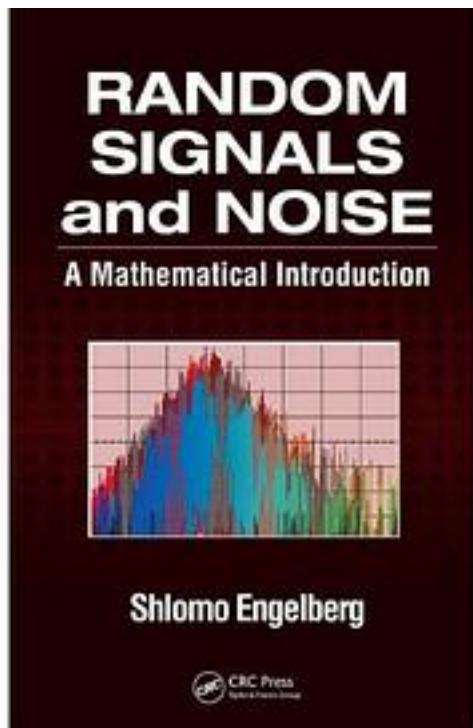


# Random Signals and Noise



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著者:Shlomo Engelberg

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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

The Probability Function

A Bit of Philosophy

The One-Dimensional Random Variable

The Discrete Random Variable and the PMF

A Bit of Combinatorics

The Binomial Distribution

The Continuous Random Variable, the CDF, and the PDF

The Expected Value

Two Dimensional Random Variables

The Characteristic Function

Gaussian Random Variables

Exercises

## AN INTRODUCTION TO STOCHASTIC PROCESSES

What Is a Stochastic Process?

The Autocorrelation Function

What Does the Autocorrelation Function Tell Us?

The Evenness of the Autocorrelation Function

Two Proofs that  $R_{xx}(0) \geq |R_{xx}(t)|$

Some Examples

Exercises

## THE WEAK LAW OF LARGE NUMBERS

The Markov Inequality

Chebyshev's Inequality

A Simple Example

The Weak Law of Large Numbers

Correlated Random Variables

Detecting a Constant Signal in the Presence of Additive Noise

A Method for Determining the CDF of a Random Variable

Exercises

THE CENTRAL LIMIT THEOREM

Introduction

The Proof of the Central Limit Theorem

Detecting a Constant Signal in the Presence of Additive Noise

Detecting a (Particular) Non-Constant Signal in the Presence of Additive Noise

The Monte Carlo Method

Poisson Convergence

Exercises

EXTREMA AND THE METHOD OF LAGRANGE MULTIPLIERS

The Directional Derivative and the Gradient

Over-Determined Systems

The Method of Lagrange Multipliers

The Cauchy-Schwarz Inequality

Under-Determined Systems

Exercises

THE MATCHED FILTER FOR STATIONARY NOISE

White Noise

Colored Noise

The Autocorrelation Matrix

The Effect of Sampling Many Times in a Fixed Interval

More about the Signal to Noise Ratio

Choosing the Optimal Signal for a Given Noise Type

Exercises

FOURIER SERIES AND TRANSFORMS

The Fourier Series

The Functions  $\mathbf{e}_n(t)$  Span-a Plausibility Argument

The Fourier Transform

Some Properties of the Fourier Transform

Some Fourier Transforms

A Connection between the Time and Frequency Domains

Preservation of the Inner Product

Exercises

THE WIENER-KHINCHIN THEOREM AND APPLICATIONS

The Periodic Case

The Aperiodic Case

The Effect of Filtering

The Significance of the Power Spectral Density

White Noise

Low-Pass Noise

Low-Pass Filtered Low-Pass Noise

The Schottky Formula for Shot Noise

A Semi-Practical Example

Johnson Noise and the Nyquist Formula

Why Use RMS Measurements

The Practical Resistor as a Circuit Element

The Random Telegraph Signal-Another Low-Pass Signal

Exercises

SPREAD SPECTRUM

Introduction  
The Probabilistic Approach  
A Spread Spectrum Signal with Narrow Band Noise  
The Effect of Multiple Transmitters  
Spread Spectrum-The Deterministic Approach  
Finite State Machines  
Modulo Two Recurrence Relations  
A Simple Example  
Maximal Length Sequences  
Determining the Period  
An Example  
Some Conditions for Maximality  
What We Have Not Discussed  
Exercises  
MORE ABOUT THE AUTOCORRELATION AND THE PSD  
The "Positivity" of the Autocorrelation  
Another Proof that  $R_{xx}(0) \geq |R_{xx}(t)|$   
Estimating the PSD  
The Properties of the Periodogram  
Exercises  
WIENER FILTERS  
A Non-Causal Solution  
White Noise and a Low-Pass Signal  
Causality, Anti-Causality and the Fourier Transform  
The Optimal Causal Filter  
Two Examples  
Exercises  
APPENDIX: A BRIEF OVERVIEW OF LINEAR ALGEBRA  
The Space CN  
Linear Independence and Bases  
A Preliminary Result  
The Dimension of CN  
Linear Mappings  
Matrices  
Sums of Mappings and Sums of Matrices  
The Composition of Linear Mappings-Matrix Multiplication  
A Very Special Matrix  
Solving Simultaneous Linear Equations  
The Inverse of a Linear Mapping  
Invertibility  
The Determinant-A Test for Invertibility  
Eigenvectors and Eigenvalues  
The Inner Product  
A Simple Proof of the Cauchy-Schwarz Inequality  
The Hermitian Transpose of a Matrix  
Some Important Properties of Self-Adjoint Matrices  
Exercises  
BIBLIOGRAPHY  
INDEX  
• • • • • (收起)

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标签

评论

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