

Max McKelvey

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EDUCATION

University of Washington

Seattle, WA

Electrical and Computer Engineering

Sept. 2021 – March 2024

- 3.90/ 4.0 - Dean's List
- Studying with a focus on Computer Architecture, Digital Logic Design, and Embedded Systems

EXPERIENCE

Groundlight AI | *Python, C++, Typescript*

June 2023 – November 2023

Software Engineering Intern

Seattle, WA

- Launched multi-platform no-code tools for a multipurpose customer facing computer vision pipeline
- Designed a custom mobile robot vision extension enabling warehouse and industrial inspections from image inputs
- Routed custom circuit boards and implemented embedded C++ connected to NextJS/Python web apps
- Coordinated with potential customers to pitch our API service
- Collaborated with clients to deploy applications I launched, both for internal testing and for deployment

Puget Buoy | *Swift, C++, KiCad*

March 2023 – September 2023

Software Engineering Intern

Seattle, WA

- Engineered the buoy deployment infrastructure to enable reliable communication and data redundancy
- Redesigned the buoy device for efficiency, allowing it to run more than 500x longer underwater without charging

University of Washington | *C++, KiCad, Typescript, Next.js*

September 2022 – July 2023

Research Assistant for Sep Makhsous

Seattle, WA

- Built infrastructure handling user and device traffic for the storage and retrieval of data
- Designed embedded sensor network for monitoring and alerts with 7+ environmental metrics
- Pitched the use of an embedded environmental sensor network to potential investors

University of Washington | *SystemVerilog*

September 2022 – June 2023

Undergraduate Teaching Assistant for Autumn EE 598 and Winter EE 271

Seattle, WA

- Taught Digital Design and System Verilog discussion and lab to 120+ Undergraduate and Graduate Students
- Provided detailed tutorials, later incorporated into lesson plans with widespread positive feedback

Advanced Robotics at UW | *Python with Poetry, OpenCV, Rust*

September 2022 – Present

Software Engineer

Seattle, WA

- Developed a motion planning system for autonomous navigation localization, pathfinding, and behavioral control
- Optimized a pathfinding algorithm to reduce the average runtime from 77.3ms to 1.05ms per iteration

PROJECTS

Custom RISC-V CPU | *SystemVerilog and Assembly with Artix-7 FPGA*

January 2023 – March 2023

Computer Architecture at UW

- Engineered a custom cpu based on the RISC-V instruction set
- Refactored the custom processor to be pipelined to increase throughput by 5x
- Wrote bare-metal assembly programs for use on the cpu

Sprint Metrics Tracker | *Altium Designer, C++, Javascript, React Native*

January 2021 – June 2021

First Robotics Competition – Innovation Challenge

- Developed a device to measure distance and velocity metrics for sprinters
- Designed circuit boards, prototyped MVP, wrote backend design, worked on frontend
- Used quaternions with local orientation to project acceleration onto a 'global' coordinate system

QUALIFICATIONS

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

Frameworks and Libraries: React, Node.js, Next.js, Astro, Prisma, NextAuth, tRPC, OpenCV, Docker

Design Tools: Quartus Prime Lite, Vivado ML, Altium Designer, KiCad, Autodesk Inventor, Solidworks

Hobbies: Husky Marching Band, Baking, Ultimate Frisbee, Cycling, Catan