Ruiqi Wang

Education

Washington University in St. Louis — St. Louis, MO
Ph.D. Candidate in Computer Engineering; GPA: 4.0/4.0 — *Sep. 2020 – Now*
- Advisor: Chenyang Lu

University of Michigan, Ann Arbor — Ann Arbor, MI
Bachelor of Science in Engineering in Computer Engineering; GPA: 3.8/4.0 — *Sep. 2018 – Apr. 2020*

Shanghai Jiao Tong University — Shanghai, China
Bachelor of Science in Engineering in Electrical Computer Engineering; GPA: 3.7/4.0 — *Sep. 2016 – Aug. 2020*

Awards and Honors

- **Best Student Paper Award, 2023 IEEE Real-Time Systems Symposium (RTSS '23)**: Paper: Progressive Neural Compression for Adaptive Image Offloading under Timing Constraints
- **Fullgraf Fellowship, Oct. 2022 – Now**: Established by the Fullgraf Foundation to support graduate student research.

Selected Projects

Real-time Edge-Computing: Lightweight algorithms for efficient encoding (utilizing a rateless autoencoder) and optimal task offloading (Deep Q-Learning) on embedded systems (Raspberry Pi 4) under network constraints, e.g., token bucket, or time constraints, e.g., transmission deadline.

Smart Kitchen: A live and video-based smart human action recognition system (optical flow, video feature extraction, action recognition transformer, object detection, etc.) designed specifically for users with cognitive impairments. It understands human actions during cooking and provides reminders for any omissions or unsafe behaviors, enhancing safety and independence for target users in the kitchen.

Indoor Localization and Contact Tracing: An automated contact tracing system for healthcare workers in hospital settings leverages embedded devices (dozens of Raspberry Pi Zeros) and BLE beacons to track human contacts. The system has been deployed and evaluated for its effectiveness and reliability in a real-world ICU, where 187 healthcare workers participated, during the COVID-19 period.

Publications

- **Wang, R.**, Liu, H., Qiu, J., Xu, M., Guérin, R., Lu, C. (2023). Progressive Neural Compression for Adaptive Image Offloading under Timing Constraints. In 2023 IEEE Real-Time Systems Symposium (RTSS). **Best Student Paper Award**
- Zhang, J., Dai, R., Rjob, A., **Wang, R.**, Hamauon, R., Candell, J., ..., Lu, C. (2023). Contact Tracing for Healthcare Workers in an Intensive Care Unit. Proceedings of the ACM on Interactive, Mobile, Wearable and Ubiquitous Technologies.
- Guillamet, M. C. V., Rjob, A., Zhang, J., Dai, R., **Wang, R.**, Damulira, C., ..., Fraser, V. (2023). Leveraging Bluetooth low-energy technology to improve contact tracing among healthcare personnel in hospital setting during the coronavirus disease 2019 (COVID-19) pandemic. Infection Control & Hospital Epidemiology.
- Qiu, J., **Wang, R.**, Chakrabarti, A., Guérin, R., Lu, C. (2022). Adaptive edge offloading for image classification under rate limit. IEEE Transactions on Computer-Aided Design of Integrated Circuits and Systems.

Teaching Experience

Teaching Assistant, Fall 2023: CSE 521S: Wireless Sensor Networks

Teaching Assistant, Spring 2022: CSE 520S: Real-Time Systems

Programming Skills

Programming Languages: Python, C/C++, Verilog

Deep Learning frameworks: TensorFlow+Keras, PyTorch, ONNX, TensorRT

Embedded Systems: Raspberry Pi family, Nvidia Jetson