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Soggetti	Physiology - Mathematical models Nonlinear systems Statistics as Topic Nonlinear Dynamics Computer Simulation Models, Biological Physiological Phenomena Health Care Evaluation Mechanisms Computing Methodologies Models, Theoretical Phenomena and Processes Epidemiologic Methods Mathematics Investigative Techniques Natural Science Disciplines Public Health Information Science Quality of Health Care Disciplines and Occupations Analytical, Diagnostic and Therapeutic Techniques and Equipment Health Care Quality, Access, and Evaluation Environment and Public Health Health Care Physiology Human Anatomy & Physiology Health & Biological Sciences

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Nota di bibliografia	Includes bibliographical references (p. 251-257) and index.
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 Notes and 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.