JIANGYIFEI ZHU

jiangyifeizhu@cmu.edu

EDUCATION

Carnegie Mellon University Pittsburgh, PA

Master of Science in Electrical and Computer Engineering, GPA: 3.9/4.0 May 2024

Selected Outperformed Coursework: Wearable Health Technologies, Computer Network, Real-time Embedded System

University of Massachusetts Amherst Amherst, MA

Bachelor of Science in Computer Science, GPA: 3.8/4.0, **Dean's List** February 2022

Bay State Scholar: A scholarship worth 50% of tuition

Selected Outperformed Coursework: Human-Computer Interaction, Software Engineering, Algorithms, Advance Wireless, Networking & Sensing - IoT, Artificial Intelligence, Search Engine, Game Programming

Lewis & Clark College Portland, OR

Coursework Completed Toward Bachelor's Degree September 2017 - May 2019

SELECTED WORK EXPERIENCE

Research Assistant @ CMU WiTech Lab -- Advised by Prof. Swarun Kumar Pittsburgh, PA

Contactless Blood Pressure Monitoring September 2023 - Present

- Conduct research in contactless blood pressure monitoring to identify existing challenges and areas for improvement using TI AWR1642 Boost mmWave Radar.
- Implement beam-forming techniques to focus radar on targeted points for accurate data acquisition.
- Develop an algorithm for extracting Pulse Transit Time (PTT) from the human body.
- Extract periodic features, using cross correlation with waveform decomposition techniques.
- Collaborate with researchers at the American University in Cairo (Egypt) and the University of the Witwatersrand, Johannesburg (South Africa) for an **upcoming user study in Africa.**

Towards Programmable Wireless Coverage Using Soft Robotic Inflatable Surfaces January 2023 - September 2023

- Built a flexible and shape-shifting soft robotic surface to be combined with wireless access points to enhance wireless coverage responsive to environmental changes.
- Engineered a closed-loop feedback pipeline for large-scale soft robots array, integrating various control strategies, including element-wise linear control and Q-learning.
- Constructed a smart cart driven by an Arduino platform, implementing a PID control algorithm for enhanced stability and responsiveness on cart movement.
- Fabricated pneumatic actuation systems using soft materials, coated with reflective materials.
- Developed a heatmap generator employing various plotting strategies for enhanced data visualization.
- Enhanced the mean throughput of 16.7% on commercial WiFi. Currently under review on NSDI 2024.

Software Engineer @ Beijing Huawei Digital Technologies Co., Ltd Beijing, China

Cluster Computer Solution Team March 2022 - August 2022

- Conducted research focused on developing PyTorch operators for GNN, accomplishing cross-platform integration on diverse computing power including Huawei Ascend, Huawei Kunpeng, and Intel CPU.

- Implemented testing robot to analyze the performance of PyTorch models in different hardware environments, eliminating half-day workload in each future test.
- Designed computing resource pool expansion strategy by pre-dividing resources into varying sizes prior to allocation, significantly decreasing deployment time on resource pool from 10-30 minutes to less than 1 minute.
- Documented environment setup and software user guide related to computing scheduler in Linux system.

SELECTED PROJECT EXPERIENCE

Human Energy Expenditure Estimation @ CMU -- Advised by Prof. Eni Halilaj January 2023 - May 2023

- Using data from Empatica watch and IMUs to estimate the energy cost of the human body in multiple scenarios.
- Performing data processing and feature extraction to clean and combine different datasets.
- Implement a deep learning pipeline to classify the activities performed by subjects with an accuracy of 97% and estimate the energy expenditure based on indirect calorimetry.

MUss - Mobile APP Full Stack Self-Development September 2022 - January 2023

- Built a Multi-Platform APP aiming to enhance time management and time spend strategies.
- Designed UI/UX to drive users to record and reflect on time cost.
- Deployed on https://play.google.com/store/apps/details?id=com.zjendex.muss.

SKILLS

Programming Languages: Python, Matlab, C/C++, Java, Dart, JavaScript, C#

Software Skills: Linux, Signal Processing, Machine Learning, Mobile & Web Development, Git, LaTeX

Hardware Skills: Arduino, IT mmWave Radar Sensor, IMU, USRP, LoRa

SELECTED VOLUNTEER & LEADERSHIP EXPERIENCE

Mentor, Peer Mentor Program @ CMU Jan 2024 - Present

- Guide incoming graduate students in academic/career development and community involvement.

Panel Advisor, China Education Symposium (CES) @ Harvard Jan 2024 - Present

- Address technical questions at the 15th Harvard China Education Symposium "The Application of AI in Education "

Mentor, TTT Mentor Program @ MIT October 2021 - January 2022

- Prepared coursework with small projects ensuring each student received an interactive experience.
- Taught Python in a class of 30 students from grades 4-7 with a diversified cultural background.

President, China Club @ Lewis & Clark College February 2018 - May 2019

- Devised and implemented strategic solutions to challenges in club management, cultural exchange programs, and event organization including recruitment.