Brandon Simpson

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Education

Worcester Polytechnic Institute (WPI) **Worcester, MA**
Robotics Engineering M.S. 4.0 GPA Expected December 2023
Robotics Engineering B.S. 3.72 GPA Expected May 2023
Coursework: Swarm Intelligence, Robot Controls, Continuum Robotics, Industrial Robotics, Project Management, Robot Dynamics, Soft Robotics, Software Engineering, Embedded Systems

Skills

Applications: Linux, Mecway, SolidWorks, Creo, Git, Autodesk Inventor, Fusion 360, Microsoft Suite, VS Code, AWS
Programming Languages: MATLAB, C++, C, Python, Java, GCode, Bash, ROS
Engineering Skills: 3D printing, design for manufacturing, soft-robotics, full-stack development (hardware & software)

Related Experience

DEKA Research and Development **Manchester, NH**
Control Systems Engineering Intern May 2022-January 2023
During summer of 2022, I interned on the Advanced R&D team at DEKA. While there, I designed & tested several sub systems of Roxo–the last-mile delivery robot for FedEx. I tested the systems using environmentally controlled chambers; where I was able to manipulate temperature, humidity, and moisture. I designed parts using multiple forms of manufacturing, such as: 3D-Printed, sheet metal,and machined. When designing the parts, I held design reviews to obtain feedback from my coworkers. Some of my part designs had multiple iterations based on the quantity and cost of the part. During my time at DEKA, I evaluated and tested new sensor packages for the robot, as well as tested recent versions of previous sensors. While doing this, I created bash scripts to automate some of the testing procedures.

Raven Laboratories **Manchester, NH**
Robotics Engineering Intern June 2020-Aprill 2022
Throughout my time at Raven, I completed many projects that incorporated my mechanical, electrical, and software experience. I retrofitted an engraving machine into a CNC mill to develop and machine wooden and aluminum parts. I built, maintained, and oversaw our fleet of 3D printers that we used to prototype and manufacture parts for clients. I also organized quotes from companies and followed through with their creation and manufacturing. Another project that I completed while at Raven was a metal sign to showcase the entrance of Cat Alley in Manchester, NH.

Projects

Robotic Pick and Place System January-March 2022
In this project, we used a 3 DOF robotic manipulator and a USB webcam to implement an automated pick and place system. Through image processing, the system was able to detect and locate objects of a specific color. Using forward and inverse position and velocity kinematics, we developed a program to command a robotic arm to pick and place colored spheres until there were none remaining in the workspace. This system was also capable of sorting a specific non-spherical random object and able to dynamically track an object.

Microtechnology: The Project-Based Approach March-October 2021
The goal of this project was to develop a project-based learning module that will assist the Eastern Switzerland University of Applied Sciences (OST) to enhance its students' learning experience and improve their understanding of the material. We interviewed students and professors at both WPI and OST to gather data that helped develop the PBL module. In the PBL module, OST students will be given a rubric to guide research, manufacturing, and creation of their own atomic force microscopy probes.

Awards

Dean's List August 2019-Present
Rho Beta Epsilon *(Robotics Engineering Honors Society)* January 2022-Present
Student Employee of the Year Nominee 2022