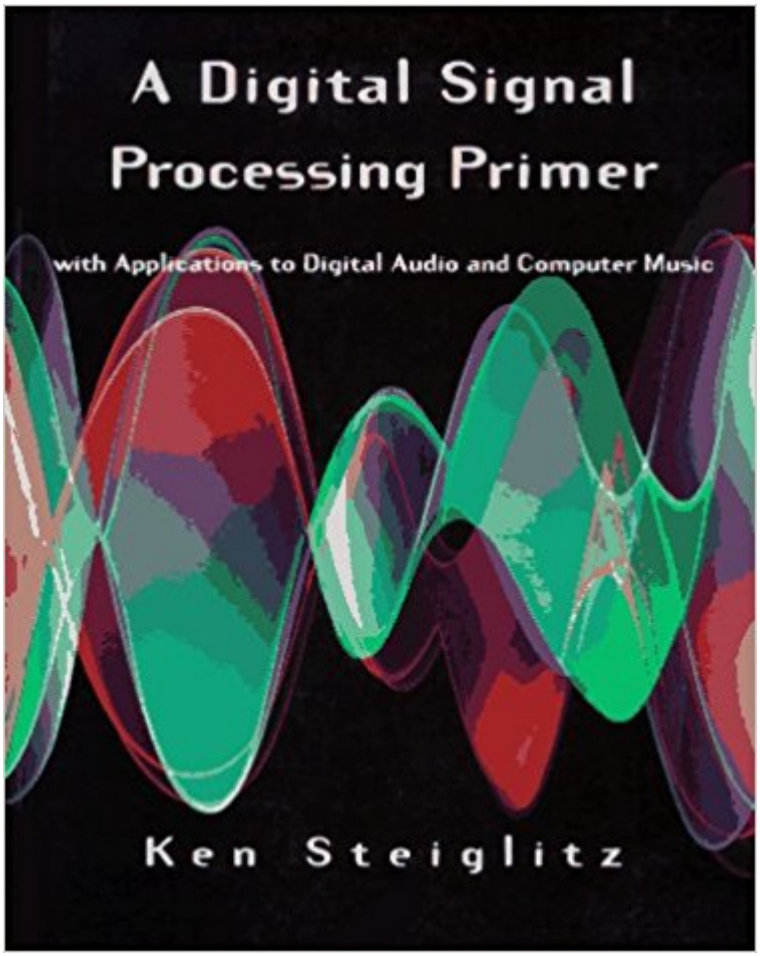
A Digital Signal Processing Primer: With Applications To Digital Audio And Computer Music



Synopsis

This text is directed at the market of DSP users brought about by the development of powerful and inexpensive software tools to analyze signals. These tools allow sophisticated manipulation of signals but do not provide an understanding of the theory or the foundation for the techniques. This work develops an approach to the development of the mathematics of DSP and uses examples from areas of the spectrum familiar to beginners, together with questions and suggested experiments

Book Information

Paperback: 300 pages

Publisher: Pearson; 1st edition (January 15, 1996)

Language: English

ISBN-10: 0805316841

ISBN-13: 978-0805316841

Product Dimensions: 7.5 x 0.8 x 9.3 inches

Shipping Weight: 1.4 pounds (View shipping rates and policies)

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Customer Reviews

This is a different kind of digital signal processing textbook in just about every way. To begin with, chapter one starts out talking about sinusoids in the context of tuning forks, when just about every other DSP book under the sun starts with a review of linear systems. This is good, in that throughout the book your eye is kept on the ball of actual audio applications. This can be somewhat troublesome in that the author sometimes has to delve into mathematics that the typical DSP student may not be ready for - the wave equation and elementary partial differential equations for example. The author ultimately does get the job done, however, explaining the DFT, FFT, z-transform, and filter design all within the context of audio signals. It is true that only the last chapter is explicitly labeled "Audio and Musical Applications". However, this only means that the author is discussing complex applications in this chapter only, after the groundwork has been laid

for all of the theory. I would especially recommend this book to people interested in computer music that need to get up to speed on DSP. Such students may also appreciate "DSP Filter Cookbook" by John Lane. It is all about the implementation of audio filters and contains C++ source code and schematics. If you are a traditional student of DSP and digital audio does not interest you, you might want to go a more traditional route starting out with "Understanding Digital Signal Processing" by Lyon and proceeding on to a more advanced text such as "Discrete Time Signal Processing" by Oppenheimer or "Digital Signal Processing: Principles, Algorithms and Applications" by Proakis.

As a mechanical engineer who is working more and more often with DSP-based control systems, this book served me as a great refresher course. It was perfect for me because it covers all the necessary math, but doesn't get into a lot of nitty-gritty proofs.I was sort of put off by the subtitle "with Applications to Digital Audio and Computer Music" because I'm more interested in designing DSP-based control systems than music, but I was not disappointed. Everything the author presents is of utility in designing feedback control systems as well (although he doesn't necessarily point this out), and his writing style is extremely engaging and lucid. His enthusiasm actually makes the book fun to read, despite the highly technical subject.I'm now able to chunk together some pretty cool systems using Matlab, Simulink, and the knowledge I picked up in A Digital Signal Processing Primer.(Caveat: this book will probably not be of much help to non-engineers or to people who don't much like math. It's *not* a book about how to make cool noises with your computer.)

I think this book is a good start for anyone who wants to find out the fundamentals of DSP. The math is very basic(high school intro to calculus101) and simple physics is all you need to start. It is also a great book to refresh those who are advanced in DSP. The book is fresh and very simple to follow. I wish I had this book back when I was learning the fundamentals of DSP.

One of my math professors said that this was not a good book for me--"a pure engineering book," "Calculus III is required," & "send this book back because it won't help you to write code." He turned out to be WRONG! You might want to refresh yourself with Calculus before purchasing this book. Afterwards, this book is not that bad at all. As a person with a limited background of Calculus, I was able to get away with only derivatives & integrals. I actually learned a great deal from this book. The author used some pretty good examples that allowed me to write my own code. The author tried to make it as simple as possible, but I understand that there is almost no easy way to explain anything that has to do with math. Thank you.

This is the only DSP book I would recommend for a beginner. This is an especially great book for someone without an EE background who doesn't know much about signals, or someone who doesn't know/care about analog filters. I found the book quite practical, and was able to implement working digital filters after reading it. But, it also gave me a good understanding of the theory.I've gotten other DSP books since then, including the famed Oppenheim, and I've been rather disappointed with each of them. The book is a lot more readable and less abstract than the others.I do wish this book covered more topics.. Some more specifics about Butterworth and Chebyshev filters would have been nice. If you just want sample code for building a filter, you won't get it.However, this book covers some topics which I haven't seen covered well elsewhere, like comb filters, resonators, reverb, and digital simulation of a plucked string. So it's still worth getting even if you already know about DSP and have other books.

I bought this expecting a thourough primer for audio software development (soft realtime signal generation, filtering, many examples, some code). Nope. Just calculus. It reads very well, it is a great book, but it does not show you how to implement using software or even pseudocode.For easy fun-to-read coverage on theoretical DSP, and for a small taste of DSP with respect to audio (1 small chapter), this book is five stars.Since it wasn't what I needed (jeez, who does make a book like what I want anyway? I want to write a modular synth in software, lots of FX, filters, etc..), I give it only 3 stars.. :(

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