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I am a final year student with major in Robotics Engineering and minor in Computer Science. Actively looking for a full-time position in the robotics industry, particularly interested in automation, manipulation, and control.

EDUCATION

Worcester Polytechnic Institute, Massachusetts, USA May 2023

- B.S in Robotics Engineering, minor Computer Science, GPA 3.92/4.0
- Honors: Dean's List Fall 2019, Spring 2020, Fall 2020, Spring 2021
- Organization: Tau Beta Pi Engineering Honor Society, International Student Council Cabinet

Chatham Hall, Virginia, USA May 2019

- GPA 4.0/4.0
- Honors: Cum Laude Society, National Honor Society, Rector's List 2017, 2018, 2019
- Leadership: FIRST Robotics Team Captain, Main Coder

PROJECTS

Bimodal Quadruped Robot, WPI Major Qualifying Project Aug 2022 – Present

- Improve robot walking performance in quadruped mode by developing gait control, trunk control, and compliance control.
- Increase maneuverability and mobility with four hip joints, upgrading robot from 8-DOF to 12-DOF.
- Fabricate and assemble components for a new 12-DOF quadruped robot.
- Assist in implementing robot vision to allow mapping and obstacle detection.
- Organize grant proposal and advertising materials for funding.

AWS-hosted Crowdsourcing Platform in React.js, WPI Oct 2022– Jan 2023

- Led a team of 4 to design and develop a crowdsourcing website similar to Kickstarter.
- Distributed back-end development tasks and monitored weekly progress, consistently meet 90-100% weekly iteration goals.
- Reviewed and guided back-end API and Lambda development, bridged communication between back end and front end.
- Created front-end interface using React framework and designed user interface (UI) using CSS.

Vision-based Manipulation: Active Vision, WPI Aug – Oct 2022

- Achieved stable grasp synthesis on object with a parallel gripper using Active Vision and 3-D Point Cloud Stitching.
- Designed and implemented data preprocessing pipeline for object surface segmentation: Voxel Downsampling, Distance Thresholding, and RANSAC Algorithm.
- Integrated Image-based Visual Servo (IBVS) control system using color feature extraction.

Transitioning El Buen Samaritano to a Digital Data Collection Platform, WPI Jan – May 2022

- Streamlined and built an excel template that intake weekly client data, and output a formatted monthly report. The excel template handles more than 500 client data per month, saving the staff at EBS 20 hours per month on manually organizing the data.
- Digitized the food pantry's weekly survey form and collaborated with native speakers to translate survey into five languages.
- Invited to present at New England Council of Latin American Studies Annual Conference, and interviewed by WPI for Global Project News article.

Robot Navigating Unknown Map with SLAM in ROS, WPI Oct 2021 – Jan 2022

- Achieved autonomous map exploration and navigation using frontier-based exploration and SLAM GMapping algorithm in ROS.
- Implemented A* path planning algorithm and configuration space calculation for obstacle avoidance using Python.
- Optimized mapping and navigation performance by streamlining ROS node communication and implementing algorithm that minimize frequency of turning.

Ball sorting system using 3-DOF robot manipulator, WPI Aug – Oct 2021

- Taught robot to identify different colors and sort colored balls by designing and implementing image processing pipeline in MATLAB.
- Programmed and designed the system architecture and finite state machine of 3-DOF robotic manipulator ball sorting system.
- Calculated forward and inverse kinematics for task-space and joint-space trajectory planning.

Solar panel installation robot, WPI Aug – Oct 2020

- Designed and constructed robot with 3D-printed components to perform tasks on sloped rooftops such as removal and installation of solar panels.
- Achieved autonomous robot navigation within test field by implementing feedback control in C++ and performed stress analysis on gears design.
- Assisted in designing a four-bar and gripper mechanism in SOLIDWORKS.

WORK EXPERIENCE

Website Developer, Hub for the Future in Action #G12 Boxbrary, Hong Kong May 2022 – Present

- Developed an interactive website for a short-term lunchbox lending service at the University of Hong Kong.
- Created a return platform using QR code API for partnering restaurants and designed a web interface for clients to submit order request.
- Built a backend order tracking system for partnering restaurants in Google Sheets.

R&D Intern, SquareDog Robotics (formerly Welbot Technology), Hong Kong Jun – Aug 2021

- Designed and developed an automated solution for document transportation in office using Mobile Industrial Robot (MiR) and Universal Robotics cobots (UR10e).
- Assisted in sales and handled business inquiry by designing and presenting automated solution for clients using SOLIDWORKS.
- Created user manual on operating industrial welding robots for company's software.

Summer Intern, Freedom Communications Ltd., Hong Kong Jul – Aug 2018

- Assisted in website development for digitization of a magazine archive with HTML and CSS.
- Designed a STEM course for local students.
- Assisted in marketing 3D printing and Virtual Reality products in 2018 Hong Kong Book Fair.

SKILLS

Technical Skills ROS, C/C++, Python, Java, Amazon Web Service (AWS), JavaScript (ReactJS, NodeJS), HTML, CSS, Linux, CAD, MATLAB
Languages Fluent Cantonese, Mandarin, English; Intermediate German
Art Technology Adobe Photoshop, Adobe InDesign, Microsoft Word, Microsoft Excel