



# The Audio Programming Book (MIT Press)

By Richard Boulanger, Victor Lazzarini, Max Mathews

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**The Audio Programming Book (MIT Press)** By Richard Boulanger, Victor Lazzarini, Max Mathews

This comprehensive handbook of mathematical and programming techniques for audio signal processing will be an essential reference for all computer musicians, computer scientists, engineers, and anyone interested in audio. Designed to be used by readers with varying levels of programming expertise, it not only provides the foundations for music and audio development but also tackles issues that sometimes remain mysterious even to experienced software designers. Exercises and copious examples (all cross-platform and based on free or open source software) make the book ideal for classroom use. Fifteen chapters and eight appendixes cover such topics as programming basics for C and C++ (with music-oriented examples), audio programming basics and more advanced topics, spectral audio programming; programming Csound opcodes, and algorithmic synthesis and music programming. Appendixes cover topics in compiling, audio and MIDI, computing, and math. The sections and chapters of the book are arranged progressively and topics can be followed from chapter to chapter and from section to section. At the same time, each section can stand alone as a self-contained unit. Readers will find The Audio Programming Book a trustworthy companion on their journey through making music and programming audio on modern computers.



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**Bibliography**

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## Editorial Review

### Review

I particularly like the way in which the authors treat Csound both as a tool and as a computer program whose internals are worthy of study and understanding. Again, the material here should be useful to experienced programmers who are just beginning with digital audio, as well as to those with a good understanding of digital sound who want to learn more about C programming.

(Paul LaFollette *Computing Reviews*)

*The Audio Programming Book* is an invaluable resource for composers, sound designers, and programmers. The contributors have done an outstanding job of communicating not only the technology but also the artistry of programming audio applications. That art will surely flourish further, thanks to their efforts.

(Robert Rowe, Director, Steinhardt Music Composition Program, New York University)

Thanks to *The Audio Programming Book*, it has become practical for musicians to compose music and sounds themselves and to explore their own sonic world without limitations.

(Jean-Claude Risset, composer)

The essential reference in digital audio programming, linking the rich knowledge and techniques of our past and present to a rapidly evolving future, *The Audio Programming Book* provides its reader with a comprehensive body of programs and processes and teaches the programming skills and math to use them.

(John Chowning, Professor of Music, Emeritus, the Center for Computer Research in Music and Acoustics (CCRMA), Stanford University)

This book represents the meeting point of divergent lines of study that young computer musicians are desperate for. There is an extraordinary demand for a book where computer science, digital signal processing, music synthesis, electronic music, and algorithmic composition all come together. This is the only book you'll ever need if you want to learn to make your own plug-ins. An essential read, at the perfect time.

(BT (aka Brian Transeau), composer/technologist)

### About the Author

Richard Boulanger is Professor of Electronic Production and Design at the Berklee College of Music and editor of *The Csound Book: Perspectives in Software Synthesis, Sound Design, Signal Processing, and Programming* (MIT Press, 2000). Victor Lazzarini is Senior Lecturer in the Music Department and Director of the Music Technology Laboratory at the National University of Ireland, Maynooth.

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#### **Walter Knight:**

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