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| Descrizione fisica      | 1 online resource (380 p.)   |
| Collana                 | RSP series in control theory and applications  |
| Disciplina              | 629.8  |
| Soggetti                | Automatic control  |
| Lingua di pubblicazione | Inglese  |
| Formato                 | Materiale a stampa   |
| Livello bibliografico   | Monografia   |
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| Nota di bibliografia    | Includes bibliographical references (p. [351]-361) index.  |
| Nota di contenuto       | Robust Control Design; Contents; Preface; Notation; 1 Introduction; 1.1 Systems and Control; 1.2 Modern Control Theory; 1.3 Stability; 1.4 Optimal Control; 1.5 Optimal Control Approach; 1.6 Kharitonov Approach; 1.7 H and H2 Control; 1.8 Applications; 1.9 Use of this Book; 2 Fundamentals of Control Theory; 2.1 State Space Model; 2.2 Responses of Linear Systems; 2.3 Similarity Transformation; 2.4 Controllability and Observability; 2.5 Pole Placement by State Feedback; 2.6 Pole Placement Using Observer; 2.7 Notes and References; 2.8 Problems; 3 Stability Theory<br>3.1 Stability and Lyapunov Theorem3.2 Linear Systems; 3.3 Routh-Hurwitz Criterion; 3.4 Nyquist Criterion; 3.5 Stabilizability and Detectability; 3.6 Notes and References; 3.7 Problems; 4 Optimal Control and Optimal Observers; 4.1 Optimal Control Problem; 4.2 Principle of Optimality; 4.3 Hamilton-Jacobi-Bellman Equation; 4.4 Linear Quadratic Regulator Problem; 4.5 Kalman Filter; 4.6 Notes and References; 4.7 Problems; 5 Robust Control of Linear Systems; 5.1 Introduction; 5.2 Matched Uncertainty; 5.3 Unmatched Uncertainty; 5.4 |

Uncertainty in the Input Matrix; 5.5 Notes and References  
 5.6 Problems  
 6 Robust Control of Nonlinear Systems; 6.1 Introduction;  
 6.2 Matched Uncertainty; 6.3 Unmatched Uncertainty; 6.4 Uncertainty in  
 the Input Matrix; 6.5 Notes and References; 6.6 Problems; 7 Kharitonov  
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 Theorem; 7.4 Control Design Using Kharitonov Theorem; 7.5 Notes and  
 References; 7.6 Problems; 8 H and H<sub>2</sub> Control; 8.1 Introduction; 8.2  
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 Control Problem as H<sub>2</sub> and H Control Problem; 8.5 H<sub>2</sub>/H<sub>∞</sub>  
 > Control Synthesis; 8.6 Notes and References; 8.7 Problems; 9 Robust  
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 Active Damping Design; 9.4 Active Vehicle Suspension System; 9.5  
 Discussion; 9.6 Notes and References; 10 Robust Control of  
 Manipulators; 10.1 Robot Dynamics; 10.2 Problem Formulation; 10.3  
 Robust Control Design; 10.4 Simulations; 10.5 Notes and References;  
 11 Aircraft Hovering Control; 11.1 Modelling and Problem Formulation;  
 11.2 Control Design for Jet-borne Hovering; 11.3 Simulation; 11.4  
 Notes and References  
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 References and Bibliography; Index

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Sommario/riassunto

Comprehensive and accessible guide to the three main approaches to  
 robust control design and its applications Optimal control is a  
 mathematical field that is concerned with control policies that can be  
 deduced using optimization algorithms. The optimal control approach  
 to robust control design differs from conventional direct approaches to  
 robust control that are more commonly discussed by firstly translating  
 the robust control problem into its optimal control counterpart, and  
 then solving the optimal control problem. Robust Control Design: An  
 Optimal Control Approach offers

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