Oshadha Gunasekara

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EDUCATION

Carnegie Mellon University - Pittsburgh, PA
B.S. in Electrical and Computer Engineering, B.S. in Robotics; Cumulative GPA: 3.74 May 2020

- Relevant Coursework: Introduction to Embedded Systems, Fundamentals of Control, Fundamentals of Signal Processing, Robot Kinematics and Dynamics, Mobile Robot Programming Lab, Introduction to Computer Systems, Structure and Design of Digital Systems, Computer Vision, Robotic System Engineering, Robot Mobility in Air, Land, & Sea

SKILLS

Programming: Python, C/C++ (Arduino, ROS), MATLAB, JavaScript (TypeScript, React), HTML/CSS/Sass, C# (ASP.NET)
Software: SolidWorks, Gazebo, Linux, SVN, Git

WORK EXPERIENCE

Epic Systems - Verona, WI
Software Developer *July 2020 - Present*

- Liaised with project teams with customers, physicians, developers, and other Epic staff to design and develop new functionality for government regulations and other application enhancements.
- Developed functional enhancements to Epic's software using ASP.NET, React, and InterSystems Caché.
- Assisted end-users in person during floor-support shifts for new customers going live on the software.
- Analyzed weekly workflow test data as my workgroup's performance representative.
- Mentored a new hire through their training and transition into their day-to-day developer responsibilities.

Honeywell Aerospace - Deer Valley, AZ
Systems Engineering Intern *May 2019 - Aug 2019*

- Ran test scenarios on avionics testbenches for software Validation and Verification (V&V) for Honeywell's Next Generation Flight Management System (FMS), a critical avionics subsystem used for flight planning.
- Created 5 JIRA dashboards using JQL queries to display resource management and project status information for FMS project managers.
- Designed processes to assist systems testers in identifying relevant Reusable Test Cases (RTCs) and other testing methodologies for FMS software verification.
- Extracted data from TeamCenter and ClearQuest through queries to create an excel document to map RTCs to linked requirements in the FMS feature model.

GROwL Lab (University of Arizona) - Tucson, AZ
Research Associate *May 2018 - Aug 2018*

- Designed and wrote a MATLAB/ROS interface to allow communication between 3 TurtleBot robots and a Vicon Motion Capture system.
- Used the nonholonomic unicycle approximation to implement trajectory following for singular robots and formation control for multi-robot swarms.
- Wrote a Kalman Filter to estimate robot state (position and orientation) given noisy emulated GPS measurements.
- Implemented and tuned a Particle Filter to successfully determine robot state given only distance from a fixed beacon.

PipeDream (Carnegie Mellon University) - Pittsburgh, PA
Research Associate *May 2017 - Jul 2017*

- Worked with a research team of 10 to build a 30 inch diameter pipe-crawling robot to map radioactive deposits for future decontamination under the leadership of Red Whittaker.
- Developer and integrated several Gazebo plugins with ROS to build a robot simulation, which was used to test critical robot control and safety features, allowing for the development of control software prior to robot manufacturing.
- Created a GTK+ 3-based UI for the front-end for processing recorded data.

PROJECTS

The Atlas Project (Student Organization at Carnegie Mellon University) - Pittsburgh, PA
Chairman & Software Developer *Sep 2016 - May 2020*

- Led a group of 15 undergraduate students to develop an autonomous gravity-powered vehicle, known as a buggy.
- Supervised the creation of a Work Breakdown Structure and a Gantt Chart for planning the project lifecycle.
- Introduced weekly stand-up meetings, and standardized task creation and assignment.
- Campaigned successfully for recognition of autonomous buggies by Sweepstakes, the buggy governing organization.
- Coordinated and motivated college students to come to practice at 5 AM on the weekends.
- Wrote a Dead Reckoning estimator in ROS to estimate state by fusing IMU and encoder data.
- Used the Dead Reckoning estimator to create a map of the course with the GMapping ROS package.
- Developed a Pure Pursuit controller to allow the vehicle to steer itself on a predetermined path.
- Designed and implemented a feedback controller to get an accurate steering angle from the steering controller.