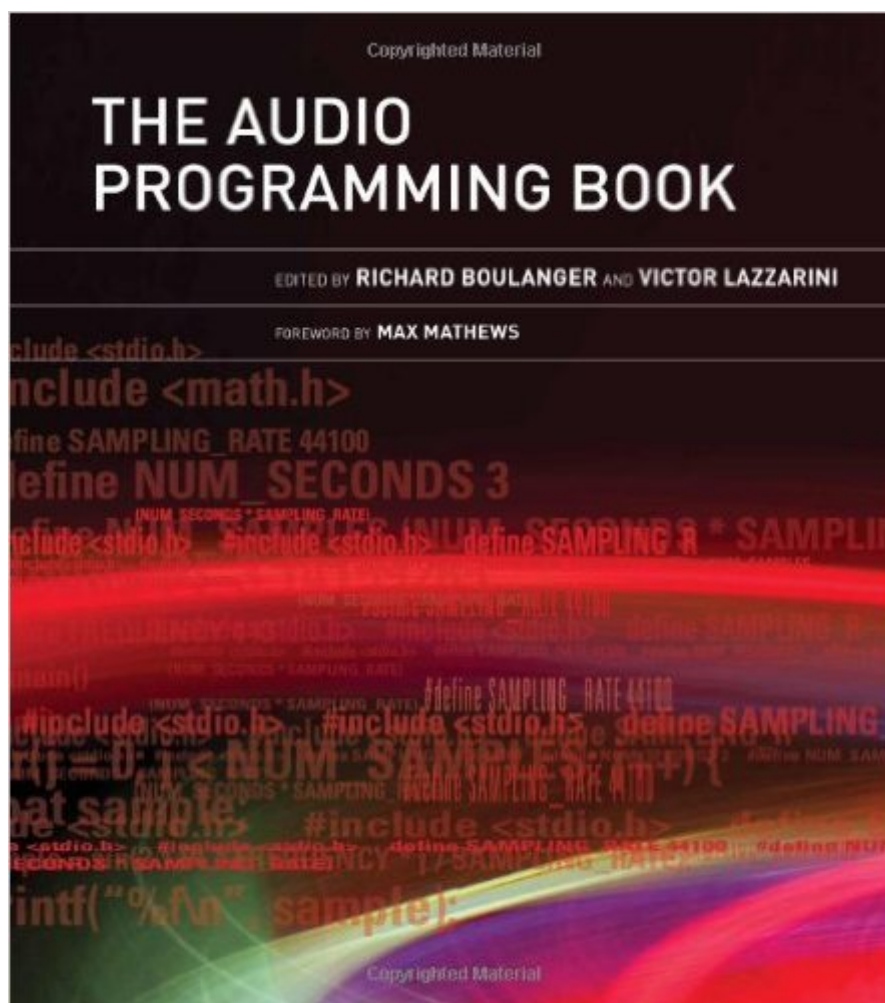


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# The Audio Programming Book (MIT Press)



## Synopsis

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. An accompanying DVD provides an additional 40 chapters, covering musical and audio programs with micro-controllers, alternate MIDI controllers, video controllers, developing Apple Audio Unit plug-ins from Csound opcodes, and audio programming for the iPhone. 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.

## Book Information

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## Customer Reviews

I had been coding in C/C++/Objective-C for a year or so when I first picked up this book. As a musician all my life, I wanted to be able to get a fundamental understanding about what goes on under the hood when computers process audio signals, and hopefully start writing my own programs that do just that. In the content and coding practice realm, the book is TOP. NOTCH. You will not find a more comprehensive guide on Digital Audio Processing anywhere. In the first two chapters (being Chapter 0 and Chapter 1), there are some great techniques and strategies for really getting the most out of pointers, and, unlike most C programming books I've skimmed through, it jumps right into grabbing input for the command line, and introduces you to the proper defensive programming strategies and refactoring methods (i.e. encapsulating code into functions, using preprocessor definitions/macros, always keeping variable scope in mind) that you'll need to make strong, versatile programs. And on the audio side, it covers everything from Spectral Audio Processing to simple DSP to filter Design to effects such as Ring Modulation. And the DVD has tutorials about using C++ with either QT or Carbon to build GUIs for audio Apps, VST plug-ins, and even has a tutorial on designing an audio app for the iPhone. If you're a very advanced programmer with some signal processing background, you might find the DVD more valuable than the actual book itself. A few warnings about this book though: 1) It is not, I repeat, NOT, for beginners. If you have just started learning C, or are switching over to C from a higher-level language that's not C++ or Objective-C, I HIGHLY recommend you read (or at least read the last half of) Kochan's "Programming in C" to get up to speed before you try to tackle this book.

First and foremost this, book is a great resource for understanding how to program audio. It is an area that is severely lacking in the computing world, so every little bit helps. But there are some issues. 1. If you get the Kindle version you don't get the accompanying DVD data. However, if you contact MIT Press, like I did, they are pretty good at getting you a copy of the disc for free. And you must get the DVD, there is a lot of great information on it. 2. The book does start out on the right foot with an introduction to C. I think this is important because I think the bulk of people interested in this book are probably Digital Audio Production guys who are Power Users but might not have done real programming. But even if you are coming from an experienced C programmer angle I don't think it hurts. However, I believe it is important that the book starts off giving an introduction to C because it sets the tone for the book, and where the book should stand out. There are no GOOD intro to audio programming books. Most books for the audio programming are usually geared toward advanced programming or signal processing, or are so watered down that as you give a non-audio interested

programmer the basis to get a job done. This is a problem, because sure you can find plenty of intro to programming books that are happy to teach you some graphics programming along the way, but never for audio. It is ambitious this book tries to take this route.<sup>3</sup> Unfortunately, the code style doesn't skill to that newbie-to-digital-audio style. First, this is an edited anthology book and it seems that every author for every section decided to do their own coding style for each section.

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