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1.5.9 Examples of Deterministic Signals1.6 Introduction to Random Signals; 1.6.1 Stationary Random Signal; 1.6.2 Joint PDF and Statistics of Random Signals; 1.6.3 Ergodic Process; 1.7 Model of Random Signals; 1.7.1 White Noise Process; 1.7.2 Colored Noise; 1.7.3 Model of a Random Waveform; 1.7.4 Classification of the Random Waveform; 1.7.5 Frequency Response and Pole-Zero Locations; 1.7.6 Illustrative Examples of Filters; 1.7.7 Illustrative Examples of Random Signals; 1.7.8 Pseudo Random Binary Sequence (PRBS); 1.8 Model of a System with Disturbance and Measurement Noise
1.8.1 Input-Output Model of the System1.8.2 State-Space Model of the System; 1.8.3 Illustrative Examples in Integrated System Model; 1.9 Summary; References; Further Readings; 2 Characterization of Signals: Correlation and Spectral Density; 2.1 Introduction; 2.2 Definitions of Auto- and Cross-Correlation (and Covariance); 2.2.1 Properties of Correlation; 2.2.2 Normalized Correlation and Correlation Coefficient; 2.3 Spectral Density: Correlation in the Frequency Domain; 2.3.1 Z-transform of the Correlation Function; 2.3.2 Expressions for Energy and Power Spectral Densities
2.4 Coherence Spectrum2.5 Illustrative Examples in Correlation and Spectral Density; 2.5.1 Deterministic Signals: Correlation and Spectral Density; 2.5.2 Random Signals: Correlation and Spectral Density; 2.6 Input-Output Correlation and Spectral Density; 2.6.1 Generation of Random Signal from White Noise; 2.6.2 Identification of Non-Parametric Model of a System; 2.6.3 Identification of a Parametric Model of a Random Signal; 2.7 Illustrative Examples: Modeling and Identification; 2.8 Summary; 2.9 Appendix; References; 3 Estimation Theory; 3.1 Overview
3.2 Map Relating Measurement and the Parameter

Sommario/riassunto

Develops a systematic and a unified approach to the problem of physical system identification and its practical applications There is a need for a book which develops a systematic and a unified approach to the problem of physical system identification and its practical applications. Identification of Physical Systems addresses this need, developing identification theory using a coherent, simple and yet rigorous approach. Starting with a least-squares method, the author develops various schemes to address the issues of accuracy, variation in the operating regimes, closed loop and inter