

EMILY NGO

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Education

University of Washington

Sept 2022 - Jun 2026

Bachelor of Science in Computer Engineering

Seattle, WA

Skills

Languages: Python, C/C++, Java, Verilog, JavaScript/TypeScript, HTML/CSS, SQL

Tools/Frameworks: Git, Linux, React, Node.js, Flutter, Figma, QGIS

Embedded: Raspberry Pi, Arduino, ESP32, STM32, KiCad, ROS, FreeRTOS

Experience

University of Washington

September 2025 – Present

Teaching Assistant

Seattle, WA

- Teaching Assistant for CSE/EE 475 (Embedded Systems Capstone)

Clear Ascent Corp.

July 2025 - Present

Systems Engineering Intern

Seattle, WA

- Contributing to system architecture and feasibility studies for hydrogen-powered autonomous UAVs
- Supporting integration of hardware, software, and safety requirements into scalable system design

University of Washington - Sensor Systems Laboratory

January 2024 - Present

Undergraduate Researcher, Summer Intern

Seattle, WA

- Applied optimization algorithms (hill climbing, simulated annealing) to acoustic systems to improve performance
- Designed and prototyped a temperature and humidity control system by integrating Raspberry Pi with sensors and developing custom enclosures for automated monitoring and regulation
- Conducted system validation under variable conditions, aligning experimental results with expected performance

UWROV - Underwater Remotely Operated Vehicles

October 2024 - Present

Electrical Engineer, Mechanical Engineer

Seattle, WA

- Designed and optimized PiHat **PCB** for underwater robotics, reducing size by 40% and improving integration
- Developed robotic manipulator designs in **Onshape**, enhancing operational precision in deep-sea tasks
- Performed PCB assembly, soldering, and component testing to validate designs for real-world deployment

Impinj

January 2025 – June 2025

Embedded Systems Engineering Co-op

Seattle, WA

- Collaborated in a team of six to develop an embedded system for real-time communication with **FPGAs** emulating RAIN RFID tags in scalable, pre-silicon test environments
- Executed system code on a microcontroller with RTOS for low-latency SPI control of RF parameters (phase, attenuation) and realistic tag behavior simulation
- Reduced RFID tag testing time by 47% by replacing physical fabrication with configurable emulated tags, accelerating iteration and interference analysis

SproutSynch

October 2024 – May 2025

Hardware Engineer

Seattle, WA

- Built an automated irrigation system with Raspberry Pi and Arduino Uno, supporting multiple plants
- Programmed embedded **Python** firmware for scheduling and pump control, improving efficiency of watering cycles
- Designed switching mechanism with embedded hardware and 3D modeling for scalable system integration

Projects

FM Radio Tuning System | *Python, C++, Arduino*

- Built a car-style FM radio using RTL-SDR and Arduino Mega, enabling real-time frequency tuning and display
- Implemented real-time serial communication between Python and Arduino for seamless frequency tuning

Smart Glasses | *ESP32-S3, BLE, Java, C++, Inventor*

- Developed accessible wearable with BLE and cloud APIs for real-time multilingual translation and speech-to-text
- Collaborated in team of four, integrating hardware and software to expand accessibility for non-English speakers