Haozhe Zhou

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Education

2022–Present **PhD., School of Computer Science, Carnegie Mellon University**, Pittsburgh, PA, US.
Societal Computing, *Software and Societal Systems Department*
Advisors: Yuvraj Agarwal, Mayank Goel.

2018–2021 **B.S., Department of Computer Science, Purdue University**, West Lafayette, IN, US.
Computer Science Honors, *Minor in Mathematics*
GPA: 3.97/4.00, Graduation with Highest Distinction.

Research Experience

2022–2024 **Multi-User Privacy Negotiation System for Shared IoT Devices**, [C.1]
Carnegie Mellon University, Pittsburgh, PA, US; Advisors: Yuvraj Agarwal, Mayank Goel.
○ Designed a negotiation system that strategically elicits user preference and proposes configurations.
○ Built a custom shared-space privacy profile model with survey responses from 198 mTurk workers.
○ Evaluated the negotiation system on 30 users and showed 83.3% overall outcome satisfaction.

2022–2024 **Privacy-Preserving Audio Featurization under Modern ASR**, [C.2, D.1]
Carnegie Mellon University, Pittsburgh, PA, US; Advisors: Yuvraj Agarwal, Mayank Goel.
○ Revealed speech content inference vulnerability on 4 prior privacy-oriented featurization approaches.
○ Presented an ML-based speech filter detects and removes speech on resource-constrained devices.

2021–2022 **Systematic Analysis of Side-Channel Attacks on Mobile Sensors**,
Purdue University, West Lafayette, IN, US; Advisors: Z. Berkay Celik.
○ Systematically reviewed 105 sensor side-channel attack papers from security and mobile conferences.
○ Synthesized categories of threat models, device assumptions, sensor USge, and information leakage.

2019–2021 **Semantic Network of Kitchen Things for Cooking Assistance**, [J.1]
Purdue University, West Lafayette, IN, US; Advisors: Richard M. Voyles.
○ Designed appliance-domain and cooking-domain ontology to reason cooking states and context
○ Propotyped mobile app connecting with sensor-equipped smart food containers with BLE

Industrial Experience

2024
May–Aug **Procter and Gamble**, *Ph.D. Research & Development Intern*, Mason, OH
Data science in real time in-context and privacy preserving consumer understanding..

2022
Feb–May **Trendalyze Inc.**, *Data Science Intern*, Newark, NJ (Remote)
Electrocardiogram (ECG) timeseries analysis on QRS complex and R-peak detection..

Teaching Experience

2024 Spring **17722: Building User-Focused Sensing Systems**, Graduate Teaching Assistant,
Carnegie Mellon University, Pittsburgh, PA, US.
Topics: signal processing and ML with IMU, audio, vision; research review on sensing.

2021 Fall **CS250: Computer Architecture**, Undergraduate Teaching Assistant,
Purdue University, West Lafayette, IN, US
Topics: digital logic, memory systems, processes, I/O interfaces, assembly language.

2021 Fall **STAT290: The Data Mine II**, Undergraduate Teaching Assistant,
Purdue University, West Lafayette, IN, US
Topics: data processing, visualization, analysis, statistical testing, R programming, SQL.

2021 Spring	**CS390: Neural Image Processing**, Undergraduate Teaching Assistant, Purdue University, West Lafayette, IN, US Topics: image classification, style transfer, generation, deep learning, CNN, GAN, VAE.

Presentations & Invited Talks

2024 Sept	**CyLab Partner Conference** *Bring Privacy To The Table: Interactive Negotiation for Privacy Settings of Shared Sensing Devices*, Pittsburgh, PA, US.
2024 May	**CHI '24** *Bring Privacy To The Table: Interactive Negotiation for Privacy Settings of Shared Sensing Devices*, Honolulu, HI, US.

Fellowships & Awards

2024 Aug	**CMLH Fellowship in Digital Health Innovation**, Carnegie Mellon University
2023 Oct	**Sansom Graduate Fellowship**, Carnegie Mellon University
2021 Dec	**Graduation with Highest Distinction**, Purdue University
2021 Apr	**College of Science Alumni Summer Research Fellowship**, Purdue University
2019–2021	**Dean's List and Semester Honors**, Purdue University

Skills and Competencies

Research Methods:	System Prototyping, Human-Centered Design, User Studies, Surveys
Machine Learning:	Computer Vision, NLP, Multimodal ML; PyTorch, TensorFlow
Sensing and Signals:	Audio, Video, IMU, mmWave Radar, Passive Infrared (PIR)
Software Development:	Python, Java, C/C++, Javascript, HTML, Vue, React, Android, iOS

Publications

Refereed Conference Articles

[C.3] **Haozhe Zhou**, Mayank Goel, Yuvraj Agarwal. 2024. Bring Privacy To The Table: Interactive Negotiation for Privacy Settings of Shared Sensing Devices. *CHI Conference on Human Factors in Computing Systems* (CHI '24)

[C.2] Sudershan Boovaraghavan, **Haozhe Zhou**, Mayank Goel, Yuvraj Agarwal. 2024. Kirigami: Lightweight Speech Filtering for Privacy-Preserving Activity Recognition using Audio. *ACM on Interactive, Mobile, Wearable and Ubiquitous Technologies* (UbiComp '24)

[C.1] Upinder Kaur, **Haozhe Zhou**, Xiaxin Shen, Byung-Cheol Min, and Richard M. Voyles. 2021. RoboMal: Malware Detection for Robot Network Systems. *IEEE International Conference on Robotic Computing.* (IRC '24)

Refereed Journal Articles

[J.1] Sangjun Eom, **Haozhe Zhou**, Upinder Kaur, Richard M. Voyles, David Kusuma. 2022. TupperwareEarth: Bringing Intelligent User Assistance to the "Internet of Kitchen Things". *IEEE Internet of Things Journal.*

Demos and Posters

[D.1] **Haozhe Zhou**, Sudershan Boovaraghavan, Mayank Goel, Yuvraj Agarwal. 2024. On-Device Speech Filtering for Privacy-Preserving Acoustic Activity Recognition *The 30th Annual International Conference on Mobile Computing and Networking.* (MobiCom '24)