Samara Holmes

Wellesley MA | (603) 793-4060 | samaraholmes3141@gmail.com
www.linkedin.com/in/samaraholmes | samaraholmes.bitbucket.io

EDUCATION

Worcester Polytechnic Institute, *Worcester MA*   Aug 2020 – May 2024

BS in Robotics Engineering and Computer Science, WPI Presidential Scholarship

Coursework: Machine Organization and Assembly, Object-Oriented Design, Systems Programming, Algorithms, Operating Systems, Embedded Computing, Webware, Software Engineering, HCI, Robotic Processes, Robotics Manipulation/Controls, Controls Engineering

TECHNICAL SKILLS

Languages: Java, C/C++, Python, React, Linux command line, C#/.NET, HTML/CSS

Software: SolidWorks, VM VirtualBox, Figma, Visual Studio Code, MATLAB, LabVIEW, ArcGIS, AWS

Project Management: Scrum/Agile, Kanban, Jira, GitLab

Miscellaneous: Arduino, robotic processes, CAN communication, SLA printing, soldering, drafting, aerial cinematography, video editing, FAA Part107b Certification

EXPERIENCE

Engineering Intern/Lead Web Developer, *MagLev Aero, https://maglevaero.com*   May 2023 – May 2024

- Developed software and hardware solutions for an electromagnetic test rig, integrating state estimation sensors with CAN communication protocols
- Conducted multi-board debugging in C for running several TI microcontrollers synchronously to control a high power system
- Showcased proficiency in both design and execution, adeptly building and wiring a custom component cabinet with rigorous signal testing
- Solely designed, developed, and launched the corporate website utilizing React and AWS, showcasing a keen eye for user-centric design and seamless functionality

Software Engineering Intern, *AeroVironment*   May 2022 – Aug 2022

- Played a pivotal role in enhancing software capabilities for a VTOL aircraft, working in C++ to refine software modules and integrate updates into the vehicle's system
- Conducted flight testing and data analysis, ensuring the reliability and performance of critical systems under real world conditions

PROJECTS

BAE Systems Crop Detection, *Worcester Polytechnic Institute*   Aug 2023 – Present

- Programmed an optimization algorithm using Gurobi optimization and Python to conduct path planning algorithms for robots with fuel constraints and failure probabilities
- Created a library to run the optimization algorithm, cache the results, and send the results to an ARGos simulation, a multi-physics robot simulator
- Conducted real-world tests using Khepera IV robots to determine feasibility and run time

Brigham & Women's Hospital Application, *Worcester Polytechnic Institute*   Mar 2023 – May 2023

- Led the charge in front development for a comprehensive hospital application, architecting intuitive user interfaces and implementing intricate map-based functionalities to optimize user experience
- Implemented the A* algorithm for efficient pathfinding within the hospital map, enhancing user navigation and optimizing route planning capabilities
- Implemented a backend database for efficient data storage and editing functionalities within the map interface

3-DOF Pick and Place Manipulator, *Worcester Polytechnic Institute*   Aug 2022 – Oct 2022

- Engineered advanced MATLAB algorithms for a 3-DOF manipulator, enabling autonomous sorting of diverse objects through forward and inverse kinematic calculations and precise vision-based object detection

Robotic Navigation and Mapping, *Worcester Polytechnic Institute*   Mar 2022 – May 2022

- Collaboratively designed and implemented a robust robotic navigation system, leveraging a diverse array of sensors and algorithms to enable autonomous mapping and obstacle avoidance in complex environments