

DEPARTMENT OF COMPUTER SCIENCE

SEMINAR

2024 SERIES

IoT-Mediator - Detecting and Handling IoT Interaction Threats in Multi-Platform Multi-Control-Channel Smart Homes

DATE & TIME

5 JUN 2024 (WED) 11:00 AM - 12:00 PM

VENUE

Mr. and Mrs. Lee Siu Lun Lecture Theatre (WLB205), The Wing Lung Bank Building for Business Studies, Shaw Campus



PROF. XIAOJIANG DU

Professor and Anson Wood Burchard Professor Department of Electrical and Computer Engineering Stevens Institute of Technology

ABSTRACT

A smart home involves a variety of entities, such as IoT devices, automation applications, humans, voice assistants, and companion apps. These entities interact in the same physical environment, which can yield undesirable and even hazardous results, called IoT interaction threats. Existing work on interaction threats is limited to considering automation apps, ignoring other IoT control channels, such as voice commands, companion apps, and physical operations. Second, it becomes increasingly common that a smart home utilizes multiple IoT platforms, each of which has a partial view of device states and may issue conflicting commands. Third, compared to detecting interaction threats, their handling is much less studied. Prior work uses generic handling policies, which are unlikely to fit all homes. We present IoT-Mediator, which provides accurate threat detection and threat-tailored handling in multiplatform multi-control-channel homes. Our evaluation in two real-world



Enquiries: 3411-2385 **Email:** comp@comp.hkbu.edu.hk **Website:** https://bit.ly/bucs-events