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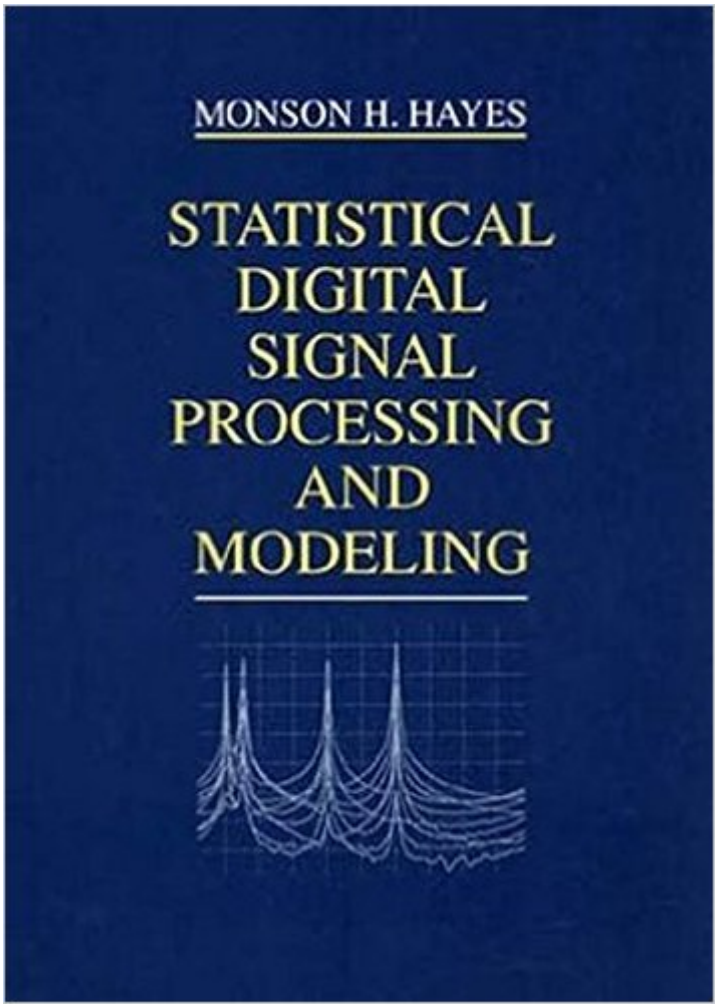
Statistical Digital Signal Processing And Modeling



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Synopsis

The main thrust is to provide students with a solid understanding of a number of important and related advanced topics in digital signal processing such as Wiener filters, power spectrum estimation, signal modeling and adaptive filtering. Scores of worked examples illustrate fine points, compare techniques and algorithms and facilitate comprehension of fundamental concepts. Also features an abundance of interesting and challenging problems at the end of every chapter.

Book Information

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Customer Reviews

I used this book to learn nearly all the topics covered in a hurry, in order to take the prelim exam at Berkeley. While it was a humbling experience, it made me truly learn to appreciate and love this book, and its great presentation and organization.It starts off with a very good introduction to linear algebra and probability theory for engineers, which should give you a taste of the effective way that this book is laid out. The format is excellent, and the important points clearly highlighted. This is a real joy to read!The magic doesn't wear off into the later chapters, which include topics in signal modeling, least-squares methods, MMSE estimation, Levinson algorithm, spectral estimation, and adaptive filters.I find this book to be a great source for both learning and reference, and as a bonus it includes Matlab codes for all the algorithms mentioned here.One complain is that there are certain topics that could be covered more effectively. For example, the relationship between the different signal models and filtering is not mentioned, and this could help understand the motivation of the different signal models in the first place.Anyway, once you get past Oppenheim/Schafer,

Proakis/Manolakis and Lyons' material this can be a great way to start your journey into the more advanced topics in signal processing.

The book is beautiful, really neat. It contains all the essential topics that you will expect in a Spectral Analysis book. I stumbled across it in library and was impressed with the treatment that the author gave this subject. I now have a copy of my own. The topics range from basic to advanced including a few topics on adaptive filter theory.Each treatment is almost immediately followed by an example, simple but powerful way to introduce you to this topic. I found this one feauture made the topics covered really enjoyable. Linear algebra review captures the essence of the style of this book. It is a welcome addition to this area in DSP. The one by Stocia is too mathematical to be called an introductory book. This one is way much above Stocia's mathematical nightmare.

This is one book that literally changed the way I viewed and learned DSP. Monson Hayes is clearly a very smart guy, and the book is excellent.Pros:1. Very very very clear in mathematical presentation and style, without compromising on rigor.2. Numerous examples, immediately after a topic really helps in appreciating the concepts.3. Extremely self contained book.4. Advanced topics easily explained.5 Code is extremely useful.Cons:1. Selected solutions or all solutions to problems at the back of the each chapters not given. This would be great.2. Implementation of these digital systems (adaptive filters, optimum filters etc) require some knowledge of numerical linear algebra for stability. While this is outside the scope of the book, a few examples could have been provided (like the RLS square root algorithm, which would be within the concepts covered in the book).All said and done, I use book everyday, right from refershing basic concepts, passing the qualifying exam here at Georgia Tech to implementing and playing with code. A must buy IMO for any DSP person....

This book has great material on least squares filtering and spectral estimation techniques. And with Hayes providing the Matlab code to implement the formulas, it is a great help to the student in being able to run the code and see what the outputs should look like. The book reads well and is very easy to use. But it is not a substitute for an intro DSP book like Oppenheim/Schafer or Proakis.Update - I have changed my score from 4 to 5. The longer I have been working to more I find I use this book and the examples in it to do things. I think this is a really useful book for a practicing engineer.

Clear examples, clean derivations, and easy to understand style has Monson Hayes' his signature written all over it. I have his schaum's outline on DSP, and its just as good. I haven't finish perusing this book; i am currently on signal modeling (ch.3, i think) where pade, shank and other methods are derived, and i've already found plenty of application to work on.homework problems include both mathematical and computer (matlab) exercises that help cement understanding the material at the end of each chapter.applicable, yet theoretically appealing, this book is best for those who has had an introductory DSP course, although it is very much self-contained - the author starts with a comprehensive review of linear algebra and random processes - it will serve the serious student with an interest on statistical description of signals and system very well.

I took a Statistical DSP class with Dr Hayes at Georgia Tech. The treatment of the Kalman Filter in the book is very nice. The derivation is probably the best and clearest of all the books I've seen. While taking the class, I was surprised by the simplicity and elegance of the derivations. Also, the examples are very helpful. Great book! Must have if you're in signal processing or controls.

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