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Narrowband Process; 4.9 Noncentral Chi-Squared Density; 4.10 Student's t-Density; 4.11 Snedecor's F-Density; Exercises; Chapter 5. Hypothesis Testing; 5.1 Introduction; 5.2 A Simple Detection Problem; 5.3 The Neyman-Pearson Criterion; 5.4 Bayes' Criterion; 5.5 Minimum Error Probability Criterion; 5.6 Minimax Criterion; 5.7 Multiple Measurements; 5.8 Multiple Alternative Hypothesis Testing; 5.9 Composite Hypothesis Testing with Minimum Cost; 5.10 Sufficient Statistics
5.11 Uniformly Most Powerful Tests5.12 Unknown a Priori Information and Nonoptimal Tests; Exercises; Chapter 6. Detection of Known Signals; 6.1 Two Completely Known Signals in Additive Gaussian Noise; 6.2 Application to Radar; 6.3 Application to Binary Communications; 6.4 The Likelihood Functions; 6.5 Matched Filters; 6.6 The General Discrete Matched Filter; 6.7 An m-ary Communication System; 6.8 The General Discrete Gaussian Problem; Exercises; Chapter 7. Detection of Signals with Random Parameters; 7.1 Processing Narrowband Signals; 7.2 Detection of Signals with Unknown Carrier Phase
7.3 The Quadrature Receiver and Equivalent Forms7.4 Receiver Operating Characteristics; 7.5 Signals with Random Phase and Amplitude; 7.6 Noncoherent Frequency Shift Keying; 7.7 Signals with Random Frequency; 7.8 Signals with Random Time of Arrival; Exercises; Chapter 8. Multiple Pulse Detection of Signals; 8.1 Known Signals; 8.2 Signals with Unknown Phase; 8.3 Performance of the Quadratic Detector; 8.4 Gram-Charlier Series; 8.5 Performance of the Linear Detector; 8.6 The Case of Unknown Phase and Known Unequal Amplitudes; 8.7 Unknown Amplitude and Phase; 8.8 Diversity Reception; Appendix 1
Appendix 2

Sommario/riassunto

The Second Edition is an updated revision to the authors highly successful and widely used introduction to the principles and application of the statistical theory of signal detection. This book emphasizes those theories that have been found to be particularly useful in practice including principles applied to detection problems encountered in digital communications, radar, and sonar.Detection processing based upon the fast Fourier transform