

Ryan Taylor *Embedded Systems Engineer*

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🎓 EDUCATION

Bachelor of Engineering: Electrical and Computer Engineering

Vanderbilt University

Minor: Computer Science

3.44/4.00

08/2020 – 05/2024
Nashville, Tennessee

📁 PROFESSIONAL EXPERIENCE

Electrical Engineer

Vanderbilt Aerospace Design Laboratory: NASA Student Launch 📄

- Engineered an autonomous Unmanned Aerial Vehicle (UAV) capable of launching from a rocket and proficiently navigating and safely landing in an atmosphere-agnostic setting.
- Spearheaded the hardware and circuitry design for the drone, overseeing the integration of control systems and computer vision algorithms with LiDAR, IMU, motor controllers, and radio telemetry to enable seamless autonomous deployment.

08/2023 – Present
Nashville, Tennessee

Controls Simulation Intern

Rolls-Royce North America 📄

- Performed behavioral analysis on a legacy Simulink engine model and correlated its output data to validate its fidelity with modern engine simulations used by Rolls-Royce.
- Comprehensively understand the architecture of the AE3007N engine and how its electro-mechanical systems were emulated within the Simulink model.
- Revised plotting scripts and interpolation algorithms needed to correlate engine simulation datasets and implement robust UI elements to facilitate analysis

05/2023 – 08/2023
Indianapolis, Indiana

Electronics Development Intern

Rolls-Royce North America 📄

- Administrated driver integration of an AVL dynamometer into the test stand control system in the Electric Power Lab to streamline testing operations and data acquisition.
- Modernized data aggregation systems by installing a private git server and establishing autonomous routines to log changes in configuration files on test stands for auditing purposes.
- Characterized electronic equipment to verify that they operated within specified threshold values and performed diagnostic testing to identify flaws in the structural design of devices in the event of failure

05/2022 – 08/2022
Indianapolis, Indiana

👥 LEADERSHIP ACTIVITIES

Drive Control and Electrical Team Lead

Vanderbilt Robotics Club: NASA Lunabotics Mining Competition

- Innovated autonomous navigation capabilities through the development of localization algorithms and cutting-edge computer vision solutions, harnessing the potential of depth cameras, LiDAR technology, and ROS2 framework.
- Streamlined and enhanced the circuit topology of power management systems, optimizing them for compact robot chassis to ensure efficient drive control and sensor integration.

01/2021 – Present
Nashville, Tennessee

Electrical and Programming Team Co-Lead

Vanderbilt Satellite Club

- Launched weather balloon to validate preliminary designs and operating conditions for PCB circuit designs, sensory devices, and communication systems.
- Designed communications interface to connect weather balloon with ground operations, developing radio telemetry to broadcast sensory data on APRS website.

08/2021 – 05/2023
Nashville, Tennessee

📁 PERSONAL PROJECTS

Electric Longboard 📄

- Conceptualized and constructed a Dual-Motor Hub Electric Longboard, and assembled the longboard from individual components, achieving seamless operation under the control of a Bluetooth interface.
- Elevated design by upgrading the electric speed controller and battery to optimize motor performance and increase customization capabilities

06/2020 – Present

Laser Tracking Robot 📄

- Programmed a FreeNovo robot to autonomously follow a user-guided laser, record its trajectory, and re-traverse the path it travels from its starting position.
- Designed software architecture using threads, task synchronization and communication, and motor control functions

08/2022 – 12/2022

Maze-Solving Robot 📄

- Encoded a Polulu 3Pi Robot to navigate a maze then calculate the optimal path and traverse the maze a second time without making redundant traversals.
- Designed a control loop that allows the robot to follow a black line using infrared sensors and course correct itself if it veers off the path and record its position as it traverses the maze.

01/2021 – 05/2021

🧠 SKILLS

C/C++

Julia

Python

Bash

React

LTSpice

ROS2

MATLAB/Simulink

Autodesk

Machine Learning