



THE CHINESE UNIVERSITY OF HONG KONG

Department of Information Engineering

Faculty of Engineering

Distinguished Lecture



Ethernet Grade Industrial Wireless Communication Towards The Cloud-Fog Automation

by

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Abstract

Pushed by the advancement of fog or edge computing and new generation wireless networks such as 5G and WiFi6, a new paradigm of automation system, the Cloud-Fog Automation is emerging. In the Cloud-Fog Automation, the higher-level automation applications such as ERP and MES will be deployed in public or private cloud infrastructure while the lower-level applications such as SCADA and soft PLC deployed in the fog infrastructure over deterministic wireless networks. Unprecedented machine intelligence and autonomy will be enabled by the powerful computing capacity and native support to artificial intelligence. Disruptive reduction of CAPEX as well as engineering barriers will be enabled by largely eliminating the purpose-specific hardware such as hardware PLC and expensive cabling. To realize this vision, major technical challenges in wireless communication need to be solved including the Ethernet grade latency and reliability, functional safety, and security. In this talk, I will briefly introduce the visions, industrial perspectives, research challenges, and latest progresses in this area.

Biography



Dr. Zhibo Pang, MBA & PhD, is currently a Senior Principal Scientist on Industrial Communication at ABB Corporate Research Sweden, Adjunct Professor at University of Sydney, and Affiliated Faculty at the Royal Institute of Technology (KTH). He is a Senior Member of IEEE, Co-Chair of the IEEE Technical Committee on Industrial Informatics, and Industrial Activity Committee Member of the IEEE Industrial Electronics Society. He is Associate Editor of IEEE Transactions on Industrial Informatics, IEEE Journal of Biomedical and Health Informatics, and IEEE Journal of Emerging and Selected Topics in Industrial Electronics. He was Invited Speaker at the Gordon Research Conference on Advanced Health Informatics (AHI2018), General Chair of IEEE ES2017 and General Co-Chair of IEEE WFCS2021. He was awarded the “2016 Inventor of the Year Award” and “2018 Inventor of the Year Award” by ABB Corporate Research Sweden. He has 70+ patents and 80+ journal papers in various technology areas related to industrial digitalization.

****ALL ARE WELCOME****

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