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Nota di contenuto	Contents; 1 Introduction; 1.1 Topical Outline; 1.2 Possible Approaches; 1.3 Organization; 2 Classical Detection and Estimation Theory; 2.1 Introduction; 2.2 Simple Binary Hypothesis Tests; Decision Criteria; Performance: Receiver Operating Characteristic; 2.3 M Hypotheses; 2.4 Estimation Theory; Random Parameters: Bayes Estimation; Real (Nonrandom) Parameter Estimation; Multiple Parameter Estimation; Summary of Estimation Theory; 2.5 Composite Hypotheses; 2.6 The General Gaussian Problem; Equal Covariance Matrices; Equal Mean Vectors; Summary; 2.7 Performance Bounds and Approximations 2.8 Summary 2.9 Problems; References; 3 Representations of Random Processes; 3.1 Introduction; 3.2 Deterministic Functions: Orthogonal Representations; 3.3 Random Process Characterization; Random Processes: Conventional Characterizations; Series Representation of Sample Functions of Random Processes; Gaussian Processes; 3.4 Homogeneous Integral Equations and Eigenfunctions; Rational Spectra;

Bandlimited Spectra; Nonstationary Processes; White Noise Processes; The Optimum Linear Filter; Properties of Eigenfunctions and Eigenvalues; 3.5 Periodic Processes  
3.6 Infinite Time Interval: Spectral Decomposition  
Spectral Decomposition; An Application of Spectral Decomposition: MAP Estimation of a Gaussian Process; 3.7 Vector Random Processes; 3.8 Summary; 3.9 Problems; References; 4 Detection of Signals-Estimation of Signal Parameters; 4.1 Introduction; Models; Format; 4.2 Detection and Estimation in White Gaussian Noise; Detection of Signals in Additive White Gaussian Noise; Linear Estimation; Nonlinear Estimation; Summary : Known Signals in White Gaussian Noise; 4.3 Detection and Estimation in Nonwhite Gaussian Noise; "Whitening" Approach A Direct Derivation Using the Karhunen-Loeve Expansion A Direct Derivation with a Sufficient Statistic; Detection Performance; Estimation; Solution Techniques for Integral Equations; Sensitivity; Known Linear Channels; 4.4 Signals with Unwanted Parameters: The Composite Hypothesis Problem; Random Phase Angles; Random Amplitude and Phase; 4.5 Multiple Channels; Formulation; Application; 4.6 Multiple Parameter Estimation; Additive White Gaussian Noise Channel; Extensions; 4.7 Summary and Omissions; Summary; Topics Omitted; 4.8 Problems; References; 5 Estimation of Continuous Waveforms  
5.1 Introduction  
5.2 Derivation of Estimator Equations; No-Memory Modulation Systems; Modulation Systems with Memory; 5.3 A Lower Bound on the Mean-Square Estimation Error; 5.4 Multidimensional Waveform Estimation; Examples of Multidimensional Problems; Problem Formulation; Derivation of Estimator Equations; Lower Bound on the Error Matrix; Colored Noise Estimation; 5.5 Nonrandom Waveform Estimation; 5.6 Summary; 5.7 Problems; References; 6 Linear Estimation; 6.1 Properties of Optimum Processors; 6.2 Realizable Linear Filters: Stationary Processes, Infinite Past: Wiener Filters  
Solution of Wiener-Hopf Equation

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Sommario/riassunto

Highly readable paperback reprint of one of the great time-tested classics in the field of signal processing Together with the reprint of Part III and the new Part IV, this will be the most complete treatment of the subject available As imperative today as it was when it originally published Has important applications in radar, sonar, communications, seismology, biomedical engineering, and astronomy Includes section summaries, examples, and a large number of problems

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