Zekun Wang

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EDUCATION

Aalto University Aug. 2025 – Present
MSc in Autonomous Systems and Intelligent Robots

Hebei University of Technology Aug. 2018 – Jun. 2022
BEng in Computer Science and Technology

RESEARCH EXPERIENCES

Machine Vision-Based Orange Sorting Machine (Demo) Oct. 2021 – Apr. 2022
Technical Team Leader, Hebei University of Technology Tianjin, China

- Built a heterogeneous system with high computing power and high real-time;
- Programmed an ESP32 microcontroller in **C++** to control the sorting line, driving mechanical operations at a frequency of **10Hz**;
- Trained a ResNet-18 model with **PyTorch** to sort oranges by quality, achieving **92%** accuracy;
- Achieved real-time image acquisition from industrial cameras in under **15ms** per image using C++;
- Awarded Outstanding Undergraduate Graduation Project Award (**Top 10%**).

Heterogeneous System Development for Neural Rendering Platform
Major Participant, Prof. Xin Lou, ShanghaiTech University Shanghai, China

- Developed firmware and infrastructure for a heterogeneous platform supporting 3D neural rendering, combining a **custom ARM SoC** (Cortex-A57) and a **RISC-V** FPGA (HBird E203);
- FPGA stage (Jul 2023–Feb 2024): Ported RISC-V core to Avnet Zedboard, implemented DDR–SD FatFS interface, and upgraded SPI to full duplex;
- ARM SoC stage (Jan 2025–Aug 2025): Built firmware stack (BootROM, **U-Boot**), adapted **Linux kernel**/rootfs, and validated using RTL simulation and ARM Fast Models;
- Contributed to the low-level platform enabling high-performance **3D neural rendering** experiments, bridging hardware and software layers.

Multi-Sensor Intrusion Detection System Oct. 2023 – Jun. 2024
Technical Team Leader Baku, Azərbaycan

- Developed an IoT-based security system for an overseas client, integrating PTZ cameras and optical fiber sensors for **real-time monitoring**, deployed in border defense applications.

PROFESSIONAL EXPERIENCES

Alibaba Group Jul. 2022 – Jun. 2023
Software Development Engineer Hangzhou, China

- Built a **low-code platform** enabling large-scale non-technical user adoption (3000+ users);
- Designed a DSL-to-JS/HTML/CSS compiler supporting 500+ daily component builds;
- Introduced Redis-based SSR gateway, improving rendering latency by ~50% under 10k+ concurrent requests.

DiDi Global Inc. & Meituan Inc. 2020 – 2021
Software Development Intern Beijing, China

SKILLS & OTHERS

Programming Language: C++, Python, OpenCV, Verilog, JavaScript
Embedded system and Hardware: Linux Kernel, U-boot, FPGA, Arduino
Interest: 3D reconstruction, robotics, hardware–software co-design