

1. Record Nr.	UNINA9910142506203321
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Titolo	Fuzzy control systems design and analysis [[electronic resource] ] : a linear matrix inequality approach // Kazuo Tanaka and Hua O. Wang
Pubbl/distr/stampa	New York, : Wiley, c2001
ISBN	1-280-36765-2 9786610367658 0-470-35221-3 0-471-46522-4 0-471-22459-6
Descrizione fisica	1 online resource (321 p.)
Altri autori (Persone)	WangHua O
Disciplina	629.832
Soggetti	Linear control systems Fuzzy systems
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	"A Wiley-Interscience publication."
Nota di bibliografia	Includes bibliographical references and index.
Nota di contenuto	FUZZY CONTROL SYSTEMS DESIGN AND ANALYSIS; CONTENTS; PREFACE; ACRONYMS; 1 INTRODUCTION; 1.1 A Control Engineering Approach to Fuzzy Control; 1.2 Outline of This Book; 2 TAKAGI-SUGENO FUZZY MODEL AND PARALLEL DISTRIBUTED COMPENSATION; 2.1 Takagi-Sugeno Fuzzy Model; 2.2 Construction of Fuzzy Model; 2.2.1 Sector Nonlinearity; 2.2.2 Local Approximation in Fuzzy Partition Spaces; 2.3 Parallel Distributed Compensation; 2.4 A Motivating Example; 2.5 Origin of the LMI-Based Design Approach; 2.5.1 Stable Controller Design via Iterative Procedure 2.5.2 Stable Controller Design via Linear Matrix Inequalities 2.6 Application: Inverted Pendulum on a Cart; 2.6.1 Two-Rule Modeling and Control; 2.6.2 Four-Rule Modeling and Control; Bibliography; 3 LMI CONTROL PERFORMANCE CONDITIONS AND DESIGNS; 3.1 Stability Conditions; 3.2 Relaxed Stability Conditions; 3.3 Stable Controller Design; 3.4 Decay Rate; 3.5 Constraints on Control Input and Output; 3.5.1 Constraint on the Control Input; 3.5.2 Constraint on the Output; 3.6 Initial State Independent Condition; 3.7 Disturbance Rejection; 3.8 Design Example: A Simple Mechanical System

3.8.1 Design Case 1: Decay Rate; 3.8.2 Design Case 2: Decay Rate + Constraint on the Control Input; 3.8.3 Design Case 3: Stability + Constraint on the Control Input; 3.8.4 Design Case 4: Stability + Constraint on the Control Input + Constraint on the Output; References; 4 FUZZY OBSERVER DESIGN; 4.1 Fuzzy Observer; 4.2 Design of Augmented Systems; 4.2.1 Case A; 4.2.2 Case B; 4.3 Design Example; References; 5 ROBUST FUZZY CONTROL; 5.1 Fuzzy Model with Uncertainty; 5.2 Robust Stability Condition; 5.3 Robust Stabilization; References; 6 OPTIMAL FUZZY CONTROL

6.1 Quadratic Performance Function and Stabilization Control; 6.2 Optimal Fuzzy Controller Design; Appendix to Chapter 6; References; 7 ROBUST-OPTIMAL FUZZY CONTROL; 7.1 Robust-Optimal Fuzzy Control Problem; 7.2 Design Example: TORA; References; 8 TRAJECTORY CONTROL OF A VEHICLE WITH MULTIPLE TRAILERS; 8.1 Fuzzy Modeling of a Vehicle with Triple-Trailers; 8.1.1 Avoidance of Jack-Knife Utilizing Constraint on Output; 8.2 Simulation Results; 8.3 Experimental Study; 8.4 Control of Ten-Trailer Case; References; 9 FUZZY MODELING AND CONTROL OF CHAOTIC SYSTEMS; 9.1 Fuzzy Modeling of Chaotic Systems

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11.3 Design Examples

## Sommario/riassunto

A comprehensive treatment of model-based fuzzy control systems. This volume offers full coverage of the systematic framework for the stability and design of nonlinear fuzzy control systems. Building on the Takagi-Sugeno fuzzy model, authors Tanaka and Wang address a number of important issues in fuzzy control systems, including stability analysis, systematic design procedures, incorporation of performance specifications, numerical implementations, and practical applications. Issues that have not been fully treated in existing texts, such as stability analysis, systematic design, and