

## 1. Bio

Lingyang Song received his PhD from the University of York, UK, in 2007, where he obtained the K. M. Stott Prize for excellent research. He worked as a research fellow at the University of Oslo, Norway until rejoining Philips Research UK in March 2008. In May 2009, he joined the School of Electronics Engineering and Computer Science, Peking University, and is now a Boya Distinguished Professor. His main research interests include wireless communication and networks, signal processing, and machine learning.

Dr. Song published extensively and wrote 3 text books. He received 9 best paper awards, including IEEE WCNC2012, IEEE ICC 2014, IEEE Globecom 2014, IEEE ICC 2015, and the best demo award in the ACM Mobihoc 2015. He is the recipient of IEEE Leonard G. Abraham Prize in 2016 and IEEE Asia Pacific (AP) Young Researcher Award in 2012. He is currently on the Editorial Board of IEEE Transactions on Wireless Communications and China Communications. He served as the Tutorial Co-chair for IEEE Globecom 2017, TPC co-chair for IEEE ICC 2019. He served as symposium co-chairs for IEEE ICC 2014 and IEEE Globecom 2016.

Dr. Song is a senior member of IEEE, and an IEEE distinguished lecturer since 2015.

## 2. Talk info

### **Title: Cellular Network Controlled UAV-to-X Communications for 5G and Beyond**

**Abstract:** The unmanned aerial vehicles (UAVs) have been widely used in delay-sensitive and traffic-efficient sensing applications due to their advantages in mobility and flexibility. However, the sensory data in the traditional ad hoc UAV networking is transmitted over unlicensed band with multi-hop routing, resulting in unguaranteed quality of services (QoS) such as unexpected delays. Cellular networks have been recognized as a promising solution to provide broadband communications with guaranteed QoS. In this talk, to meet these sensing requirements, we first introduce cellular UAV-to-everything (U2X) communications, where a UAV can upload the sensing data directly to the base station (BS) or transmit through a UAV relay. Then key technologies that support U2X services are presented in detail. We finally discuss the extended U2X communications with some open issues, and the integration of UVA for measuring air-quality-index in smart city applications.