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Random Variables and Stochastic Processes

A Comprehensive Guide

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Random Variables and Stochastic Processes provides a modern, application-driven introduction to probability theory for undergraduate and postgraduate students in Electronics and Communication Engineering (ECE), Computer Science and Engineering (CSE), Information Technology, and related disciplines.

Unlike traditional texts that emphasize abstract mathematical proofs, this book connects probability theory to today's rapidly evolving technologies. From the opening chapter, readers explore the role of probability in probabilistic computing, quantum computing, and information entropy, gaining a clear understanding of why stochastic methods are essential to modern engineering and computer science.

The text progresses from the fundamentals of probability and random variables to stochastic processes, linear systems with random inputs, and advanced noise modeling. Throughout, mathematical concepts are reinforced with practical engineering applications, enabling students to develop both theoretical understanding and real-world problem-solving skills.

Written in a clear and accessible style, the book balances rigorous coverage with intuitive explanations, making complex topics easier to understand without sacrificing technical depth. Examples and applications drawn from wireless communications, cybersecurity, signal processing, and emerging computing technologies demonstrate the relevance of stochastic methods across today's engineering landscape.

Ideal for classroom instruction and self-study, this textbook equips students with the mathematical foundation and practical perspective needed to succeed in advanced engineering courses and modern technology-driven careers.

TABLE OF CONTENTS

Chapter 1: A Brief Introduction

Introduction to Randomness; Deterministic to Stochastic Transitions; Classical vs. Probabilistic vs. Quantum Computing; Fundamentals of Entropy.

Chapter 2: Review of Probability Theory

Deterministic and Random Experiments; Sample Space and Events; Axioms of Probability; Total Probability and Bayes? Theorems.

Chapter 3: Random Variables and Distributions

Concept of a Random Variable; Discrete, Continuous, and Mixed Random Variables; Cumulative Distribution and Probability Density Functions; Standard Distributions; Conditional Distributions.

Chapter 4: Operations on Random Variables

Expectation Operator; Moments and Generating Functions; Characteristic Functions; Transformation of a Single Random Variable; Probability Bounds.

Chapter 5: Multiple Random Variables

Joint Distribution and Density Functions; Point and Interval Conditioning; Statistical Independence; Sums of Independent Random Variables; Marginal Distributions; Central Limit Theorem; Joint Moments and Correlation; Joint Characteristic Function; Jointly Gaussian Variables; Transformations of Multiple Random Variables.

Chapter 6: Random Processes

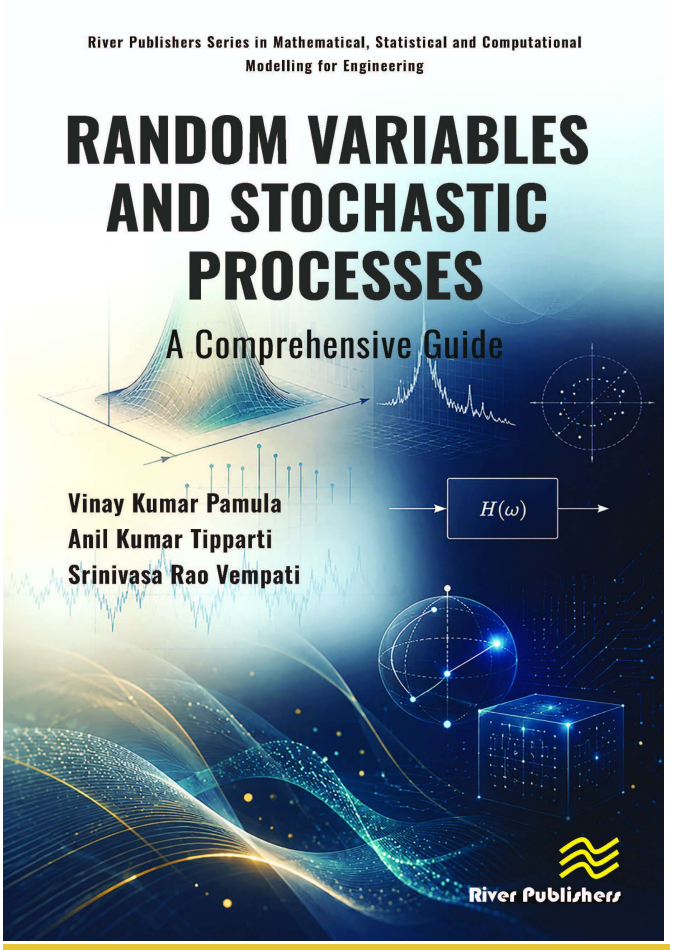
Concept of a Random Process; Mean, Autocorrelation, and Cross-Correlation; Classification of Random Processes; Gaussian, Poisson, and Markov Processes; Power Spectral Density and the Wiener-Khinchin Theorem; Cross-Power Spectral Density.

Chapter 7: Linear Time-Invariant Systems with Random Signals

Response of LTI Systems to Random Signals; Spectral Characteristics of System Response; Frequency-Domain Analysis of LTI Systems with Random Inputs.

Chapter 8: Noise Modeling and Analysis

Noise Sources; Thermal Noise and White Noise; Modeling of Thermal Noise Sources; Generalized Nyquist Theorem; Equivalent Noise Bandwidth; Effective Noise Temperature; Noise Figure and Friis' Formula.



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