

EDUCATION

Bachelor of Computer Science, Electrical & Computer Engineering, Duke University Graduating 2024
Completed classes in Data Structures/Algorithms, Computer Architecture, Networking, Digital Systems. GPA: 3.8

SKILLS

Verilog, C, Python, C++, Linux, Docker, Git, Bash, Arduino, Raspberry Pi, KiCad, AWS, Java, Rust

EXPERIENCE

Software Engineer Jan 2022 - Present
BotBuilt Robotics *Durham, NC*

- Worked with others on an agile team to develop software for robotic construction of houses.
- Headed company DevOps, including managing CI/CD, developer tools, and embedded software deployment.
- Designed embedded hardware for a ROS2 network, providing services for actuator and sensor control.
- Containerized ROS2 applications into Docker images for several platforms and hardware configurations.
- Spearheaded CI for testing and development including automatic Docker container testing on pull requests.
- Integrated AWS hosting for automated Docker image builds with custom logging and error reporting.

Software Subteam Lead Jun 2020 - Jun 2022
Duke University Robotics Club *Durham, NC*

- Competed in annual [RoboSub robot competition](#), where we designed a fully autonomous submarine robot to complete a variety of complex maneuvering and manipulation tasks in an unfamiliar underwater environment.
- Coordinated a 25+ member agile environment team using ROS, Docker, and Git to manage a shared codebase.
- Implemented PID, Sensor Fusion, Computer Vision, and SMACH to improve robot accuracy and capability.
- Earned 1st in Propulsion System, 3rd in Sensor optimization in 2021; 1st in technical report in 2021 and 2022.

Teaching Assistant Aug 2021 - Dec 2021
Duke First Year Engineering Design *Durham, NC*

- Guided small groups of students in project management throughout a semester-long design challenge.
- Provided technical expertise in actuators, programming embedded systems, sensors, and PCB design.

PROJECTS

Cell Robots Research, Duke General Robotics Lab Feb 2023 - Present

- Created omnidirectional grounded robot swarm for research in distributed control and communication.
- Researched and designed hardware for distributed control of robot swarms to accomplish complex tasks.

FPGA Typeracer-style Arcade Game, Duke Computer Engineering Sep 2022 - Dec 2022

- Used Verilog to create a MIPS-like pipelined processor with concurrency, bypassing, and custom instructions.
- Implemented a 32-bit modified Booth's multiplier and non-restoring divider for the processor in Verilog.
- Developed hardware to process serial input from keyboards, load from a database, and generate VGA graphics.
- Created a head-to-head typing arcade game including keyboard drivers and text rendering on an FPGA.

Room Availability Detection System, Duke Engineering First Year Design Sep 2020 - May 2021

- Used a Raspberry Pi and Python to analyze and error correct PIR sensor data and detect a person's presence.
- Communicated this sensor data over a custom web API to publish room status and use statistics to a website.