Drew Council

apc41@duke.edu 770-833-1759 drew-council AndrewCouncil

EDUCATION

Bachelor of Computer Science, Electrical & Computer Engineering, Duke University — Graduating 2024
Relevant coursework in Data Structures/Algorithms, Operating Systems, and Computer Networking. — GPA: 3.8

SKILLS

Linux, Docker, Git, Bash, Python, C, C++, GDB, Arduino, Raspberry Pi, AWS, Rust, Debian/Ubuntu, RHEL, Yocto Linux

EXPERIENCE

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

- Collaborated with engineers in an agile team to develop Linux software for robotic construction of houses.
- Headed company DevOps, including managing CI/CD, developer tools, and embedded software deployment.
- Maintained Linux tooling for developer machines, local servers, and AWS cloud infrastructure.
- Utilized Linux kernel configurations to incorporate hardware devices on embedded systems in a low-latency environment.
- Implemented secure networked developer access to shared computing and storage resources.
- Containerized robotics applications into Docker images for several platforms and hardware configurations.
- Spearheaded CI for testing and development, including automatic Docker container testing on pull requests.

Software Subteam Lead — Jun 2020 - Aug 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.
- Earned 1st in Propulsion System, 3rd in Sensor optimization in 2021; 1st in technical report in 2021 and 2022.
- Coordinated a 25+ member team using Docker and Git to manage a shared Ubuntu-based codebase.
- Implemented multiple user graphical passthrough access for development on deployed robot hardware.

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 Rasperry Pi Linux, embedded systems, sensors, and PCB design.

PROJECTS

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

- Designed omnidirectional grounded robots for research in distributed control and communication of robot swarms.
- Researched algorithms to network robot swarm nodes in a dynamic and unpredictable environment.

Custom Routing Information Protocol, Duke Computer Engineering — Sep 2022 - Dec 2022

- Developed Linux software in C to route packets through complex network topologies containing multiple nodes.
- Handled network topology changes with forwarding table updates to correctly route packets to destination addresses.
- Utilized sockets to send and receive packets over UDP and TCP.
- Used traceroute, ping, and wireshark to debug and test network functionality.

xv6 UNIX Additions, Duke Computer Science — Sep 2022 - Dec 2022

- Added various advanced OS features and performance improvements to the xv6 UNIX operating system.
- Implemented kernel threads with system calls and context switching to allow for concurrent processes.
- Modified memory allocation to lazily allocate memory only on use to improve performance.
- Implemented copy-on-write fork memory allocation to reduce fork resource consumption.
- Used GDB and valgrind to debug and test operating system functionality.

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.