



**THE CHINESE UNIVERSITY OF HONG KONG**  
Department of Information Engineering  
*Seminar*

**Reimagine Connectivity in Network Dynamics  
– From Social Networks to Quantum Computing**

**By**

**Dr. SHI Guodong**  
**The University of Australia, Sydney**

**Date : 25 March 2022 (Friday)**

**Time : 11:30am – 12:30pm**

**Zoom : <https://cuhk.zoom.us/j/92018449437?pwd=UEZJU3pYMzRFTIBGN0cveUMydC9OQT09>**

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*Abstract*

Connectivity plays a fundamental role in shaping some of today's defining technologies. This talk will present our recent research that reveals how both new opportunities and hidden risks arise from the dynamics of connectivity, in diverse areas such as international politics, quantum information processing, and social media. Understanding of connected peer opinion dynamics allows us to build a novel framework in quantifying the nations' social power in terms of individual influence in the 2015 Paris Agreement under the United Nations Framework Convention on Climate; the idea of classical connectivity may be transformed into the quantum world, where simple quantum dynamical links may lead to sophisticated quantum behaviors as a way of realizing robust quantum information processing via distributed quantum control; the possibility of learning the underlying connectivity from public behavioral data may pose systematic privacy risks in social media and online marketplace. In light of these opportunities and risks, some of our ideas in safeguarding social networks and intelligent cyber-physical systems, and advancing quantum error correction by building resilient and trustable connectivity will also be discussed.

*Biography*

Guodong Shi is currently a continuing (tenured) Associate Professor at the Australian Center for Field Robotics, The University of Sydney, Australia. He received his Ph.D. degree in systems theory from the Academy of Mathematics and Systems Science, Chinese Academy of Sciences, Beijing, China in 2010. From 2010 to 2014, he was a Postdoctoral Researcher at the ACCESS Linnaeus Centre, KTH Royal Institute of Technology, Stockholm, Sweden. From 2014 to 2018, he was a faculty member with the Research School of Engineering, Australian National University as a Lecturer, Senior Lecturer, and Future Engineering Research Leadership Fellow. Since 2019 he has been with the Australian Center for Field Robotics, The University of Sydney. His research interests include distributed control systems, quantum networking and decisions, and social opinion dynamics.

**\*\* ALL ARE WELCOME \*\***