Ziliang(Johnson) Zhang

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Education

University of California, Riverside
Doctor of Philosophy, Electrical and Computer Engineering (GPA: 4.00)   *09/2022 ~ (Exp.) 06/2026*
Research area: Machine Learning on Embedded System including Extended Reality (XR) and MCUs

University of California, Riverside   *09/2019 ~ 03/2021*
Master of Science, Computer Engineering
Study area: Embedded Engineering, Real-time System, Architecture, On-Device Machine Learning

University of California, San Diego
Bachelor of Science, Cognitive Science: Human-Computer Interaction   *08/2015 ~ 03/2019*
Study area: Artificial Intelligence, Algorithms, Data Science, Software Development, UI/UX

Publications

BOXR: Body and head motion Optimization framework for eXtended Reality
IEEE Real-Time Systems Symposium **(RTSS'24)**   *12/2024*
Ziliang Zhang, Zexin Li, Hyoseung Kim, Cong Liu
- Discovered the Camera-to-Display latency and optimized XR framework to reduce 63% latency

MII: A Multifaceted Framework for Intermittence-aware Inference and Scheduling   [Paper]
ACM International Conference on Embedded Software **(EMSOFT'24)**   *09/2024*
Ziliang Zhang, Cong Liu, Hyoseung Kim
- Delivered layer-wise checkpointing and scheduling framework, achieving 39% more successful jobs

Toward a Predictive eXtended Reality Teleoperation System with Duo-Virtual Spaces   [Paper]
Southern California Robotics Symposium **(SCR'24)**   *09/2024*
Ziliang Zhang, Cong Liu, Hyoseung Kim
- Proposed a novel XR-robot teleoperation framework to address large delay between user and agent

Accelerate Intermittent Deep Inference   [Paper]
arXiv:2407.14514 [cs.DC]   *07/2024*
Ziliang Zhang
- Enabled Neural Architecture Search under intermittent power and deployed on MCU (256KB SRAM)

Work Experience

Full-Stack Software Development Engineer @ **Verizon**   *07/2021 ~ 09/2022*
- Developed highly scalable micro-service APIs in 5GBI team with 70M+ monthly traffic. Followed
Agile/Scrum and used Spring Framework, Redis, Angular in SDLC. Achieved 0 outages and block.

Graduate Researcher @ **ESCALab, UCR**   *09/2020 ~ 03/2021*
- Developed a Human-Computer Interaction prototype using Coral DevBoard and wearable display to
perform pose estimation and deliver 30FPS stream. Reduced 83% latency through TPU and Posenet.

Frontend Developer Internship @ **Bidround System LLC**   *06/2018 ~ 09/2018*
- Overhauled UI with REACT. Improved user experience with A/B Testing and Google Analytics.

Project Experience

Project Leader @ **Real-Time Embedded System** *01/2023 ~ 03/2023*
- Committed to Linux kernel with customized IOCTL, LKM, High-resolution Timer, RTC, and TCB to enable real-time support on Linux. Maintained high QoS and Timeliness Correctness of 1k+ concurrent tasks on an Oracle Cloud Server and locally with VMware and VirtualBox hypervisor.

Co-Author @ **On Construction and Application of High-Definition(HD) Maps** *09/2020 ~ 12/2020*
- Analyzed different approaches in HD Maps construction and constructed taxonomy for the paper. Spotlight project and submitted to International Symposium on Spatial and Temporal Databases.

Group Leader @ Security and Privacy of Data Center Review *09/2020 ~ 12/2020*
- Summarized and evaluated the data center privacy and

Lead Developer @ **When2Buy Co-op Smart Shopping List** *01/2018 ~ 03/2018*
- Led the WebApp development and achieved up to 100+ users for over 3 months.

Academic Service

External Reviewer @ 45th IEEE Real-Time Systems Symposium (RTSS) *06/2024*
Teaching Assistant @ Real-Time Embedded Systems (EE255, UCR) *01/2024*
Teaching Assistant @ Data Acquisition, Instrumentation and Process Control (EE128, UCR) *03/2023*
Teaching Assistant @ Computing Thinking (EDS124BR, UCSD) *03/2019*

Community Service

International Volunteer @ **Town&Country Learning Center, UCSD** *03/2018 ~ 06/2018*
- Empowered racial minority K-12 children in south San Diego with new media technologies. Assisted with 30+ students in their own media production and programing projects.

Volunteering Engineer @ **Global TIES, UCSD** *01/2018 ~ 03/2018*
- Provided an affordable SolarOven to biomass cooking technique in Tijuana, Mexico and greatly reduced regional carbon footprint and cooking hazard.

Honors and Awards

Dean's Distinguished Fellowship Award, UCR *09/2022*
Provost Honor, UCSD *09/2018, 09/2016*

Technical Skills

Embedded System: DSP, CUDA, I2C, UART, FreeRTOS, LKM, AvX, RTC, BLE, VMWare, Docker;
Computer Vision: IMUs, SLAM, VR, XR, AR, Point Cloud, Diffusion, OpenGL, OpenCV;
Machine Learning: NumPy, Scikit-learn, Tensorflow, PyTorch, ONNX, NAS, Distillation, Pruning;
Frontend Development: Jquery, Angular, Node.js, Bootstrap, REACT, Figma;
Backend Development: Spring Boot, Spring MVC, MySQL, Firebase, Redis;
Network: AWS IAM, EC2, S3, Apache Kafka, TCP/IP, UDP, HTTP requests, Kubernetes, Kibana;
Programming Language: C/C++, Python, Java 8/11, Shell, HTML5/CSS3/Javascript, Typescript;