

学术报告会

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地点: 电院群楼2-406会议室

Consensus-Based Distributed Optimization with Application to Power Systems

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Abstract:

In this network-connected world, many tasks require coordination and cooperation of subsystems/agents via network connection. The completion of those tasks, such as consensus control, formation control, optimal coverage and distributed optimization, relies on proper interplay of system dynamics and network connections. This talk will cover some fundamental concepts in consensus control and control of networked connected systems, and other several aspects of the above mentioned talks based on the speaker's own involvements. This talk will cover consensus-based distributed optimization algorithms in some details, and in particular, the speaker will demonstrate several applications of distributed optimization algorithms to power system problems, including optimization of charge station for electrical vehicles, and applications for optimal resource management of micro-grids.

Biography:

Zhengtao Ding received his B.Eng. degree from Tsinghua University, Beijing, China, and the M.Sc. degree in systems and control and the Ph.D. degree in control systems from the University of Manchester Institute of Science and Technology, Manchester, U.K. After working as a Lecturer with Ngee Ann Polytechnic, Singapore, for ten years, he joined, as a lecturer in 2003, The University of Manchester, Manchester, U.K., where he is appointed as the Chair in Control Systems in 2017. His main teaching and research duties are with the School of Electrical and Electronic Engineering, and he also leads the Sino-UK Joint Advanced Control Laboratory in the university. He is the author of a book Nonlinear and Adaptive Control Systems and has published over 200 research articles. His research interests include nonlinear and adaptive control theory and their applications, more recently control of networked connected dynamic systems and distributed optimization. Prof. Ding serves as an Associate Editor for IEEE Transactions on Automatic Control, IEEE Control Systems Letters, Transactions of the Institute of Measurement and Control, Control Theory and Technology, Mathematical Problems in Engineering, Unmanned Systems and International Journal of Automation and Computing. He is a member of IEEE Technical Committee on Nonlinear Systems and Control, IEEE Technical Committee on Intelligent Control, and IFAC Technical Committee on Adaptive and Learning Systems.