NATIONAL UNIVERSITY OF SINGAPORE

School of Computing

C S S E M I N A R

Title: **Supporting reliable, efficient, real-time message passing in wireless cyber-physical systems: case studies in sensor networks and vehicular networks**

Speaker: Qiao Xiang
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Chaired by: Dr Wang Ye, Associate Professor, School of Computing
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Abstract:

In supporting mission-critical tasks such as those in industrial automation and the next-generation vehicles, message passing in wireless cyber-physical systems is required to be reliable, efficient and in real-time. In this talk, I will present our work on how to supporting such message passing in two important types of WCPS, sensor networks and vehicular networks. We first study the impact of routing diversity on the performance of network coding (NC) based opportunistic routing, and design a distributed minimal cost NC-based routing protocol. We then propose an online synchronous control framework to improve the performance of VANET in the dedicated short-range communication (DSRC) spectrum. We demonstrate the performance of our proposed protocols through both large scale simulation and testbed experiments. In the end, I will also briefly introduce some of my ongoing work in software defined networking.

Biodata:

Qiao Xiang is a Postdoctoral Fellow with the Department of Computer Science at Yale University. Prior to that, he was a Postdoctoral Fellow in the School of Computer Science of McGill University. He received his Master and Ph.D. Degrees in Computer Science from Wayne State University. Before that, he received his Bachelor Degree in Engineering and Bachelor Degree in Economics from Nankai University, Tianjin, China. His research interests include software defined networking, wireless cyber physical systems, vehicular networks, wireless sensor networks, smart grid and network economics.