**Topic**

Towards Sustainable Edge and IoT: An Integral View from the Energy Perspective

**Speaker**

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**About the Speaker**

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Jiangchuan Liu is a Full Professor in the School of Computing Science, Simon Fraser University, British Columbia, Canada. He is a Fellow of The Canadian Academy of Engineering, an IEEE Fellow, and an NSERC E.W.R. Steacie Memorial Fellow. In the past he worked as an Assistant Professor at The Chinese University of Hong Kong, a research fellow at Microsoft Research Asia, and an EMC-Endowed Visiting Chair Professor of Tsinghua University.

He received the BEng degree (cum laude) from Tsinghua University, Beijing, China, in 1999, and the PhD degree from The Hong Kong University of Science and Technology in 2003, both in computer science. He is a co-recipient of the inaugural Test of Time Paper Award of IEEE INFOCOM (2015), ACM SIGMM TOMCCAP Nicolas D. Georganas Best Paper Award (2013), ACM Multimedia Best Paper Award (2012), and IEEE MASS Best Paper Award (2021).

His research interests include multimedia systems and networks, cloud and edge computing, social networking, online gaming, and Internet of things/RFID/backscatter. He has served on the editorial boards of IEEE/ACM Transactions on Networking, IEEE Transactions on Network Sciences and Engineering, IEEE Transactions on Big Data, IEEE Transactions on Multimedia, IEEE Communications Surveys and Tutorials, and IEEE Internet of Things Journal. He is a Steering Committee member of IEEE Transactions on Mobile Computing and Steering Committee Chair of IEEE/ACM IWQoS (2015-2017). He was TPC Co-Chair of IEEE INFOCOM'2021.

**Abstract**

Towards Sustainable Edge and IoT: An Integral View from the Energy Perspective

While the modern power grid is known to be reliable in urban cities, it is not and probably will never be the case for remote areas, e.g., northern Canada or Gobi Desert in China. It is necessary to view energy supply as an integral part towards sustainable edge computing and Internet of Things (IoT), both for maintaining their services and for protecting the sensitive environment.

In this talk, based on our realworld experience in Canada and China, I will discuss sustainable edge and IoT design and deployment from the energy perspective. I will present our recent works on nonintrusive load monitoring, data-driven battery analysis and optimization, and mobile video analytics, particularly on their integration with edge nodes in harsh environments. We also advocate the new paradigm that spatially decouples energy supply and sensing/computing modules and strongly believe that batteryless will be the future for tiny IoT devices. We accordingly present a series of our recent works on batteryless communication and sensing, including high-throughput and multi-hop backscatter, distribution excitation, multi-track acoustic sensing with ambient energy , etc.

**Speaker’s Photo**

