Kohmei Kadoya

ROBOTICS ENGINEER · USER EXPERIENCE DESIGNER

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Education

Worcester Polytechnic Institute (WPI) *Worcester, MA*

M.S. IN ROBOTICS ENGINEERING | B.S. IN ROBOTICS ENGINEERING | MINOR IN COMPUTER SCIENCE *Sept 2019 - May 2023*

- **Cumulative GPA:** 3.86/4.0
- **Dean's List** Fall 2019 - Spring 2022
- **Relevant Courses:** Legged Robotics, Industrial Robotics, Robot Dynamics, Robot Control, Motion Planning, Systems Engineering, User Experience Design, Operating Systems, Object-Oriented Analysis and Design, Networks, Software Engineering, Artificial Intelligence

Work Experience

Embedded Computing Lab at Worcester Polytechnic Institute *Worcester, MA*

RESEARCH ASSISTANT *Jun 2021 - Oct 2021*

- Implemented a SLAM algorithm using a Turtlebot and Veylodyne Lidar for autonomous navigation of crowded indoor environments such as airports
- Collected, labeled, and trained deep learning models on LiDAR data to detect, track, and predict the movement of people in the environment
- Used a combination of A* and Dynamic Window Approach to plan an optimal path that balances speed and safety based on the environment and predicted movement of people

ASES Stanford - Globally Focused Student Entrepreneurship Society *Palo Alto, CA*

FRONTEND WEB DEVELOPER *May 2020 - Sept 2020*

- Designed a LinkedIn-like job board and application website for the Global Entrepreneurship program at Stanford
- Conducted user interviews to find pain-points about the current application system to mock-up a UX for desktop and mobile browsers in AdobeXD
- Created, deployed, and maintained a responsive React frontend and a read-optimized backend using Firebase Storage

Projects

"Bot on a Wire" - Autonomous Power-line Bird Deterrent Robot *Worcester, MA*

WPI MAJOR QUALIFYING PROJECT (MQP) - SPONSORED BY EVERSOURCE ENERGY *Aug 2021 - Apr 2022*

- Led a team of 8 to create a robot to traverse Eversource's power distribution lines and deter birds that congregate on the line and cause ecological damage to the lake below
- Saved Eversource an estimated $2 Million compared to burying the cable under the pond
- Designed, manufactured, and iterated on a 3d printed drive train that can operate autonomously on a power line for multiple days while powering and carrying sensors, microcontrollers, and deterrent modules
- Designed and developed a React web application for simple fleet management, robot control, and sensor and camera telemetry

Brigham and Women's Hospital Application - Pathfinding and Service Request Tool *Boston, MA*

LEAD SOFTWARE ENGINEER *Jan 2022 - May 2022*

- Led a 11-person team to create a JavaFX application for the Brigham and Women's Hospital that supported employees and administrators with their daily tasks as well as patients with navigation
- Ensured that the communication throughout the team was clear with Agile Scrum Methods for project management with daily scrum meetings and retrospectives for 4 sprints as well as advanced version control using GitHub
- Won "best overall feature" for our service request system, which allowed patients to create tickets to request hospital services as well as managing COVID-safe entry procedures
- Followed Material Design guidelines by utilizing Figma and JPheonix to mock-up and create the user experience on mobile, desktop, and kiosk

Planar Mechanism Kinematic Simulator (PMKS+) - Linkage Education Web Application *Worcester, MA*

WPI ROBOTICS MASTERS THESIS *July 2022 - Present*

- Performed multiple large scale user studies in classes to re-design the user experience of a web based linkage simulation tool used by over 100 students in various WPI classes
- Mocked-up and implemented various user interfaces to allow users to more intuitively create, edit, and analyze planar linkages in Angular
- Implemented algorithms to synthesize a linkage based on the end-effector path drawn by the user and generate a step-by-step list of equations on how the problem was solved

Skills

Software	Git/GitHub, SolidWorks, Fusion 360, 3D Printing Slicers, Robot Operating System (ROS), Gazebo, RobotStudio
Programming	HTML, CSS, Javascript, React, Angular, NodeJS, MATLAB (Simulink/Simscape), C, C++, Java, Python, JavaFX, Firebase, SQL
Design	LucidPress, AdobeXD, Figma, Final Cut Pro X
Languages	English, Japanese