

1. Record Nr.	UNINA9910140184003321
Titolo	Zonotopes : from guaranteed state-estimation to control // Vu Tuan Hieu Le [and four others] ; series editor, Francis Castanie
Pubbl/distr/stampa	London, [England] ; Hoboken, New Jersey : , : John Wiley and Sons, Incorporation, , 2013 ©2013
ISBN	1-118-76159-6 1-118-76158-8 1-118-76154-5
Descrizione fisica	1 online resource (168 p.)
Collana	Automation-control and industrial engineering series
Altri autori (Persone)	LeVu Tuan Hieu CastanieFrancis
Disciplina	629.8
Soggetti	Automatic control Estimation theory
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	Description based upon print version of record.
Nota di bibliografia	Includes bibliographical references and index.
Nota di contenuto	Cover; Title page; Contents; Notations; Acronyms; Introduction; Chapter 1. Uncertainty Representation Based on Set Theory; 1.1. Basic set definitions: advantages and weaknesses; 1.1.1. Interval set; 1.1.2. Ellipsoidal set; 1.1.3. Polyhedral set; 1.1.4. Zonotopic set; 1.2. Main properties of zonotopes; Chapter 2. Several Approaches on Zonotopic Guaranteed Set-Membership Estimation; 2.1. Context; 2.2. Problem formulation; 2.2.1. Singular Value Decomposition-based method 35; 2.2.2. Optimization-based methods; Chapter 3. Zonotopic Guaranteed State Estimation Based on P-Radius Minimization 3.1. Single-Output systems approach3.2. Multi-Output systems approaches; 3.2.1. General formulation; 3.2.2. Extensions of the Single-Output systems methodology; 3.2.3. Dedicated approach for Multi-Output systems; Chapter 4. Tube Model Predictive Control Based on Zonotopic Set-Membership Estimation; 4.1. Context; 4.2. Problem formulation; 4.3. Tube-based output feedback Model Predictive Control design; 4.4. Application on the magnetic levitation system; 4.4.1. System description; 4.4.2. Control problem; Conclusion and

Perspectives; Appendix. Basic Matrix Operation Definitions;
Bibliography
Index

Sommario/riassunto

This title focuses on two significant problems in the field of automatic control, in particular state estimation and robust Model Predictive Control under input and state constraints, bounded disturbances and measurement noises. The authors build upon previous results concerning zonotopic set-membership state estimation and output feedback tube-based Model Predictive Control. Various existing zonotopic set-membership estimation methods are investigated and their advantages and drawbacks are discussed, making this book suitable both for researchers working in automatic control and industrial pa
