Xiaoyu Zhang

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EDUCATION

State University of New York at Buffalo (UB), Buffalo, NY, United States   Sep 2021 - present
Doctorate in Computer Science and Engineering

University of Science and Technology of China (USTC), Hefei, China   Sep 2017-June 2020
Master in Electronics and Communication Engineering.

Hefei University of Technology (HFUT), Hefei, China   Sep 2013-June 2017
Bachelor in Electronic Information Engineering

RESEARCH EXPERIENCE

mmSkin: A Non-Contact Epidermal Sensing System using Radio Frequency Technologies

Research Assistant, Embedded Sensing and Computing Group, UB, United States

- Based on the insight that water content can influence the mmWave signal, we designed mmSkin, the first wireless epidermal moisture sensing system that can be used in dressing conditions.
- We introduce a denoised mmWave imaging algorithm aimed at isolating the target signal from environmental interference. In contrast to traditional mmWave imaging techniques, our algorithm utilizes a higher ratio of target-related signals for the target imaging, enhancing its robustness against environmental interference.

mmHand: Towards Pixel-Space Hand Localization Using a Single Commodity mmWave Device

Research Assistant, Embedded Sensing and Computing Group, UB, United States

- Based on the spatial feature similarity between the mmWave data and depth image, we build a cross-modality connection to enhance the mmWave-based spatial feature extractor ability under the guidance of the higher resolution depth image.
- We present a tool to represent the mmWave data in pixel space and design an accurate end-to-end hand localization system using a single commodity mmWave device.

A Channel Hopping Strategy Based on The Human Trajectory Similarity for Wireless Body Area Networks

Research Assistant, Information Processing Center, USTC, China

- Considering the human movement regularity, we propose a scheme to assign channel hopping sequences, which can mitigate the interference among all the wireless body area networks.
- We design the human trajectory similarity and the channel hopping sequence similarity to measure the probability of the interference occurrence and continuous interference, respectively.

JMMM: A Mobility Model for WBANs Based on Human Joint Movements

Research Assistant, Information Processing Center, USTC, China

- We propose JMMM to characterize the patterns of node movement in WBANs more precisely and provide configurable parameters for users to adjust the model in their unique application scenarios.
- We calculate the position of any human joint through three coordinate systems and divide the action period into several parts.

WORK EXPERIENCE

The Design and Optimization of Data Verification System for Different Data Sources

Intern, China Merchants Bank Software Center   July 2020- September 2020

Advisor: Huan Xing & Xuefen Hong

● We design a data verification system based on Bootstrap and Django for different data sources, which supports for online modification.

● We design the front-end display interface and the back-end framework, and realize the dynamic data interaction between the front and back ends.

PUBLICATIONS

Tiantian Liu, Feng Lin, Chao Wang, Chenhan Xu, **Xiaoyu Zhang**, Zhengxiong Li, Wenyao Xu, Ming-Chun Huang, Kui Ren, "WavoID: Robust and Secure Multi-modal User Identication via mmWave-voice Mechanism", the ACM Symposium on User Interface Software and Technology (UIST'23), October 2023

Zhang, Xiaoyu, and Bin Liu. "A Channel Hopping Strategy Based on the Human Trajectory Similarity for WBANs." 2019 IEEE 16th International Conference on Wearable and Implantable Body Sensor Networks (BSN). IEEE, 2019.

Guan, Chengjie, Bin Liu, Zhiqiang Liu, Y Zhang and **Xiaoyu Zhang**. "JMMM: A Mobility Model for WBANs Based on Human Joint Movements." Advances in Body Area Networks I (2019).

TEACHING EXPERIENCE

● Algorithm Analysis and Design	UB, United States	Sep 2023 – Dec 2023
● Algorithm Analysis and Design	UB, United States	Sep 2022 – Dec 2022
● Algorithm Analysis and Design	UB, United States	Feb 2022 – May 2022
● Algorithm Analysis and Design	UB, United States	Sep 2021 – Dec 2021
● Mathematical Logic and Graph Theory	USTC, China	Sep 2018 – Dec 2018

SELECTED AWARDS

Chair's Fellowship	2021
The First Prize Graduate scholarship of USTC	2017
The Second Prize Graduate scholarship of USTC	2018, 2019
The Third-class scholarship of HFUT	2015,2016,2017