Kohmei Kadoya

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Online Portfolio: https://kohmeik.com
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SUMMARY

Software Engineer with a focus on user experience and the seamless design and integration of robotic systems into applications.

EDUCATION

Worcester Polytechnic Institute (WPI), Worcester, MA
Bachelor of Science in Robotics Engineering, May 2023
Masters in Robotics Engineering, May 2023
Williston Northampton School (WNS), Easthampton, MA
High School Diploma, GPA 4.0 May 2019
Related Coursework:
AP Computer Science, AI and ML, AP Physics 2/C, Robotics and Engineering Track, Mobile App Development, Introduction to Circuits, Programing Abstractions, Web Programming with Python & JS

SKILLS

Software: Git/GitHub, SolidWorks, Fusion 360, 3D Printing Slicers, Max, Firebase, AdobeXD, ROS, Gazebo
Programming Languages: C, C++, Java, Python, HTML, Javascript, CSS, MATLAB (Simulink/Simscape), React
Operating Systems: Windows, Mac OS, unRaid, Ubuntu
Foreign Language: Fluent in Japanese

CERTIFICATIONS / WORK EXPERIENCE

Brigham and Women's Hospital Application , (WPI), Jan 2021 - March 2021

- Lead 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
- 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 for guests
- Integrated various APIs including Google Maps and Twillio to add additional features
- Designed a SQL database that was expandable, efficient, and secure to handle user data
- Followed Google's Material Design guidelines by utilizing Figma and JPheonix to mockup, create, and improve the user experience on the mobile, kiosk, and desktop views for the application

Global Internship Website, (ASES Stanford), May 2020- Sept 2020

- Lead the creation of a handshake-like internship application website that handles hundreds of applications using React, Firebase, and Scss
- Conducted user interviews to find pain-points about the current application system and used Adobe XD to optimize user experience for both desktop and mobile browsers

- Designed a read-optimized backend to store internships, applications, and user data using Google Firebase Storage

Imagine Plus, Sapporo, Japan, Dec 2019- Jan 2020
- Worked for 30 hours over 2 weeks during winter break respond to tech support queries for English speaking clients for various companies in the greater Sapporo area

PADI Open Water Driver, (Japan), June 2013
JSA Ski Certification Level 1, (Japan), March 2012

PROJECTS

Lyft L5Kit Autonomous Vehicle Motion Prediction Challenge, (WPI), Aug 2020- Dec 2020
- Explored various deep learning method to predict the future position of vehicles in a scene
- Developed models that combine the strengths of CNN, RNN, LGBM and other base models
- Created methods to sample the dataset and ensemble multiple learners to train more efficiently
- Entered our models into the Kaggle Competition where we ranked among the top 20% of teams

Simultaneous Localization and Mapping with Turtlebot Simulator, (WPI), Oct 2020- Dec 2020
- Programmed a Gazebo simulated Turtlebot 3 using ROS in Python to navigate a maze
- Implemented A* pathfinding and frontier exploration to map robot's environment autonomously
- Created multiple simultaneous PID controllers for robot to follow smooth arcs along path
- Developed on the full SLAM stack - from wheel speed controllers to clustering and path planning

Automated Ball Sorting with 3 DOF Robotic Arm , (WPI), Aug 2020- Oct 2020
- Used MATLAB to communicate between a webcam, Ubuntu, and a microcontroller on the arm
- Performed automated camera calibration, image processing, and state machine based error detection to create a robust and fully automated arm that sorts balls based on color
- Implemented forward and inverse kinematics for both joint and task space level control
- Generated trajectories between task space coordinates for smooth motion between setpoints
- Recognized by the professor for having a consistent and reliable software architecture that works under various situation by correcting for kinematic, lighting and obstacle errors

Intuitive Control Method for a 3D printed 6 Axis Robotic Arm, (WNS), Sept 2017- May 2019
- Organized a 4 person team to create a control method for a 6 DOF robotic arms that used VR motion tracking gloves to mimic the user's hand/arm motions
- Sourced electronics and used additive manufacturing to create a robotic arm with finger
- Designed kinematic models to have the robot replicate the motion of users hand in real time
- Recognized by researchers at The University of Floria and was asked to consult for a similar ongoing project at their campus

Vex Robotics Team, (WNS), Sept 2015- June 2019
- Led and developed a 5 person robotics team into a 15 person team at my high school
- Organized the design, programing, and strategy for a robot that placed 6th in New Englands
- Campaigned for and managed a $4500/year budget and worked with the school for lab access