Oluwatoni Ogunmade

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Work Experience

Waymo · Embedded Software Engineering Intern *May 2018 - Present*
- Developed firmware for sensors on-board autonomous vehicles in C++.
- Designed and implemented a C++ code generator to save development time across multiple teams, reducing the effort needed to maintain code health.

Avidbots · Software Developer Coop, Localization and Mapping Team *January 2018 - April 2018*
- Developed a cloud-based platform using Python, ROS and Jenkins to validate robot localization, enabling the team to rapidly evaluate multiple SLAM algorithms in simulation and on recorded data.
- Significantly improved the robot localization by recommending and integrating a cost efficient inertial measurement sensor to the existing sensor stack, utilizing an Extended Kalman Filter to incorporate the sensor data.

Nest · Embedded Software Engineering Intern *May 2017 - August 2017*
- Worked with multiple teams including UI/UX, Project Management and Integration Engineering to create and deliver the Nest Guard in-store demo, currently running on stores across the US.
- Built a Python dashboard to visualize memory usage on over 400 devices which helped in detecting memory leaks.
- Wrote Object Oriented C++ code to report vital device information on memory, processor utilization and power consumption of the embedded Linux computer, to assist when debugging.

CrossWing · Robotics Specialist *September 2016 - Dec 2016*
- Created a real time obstacle avoidance algorithm for a holonomic robot in Python, based off the VFH algorithm to assist users in safely teleoperating the robot.
- Implemented multi-sensor synchronization utilizing inter-device serial communication interfaces that relied on LIN and UART protocols written in C and C++.

Extra-Curricular Activities

University of Waterloo Robotics Team · Software Lead *May 2018 - July 2018*
- Led a team of 9 engineering students to develop software for a scaled down self-driving car, finishing fourth place at the International Autonomous Robot Racing Competition.
- Developed a simulation of the vehicle and track which significantly reduced development time for new features.

Engineers Without Borders, Waterloo Student Chapter · Co-President *September 2016 - March 2018*
- Co-Led a university chapter of over 30 students, worked on increasing the capacity of the members of my team which led to new impact areas springing up including the development of a club run podcast series, STEM outreach events and successful fund-raising campaigns.
- Presented ideas for a new initiative on indigenous engagement to the CEO of the national organization, helping spur an organization-wide adoption of a new focus area.

Real-time Embedded Systems Lab · Research Assistant *February 2016 - March 2016*
- Developed a custom steering and velocity controller in C++ for a robotic car that outperformed the existing controller, modelled the vehicle and the controller using Simulink

Projects

Imọ · Indoor Exploration Robot *January 2016 - Present*
- Built a robot capable of mapping indoor environments and avoiding obstacles.
- Wrote C and C++ firmware running on 5 micro-controllers communicating over I2C and UART with each other and an array of sensors including a lidar, seven sonar sensors, an encoder and an IMU.

The Yellow Submarine · Autonomous Underwater Vehicle *February 2016 - March 2016*
- Worked on a team to design and build a robot capable of completing an underwater obstacle course.
- Led the development of C++ firmware to sample and filter data from an IMU, two sonar sensors and a custom short range distance sensor.
- Designed and built and a laser based short range distance sensor to compensate for the ultrasonic sensors dead-zone when measuring distances less than a meter.

Education

University of Waterloo · B.ASc in Mechatronics Engineering, Honours *September 2014 – June 2019*
Autonomous Mobile Robots, Introduction to Real-Time Systems, Microprocessor Systems and Interfacing