Benjamin Reed

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Education

University of Virginia Aug. 2018 – May 2022
Bachelor of Science in Electrical Engineering *Charlottesville, VA*

- **Relevant Coursework**: Digital Signal Processing, Circuit Design, Control Systems, Embedded Systems
- **GPA**: 3.87/4.00
- **Activities**: IEEE Student Chapter, UVA Robotics Team, HackCville Member

Experience

Hardware Engineering Intern Jun. 2021 – Aug. 2021
Northrop Grumman *Falls Church, VA*

- Designed and tested PCB layouts for radar communication systems, reducing signal noise by **25%**.
- Developed Python scripts to automate hardware testing, increasing efficiency by **40%**.
- Collaborated with a team of 6 engineers to troubleshoot and improve circuit performance in high-frequency applications.
- Documented testing protocols and results, ensuring adherence to industry standards.

Undergraduate Research Assistant Sep. 2020 – May 2021
University of Virginia - Electrical Engineering Department *Charlottesville, VA*

- Worked on a project to develop a low-power IoT sensor network for environmental monitoring.
- Designed and implemented an energy-efficient communication protocol, extending device battery life by **15%**.
- Prototyped sensor nodes using Arduino and Raspberry Pi platforms, integrating wireless connectivity.
- Published findings in the **IEEE Sensors Journal** as a co-author.

Projects

SmartGrid Optimization Tool *Python, MATLAB, Simulink*
Jan. 2022 – Apr. 2022

- Developed a simulation tool to optimize power distribution in smart grid networks.
- Implemented algorithms to reduce energy losses during peak loads, achieving **a 10% efficiency gain**.
- Used MATLAB for power flow analysis and Simulink to simulate real-time grid performance.
- Presented findings to a panel of professors and industry professionals, receiving positive feedback.

Autonomous Delivery Robot *C++, ROS, OpenCV*
Aug. 2021 – Dec. 2021

- Built an autonomous robot capable of navigating indoor environments and delivering small packages.
- Integrated LiDAR sensors and cameras for obstacle detection and path planning.
- Implemented computer vision algorithms using OpenCV for object recognition and localization.
- Tested the robot in real-world scenarios, achieving **a 90% delivery success rate**.

Technical Skills

Languages: Python, C++, MATLAB, Verilog

Frameworks: ROS, Simulink, OpenCV

Tools: Git, LTspice, Altium Designer, Arduino, Raspberry Pi

Technologies: Embedded Systems, IoT, Circuit Design, Robotics