Record Nr. UNINA9911019490303321 Autore Tanaka Kazuo <1962-> Titolo Fuzzy control systems design and analysis: a linear matrix inequality approach / / Kazuo Tanaka and Hua O. Wang New York, : Wiley, c2001 Pubbl/distr/stampa **ISBN** 9786610367658 9781280367656 1280367652 9780470352212 0470352213 9780471465225 0471465224 9780471224594 0471224596 Descrizione fisica 1 online resource (321 p.) Altri autori (Persone) WangHua O Disciplina 629.832 Soggetti Linear control systems Fuzzy systems Inglese Lingua di pubblicazione **Formato** Materiale a stampa Livello bibliografico Monografia "A Wiley-Interscience publication." Note generali Nota di bibliografia Includes bibliographical references and index. FUZZY CONTROL SYSTEMS DESIGN AND ANALYSIS; CONTENTS: Nota di contenuto 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 Inequalities2.6 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

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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