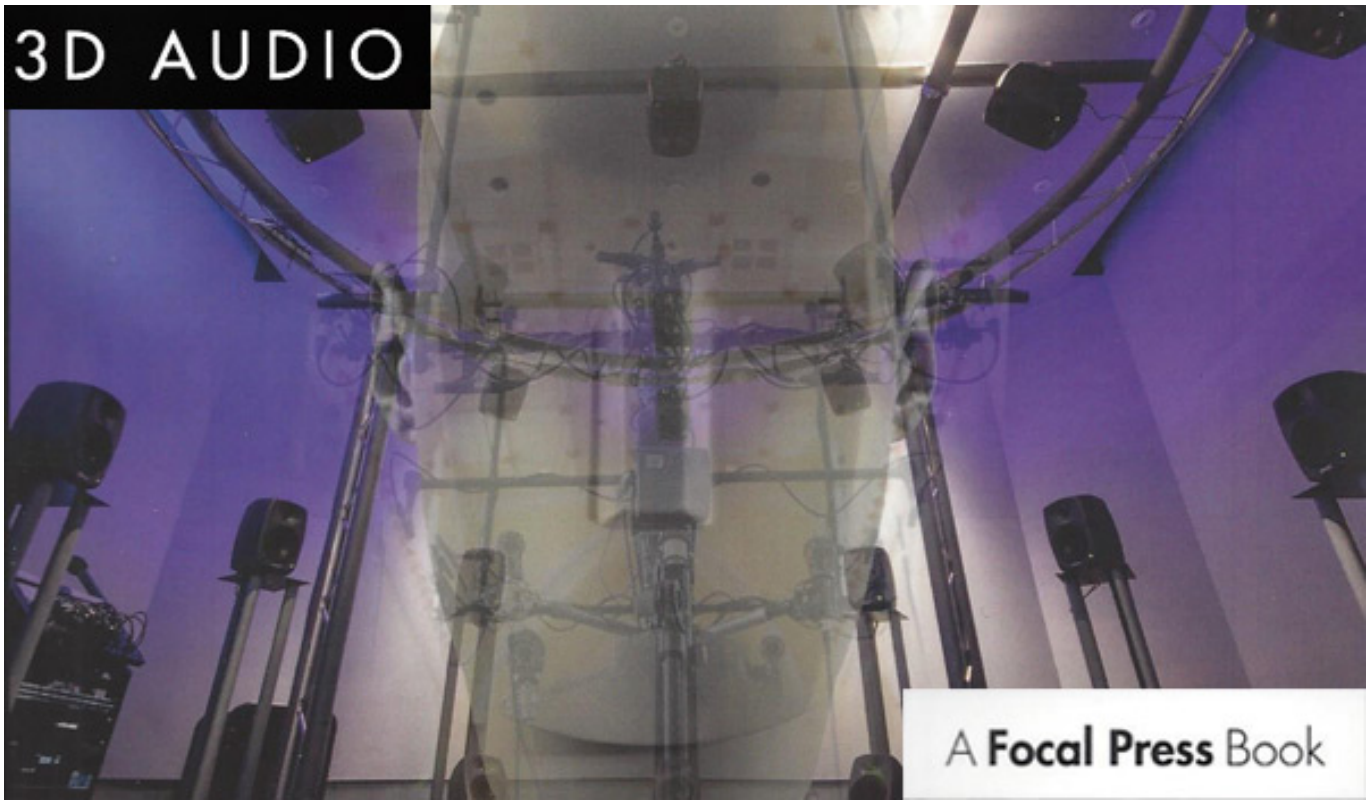
3D Audio - Focal Press

Book review by: Peter Kaminski



The book 3D AUDIO, published in 2022 (first edition) by Focal Press / Routledge, in English, was compiled and edited by Justin Paterson (professor at the London College of Music) and Hyunkook Lee (associate professor and director of the Applied Psychoacoustics Laboratory at the University of Huddersfield). Various other expert authors are involved in the 14 different chapters spanning 294 pages.

First of all, here is an overview of the chapters:

- 3D audio in broadcast
- 3D audio for live sound
- Torwards 6DOF: 3D audio for virtual, augmented, and mixed realities
- Gestural control for 3D audio
- Psychoacoustics of height perception in 3D audio
- Ambisonics understood
- Binaural audio engineering
- Contextual factors in judging auditory immersion
- Spatial music composition
- Sound and space: learning from artistic practice
- Hearing history: a virtual perspective on music performance
- 3D acoustic recording

Phoca PDF

- Redefining the spatial stage
- Mixing 3D audio for film

The chapter on 3D audio in broadcasting essentially traces the historical development through case studies. The chapter on 3D audio for live sound discusses different methods and loudspeaker setups. The chapter on 6DOF teaches a lot of basics, which is a good thing because sound engineers and audio engineers are often not yet familiar with these topics. The chapter on height perception also covers a lot of basics and research on this topic that are worth knowing. The section on Ambisonics mainly focuses on the important mathematical relationships. I found the 30-page chapter on binaural audio particularly exciting, but it could have been presented in even more detail, such as how to implement an HRTF in a SOFA file. It is interesting that the following chapters also cover more practical topics, such as performance practice and immersive audio music composition, but also a wide range of microphone arrangements for 3D audio recordings in the chapter 3D Acoustic Recording. The chapter Mixing 3D Audio for Film is presented in a very compact way, covering only nine pages. At the end of each chapter, there are a lot of literature references.

The book is particularly aimed at readers, such as students and learners, as well as those who want to get a fundamental overview of the topic of 3D audio. The book offers a versatile theoretical foray into the topic but also excludes many practical topics. The book provides the reader with the basics, allowing them to be able to deepen their knowledge of 3D audio with the content knowledge and more topic-specific literature or workshops. For certain topics, such as Ambisonics, binauralization, or microphone placement for 3D audio recordings, it can also serve as a reference.

The book (ISBN 9781138590069) is available in three versions: as an e-book (also Kindle), as a paperback with a soft cover for 60 euros, and as a hardcover version for 168 euros.

www.routledge.com

Phoca PDF