



Department of
Computer Science

香港城市大學
City University of Hong Kong

COMPUTER SCIENCE COLLOQUIUM

Towards Secured ISAC upon Commodity Wi-Fi

SPEAKER Prof Jun Luo

Associate Professor
School of Computer Science and
Engineering Nanyang Technological
University

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TIME 10:00 AM - 11:00 AM

VENUE Mrs Kitty Woo Classroom (Y5-204), 5/F,
near AC1 entrance, Yeung Kin Man
Academic Building City University of
Hong Kong, 83 Tat Chee Avenue,
Kowloon Tong

ABSTRACT

Given the increasing pervasiveness of Wi-Fi deployments and the awareness of Wi-Fi sensing capability, making sensing and communications both available on commodity Wi-Fi devices has become imperative. However, different from the well-studied ISAC (integrated sensing and communication) framework, transferring Wi-Fi toward ISAC faces two major challenges. On one hand, the focus is not designing (modulation) waveform but rather adapting what Wi-Fi communications already use towards sensing capability while maintaining communication quality. On the other hand, the security issue that was never considered under ISAC has to be seriously taken into account, simply because Wi-Fi's pervasive adoption. In this talk, we first propose an evolving path of making Wi-Fi ISAC-ready, without making any fundamental changes to existing Wi-Fi cards. Based on that, we also point out a potentially (easily mounted) attack that may exploit such ISAC Wi-Fi. Finally, we propose a security mechanism; it mimics what digital encryption does to digital messages, but it performs physical encryption on physical behaviors (e.g., hand gesture).

BIOGRAPHY

Dr. LUO Jun is a tenured faculty member in NTU and a Fellow of IEEE. He has been working on wireless sensing, deep learning, and computing system integration for more than two decades. Upon this foundation, he has made contributions on mobile/ pervasive computing and smart sensing technologies, by leading several national research projects and corporate labs (including MoE Tier2, BMW, SAP, and CSIJRI), aiming to transfer the research outcomes to practical applications. Meanwhile, Dr. Luo has kept publishing at top venues such as MobiCom, CCS, CVPR/ICCV, SenSys, S&P, INFOCOM, UbiComp, ToN, and TMC. With only 150+ publications, he has earned over 9700 Google Scholar citations, with two top-cited paper bearing nearly 2,300 of them. More detailed information can be found at: <https://personal.ntu.edu.sg/junluo/>

All are welcome!



In case of questions, please contact Prof XU Weitao at weitaoxu@cityu.edu.hk, or visit the CS Departmental Seminar Web at <https://www.cs.cityu.edu.hk/events/cs-seminars/recent-cs-colloquiums>.