Harnessing the Internet of (too many) Wireless Things

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The Hong Kong Polytechnic University

Abstract

One vision of Internet of Things (IoT) is to provide seamless connectivity for everyday objects. IoT devices are deployed densely in space to enable ubiquitous intelligence; and are connected wirelessly to support high-throughput data exchange. These devices are also becoming increasingly mobile, such as IoT-powered inventory management, personal robots and autonomous cars. However, the current network stack lacks primitives to support the desired connectivity, management and services of IoT devices. In this talk I will present two solutions to push the limits of connectivity in IoT devices. The first system, Wi-Fi Goes to Town (SIGCOMM’17), provides seamless wireless connectivity for high speed automobiles by very small wireless cells. The second system, PLoRa (SIGCOMM’18), is a software-hardware co-design that enables long-range backscatter communication among low-power IoT devices. Finally, I will conclude with a future research vision centered around building secure and scalable IoT systems.

About the Speaker

Longfei Shangguan is currently a Postdoctoral Research Associate in the Computer Science Department at Princeton University, he will join the ambient intelligence group at Microsoft in this coming fall. His research interests are in IoT, mobile systems, and wireless networks. He has published more than 30 papers in highly refereed conferences such as SIGCOMM, NSDI, MobiSys, SenSys, etc. Prior to joining Princeton, he obtained his Ph.D and MPhil degrees from the Hong Kong University of Science and Technology in 2015 and 2013, respectively.

All are welcome!

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