

# Justin I. Hwang

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## Objective

I am a Computer Engineering major with strong verbal communication skills and a particular interest in low-level optimization. I lead the low-voltage electronics and firmware subteams at HyTech Racing, where we design, manufacture, program, and race a record-breaking EV racecar. I take pride in the work I produce, and I love working alongside people who feel the same way. Looking for an embedded systems or computer architecture **Internship for Summer/Fall 2025**.

## Education

**Georgia Institute of Technology | Atlanta, GA**

Bachelor of Science in Computer Engineering, GPA 4.00

Aug 2023– Present

Expected Graduation **Dec 2026**

## Experience

**Tesla Motors | Firmware Integration Intern | Palo Alto, CA**

May 2025 – Dec 2025 **(8 mo)**

*Electric Vehicle Design and Manufacturing Company*

- Validate firmware in manufacturing through integration and release of new firmware versions.
- Design and execute system-level integration tests involving electrical and software systems.

**HyTech Racing | Low Voltage and Firmware Lead | Atlanta, GA**

Aug 2023 – Present **(2 yr)**

*Formula SAE Electric Team*

- Design schematics, rapidly prototype, and program PCBs for HyTech's 2025 EV race car using Altium Designer and C++.
- Wrote 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.
- Wrote UART driver for VectorNAV IMU to receive, unpack, and store
- Created one-semester electrical training curriculum to improve new member retention and productivity by 200%.
- 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

**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 300+ students.

**Test Automation for Data Structures and Algorithms**

Aug 2023 – May 2024 **(1 yr)**

- Published weekly tester files 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.
- Programmatically tested File I/O, infinite loops, and performed time complexity analysis with multithreading.

## Coursework

Computer Architecture, Systems, and Concurrency | Signal Processing | Programming for Hardware & Software Systems | Circuit Analysis | Digital Design Lab | Digital Systems Design | 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