Justin I. Hwang

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Objective

Computer Engineering major specializing in Computer Architecture. Looking for RTL design/verification **Internship for Summer 2026**.

Education

Georgia Institute of Technology | Atlanta, GA
Bachelor of Science in Computer Engineering, GPA 4.00 — Expected Graduation **Dec 2026**

Experience

Tesla Motors | LV System Validation Intern | Palo Alto, CA — *May 2025 – Aug 2025* ***(4 mo)***
Electric Vehicle Design and Manufacturing Company
- Design and execute system-level integration tests involving electrical and software systems.
- Develop and execute tests to validate system-level features, including sensors, actuators, and control algorithms.

HyTech Racing | President, Firmware Lead | Atlanta, GA — *Aug 2023 – Present* ***(2 yr)***
Formula SAE Electric Team
- Lead team of 200+ engineers to design, build, and race the fastest student EV race car in North America.
- Design schematics, rapidly prototype, and program PCBs using Altium Designer and C++.
- Write firmware system integration tests to verify functionality of vehicle electrical systems and battery management.
- Program C++ (PlatformIO) to communicate over Ethernet, CAN, SPI, I2C, and UART with a distinct hardware abstraction layer.
- Tripled new member retention by writing a semester-long electrical training curriculum.
- Enforced test-driven development practices within electrical and vehicle firmware team.

Teaching Assistant | Programming for HW and SW systems | Atlanta, GA — *Dec 2023 – Present* ***(1.5 yr)***
Georgia Tech ECE Department, Georgia Tech College of Computing
- Teach students single-cycle datapath, RISC-V assembly, C programming, and memory management.
- Recruited by professor for writing extensive JUnit-style software verification files on the class forum.
- Overhauled recitation slides for Fall 2024 to include black-box abstraction and follow consistent teaching principles..

Projects

Open-Source RISC-V Processor (Darkriscv) — *Jul 2024* ***(1 mo)***
- Wrote Verilog code to add one-bit Branch Prediction to an open-source RISC-V processor.
- Improved overall CPI by 13% and branch CPI by 49%.

Assembly Optimization (MIPS) — *Nov 2024* ***(1 mo)***
- Implemented a search algorithm in MIPS assembly and optimized to 300% of the efficiency benchmark.
- Used concepts from discrete mathematics, algorithms, and binary arithmetic to write the fastest code out of 200+ students.

Test Automation for Data Structures and Algorithms — *Aug 2023 – May 2024* ***(1 yr)***
- Published weekly test benches on class forums with custom JUnit-style test infrastructure.
- Achieved 4,000+ downloads across all homework assignments with over 1,200 test cases.
- Used brute-force and automated tests to check data structures and visualize them with ASCII.

Coursework

VLSI & Advanced Digital Design | Computer Architecture, Systems, and Concurrency | Signal Processing | Programming for Hardware & Software Systems | Circuit Analysis | Digital Design Lab | Data Structures & Algorithms | Discrete Mathematics

Skills

Programming: RISC-V | MIPS | Verilog | Java | VHDL | C | C++ | PlatformIO | LaTeX | Python
Software: Altium Designer | Quartus | Emacs | IntelliJ | VSCode | Arduino IDE | Git | MacOS | Windows | Linux
Hardware: Oscilloscope | Logic analyzer | Electrical benchtop equipment