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# Designing Audio Effect Plug-Ins In C++: With Digital Audio Signal Processing Theory



## Synopsis

Not just another theory-heavy digital signal processing book, nor another dull build-a-generic-database programming book, *Designing Audio Effect Plug-Ins in C++* gives you everything you need to know to do just that, including fully worked, downloadable code for dozens of professional audio effect plug-ins and practically presented algorithms. With this book, you get access to a companion website where you can download the accompanying Rapid Plug-In Development software to compile and test the book examples, all the code examples, and view student plug-ins and tutorial videos on the development software. Start with an intuitive and practical introduction to the digital signal processing (DSP) theory behind audio plug-ins, and quickly move on to plug-in implementation, gain knowledge of algorithms on filtering, delay, reverb, modulated effects, dynamics processing, and more. You will then be ready to design and implement your own unique plug-ins on any platform and within most any host program. Readers are expected to have some knowledge of C++, and high school math.

## Book Information

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## Customer Reviews

I decided in November that I was going to begin making my own plugins....hopefully for eventual profit. Starting out turned out to be a VERY rocky road. In fact, there was no road. A lot of guys who know how to do it will help you, but you've got to get your own ducks in a row and make your own path before you can finally write that one equation that actually processes the audio. I found myself reading college thesis papers and stuff that weren't designed to teach to get the info in between the

lines. I picked up this book the second I saw it. I couldn't be happier. The author's RackAFX software and approach to teaching gets you making plugins almost immediately. RackAFX automates a lot of the busy work so you can focus on the fun stuff. More importantly, it reduces the learning curve so you only have 20,000 things to learn instead of 50,000 things. There is a lot of DSP discussion and that stuff ain't for the meek. After one read through the book I learned SOME. Halfway through the book a second time and I'm learning much more. I think the author teaches it about as well as any one author can teach it, but I imagine it'll take 10 different books before I get "good" at it. I'd imagine the DSP holds up for everyone from beginners to seasoned pros. Time will tell if RackAFX is the way to go for full-blown premium plugins, but at the moment I have soooo much to learn it's the least of my worries. I'm just thrilled something like this exists to prop me up during the learning phase. I couldn't recommend it higher!

I'm not new to DSP programming but I still found even the introductory chapters on simple first order filters to be enlightening. The intro to filters is simultaneously simpler AND deeper than any I've read before. In addition to explaining the theory clearly and simply, the book has professional sounding sample projects. There are at least a dozen other websites that explain how to design reverb algorithms that sound metallic and fake. This book shows you how to design one that you can actually use.

I would generally wait until I've finished a book cover-to-cover before writing a review, but after digging into the first six chapters, I realized it's going to take me a while to get through this whole book, but for the very best reasons. I'm coming to this subject as a complete novice; with very little experience in C++, and only rudimentary knowledge of DSP, but I have found the text completely accessible, and Pirkle's simple overview of Basic DSP was worth the price of the book on it's own! The depth and breadth of the programming concepts is going to take me a while to work through, but I'm excited to do it and this is the first resource on C++ or DSP that I've found that really gives me hope that I (an audio engineer with little programming background) can learn these concepts and get to a point where I'm being creative with them; putting my own ideas into code and action.

Well written and very informative. After weeks of studying digital signal processing on-line through professional papers, etc., it seemed a considerable challenge to figure out how to convert academically oriented formulas that are a combination of statistics and calculus, into useful, practical, C++ code to modify "real" digital sound (wave) files. Will Pirkle's book; "Designing Audio

Effect Plug-Ins in C++" was the first thing I read that explained how and why this is done. There were several "Aha!" moments, and an occasional; "Well, why didn't the other guys just say that to begin with?" musings. My primary interest is utilizing DSP in the realm of STT (Speech to Text). I'm more interested in clarifying speech than adding effects to these sounds, so much of Will's book is not directly applicable to my current goals. Nevertheless, after reading this book and working through all the examples, I now have that all important bridge between ivory tower academia and real world application that was fuzzy (to say the least) before reading this book. I am most grateful for the epiphanies. Besides, as a musician (just a hobby these days), I look forward to apply what I learned in this book in that department sometime soon. Thank you Will. Thank you.

This book provides a good introduction to DSP and plug in development. I studied DSP in college 20 years ago. I pulled out my old text books for review. Designing Audio Effect Plug-Ins in C++ may not provide the same level of theoretical detail as my other DSP books, but it presents the information in clear, easily digested chunks. RackAFX works very well for plug-in development and testing. The provided code is a good jump start to using RackAFX. I tested the AU and VST code generator and both work well. RackAFX only works with Windows, so I ran it on my Macbook Pro using Parallels and the free version of MS Visual C++. Be aware that there are a number of typographical errors in the book. There is an errata on the RackAFX website, but you will still need to carefully test the algorithms when you write your own code.

Good book but need c++ knowledge ( at least comfortable with pointers) and entry-college math. I recommend studying "The Theory and Technique of Electronic Music" by Miller Puckette [...] (open source) before digging this, which shares lots of topics with this book in more beginner level and in Pure-data ( instead of c++)

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