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Altri autori (Persone)	ChildersDonald G
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Lingua di pubblicazione	Inglese
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Nota di contenuto	Front Cover; Probability and Random Processes; Copyright Page; Contents; Preface; Chapter 1. Introduction; 1.1 A Speech Recognition System; 1.2 A Radar System; 1.3 A Communication Network; Chapter 2. Introduction to Probability Theory; 2.1 Experiments, Sample Spaces, and Events; 2.2 Axioms of Probability; 2.3 Assigning Probabilities; 2.4 Joint and Conditional Probabilities; 2.5 Bayes's Theorem; 2.6 Independence; 2.7 Discrete Random Variables; 2.8 Engineering Application: An Optical Communication System; Chapter 3. Random Variables, Distributions, and Density Functions 3.1 The Cumulative Distribution Function 3.2 The Probability Density Function 3.3 The Gaussian Random Variable 3.4 Other Important Random Variables 3.5 Conditional Distribution and Density Functions 3.6 Engineering Application: Reliability and Failure Rates; Chapter 4. Operations on a Single Random Variable; 4.1 Expected Value of a Random Variable 4.2 Expected Values of Functions of Random Variables 4.3 Moments 4.4 Central Moments 4.5 Conditional Expected Values 4.6 Transformations of Random Variables 4.7 Characteristic Functions 4.8 Probability Generating Functions

4.9 Moment Generating Functions  
4.10 Evaluating Tail Probabilities;  
4.11 Engineering Application: Scalar Quantization; 4.12 Engineering Application: Entropy and Source Coding; Chapter 5. Pairs of Random Variables; 5.1 Joint Cumulative Distribution Functions; 5.2 Joint Probability Density Functions; 5.3 Joint Probability Mass Functions; 5.4 Conditional Distribution, Density, and Mass Functions; 5.5 Expected Values Involving Pairs of Random Variables; 5.6 Independent Random Variables; 5.7 Jointly Gaussian Random Variables; 5.8 Joint Characteristic and Related Functions  
5.9 Transformations of Pairs of Random Variables  
5.10 Complex Random Variables; 5.11 Engineering Application: Mutual Information, Channel Capacity, and Channel Coding; Chapter 6. Multiple Random Variables; 6.1 Joint and Conditional PMFs, CDFs, and PDFs; 6.2 Expectations Involving Multiple Random Variables; 6.3 Gaussian Random Variables in Multiple Dimensions; 6.4 Transformations Involving Multiple Random Variables; 6.5 Engineering Application: Linear Prediction of Speech; Chapter 7. Random Sequences and Series; 7.1 Independent and Identically Distributed Random Variables  
7.2 Convergence Modes of Random Sequences  
7.3 The Law of Large Numbers; 7.4 The Central Limit Theorem; 7.5 Confidence Intervals; 7.6 Random Sums of Random Variables; 7.7 Engineering Application: A Radar System; Chapter 8. Random Processes; 8.1 Definition and Classification of Processes; 8.2 Mathematical Tools for Studying Random Processes; 8.3 Stationary and Ergodic Random Processes; 8.4 Properties of the Autocorrelation Function; 8.5 Gaussian Random Processes; 8.6 Poisson Processes; 8.7 Engineering Application: Shot Noise in a p-n Junction Diode; Chapter 9. Markov Processes  
9.1 Definition and Examples of Markov Processes

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#### Sommario/riassunto

Miller and Childers have focused on creating a clear presentation of foundational concepts with specific applications to signal processing and communications, clearly the two areas of most interest to students and instructors in this course. It is aimed at graduate students as well as practicing engineers, and includes unique chapters on narrowband random processes and simulation techniques. The appendices provide a refresher in such areas as linear algebra, set theory, random variables, and more. Probability and Random Processes also includes applications in digital communicat

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