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Autore	Westwick David T.
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Nota di contenuto	Preface. -- 1. Introduction. -- 1.1 Signals. -- 1.2 Systems and Models. -- 1.3 System Modeling. -- 1.4 System Identification. -- 1.5 How Common are Nonlinear Systems? -- 2. Background. -- 2.1 Vectors and Matrices. -- 2.2 Gaussian Random Variables. -- 2.3 Correlation Functions. -- 2.4 Mean-Square Parameter Estimation. -- 2.5 Polynomials. -- 2.6 Notes and References. -- 2.7 Problems. -- 2.8 Computer Exercises. -- 3. Models of Linear Systems. -- 3.1 Linear Systems. -- 3.2 Nonparametric Models. -- 3.3 Parametric Models. -- 3.4 State-Space Models. -- 3.5 Notes and References. -- 3.6 Theoretical Problems. -- 3.7 Computer Exercises. -- 4. Models of Nonlinear Systems. -- 4.1 The Volterra Series. -- 4.2 The Wiener Series. -- 4.3 Simple Block Structures. -- 4.4 Parallel Cascades. -- 4.5 The Wiener-Bose Model. -- 4.6 Notes and References. -- 4.7 Theoretical Problems. -- 4.8 Computer Exercises. -- 5. Identification of Linear Systems. -- 5.1 Introduction. -- 5.2 Nonparametric Time-Domain Models. -- 5.3 Frequency Response Estimation. -- 5.4 Parametric Methods. -- 5.5 Notesand References. -- 5.6 Computer Exercises. -- 6. Correlation-Based Methods. -- 6.1 Methods for Functional Expansions. -- 6.2 Block Structured Models. -- 6.3 Problems. -- 6.4 Computer Exercises. -- 7. Explicit Least-Squares Methods. -- 7.1 Introduction. -- 7.2 The Orthogonal Algorithms. -- 7.3 Expansion Bases. -- 7.4 Principal Dynamic Modes. -- 7.5 Problems. -- 7.6 Computer Exercises. -- 8. Iterative Least-Squares Methods. -- 8.1 Optimization Methods. -- 8.2 Parallel Cascade Methods. -- 8.3 Application: Visual Processing in the Light Adapted Fly Retina. -- 8.4 Problems -- 8.5 Computer Exercises. -- References. -- Index. -- IEEE Press Series in Biomedical Engineering.
Sommario/riassunto	Significant advances have been made in the field since the previous classic texts were written. This text brings the available knowledge up to date. * Enables the reader to use a wide variety of nonlinear system identification techniques. * Offers a thorough treatment of the underlying theory. * Provides a MATLAB toolbox containing implementation of the latest identification methods together with an extensive set of problems using realistic data sets.