上海交通大学自动化系
Department of Automation
Shanghai Jiao Tong University

系统控制与信息处理教育部重点实验室
Key Laboratory of System Control and Information Processing, Ministry of Education

学术报告会

时间：2014年5月7日(周三)10:00

地点：电院群楼2-406会议室

"Event-Triggered Control of Multi-Agent Systems"

Prof. Gang Feng

City University of Hong Kong

Abstract:

This talk presents a novel approach to distributed rendezvous control of multi-agent systems. Firstly, we have proposed a combinational measurement approach to event design and developed the basic event-triggered control algorithm. Different from measuring the agent's own state in the existing literature, in our approach the measurement error of each agent is determined by a combination of the neighbors' states. As a result, control of agents is only triggered at their own event time, which reduces the amount of communication and lowers the frequency of controller updates in practice. Furthermore, based on the analysis of the convergence behavior of the basic event-triggered algorithm, we have proposed a new event-triggered algorithm in which continuous measurement of the neighbor states is avoided. It is noted that the amount of communication among agents has been significantly reduced without obvious negative effects on the control performances.

Biography:

Gang Feng received the B.Eng and M.Eng. degrees in Automatic Control from Nanjing Aeronautical Institute, China in 1982 and in 1984 respectively, and the Ph.D. degree in Electrical Engineering from the University of Melbourne, Australia in 1992. He has been with City University of Hong Kong since 2000 where he is now a Chair Professor of Mechatronic Engineering. He is also a ChangJiang Chair Professor at Nanjing University of Science and Technology, awarded by Ministry of Education, China. He was lecturer/senior lecturer at School of Electrical Engineering, University of New South Wales, Australia, 1992-1999. He was awarded an Alexander von Humboldt Fellowship in 1997-1998, and the IEEE Transactions on Fuzzy Systems Outstanding Paper Award in 2007. He has authored/co-authored over 200 international journal papers including over 100 in IEEE Transactions and numerous conference papers. His current research interests include intelligent systems & control, networked systems & control, and multi-agent systems & control. Prof. Feng is an IEEE Fellow, an associate editor of IEEE Trans. on Fuzzy Systems, and was an associate editor of IEEE Trans. Automatic Control, IEEE Trans. on Systems, Man & Cybernetics, Part C, Mechatronics, and Journal of Control Theory and Applications.