

HAO ZHOU

Ph.D. Candidate, Department of Computer Science and Engineering, The Pennsylvania State University

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RESEARCH OVERVIEW

My research lies in the span of **mobile sensing, and multimodal learning**. With **various modalities** (Ultra-wideband, IMU, Vision, Acoustics, etc.), I develop **signal processing and machine learning algorithms** for practical systems in **pose tracking, mobile health, and accessibility**.

EDUCATION

The Pennsylvania State University

Doctor of Philosophy in Computer Science and Engineering

Advisor: Dr. Mahanth Gowda

State College, PA, USA

2021 - May 2025 (Expected)

The University of Mississippi

Master of Science in Computer Science

Bachelor of Science in Computer Science

Oxford, MS, USA

2019 - 2021

2016 - 2019

SELECTED PUBLICATIONS

- ♠ *Rethinking Orientation Estimation with Smartphone-equipped Ultra-wideband Chips*
Hao Zhou, Kuang Yuan, Mahanth Gowda, Lili Qiu, Jie Xiong
ACM MobiCom 2024
- ♠ *Know Your Heart Better: Multimodal Cardiac Output Monitoring using Earbuds*
Hao Zhou, et al.
IEEE ICASSP 2025 (Under Review)
- ♠ *ASLRing: American Sign Language Recognition with Meta-Learning on Wearables*
Hao Zhou, Taiting Lu, Kenneth DeHaan, and Mahanth Gowda
ACM/IEEE IoTDI 2024 (Now Part of SenSys)
- ♠ *SmartDampener: An Open Source Platform for Sport Analytics in Tennis*
Runze Liu, Taiting Lu, Shengming Yuan, Hao Zhou, and Mahanth Gowda
ACM IMWUT/UbiComp 2024
- ♠ *SignQuery: A Natural User Interface and Search Engine for Sign Language with Wearable Sensors*
Hao Zhou, Taiting Lu, Kristina McKinnie, Joseph Palagano, Kenneth DeHaan, and Mahanth Gowda
ACM MobiCom 2023
- ♠ *An Open Source Smartring Platform for Finger Motion Analytics and Healthcare Applications*
Hao Zhou, Taiting Lu, Yilin Liu, Shijia Zhang, Runze Liu, and Mahanth Gowda
ACM/IEEE IoTDI 2023 (Now Part of SenSys)
🏆 **Best Paper Award for Edge IoT AI**
- ♠ *I am an Earphone and I can Hear my Users Face: 3D Facial Reconstruction using Smart Earphones*
Shijia Zhang, Taiting Lu, Hao Zhou, Yilin Liu, Runze Liu, and Mahanth Gowda
ACM Transactions on Internet of Things 2023
- ♠ *Backdoor Threats from Compromised Foundation Models to Federated Learning*
Xi Li, Songhe Wang, Chen Wu, Hao Zhou, and Jiaqi Wang
NeurIPS 2023 Workshop
- ♠ *Learning on the Rings: Self-Supervised 3D Finger Motion Tracking using Wearable Sensors*
Hao Zhou, Taiting Lu, Yilin Liu, Shijia Zhang, and Mahanth Gowda
ACM IMWUT/UbiComp 2022