

1. Record Nr.	UNINA9911006620003321
Titolo	Handbook of hybrid systems control : theory, tools, applications / / edited by Jan Lunze, Francoise Lamnabhi-Lagarrigue
Pubbl/distr/stampa	Cambridge, UK ; ; New York, : Cambridge University Press, 2009
ISBN	1-107-20865-3 0-511-63689-X 0-511-64178-8 0-511-63934-1 0-511-63827-2 0-511-63758-6 0-511-80793-7 0-511-64042-0
Descrizione fisica	1 online resource (xv, 565 pages) : digital, PDF file(s)
Altri autori (Persone)	LunzeJan <1942-> Lamnabhi-LagarrigueF <1953-> (Francoise)
Disciplina	003/.85
Soggetti	System theory Hybrid systems Control theory
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	Title from publisher's bibliographic system (viewed on 05 Oct 2015).
Nota di bibliografia	Includes bibliographical references and index.
Nota di contenuto	Cover; Half-title; Title; Copyright; Content; List of contributors; Preface; Notation; Part I Theory; 1 Introduction to hybrid systems; 2 Survey of modeling, analysis, and control of hybrid systems; 3 Hybrid automata; 4 Switched and piecewise affine systems; 5 Further switched systems; 6 Hybrid systems: quantization and abstraction; 7 Stochastic hybrid systems; Part II Tools; 8 Overview of tools development and open problems; 9 Verification tools for linear hybrid automata; 10 Tools for modeling, simulation, control, and verification of piecewise affine systems 11 Modeling, simulation, and optimization environments 12 Interchange formats and tool integration; Part III Applications; 13 Energy management; 14 Industrial controls; 15 Automotive control; 16

Sommario/riassunto

Setting out core theory and reviewing a range of new methods, theoretical problems and applications, this handbook shows how hybrid dynamical systems can be modelled and understood. Sixty expert authors involved in the recent research activities and industrial application studies provide practical insights on topics ranging from the theoretical investigations over computer-aided design to applications in energy management and the process industry. Structured into three parts, the book opens with a thorough introduction to hybrid systems theory, illustrating new dynamical phenomena through numerous examples. Part II then provides a survey of key tools and tool integration activities. Finally, Part III is dedicated to applications, implementation issues and system integration, considering different domains such as industrial control, automotive systems and digital networks. Three running examples are referred to throughout the book, together with numerous illustrations, helping both researchers and industry professionals to understand complex theory, recognise problems and find appropriate solutions.