Daniel Brooks

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Education

North Carolina State University Aug. 2019 – May 2023
Bachelor of Science in Computer Engineering *Raleigh, NC*

- **Relevant Coursework**: Embedded Systems, Digital Logic Design, Computer Architecture, Machine Learning
- **GPA**: 3.85/4.00
- **Activities**: IEEE Student Chapter, HackNC Organizer, Robotics Club

Experience

Embedded Systems Intern Jun. 2022 – Aug. 2022
Qualcomm *San Diego, CA*

- Developed firmware for IoT devices, optimizing performance and reducing power consumption by **20%**.
- Collaborated with a team to implement communication protocols, ensuring seamless integration across devices.
- Created unit tests and debugging tools, increasing system reliability by **30%**.
- Documented firmware features and APIs for cross-functional team usage.

Undergraduate Research Assistant Jan. 2022 – May 2022
NC State Embedded Systems Lab *Raleigh, NC*

- Worked on a project to develop low-power embedded systems for wearable health devices.
- Implemented energy-efficient algorithms for continuous health monitoring, extending device battery life by **15%**.
- Designed and tested prototypes using ARM Cortex-M microcontrollers.
- Published findings in the **2022 IEEE International Conference on Embedded Systems**.

Projects

SmartTherm: IoT Thermostat System *C++, Arduino, MQTT*
Mar. 2023 – Apr. 2023

- Designed an IoT-enabled thermostat system to optimize home energy usage.
- Implemented real-time communication using MQTT for seamless data transfer between devices.
- Integrated temperature and humidity sensors to dynamically adjust heating and cooling.
- Developed a mobile app interface for user control, achieving **95% positive feedback** during user testing.

Autonomous Delivery Drone *Python, ROS, OpenCV*
Jan. 2023 – Feb. 2023

- Built an autonomous drone capable of navigating urban environments and delivering packages.
- Implemented computer vision algorithms using OpenCV for obstacle detection and path planning.
- Integrated ROS for seamless sensor data processing and motor control.
- Achieved **90% delivery success rate** during field tests.

Digital Logic Simulator *C++, Qt Framework*
Oct. 2022 – Dec. 2022

- Developed a desktop application to simulate digital logic circuits, aiding in student learning.
- Designed a user-friendly interface using the Qt Framework, improving accessibility and usability.
- Implemented support for **50+ logic gates** and circuit configurations.
- Deployed the simulator in academic settings, receiving **positive feedback from professors and students**.

Technical Skills

Languages: C++, Python, Verilog, SQL

Frameworks: ROS, Qt Framework

Tools: Arduino, Git, MQTT, OpenCV

Technologies: Embedded Systems, IoT, Computer Vision, Digital Logic Design