

# The 30<sup>th</sup> Chinese Control Conference

## Pre-conference Workshop 2

**Title:** Networked Control Systems: Theory and Applications

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**Abstract:** Networked Control Systems (NCS) consist of spatially distributed dynamic components including controlled processes, sensors, actuators and controllers. These components communicate with each other via a shared digital communication network. Rapid advances in communications, networking and sensing technologies have enabled wide deployment of NCS, with applications including smart electricity grids, automated traffic networks, mobile sensor networks, unmanned airborne vehicles and wireless industrial control systems. This is an area of research with many new theoretical and technological challenges and requires multi-disciplinary collaborations. This workshop consists of three parts: Part 1 will provide an overview of this emerging area and discuss the associated enabling technologies; Part 2 will study key research opportunities and challenges from the control point of view; Part 3 will cover some application case studies. The research problems to be studied include: network-based estimation, network-based control, network consensus, network synchronization, and wireless industrial control systems. The case studies include wireless NCS experimental platforms; network modeling; and state estimation for smart electricity networks.



Minyue Fu received his Bachelor's Degree in Electrical Engineering from the University of Science and Technology of China, Hefei, China, in 1982, and M.S. and Ph.D. degrees in Electrical Engineering from the University of Wisconsin-Madison in 1983 and 1987, respectively. From 1987 to 1989, he served as an Assistant Professor in the Department of Electrical and Computer Engineering, Wayne State University, Detroit, Michigan. He joined the Department of Electrical and Computer Engineering, the University of Newcastle, Australia, in 1989. Currently, he is a Chair Professor in Electrical Engineering. He has served as a Head of School at the University of Newcastle. In addition, he was a Visiting Associate Professor at University of Iowa in 1995-1996, and a Senior Fellow/Visiting Professor at Nanyang Technological University, Singapore, 2002, a Visiting Professor at Tokyo University in 2003. He has held a ChangJiang (长江) Visiting Professorship at Shandong University, China, a Bai-ren (百人) Professor at South China University of Technology. Currently, he holds a Qian-ren (千人计划) Professorship at Zhejiang University, China. He is a Fellow of IEEE. His main research interests include control systems, signal processing and communications. He has been an Associate Editor for the IEEE Transactions on Automatic Control, Automatica and Journal of Optimization and Engineering.