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Autore	Lauer Fabien
Titolo	Hybrid System Identification : Theory and Algorithms for Learning Switching Models // by Fabien Lauer, Gérard Bloch
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Descrizione fisica	1 online resource (XXI, 253 p. 35 illus., 34 illus. in color.)
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Disciplina	004.259 629.89
Soggetti	Control engineering System theory Architecture, Computer Control and Systems Theory Systems Theory, Control Computer System Implementation
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	Includes index.
Nota di contenuto	Introduction -- System Identification -- Classification -- Hybrid System Identification -- Exact Methods for Hybrid System Identification -- Estimation of Switched Linear/Affine Models -- Estimation of Piecewise Affine Models -- Recursive and State-space Identification of Hybrid Systems -- Nonlinear Hybrid System Identification.
Sommario/riassunto	Hybrid System Identification helps readers to build mathematical models of dynamical systems switching between different operating modes, from their experimental observations. It provides an overview of the interaction between system identification, machine learning and pattern recognition fields in explaining and analysing hybrid system identification. It emphasises the optimization and computational complexity issues that lie at the core of the problems considered and sets them aside from standard system identification problems. The book presents practical methods that leverage this complexity, as well as a broad view of state-of-the-art machine learning methods. The authors illustrate the key technical points using examples and figures

to help the reader understand the material. The book includes an in-depth discussion and computational analysis of hybrid system identification problems, moving from the basic questions of the definition of hybrid systems and system identification to methods of hybrid system identification and the estimation of switched linear/affine and piecewise affine models. The authors also give an overview of the various applications of hybrid systems, discuss the connections to other fields, and describe more advanced material on recursive, state-space and nonlinear hybrid system identification. Hybrid System Identification includes a detailed exposition of major methods, which allows researchers and practitioners to acquaint themselves rapidly with state-of-the-art tools. The book is also a sound basis for graduate and undergraduate students studying this area of control, as the presentation and form of the book provides the background and coverage necessary for a full understanding of hybrid system identification, whether the reader is initially familiar with system identification related to hybrid systems or not.

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