1. Record Nr. UNINA9910734889203321

Autore	Yu Jianglong
Titolo	Time-Varying Formation Tracking Control for Nonlinear Swarm Systems / / by Jianglong Yu, Xiwang Dong, Zhang Ren
Pubbl/distr/stampa	Singapore : , : Springer Nature Singapore : , : Imprint : Springer, , 2023
ISBN	981-9928-58-3
Edizione	[1st ed. 2023.]
Descrizione fisica	1 online resource (218 pages)
Altri autori (Persone)	DongXiwang RenZhang
Disciplina	629.8
Soggetti	Automatic control Robotics Automation Computational intelligence Control, Robotics, Automation Computational Intelligence
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Nota di contenuto	Introduction -- Preliminaries -- Time-varying formation tracking control for nonlinear swarm system with matched nonlinearity -- Time-varying formation tracking control for high-order strict-feedback nonlinear swarm system with a noncooperative leader -- Time-varying formation tracking control for high-order strict-feedback nonlinear swarm system with multiple leaders -- Time-varying formation tracking control for underactuated nonlinear swarm system.
Sommario/riassunto	The book focuses on time-varying formation control approaches for practical nonlinear swarm systems. Time-varying formation control is the basic guarantee for performing other tasks of swarm systems, such as cooperative decision-making and cooperative detection. However, most practical swarm systems have nonlinear dynamic models. This book studies three typical models of practical nonlinear swarm systems, which represent most of the practical systems and construct the corresponding formation control structure. At the same time, the effects of disturbances, uncertain dynamics, random noise and unknown leader's input are considered and processed to improve the

robustness and adaptability. The comprehensive and systematic treatment of practical nonlinear time-varying formation control issues is one of the major features of the book, which is particularly suited for readers who are interested to learn time-varying formation control solutions in nonlinear swarm systems. The book benefits researchers, engineers and graduate students in the fields of formation control, nonlinear control, robust control, etc.