Emily Ngo

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EDUCATION

University of Washington   Seattle, WA
Bachelor of Science in Computer Engineering   *Sept 2022 - June 2026*
Current/Previous Courses: Digital Design, Software Design and Implementation, Hardware/Software Interface, Data Structure & Algorithms, Systems Programming, Artificial Intelligence, Signal Conditioning, Data Management, Autonomous Robotics, Computer Security, CAD, Embedded Systems, SWE, GIS & Mapping, Wireless Communication

SKILLS

Languages: Python, C/C++, Java, Verilog, JavaScript/TypeScript, HTML/CSS
Tools/Frameworks: Git, Linux, React, Node.js, Flutter, Figma, QGIS
Embedded: Raspberry Pi, Arduino, ESP32, STM32, KiCad, ROS, FreeRTOS

EXPERIENCE

Clear Ascent Corp.   July 2025 - Present
Systems Engineering Intern   *Seattle, WA*
- Researching and developing autonomous drone systems powered by hydrogen cell engines
- Contributing to system architecture and feasibility studies for scalable UAV deployment

University of Washington - Sensor Systems Laboratory   January 2024 - Present
Undergraduate Researcher, Summer Intern   *Seattle, WA*
- Optimized acoustic pressure values using hill climbing and simulated annealing algorithms
- Collected and analyzed temperature and humidity data to assess system performance under varying conditions
- Designed and prototyped a humidity control system by creating a custom dehumidifier casing in Autodesk Inventor and integrating a Raspberry Pi for automated sensing and regulation

UWROV - Underwater Remotely Operated Vehicles   October 2024 - June 2025
Electrical Engineer, Mechanical Engineer   *Seattle, WA*
- Redesigned PiHat **PCB** using **KiCad** to improve system performance and integration with underwater vehicle components, reducing board. size by 40% for onboard deployment
- Soldered and desoldered electronic components for PCB assembly and prototyping
- Engineered mechanical designs for robotic manipulators using **Onshape**, enhancing operational precision

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*
- Designed an automated plant watering system using Raspberry Pi and Arduino Uno, integrating electrical components to water multiple plants
- Developed embedded **Python** firmware to control water pump operation and schedule watering
- Designed plant switching mechanism for switching one plant to another with an embedded system and 3D designs

PROJECTS

FM Radio Tuning System | *Python, C++, Arduino*
- Built a car-style FM radio using RTL-SDR and Arduino Mega with buttons, a potentiometer, and LCD for 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*
- Collaborated in a team of 4 to build smart glasses using the Seed XIAO ESP32-S3
- Integrated BLE and cloud APIs for real-time speech-to-text and multilingual translation, enabling accessibility for non-English speakers