

DISTINGUISHED LECTURE SERIES 2022/23

TOWARDS SUSTAINABLE EDGE AND IOT: AN INTEGRAL VIEW FROM THE ENERGY PERSPECTIVE

31 MAR 2023 (FRI)

5:00 – 6:00 PM (HKT)

Mrs. Padma Harilela Lecture Theatre (WLB 104),
Shaw Campus, HKBU /

Online via Zoom

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Abstract:

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 real-world 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.

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