Ryan Taylor

Embedded Systems Engineer

Proficient in embedded systems with an emphasis in robotics. My areas of expertise are networks, controls, and autonomy.

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WORK EXPERIENCE

Controls Simulation Intern
Rolls-Royce North America Inc.

05/2023 – 08/2023 *Indianapolis, Indiana*

Achievements/Tasks

- 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.

Electronics Development Intern
Rolls-Royce North America Inc.

05/2022 – 08/2022 *Indianapolis, Indiana*

Achievements/Tasks

- 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 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.

LEADERSHIP ACTIVITIES

Drive Control and Electrical Team Co-Lead
Vanderbilt Robotics Club

01/2021 – Present *Nashville, Tennessee*

Achievements/Tasks

- Developed a navigational drive control algorithm by constructing localized and global mapping using Intel RealSense cameras, LiDAR, and ROS2 architecture.
- Revised and consolidated circuit topology of power management systems to drive robot on smaller chassis.

Electrical and Programming Team Co-Lead
Vanderbilt Satellite Club

08/2021 – Present *Nashville, Tennessee*

Achievements/Tasks

- Launched weather balloon to test preliminary designs and operating conditions for PCB circuit, sensory devices, and communication systems.
- Designed communications interface to connect weather balloon with ground operations and implementing relevant software on Raspberry Pi to successfully broadcast sensory data with radio frequencies to ground with APRS.

SKILLS

C/C++ | Julia | Python | Bash | Gatsby | Firebase | Circuitry | LTSpice | ROS2 | Autodesk Inventor | MATLAB/Simulink | JavaScript | Radio Technicians License | Hardware | Firmware

PERSONAL PROJECTS

Laser Tracking Robot (08/2022 - 12/2022)
- Programmed a FreeNove 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.

Maze Solving Robot (01/2021 - 05/2021)
- Encoded a Polulu 3Pi Robot to navigate and re-traverse a maze autonomously. 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.

Electric Longboard (06/2020 - Present)
- Designed and built a Dual-Motor Hub Electric Longboard
- Built schematic designs and the longboard from constituent components to successfully operate and drive from a Bluetooth controller.
- Revised design by upgrading electric speed controller and battery to optimize motor performance and increase customization capabilities.

EDUCATION

B.E. Electrical and Computer Engineering
Minor: Computer Science

Vanderbilt University

08/2020 - 05/2024 GPA: 3.44/4.00

Specialized Coursework

Embedded Systems | Microcontrollers | Electronics | Intermediate Software Design | Digital Systems | Autonomous Vehicles | Microelectronics | Circuits | Applied Statistical Machine Learning | Computer Networks

Awards

Cornelius Vanderbilt Scholar | Dean’s List | Ron Brown Captain