Joshua Ko

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Education

University of California, Irvine — Irvine, CA
B.S., Computer Engineering — September 2024 – March 2027
GPA: 3.83/4.00, Dean's Honor List (4 Quarters)

- **Relevant Coursework:** Data Structures, Software Engineering in C, Discrete-Time Signals/Systems, Network Analysis, Electronics, Organization of Digital Computers, Digital Systems, Computer Networks

Technical Skills

Languages: C++, C, Java, Python, Verilog, RISC-V, MIPS
Hardware: LTSpice, oscilloscope, function generator, microcontrollers (Arduino, ESP32, Raspberry Pi), KiCad, FPGA (Artix-7)
Awards: Gold Key Award (Scholastic Art & Writing Competition 2020)

Projects

TARS Autonomous Robot — September 2025 – Present
UCI Zotbotics Level 3

- Improve hardware reliability by designing electrical system under mechanical constraints, consolidating 3-D printed structural and mounting components, and reducing integration faults during assembly and debugging of an autonomous mobile robot
- Stabilize power delivery by designing KiCad and Altium schematics for a custom PCB to ensure a safe shutdown sequence and power distribution to stepper motors, drivers, and MCUs
- Incorporate low-latency sensor-to-control communication by integrating Raspberry Pi 4 and Arduino Mega 2560 interfaces, deploying an onboard LLM via ChatGPT API for high-level user interaction, improving consistency between perception and actuation

Pipelined MIPS Processor — January 2025 – March 2025
Intro to Digital Logic Lab Project

- Increased instruction throughput of a 5-stage pipelined MIPS processor by approximately 35-45% by improving clock cycle speeds and 5x overall speedup compared to single-cycle RISC-V
- Ensured functional correctness by developing automated testbenches to validate the performance of each pipeline stage
- Debugged and simulated designs using Xilinx Vivado, resolving timing and logic issues including structural, data, and control pipeline hazards

Python Networking — December 2025 – Present
Independent Project

- Implemented client–server applications in Python utilizing networking protocols including TCP, UDP, SMTP, and HTTP
- Built server and client emulators using Python's low-level socket API
- Improved throughput and responsiveness by managing connection lifecycles and packet transmission across TCP and UDP channels

Additional Experience

Sodam (Korean Restaurant) — August 2022 – July 2023
Store Associate — *Dublin, CA*

- Utilized various cooking tools and machines in order to prepare ingredients and Korean side dishes
- Managed inventory of food ingredients and frequently practiced methods of cleaning and preparing foods for cooking and storing