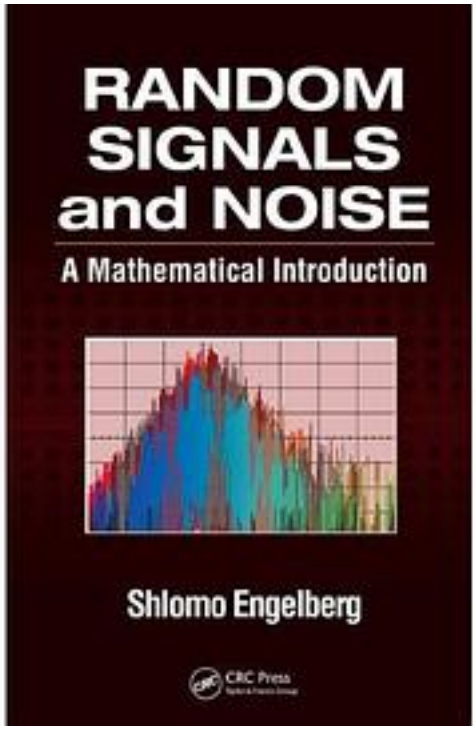
Random Signals and Noise



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Understanding the nature of random signals and noise is critically important for detecting signals and for reducing and minimizing the effects of noise in applications such as communications and control systems. Outlining a variety of techniques and explaining when and how to use them, Random Signals and Noise: A Mathematical Introduction focuses on applications and practical problem solving rather than probability theory.

A Firm Foundation

Before launching into the particulars of random signals and noise, the author outlines the elements of probability that are used throughout the book and includes an appendix on the relevant aspects of linear algebra. He offers a careful treatment of Lagrange multipliers and the Fourier transform, as well as the basics of stochastic processes, estimation, matched filtering, the Wiener-Khinchin theorem and its applications, the Schottky and Nyquist formulas, and physical sources of noise.

Practical Tools for Modern Problems

Along with these traditional topics, the book includes a chapter devoted to spread spectrum techniques. It also demonstrates the use of MATLAB® for solving complicated problems in a short amount of time while still building a sound knowledge of the underlying principles.

A self-contained primer for solving real problems, Random Signals and Noise presents a complete set of tools and offers guidance on their effective application.

作者介绍:

Shlomo Engelberg received his Ph.D. in mathematics from the Courant Institute (NYU) in 1994. From 1994 to 1996 he was a postdoc at Tel Aviv University in the applied mathematics department. During the 1996-97 academic year, he was a postdoc at the Technion in the mathematics department. From 1997 to 1999 he was a lecturer in the Jerusalem College of Technology's department of electronics. From 1999 until 2008 he was a senior lecturer in the department, and from 2009, he has been an associate professor in the department. From 2005 until 2009 he was the chairman of the department.

目录: ELEMENTARY PROBABILITY THEORY

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