1. Record Nr. UNIBAS000015362

Autore	Marchuk, G. I.
Titolo	Methods of numerical mathematics / G. I. Marchuk
Pubbl/distr/stampa	New York [etc.] : Springer, c1982
ISBN	0-387-90614-2
Edizione	[2. ed.]
Descrizione fisica	XIII, 510 p. : ill. ; 25 cm.
Collana	Applications of mathematics ; 2
Disciplina	519.4
Soggetti	Analisi numerica
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia

2. Record Nr. UNINA9910767556303321

Autore	Liu Zhenwei
Titolo	Cooperative Control of Multi-agent Systems : A Scale-Free Protocol Design / / by Zhenwei Liu, Donya Nojavanzadeh, Ali Saberi
Pubbl/distr/stampa	Cham : , : Springer International Publishing : , : Imprint : Springer, , 2023
ISBN	3-031-12954-7
Edizione	[1st ed. 2023.]
Descrizione fisica	1 online resource (394 pages)
Collana	Studies in Systems, Decision and Control, , 2198-4190 ; ; 248
Disciplina	629.8 006.30285436
Soggetti	Automatic control Dynamics Nonlinear theories Control and Systems Theory Applied Dynamical Systems
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia

Nota di bibliografia	Includes bibliographical references.
Nota di contenuto	Introduction -- Notations and Preliminaries -- Synchronization of Continuous-Time MAS -- Synchronization of Discrete-Time MAS -- Regulated State Synchronization of Homogeneous MAS in the Presence of Input Delays -- State Synchronization of Homogeneous Continuous-Time MAS in the Presence of Nonuniform Communication Delays -- State Synchronization of Homogeneous Discrete-Time MAS in the Presence of Nonuniform Communication Delays -- Regulated Output Synchronization of Heterogeneous MAS in the Presence of Nonuniform Communication Delays -- Delayed Regulated Synchronization of Continuous-Time MAS in the Presence of Unknown, Non-uniform, and Arbitrarily Large Communication Delays -- Delayed Regulated Synchronization of Discrete-time MAS in the Presence of Unknown, Non-uniform, and Arbitrarily Large Communication Delays.
Sommario/riassunto	This monograph represents the outcome of research effort of the authors on scalable synchronization of large-scale multi-agent systems (MAS). Cooperative control of multi-agent systems has been growing in popularity and is highly interdisciplinary in recent years. The application of synchronization of MAS includes automobile systems, aerospace systems, multiple-satellite GPS, high-resolution satellite imagery, aircraft formations, highway traffic platooning, industrial process control with multiple processes, and more. Most of the proposed protocols in the literature for synchronization of MAS require some knowledge of the communication network such as bounds on the spectrum of the associated Laplacian matrix and the number of agents. These protocols suffer from scale fragility wherein stability properties are lost for large-scale networks or when the communication graph changes. In the past few years, the authors of this monograph have worked on developing scale-free protocol design for various cases of MAS problems. The key contribution of the monograph is to offer a scale-free design framework and provide scale-free protocols to achieve synchronization, delayed synchronization, and almost synchronization in the presence of input and communication delays, input saturation and external disturbances. The scale-free design framework solely is based on the knowledge of agent models and does not depend on information about the communication network such as the spectrum of the associated Laplacian matrix or size of the network. Drawing upon their extensive work in this area, the authors provide a thorough treatment of agents with higher-order dynamics, different classes of models for agents, and the underlying networks representing actions of the agents. The high technical level of their presentation and their rigorous mathematical approach make this monograph a timely and valuable resource that will fill a gap in the existing literature.