1. Record Nr. UNINA9910149488303321

Autore	Zhao Xudong
Titolo	Control Synthesis of Switched Systems / / by Xudong Zhao, Yonggui Kao, Ben Niu, Tingting Wu
Pubbl/distr/stampa	Cham : , : Springer International Publishing : , : Imprint : Springer, , 2017
Edizione	[1st ed. 2017.]
Descrizione fisica	1 online resource (XI, 164 p. 49 illus., 46 illus. in color.)
Collana	Studies in Systems, Decision and Control, , 2198-4182 ; ; 80
Disciplina	620
Soggetti	Automatic control System theory Electronic circuits Control and Systems Theory Systems Theory, Control Circuits and Systems
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Nota di bibliografia	Includes bibliographical references at the end of each chapters.
Nota di contenuto	Introduction -- Stabilization of Switched Systems with Constraint Switching -- Stabilization of Switched Systems with Unstable Subsystems -- Adaptive Control for Uncertain Switched Nonlinear Systems -- Adaptive Control for Stochastic Switched Nonlinear Systems -- Adaptive Control for High-order Switched Nonlinear Systems -- Conclusions and Future Work.
Sommario/riassunto	This book offers its readers a detailed overview of the synthesis of switched systems, with a focus on switching stabilization and intelligent control. The problems investigated are not only previously unsolved theoretically but also of practical importance in many applications: voltage conversion, naval piloting and navigation and robotics, for example. The book considers general switched-system models and provides more efficient design methods to bring together theory and application more closely than was possible using classical methods. It also discusses several different classes of switched systems. For general switched linear systems and switched nonlinear systems comprising unstable subsystems, it introduces novel ideas

such as invariant subspace theory and the time-scheduled Lyapunov function method of designing switching signals to stabilize the underlying systems. For some typical switched nonlinear systems affected by various complex dynamics, the book proposes novel design approaches based on intelligent control concepts. It is a useful source of up-to-date design methods and algorithms for researchers studying switched systems and graduate students of control theory and engineering. In addition, it is a valuable reference resource for practising engineers working in switched-system control design. Readers should have a basic knowledge of linear, nonlinear and switched systems.