1. Record Nr. UNINA9910483029203321

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Titolo	Supervisory Control of Discrete-Event Systems / / by W. Murray Wonham, Kai Cai
Pubbl/distr/stampa	Cham : , : Springer International Publishing : , : Imprint : Springer, , 2019
ISBN	3-319-77452-2
Edizione	[1st ed. 2019.]
Descrizione fisica	1 online resource (503 pages)
Collana	Communications and Control Engineering, , 2197-7119
Disciplina	003.83
Soggetti	Automatic control System theory Control theory Production management Control and Systems Theory Systems Theory, Control Operations Management
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Nota di contenuto	Introduction -- TCT: General Information -- Chapter 1. Algebraic Preliminaries -- Chapter 2. Linguistic Preliminaries -- Chapter 3. Supervision of Discrete-Event Systems: Basics -- Chapter 4. Decentralized and Distributed Supervision of Discrete-Event Systems -- Chapter 5. Hierarchical Supervision of Discrete-Event Systems -- Chapter 6. Supervisory Control With Partial Observations -- Chapter 7. State-Based Control of Discrete-Event Systems -- Chapter 8. Supervision of Vector Discrete-Event Systems -- Chapter 9. Supervisory Control of Timed Discrete-Event Systems -- Bibliography -- Appendix: Supervisory Control of a Mine Pump -- Index.
Sommario/riassunto	This book shows how supervisory control theory (SCT) supports the formulation of various control problems of standard types, like the synthesis of controlled dynamic invariants by state feedback, and the resolution of such problems in terms of naturally definable control-theoretic concepts and properties, like reachability, controllability and observability. It exploits a simple, abstract model of controlled

discrete-event systems (DES) that has proved to be tractable, appealing to control specialists, and expressive of a range of control-theoretic ideas. It allows readers to choose between automaton-based and dually language-based forms of SCT, depending on whether their preference is for an internal-structural or external-behavioral description of the problem. The monograph begins with two chapters on algebraic and linguistic preliminaries and the fundamental concepts and results of SCT are introduced. To handle complexity caused by system scale, architectural approaches—the horizontal modularity of decentralized and distributed supervision and the vertical modularity of hierarchical supervision—are introduced. Supervisory control under partial observation and state-based supervisory control are also addressed; in the latter, a vector DES model that exploits internal regularity of algebraic structure is proposed. Finally SCT is generalized to deal with timed DES by incorporating temporal features in addition to logical ones. Researchers and graduate students working with the control of discrete-event systems or who are interested in the development of supervisory control methods will find this book an invaluable aid in their studies. The text will also be of assistance to researchers in manufacturing, logistics, communications and transportation, areas which provide plentiful examples of the class of systems being discussed.