

Ziliang (Johnson) Zhang

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Education

University of California, Riverside (UCR)

Doctor of Philosophy, Electrical and Computer Engineering

Sep 2022 - (Exp.) Jun 2026

Master of Science, Computer Engineering

Sep 2019 - Mar 2021

University of California, San Diego (UCSD)

Bachelor of Science, Cognitive Science Specialization in Human-Computer Interaction

Aug 2015 - Mar 2019

Embedded Engineer Experience

PhD Researcher @ Real-Time Embedded and Networked System, UCR

Sep 2022 - Present

- Created **Microcontroller** research with Realtime Scheduling, DeepL, Embedded Software and RTOS.
- Designed search space and performance model that can make power-hunger tasks schedulable and executable on edge devices. Currently testing on MSP430 MCU and reworking Realtime ML/DNN model
- Worked on **Embedded C/C++** to write Linux Kernel and Device Driver and designed Preemptive Multi-Tasking System that worked coherently as SoC.
- Designed Soft/Hard Deadline **Real-Time System** with extreme hardware constraints (Battery-less Systems, Energy-Harvesting System). Explored **Intermittent Execution** with Neural Architecture Search, which is conducted in constant progress preservation and recovery in-between volatile and non-volatile memory.

Full-Stack Software Engineer @ Verizon & Marlabs, LLC

Jul 2022 - Sep 2022

- Developed and Maintained **RESTful API** in **Spring Framework** and **Maven** Project, with AWS and Apache Kafka. Completed highly scalable services that maintained 70M+ traffic monthly without sever breakdown
- Worked on system framework & infrastructure in 5GBI team. Experienced **Embedded System** like **IoT** Gateways and Enterprise-level Router&Server. Gained top-tier knowledge on devices and infrastructure
- Experienced in Junit, Jenkins, Postman and JIRA for Testing. Used Git, Docker as **CI/CD** process for TDD and concurrently developed in 4 testing environments and 2 deployment environment
- Followed SDLC in **Agile/Scrum** and Waterfall methodologies. Familiar with Pair Programming. Maintained monthly sprint and collaborated with 7 groups within the Verizon Global Network

OpenRPT @ Extreme Storage & Computer Architecture Laboratory, UCR

Sep 2020 - Mar 2021

- Solo Developed Human-Computer Interaction prototype with **Coral DevBoard** and Wearable Display
- Conducted high resolution **Pose Estimation** with tele-conferencing software. Developed entire framework and application within 1GB RAM and edge device Hardware Constraints
- Designed and Deployed **TFLite** model and engine on top of Google Posenet. Reduced the inference latency from 338ms to 57ms (83% reduction) by applying cython and edge TPU accelerator
- Optimized System Level Latency from USB, TCP/IP, UDP **Protocols** and device **drivers**. Used **Bluetooth PAN** to Achieve One-step Setup and Operation which satisfied the design need of clients (remote rehabilitation centers, University of Chicago) that service seniors, physical disability persons and veterans

“On Construction and Application of High-Definition (HD) Maps” @ UCR

Sep 2020 - Jan 2021

- Co-authored and edited HD Maps collections. Overviewed topics in **Autonomous Driving**, Localization, Modeling, Path Planning, Perception and ATVs. Reviewed Real-Time Perception and Inference. Venue Submitted SSTD'21, Geoinformatica
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Technical Skills

Programming Language: C/C++, Java 8/11, Python 2/3, Shell, Embedded C, CUDA C, SQL, AvX, MATLAB;

OS: Linux/UNIX, Embedded Linux, Xv6, Linux Header & Kernel

Protocols: I2C, USB, UART, SPI;

Hardware: SoC, MCU, RISC-V, ARM, Edge Device, Bluetooth, GPU, Coral DevBoard, Arduino, SRAM/FRAM;

Embedded System: Schedulability Analysis, Embedded Software, Multi-Task System, Distributed System

Real-Time System: RTOS, Real-Time Scheduling, Autonomous Driving, Real-Time Inferencing/ML

ML/DL: Pandas, Matplotlib, Scikit-learn, Tensorflow, PyTorch, OpenCV, CNN/DNN, Neural Arch Search (NAS);

SDE: Spring MVC, Spring Boot, Spring Cloud, Hibernate, Spring Security, Struts, Kubernetes, HTTP, API;

Cloud&Network: AWS IAM, EC2, S3, Google Cloud, Apache Tomcat, Glassfish, JBoss, Nginx, TCP/IP, UDP;

Dev Tools: GIT, Docker, VMware, JIRA, Log4j, Kibana

Testing: Junit 4/5, Mockito 3, SoapUI 5, Postman;

Dev Teamwork: Agile/Scrum Methodology, Test-Driven Development, CI/CD Tools (GIT, Docker, Kubernetes);