1. Record Nr. UNINA9910778937503321

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Titolo	Probability and random processes [[electronic resource]] : with applications to signal processing and communications / / Scott L. Miller, Donald Childers
Pubbl/distr/stampa	Waltham, Mass., : Elsevier, 2012
ISBN	1-283-41027-3 9786613410276 0-12-387013-5
Edizione	[Ed. 2.]
Descrizione fisica	1 online resource (625 p.)
Altri autori (Persone)	ChildersDonald G
Disciplina	621.382/20151
Soggetti	Signal processing - Mathematics Probabilities Stochastic processes
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	Description based upon print version of record
Nota di bibliografia	Includes bibliographical references and index.
Nota di contenuto	Front Cover; Probability and Random Processes: With Applications to Signal Processingand Communications; Copyright; 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 Basic Combinatorics; 2.6 Bayes's Theorem; 2.7 Independence; 2.8 Discrete Random Variables; 2.9 Engineering Application-An Optical Communication System; Exercises Section 2.1: Experiments, Sample Spaces, and EventsSection 2.2: Axioms of Probability; Section 2.3: Assigning Probabilities; Section 2.4: Joint and Conditional Probabilities; Section 2.5: Basic Combinatorics; Section 2.6: Bayes's Theorem; Section 2.7: Independence; Section 2.8: Discrete Random Variables; Miscellaneous Problems; MATLAB Exercises; 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; 3.4.1 Uniform Random Variable

3.4.2 Exponential Random Variable3.4.3 Laplace Random Variable; 3.4.4 Gamma Random Variable; 3.4.5 Erlang Random Variable; 3.4.6 Chi-Squared Random Variable; 3.4.7 Rayleigh Random Variable; 3.4.8 Rician Random Variable; 3.4.9 Cauchy Random Variable; 3.5 Conditional Distribution and Density Functions; 3.6 Engineering Application: Reliability and Failure Rates; Exercises; Section 3.1: The Cumulative Distribution Function; Section 3.2: The Probability Density Function; Section 3.3: The Gaussian Random Variable; Section 3.4: Other Important Random Variables
Section 3.5: Conditional Distribution and Density FunctionsSection 3.6: Reliability and Failure Rates; Miscellaneous Exercises; MATLAB Exercises; 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; 4.6.1 Monotonically Increasing Functions; 4.6.2 Monotonically Decreasing Functions; 4.6.3 Nonmonotonic Functions; 4.7. Characteristic Functions; 4.8. Probability-Generating Functions 4.9 Moment-Generating Functions4.10 Evaluating Tail Probabilities; 4.11 Engineering Application-Scalar Quantization; 4.12 Engineering Application-Entropy and Source Coding; Exercises; Section 4.1: Expected Values of a Random Variable; Section 4.2: Expected Values of Functions of a Random Variable; Section 4.3: Moments; Section 4.4: Central Moments; Section 4.5: Conditional Expected Values; Section 4.6: Transformations of Random Variables; Section 4.7: Characteristic Functions; Section 4.8: Probability-Generating Functions; Section 4.9: Moment-Generating Functions
Section 4.10: Evaluating Tail Probabilities

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