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Nota di bibliografia	Includes bibliographical references at the end of each chapters and index.
Nota di contenuto	Introduction -- Detection and Isolation of Actuator Faults -- Detection and Isolation of Sensor Faults -- Robust Estimation of Actuator Faults -- Robust Estimation of Sensor Faults -- Simultaneous Estimation of Actuator and Sensor Faults Using SMO and AO -- Simultaneous Estimation of Actuator and Sensor Faults Using SMO and UIO -- Simultaneous Estimation of Actuator and Sensor Faults for Descriptor Systems -- Conclusions and Future Work -- Appendices: Solving Linear Matrix Inequality (LMI) Problems; Proof of Lemma 3.1.
Sommario/riassunto	This book introduces several observer-based methods, including: • the sliding-mode observer • the adaptive observer • the unknown-input observer and • the descriptor observer method for the problem of fault detection, isolation and estimation, allowing readers to compare and

contrast the different approaches. The authors present basic material on Lyapunov stability theory, H¥ control theory, sliding-mode control theory and linear matrix inequality problems in a self-contained and step-by-step manner. Detailed and rigorous mathematical proofs are provided for all the results developed in the text so that readers can quickly gain a good understanding of the material. MATLAB® and Simulink® codes for all the examples, which can be downloaded from http://extras.springer.com, enable students to follow the methods and illustrative examples easily. The systems used in the examples make the book highly relevant to real-world problems in industrial control engineering and include a seventh-order aircraft model, a single-link flexible joint robot arm and a satellite controller. To help readers quickly find the information they need and to improve readability, the individual chapters are written so as to be semi-independent of each other. Robust Oberserver-Based Fault Diagnosis for Nonlinear Systems Using MATLAB® is of interest to process, aerospace, robotics and control engineers, engineering students and researchers with a control engineering background. Advances in Industrial Control aims to report and encourage the transfer of technology in control engineering. The rapid development of control technology has an impact on all areas of the control discipline. The series offers an opportunity for researchers to present an extended exposition of new work in all aspects of industrial control.