

# Andy Min

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## Education

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### University of Illinois Urbana-Champaign

Expected 2025

B.S. Computer Engineering, Minor in Physics

GPA: 4.0/4.0

- Theta Tau engineering fraternity - exec board, James Scholar honors program, ECE 120 course grader

## Experience

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### The Illinois Space Society

January 2023 - Current

Avionics Software Team Member

Urbana, IL

- Developing software for the avionics system on a rocket flight controller running ChibiOS
- Implemented test routines in C to verify connections to various sensors connected over SPI and I2C
- Improved versioning system of flight logs by automating the integration of Git metadata into log files

### EverCharge

May 2023 - August 2023

Embedded Engineering Intern

Palo Alto, CA

- Developed embedded software for electric vehicle (EV) chargers running OpenWrt Linux with Rust and C
- Streamlined software upgrade process of 8000+ EV chargers by implementing an automated over-the-air system allowing devices to install software package and operating system updates
- Enabled developers to wirelessly debug hardware by programming an ESP32 microcontroller running FreeRTOS to wirelessly broadcast data read from UART serial ports
- Enhanced network security between EV chargers by patching Linux kernel drivers to encrypt 802.11 data frames

### FIRST Robotics Competition Team 846

May 2021 - May 2022

Co-President, Software Lead (2019 - 2021)

San Jose, CA

- Coordinated, trained, and led a ~40-person team to build a 150-pound competitive robot in 9-weeks and achieved the most successful season in the team's 20+ year history, ranking top 200 of 3150 teams globally
- Developed a custom real-time robot software architecture in C++ running on a Linux controller featuring hardware abstraction layers, live telemetry/logging, and automated hardware verification checks
- Implemented control systems and autonomous routines for 20+ motors and sensors communicating over a CAN bus network, winning the "Innovation in Control" award at the world championships
- Designed and manufactured aluminum parts, such as high-torque gearboxes, using Autodesk Inventor CAD

### Exograph

June 2021 - August 2021

Software Engineering Intern

Saratoga, CA

- Developed features for Exograph, a GraphQL backend framework written in Rust
- Improved safety of the custom Exograph modeling language compiler by expanding its static type-checking
- Simplified process for importing data models by developing tooling to generate PostgreSQL commands

## Projects

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### LC-3 Language Analyzer (ECE 220 Honors Project)

- Developed a language server for the LC-3 assembly language commonly used in intro computing courses
- Integrated basic static analysis such as illegal instruction arguments, type errors, and overflow warnings

### Yot - a Toy Programming Language

- Created a toy programming language with a custom lexical analyzer and program parser written in Rust
- Used the LLVM compiler infrastructure as a backend to generate program binaries

### FRC Scouting Data Viewer

- Created a web application with React.js, Go, Python and SQLite to import, aggregate, and display robotics competition match data to analyze team performance

## Skills

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- Languages: C++, C, Rust, Python, Kotlin, Go, JavaScript, Swift, HTML/CSS, SQL
- Topics: Linux systems, embedded systems, robotics, compilers, computer networking