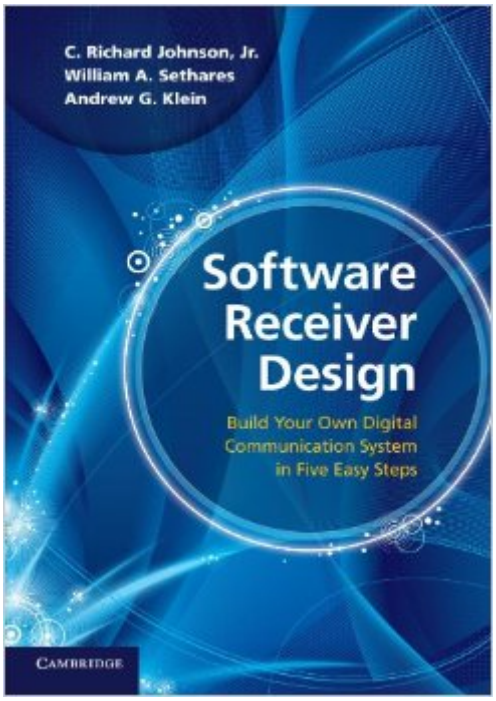
Software Receiver Design: Build Your Own Digital Communication System In Five Easy Steps



Synopsis

Have you ever wanted to know how modern digital communications systems work? Find out with this step-by-step guide to building a complete digital radio that includes every element of a typical, real-world communication system. Chapter by chapter, you will create a MATLAB realization of the various pieces of the system, exploring the key ideas along the way, as well as analyzing and assessing the performance of each component. Then, in the final chapters, you will discover how all the parts fit together and interact as you build the complete receiver. In addition to coverage of crucial issues, such as timing, carrier recovery and equalization, the text contains over 400 practical exercises, providing invaluable preparation for industry, where wireless communications and software radio are becoming increasingly important. A variety of extra resources are also provided online, including lecture slides and a solutions manual for instructors.

Book Information

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Customer Reviews

I like this book, very much. When I started to try to learn something about software (digital) radios the first two digital communications books I looked at were so mathematically intense, with what I thought was insufficient explanation, that I made little progress. Then I found this book. It’s gentle and clear in its approach. This book contains plenty of mathematics, but the authors do not overwhelm the reader with page after page of equations (as is unfortunately common in so many engineering books). And the provided Matlab code is simply terrific in helping me learn digital radio. I also appreciated that the code listings were given, and explained, in the text of the book. That

made for easy reading and improved my knowledge of Matlab. The authors introduce various digital radio topics, explain the topics rather well (in my opinion), and then provide the Matlab code to demonstrate those topics. Following that, the authors then provide suggestions to the reader on modifying the Matlab code so the reader can learn the effects of changing signal and processing parameter values. That's a VERY effective way to start learning software radio! While the book assumes you know something about digital signal processing (DSP), the authors do sufficiently explain the DSP topics as necessary. So if you're new to digital radio, and you have Matlab software available to you, I highly recommend this book because it is so down-to-earth and practical. Then, if need be, you'll be much better prepared to move on to the more complicated and mathematically-intense digital communications books.

I felt compelled to write a review for this book! I have been in the wireless field for almost 20 years. I wish this book was available when I was studying in school since it would have helped immensely in my communications and DSP related courses.It explains all the important receiver design concepts in a simple and logical way and the diagrams/matlab code supplement the text. The maths is not overwhelming especially for this subject matter.This book would also be useful for wireless engineers in industry to brush up and fill gaps in their knowledge. The only reason I did not give this 5 stars is that it does not cover any wireless standard such as 2G/3G/4G. It would have been very useful to have a chapter or two showing how these principals are applied in the real world systems. Also, it would have been beneficial to have some information on non-linear modulation schemes, OFDM, MIMO and Wideband CDMA with the last three items being hot topics right now.So in conclusion, the book would be very useful for advanced undergraduate students and for wireless engineers. It is supposed to be a first course but hopefully there can be a second edition or another book from the same authors that covers the more advanced topics mentioned earlier.Happy reading!

Good to get started in Software defied Radio design. Can use Matlab or free Octave for the simulations. Hands on book that I can work through on my own. Would recommend to anyone studying SDR design. Most book examples run as is on Octave. Some need a change of function name or two. I wish this was available when I was studying digital communications 12 years ago.

I'm a retired engineer with an interest in software defined radio. I found this book to be an outstanding introduction to the subject, and well suited to independent study. Using Octave (a

mathematics software system freely available on the internet) I have been able to work through all of the mathematical projects in the book -- and doing this has contributed greatly to my understanding of not just SDR, but digital signal processing in general.I would recommend this very accessible book highly to people interested in both SDR and DSP.

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