I'm an Assistant Professor at the Department of Computer Science at City University of Hong Kong. Before that, I worked as a Postdoctoral Research Associate at the School of Computer Science and Engineering (CSE) at UNSW Australia from June 2017 to August 2019. I obtained my PhD degree from the University of Queensland in 2017 (advised by Prof. Neil Bergmann and Dr. Wen Hu). I received my B.E. degree in Communication Engineering and M.E. degree in Communication and Information System (advised by Prof. Dongfeng Yuan) both from the School of Information Science and Engineering, Shandong University (SDU), China, in 2010 and 2013, respectively.

Research outputs

**Exploiting Contactless Side Channels in Wireless Charging Power Banks for User Privacy Inference via Few-shot Learning**

**XPorter: A Study of the Multi-Port Charger Security on Privacy Leakage and Voice Injection**

**A pruning-then-quantization model compression framework for facial emotion recognition**
Sun, H., Shao, W., Li, T., Zhao, J., Xu, W., & Song, L., Sept 2023, In: Intelligent and Converged Networks. 4, 3, p. 225-236

**Eavesdropping Mobile App Activity via Radio-Frequency Energy Harvesting**

**Occlusion-Resistant Instance Segmentation of Piglets in Farrowing Pens Using Center Clustering Network**

**基于柔性太阳能电池和超薄水凝胶薄膜的手势识别**
吴如成, 丁文伯, 徐晓敏, 宋林琦 & 徐伟涛, Jul 2023, In: 電信科學. 39, 7

**CoBC: A Blockchain-based Collaborative Inference System for the Internet of Things**

**IoTSL: Towards Efficient Distributed Learning for Resource-constrained Internet of Things**
Demo Abstract: A Novel Firmware Update Over-The-Air System for LoRa Networks

FLoRa: Energy-Efficient, Reliable, and Beamforming-Assisted Over-The-Air Firmware Update in LoRa Networks

Emma: An accurate, efficient, and multi-modality strategy for autonomous vehicle angle prediction
Song, K., Ni, T., Song, L. & Xu, W., Mar 2023, In: Intelligent and Converged Networks. 4, 1, p. 41-49 9 p.

H2K: A Heartbeat-based Key Generation Framework for ECG and PPG Signals

ChirpKey: A Chirp-level Information-based Key Generation Scheme for LoRa Networks via Perturbed Compressed Sensing

EMGSense: A Low-Effort Self-Supervised Domain Adaptation Framework for EMG Sensing

Uncovering User Interactions on Smartphones via Contactless Wireless Charging Side Channels

Vehicle-Key: A Secret Key Establishment Scheme for LoRa-enabled IoV Communications

WashRing: An Energy-Efficient and Highly Accurate Handwashing Monitoring System Via Smart Ring

PrivGait: An Energy-Harvesting-Based Privacy-Preserving User-Identification System by Gait Analysis

Recent Advances in LoRa: A Comprehensive Survey
SwipePass: Acoustic-based Second-factor User Authentication for Smartphones

MobileKey: A Fast and Robust Key Generation System for Mobile Devices

Recent advances in biometrics-based user authentication for wearable devices: A contemporary survey

Simultaneous Energy Harvesting and Gait Recognition using Piezoelectric Energy Harvester

Time-Constrained Ensemble Sensing With Heterogeneous IoT Devices in Intelligent Transportation Systems

A differential privacy-based classification system for edge computing in IoT

A Novel Emergency Light Based Smart Building Solution: Design, Implementation, and Use Cases

GASLA: Enhancing the Applicability of Sign Language Translation

²Key: A Cross-sensor Symmetric Key Generation System Using Inertial Measurements and Inaudible Sound

Vehicle-Key: A Secret Key Establishment Scheme for LoRa-enabled IoV Communications

No Need of Data Pre-processing: A General Framework for Radio-based Device-free Context Awareness

Cross-modality Interaction Network for Equine Activity Recognition Using Time-Series Motion Data
EnTrans: Leveraging Kinetic Energy Harvesting Signal for Transportation Mode Detection

A multi-view CNN-based acoustic classification system for automatic animal species identification
Xu, W., Zhang, X., Yao, L., Xue, W. & Wei, B., 1 May 2020, In: Ad Hoc Networks. 102, 102115.Scopus citations: 24

Poster Abstract: A Novel Modeling Involved Security Approach for LoRa Key Generation

Securing Cyber-Physical Social Interactions on Wrist-Worn Devices

Capacitor-based Activity Sensing for Kinetic-powered Wearable IoTs

Gait Recognition as a Service for Unobtrusive User Identification in Smart Spaces

Measurement, Characterization, and Modeling of LoRa Technology in Multifloor Buildings

WEEnhance: Towards Data Augmentation in Human Activity Recognition using WiFi signal

LoRa-Key: Secure Key Generation System for LoRa-Based Network

The Design, Implementation, and Deployment of a Smart Lighting System for Smart Buildings

Brush like a Dentist: Accurate Monitoring of Toothbrushing via Wrist-Worn Gesture Sensing

GaitLock: Protect Virtual and Augmented Reality Headsets Using Gait
H2B: Heartbeat-based secret key generation using piezo vibration sensors

Xu, W., Lan, G., Lin, Q., Khalifa, S., Hassan, M., Bergmann, N. & Hu, W., Jan 2019, In: IEEE Transactions on Mobile Computing. 18, 1, p. 139-152 14 p., 8344494. Scopus citations: 44

Energy Harvesting-Based Smart Transportation Mode Detection System via Attention-Based LSTM

Poster abstract: Energy efficient LPWAN decoding via joint sparse approximation

Exploring the Feasibility of Physical Layer Key Generation for LoRaWAN

Demo abstract: simultaneous energy harvesting and sensing using piezoelectric energy harvester

SEHS: Simultaneous Energy Harvesting and Sensing using Piezoelectric Energy Harvester

Shake-n-Shack: Enabling Secure Data Exchange Between Smart Wearables via Handshakes

Sensor-Assisted Multi-View Face Recognition System on Smart Glass

Continuous Authentication Using Eye Movement Response of Implicit Visual Stimuli

CapSense: Capacitor-based activity sensing for kinetic energy harvesting powered wearable devices
Poster: Unobtrusive user verification using piezoelectric energy harvesting

WiCare: Towards In-Situ breath monitoring

Accelerometer and Fuzzy Vault-Based Secure Group Key Generation and Sharing Protocol for Smart Wearables

Gait-watch: A context-aware authentication system for smart watch based on gait recognition

VEH-COM: Demodulating Vibration Energy Harvesting for Short Range Communication

Automatic Key Generation Using Motion Energy Harvesters
Lin, Q., Cui, Y., Jiang, S., Ma, T., Xu, W. & Hu, W., Feb 2017.

Gait-key: a gait-based shared secret key generation protocol for wearable devices

KEH-Gait: Towards a Mobile Healthcare User Authentication System by Kinetic Energy Harvesting

Sensor-assisted Face Recognition System on Smart Glass via Multi-view Sparse Representation Classification

Walkie-Talkie: Motion-Assisted Automatic Key Generation for Secure On-Body Device Communication

Secure Key Generation and Distribution Protocol for Wearable Devices
Revadigar, G., Javali, C., Xu, W., Hu, W. & Jha, S., Mar 2016, 2016 IEEE International Conference on Pervasive Computing and Communication Workshops (PerCom Workshops). Institute of Electrical and Electronics Engineers Inc., 7457058. (IEEE International Conference on Pervasive Computing and Communication Workshops, PerCom Workshops). Scopus citations: 15

Transportation Mode Detection Using Kinetic Energy Harvesting Wearables
Lan, G., Xu, W., Khalifa, S., Hassan, M. & Hu, W., Mar 2016, 2016 IEEE International Conference on Pervasive Computing and Communication Workshops (PerCom Workshops). Institute of Electrical and Electronics Engineers Inc.,
Naviglass: Indoor localisation using smart glasses

Mobile applications based on smart wearable devices

Poster abstract: An online approach for gait recognition on smart glasses

Poster abstract: Robust and efficient sensor-assisted face recognition system on smart glass

A new information system using multimedia thin client and cloud architecture

Implementation of a Network Streaming Media Player Based on ARM Processor

Activities

Workshop on Smart Wearable Systems and Applications
Weitao XU (Member of programme committee)
Jun 2022 → Aug 2022

IEEE International Conference on Parallel and Distributed Systems
Weitao XU (Member of programme committee)
May 2022 → Aug 2022

The 28th Annual International Conference On Mobile Computing And Networking
Weitao XU (Organiser)
Apr 2022 → Oct 2022

IEEE Global Communications Conference
Weitao XU (Member of programme committee)
Mar 2022 → May 2022

IEEE International Conference on Sensing, Communication, and Networking
Weitao XU (Member of programme committee)
Feb 2022 → May 2022
The 19th annual IEEE International Conference on Sensing, Communication and Networking  
Weitao XU (Member of programme committee)  
Feb 2022 → Apr 2022

International Conference on Embedded Wireless Systems and Networks  
Weitao XU (Member of programme committee)  
Jan 2022 → May 2022

18th EAI International Conference on Mobile and Ubiquitous Systems: Computing, Networking and Services  
Weitao XU (Member of programme committee)  
Jun 2021 → Sept 2021

Combining Physical and Data-Driven Knowledge in Ubiquitous Computing  
Weitao XU (Chair)  
Apr 2021 → Sept 2021

VNI: Virtualization for Enabling Next-Generation IoT Networks  
Weitao XU (Member of programme committee)  
Dec 2020 → Jun 2021

Workshop on Cyber-Physical-Human System Design and Implementation  
Weitao XU (Member of programme committee)  
Jun 2020 → May 2021

The 7th ACM International Conference on Systems for Energy-Efficient Buildings, Cities, and Transportation (BuildSys2020)  
Weitao XU (Member of programme committee)  
Feb 2020 → …

The 4th Asian Conference on Artificial Intelligence Technology (ACAIT)  
Weitao XU (Member of programme committee)  
Jan 2020 → May 2020

The IEEE International Conference on Advanced Robotics and Mechatronics (ICARM)  
Weitao XU (Member of programme committee)  
Jan 2020 → Jun 2020

Ubicomp Workshop on Combining Physical and Data-Driven Knowledge in Ubiquitous Computing  
Weitao XU (Member of programme committee)  
Jan 2020 → Jul 2020

Ad Hoc Networks (Journal)  
Weitao XU (Associate Editor)  
Oct 2019 → Oct 2021

The ACM/IEEE International Conference on Internet of Things Design and Implementation (IoTDI)  
Weitao XU (Member of programme committee)  
Oct 2019 → Apr 2020

Smart Sensing and Security System for IoT  
Weitao XU (Speaker)  
May 2019

Sensor-Assisted Smart Recognition System on Wearable Devices  
Weitao XU (Speaker)
Apr 2019

**CPS IoT week**
Weitao XU (Organiser)
Feb 2019 → Apr 2020

**EWSN**
Weitao XU (Member of programme committee)
25 Jan 2019 → 27 Jan 2019

**IEEE EWSN CoWireless Workshop**
Weitao XU (Member of programme committee)
25 Jan 2019 → 27 Jan 2019

**Exploring the Feasibility of Physical Layer Key Generation for LoRaWAN**
Weitao XU (Speaker)
Jul 2018

**Sensor-Assisted Face Recognition System on Smart Glass**
Weitao XU (Speaker)
Oct 2017

**Gait-Watch: A Context-aware Authentication System for Smart Watch Based on Gait Recognition**
Weitao XU (Speaker)
Apr 2017

**KEH-Gait: Towards a Mobile Healthcare User Authentication System by Kinetic Energy Harvesting**
Weitao XU (Speaker)
Feb 2017

**Biometric-based Recognition System on Wearable Devices**
Weitao XU (Speaker)
Nov 2016

**Sensor-assisted Face Recognition System on Smart Glass via Multi-view Sparse Representation Classification**
Weitao XU (Speaker)
Apr 2016

**Walkie-Talkie: Motion-Assisted Automatic Key Generation for Secure On-Body Device Communication**
Weitao XU (Speaker)
Apr 2016

**Managing the Web of Things: Linking the Real World to the Web (Journal)**
Weitao XU (Book Series Editor)
Jan 2016 → May 2016

**Mobile applications based on smart wearable devices**
Weitao XU (Speaker)
Nov 2015

**Prizes**

**ACM SIGBED China Rising Star Award**
XU, Weitao (Recipient), 22 Sept 2021
Google PhD Fellowship
XU, Weitao (Recipient), 2016

IoTDI Best Demo Runner-up Award
XU, Weitao (Recipient), 2018

IPSN Best Paper Runner-up Award
XU, Weitao (Recipient), 2016

MARK WEISER BEST PAPER AWARD
DUAN, Di (Recipient), YANG, Huanqi (Recipient), Lan, Guohao (Recipient), Li, Tianxing (Recipient), JIA, Xiaohua (Recipient) & XU, Weitao (Recipient), 17 Mar 2023

Percom Best Work-in-Progress Paper Award
XU, Weitao (Recipient), 2016

Stanford's top 2% most highly cited scientists 2022
XU, Weitao (Recipient), Oct 2022

Press/Media
Aussie researchers want to use your walk to authenticate you
Weitao XU
24/05/17
1 Item of Media coverage

CityU researchers develop a self-supervised AI adaptation framework to enhance sensing accuracy of EMG devices
Weitao XU
25/05/23
1 Item of Media coverage

The era of talking buildings has arrived
Weitao XU
10/12/18
1 Item of Media coverage

The way we walk can be used to power and secure our devices
Weitao XU
7/05/17
1 Item of Media coverage

啥？走路的姿势都能用来做密码？！
Weitao XU
25/05/17
1 Item of Media coverage

走路的姿态也能解锁手机？科学家开发步态验证技术
Weitao XU
25/05/17
1 Item of Media coverage

Grants
Projects

SIRG: A Smart Egg Incubation Monitoring System Based on mmWave Sensing
XU, W. & LIU, K.
1/05/22 → ...

GRF: Pushing the Boundaries of Wearable Sensing: A Tale of Two Modalities
XU, W. & Ma, D.
1/01/23 → ...

ECS: Robust and Lightweight Security Framework for Low-power Wide-area Network
XU, W.
1/01/21 → ...

DON_RMG: Towards a Secure and Privacy-preserving IoT Sensing Framework for Smart City - RMGS
XU, W.
1/03/21 → 29/03/23

SZGov-SRI: 基于多源融合和信道特征的车联网智能决策和安全传输系统研究
XU, W.
1/09/21 → ...

NSFC-SRI: 基于无线信道物理层特征的低功率广域网密钥生成系统研究
XU, W.
1/01/22 → ...

OTHERS-SRI: 基于深度学习和主动视觉感知的智能超表面辅助通信系统设计
XU, W.
1/01/22 → ...