





# 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

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## 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)

### On the Ecosystem of High-Definition (HD) Maps

[Paper]

40th International Conference on Data Engineering Workshops (ICDEW'24)

05/2024

Yuanjie Z., Hussah A., Song B., Chunhan Z., Ziliang Z., Zhengyi Q., Reem Y A., Amr M.

- Analyzed different approaches in HD Maps construction, application and evaluation.

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## 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.

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## 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.

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.

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## 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

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## 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.

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## Honors and Awards

Dean's Distinguished Fellowship Award, UCR

09/2022

Provost Honor, UCSD

09/2018, 09/2016

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## 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;