



Designing Software Synthesizer Plug-Ins in C++: For RackAFX, VST3, and Audio Units

By Will Pirkle



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Bridging the gap from theory to programming, *Designing Software Synthesizer Plug-Ins in C++ For RackAFX, VST3 and Audio Units* contains complete code for designing and implementing software synthesizers for both Windows and Mac platforms. You will learn synthesizer operation, starting with the underlying theory of each synthesizer component, and moving on to the theory of how these components combine to form fully working musical instruments that function on a variety of target digital audio workstations (DAWs). Containing some of the latest advances in theory and algorithm development, this book contains information that has never been published in textbook form, including several unique algorithms of the author's own design.

The book is broken into three parts: plug-in programming, theory and design of the central synthesizer components of oscillators, envelope generators, and filters, and the design and implementation of six complete polyphonic software synthesizer musical instruments, which can be played in real time. The instruments implement advanced concepts including a user-programmable modulation matrix. The final chapter shows you the theory and code for a suite of delay effects to augment your synthesizers, introducing you to audio effect processing.

The companion website, www.focalpress.com/cw/pirkle, gives you access to free software to guide you through the application of concepts discussed in the book, and code for both Windows and Mac platforms. In addition to the software, it features bonus projects, application notes, and video tutorials. A reader forum, monitored by the author, gives you the opportunity for questions and information exchange.

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Editorial Review

About the Author

Will Pirkle is an Assistant Professor of Music Engineering Technology at the University of Miami Frost School of Music and is the author of Designing Audio Effects Plug-Ins in C++. He teaches classes in C++ Audio Programming, Signal Processing and Audio Synthesis Theory, and Mobile App Programming. In addition to ten years of teaching at the University of Miami, Mr. Pirkle has twenty years of experience in the audio industry working and consulting for such names as Korg Research and Development, SiriusXM Radio, Diamond Multimedia, Gibson Musical Instruments, and National Semiconductor Corporation. An avid guitarist and studio owner, Mr. Pirkle still seeks projects that combine all his skills. www.willpirkle.com

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