Ziliang (Johnson) Zhang

zzhan357@ucr.edu 858-699-1996 Website LinkedIn Google Scholar Riverside, CA

Education

University of California, Riverside
Doctor of Philosophy, Electrical and Computer Engineering *09/2022 ~ (Exp.) 12/2026*
Research focus: On-device real-time machine learning, specialized in XR (VR/AR) systems

University of California, Riverside *09/2019 ~ 03/2021*
Master of Science, Computer Engineering
Study area: embedded engineering, real-time systems and 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, Parallel Algorithms, Data Analytics, Software Development, UI/UX

Work Experience

GPU Coder Internship **MathWorks** *06/2025 ~ 09/2025*
- Developed GPU optimization in ML compiler/IR to speed up the CUDA production code by 17x.
- Researched AI algorithm on CUDA codegen from MATLAB and increased 76% GPU Utilization.

Full-Stack Software Developer **Verizon** *07/2021 ~ 09/2022*
- Developed micro-service APIs with Spring Framework, Redis, and Angular for 70M monthly traffic.

Graduate Researcher **ESCALab, UCR** *09/2020 ~ 03/2021*
- Developed a Human-Computer Interaction prototype using Coral TPU and VR to perform pose estimation. Prototype delivers 30FPS stream across continents with 83% less end-to-end latency.

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

Highlight Publications

Z. Zhang, C. Liu, H. Kim. MATER: Mutually Aware Framework for Teleoperated-robot with Extended Reality. ACM SIGMETRICS 2026 (SIGMETRICS'26)
- Overhauled XR teleoperation system with ML approximation that shortens completion time by 48%.

Y. Chen*, **Z. Zhang*** (Co-first), H. Kim, C. Liu. REFiNE: Reward and Energy Fairness for Robust Multi-Agent Coordination in RL-driven Robots. In Submission
- Achieved fairness in Multi-agent Reinforcement Learning scenarios that prolongs runtime by 22%.

A. Bukhari, B Mamo, M. S. Hossain, **Z. Zhang**, M. Karimi, D. Enright, P. Manosalva, H. Kim. Low-Cost Sensing and Classification for Early Stress and Disease Detection in Avocado Plants (IEEE IoT-J'25)
- Proposed disease detection methods using LSTM and DNN algorithm to achieve 86% accuracy.

Z. Zhang, Z. Li, H. Kim, C. Liu. BOXR: Body and head motion Optimization framework for eXtended Reality. IEEE Real-Time Systems Symposium (RTSS'24)
- Discovered the Camera-to-Display latency and optimized XR framework to reduce 63% latency.

Z. Zhang, C. Liu, H. Kim. MII: A Multifaceted Framework for Intermittence-aware Inference and Scheduling. ACM International Conference on Embedded Software (EMSOFT'24)
- Delivered layer-wise checkpointing and real-time scheduling to increase 39% successful jobs.

Z. Zhang, C. Liu, H. Kim. Toward a Predictive eXtended Reality Teleoperation System with Duo-Virtual Spaces. Southern California Robotics Symposium (SCR'24)
- Proposed XR-robot teleoperation predictive display that reduces teleoperation error by 73%.

Y. Zhuy, H. Alrashid, S. Bai, C. Zhang, **Z. Zhang**, Z. Qu, R. Y. Ali, A. Magdy. On the Ecosystem of High-Definition (HD) Maps. IEEE 40th ICDEW (ICDEW'24)
- Analyzed over 53 state-of-the-art approaches in HD Maps construction, application, and evaluation.

Project Experience

Predictive Display model and GPU code acceleration @ **MathWorks** (MATLAB, CUDA, Transformer)
- Proposed transformer model for XR teleoperation and achieved 6.6X speed up on Jetson Nano.

Real-Time Linux Kernel @ **RTEN Lab, UCR** (C, Scheduler, Real-time Clock, Linux Kernel)
- Developed IOCTL, LKM, High-resolution Timer, and TCB for real-time support and maintained high QoS and Timeliness Correctness of 1k+ concurrent tasks.

Soil Sensing @ **RTEN Lab, UCR** (UART, BLE, Ultra-low Power SoC, Grafana)
- Deployed edge-cloud sensing system and maintained zero-outage operations for 16 months.

Academic Service

Reviewer @ Transactions on Embedded Computing Systems (TECS)	*2025*
Reviewer @ Journal of Systems Architecture (JSA)	*2025*
Secondary Reviewer @ Association for Computational Linguistics (ACL)	*2025*
External Reviewer @ IEEE Real-Time Systems Symposium (RTSS)	*2024, 2025*
External Reviewer @ ACM International Conference on Embedded Software (EMSOFT)	*2024*
External Reviewer @ Euromicro Conference on Real-Time Systems (ECRTS)	*2024*
Teaching Assistant @ Embedded Systems (EE128)	*2023, 2024, 2025*
Teaching Assistant @ Real-Time Embedded Systems (EE255)	*2024*
Teaching Assistant @ Computing Thinking (EDS124BR)	*2019*

Honors and Awards

Outstanding Teaching Award, UCR	*2025*
Conference Travel Grant, UCR	*2024*
Dean's Distinguished Fellowship Award, UCR	*2022*
Provost Honor, UCSD	*2016, 2018*

Technical Skills

GPU Programming: CUDA, CUDNN, GPU codegen/compiler, Kernel Scheduler, CUDA Graph;
Machine Learning: Tensorflow, PyTorch, ONNX, NAS, Knowledge Distillation, ML Compiler;
Embedded System: DSP, I2C, UART, FreeRTOS, LKM, AvX, RTC, BLE, VMWare;
Extended Reality (XR): Reprojection, IMU, Visual SLAM, OpenGL, Unity, Meta AI APK, VR/AR;
Programming Language: C/C++, Python, Java 8/11, Shell, HTML5/CSS3/Javascript, Typescript;
CI/CD: Perforce, Git, JIRA, Scrum, Kibana, Kubernetes, Docker, Postman;