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2.7 Log Sum Inequality and Its Applications2.8 Data-Processing Inequality; 2.9 Sufficient Statistics; 2.10 Fano's Inequality; Summary; Problems; Historical Notes; 3 Asymptotic Equipartition Property; 3.1 Asymptotic Equipartition Property Theorem; 3.2 Consequences of the AEP: Data Compression; 3.3 High-Probability Sets and the Typical Set; Summary; Problems; Historical Notes; 4 Entropy Rates of a Stochastic Process; 4.1 Markov Chains; 4.2 Entropy Rate; 4.3 Example: Entropy Rate of a Random Walk on a Weighted Graph; 4.4 Second Law of Thermodynamics; 4.5 Functions of Markov Chains; Summary ProblemsHistorical Notes; 5 Data Compression; 5.1 Examples of Codes; 5.2 Kraft Inequality; 5.3 Optimal Codes; 5.4 Bounds on the Optimal Code Length; 5.5 Kraft Inequality for Uniquely Decodable Codes; 5.6 Huffman Codes; 5.7 Some Comments on Huffman Codes; 5.8 Optimality of Huffman Codes; 5.9 Shannon-Fano-Elias Coding; 5.10 Competitive Optimality of the Shannon Code; 5.11 Generation of Discrete Distributions from Fair Coins; Summary; Problems; Historical Notes; 6 Gambling and Data Compression; 6.1 The Horse Race; 6.2 Gambling and Side Information; 6.3 Dependent Horse Races and Entropy Rate
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9 Gaussian Channel

Sommario/riassunto

The latest edition of this classic is updated with new problem sets and materialThe Second Edition of this fundamental textbook maintains the book's tradition of clear, thought-provoking instruction. Readers are provided once again with an instructive mix of mathematics, physics, statistics, and information theory.All the essential topics in information theory are covered in detail, including entropy, data compression, channel capacity, rate distortion, network information theory, and hypothesis testing. The authors provide readers with a solid understanding of the underlying t