

Renata Kaplan She/Her/Hers

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Education

Worcester Polytechnic Institute

August 2021 - May 2025

BS in Robotics Engineering

Worcester, MA

- Relevant Coursework: Vision-Based Robotics Manipulation, Soft Robotics, Unified Robotics I-IV, Design of Machine Elements, Embedded Computing in Engineering Design, Software Engineering
- Senior Capstone Project: Ocean Trash Cleanup Robot - Working in a team of 7 creating a robot to autonomously detect and collect floating trash near ocean coastlines

Experience

Amazon (Project Kuiper)

May 2023 - August 2023, May 2024 - August 2024

Manufacturing Engineering Intern

Redmond, WA

- Planned and executed 4 tests changing the solar panel lamination process temperatures and timings to improve process speed without negative impacts on product quality. This involved creating test plans, instructing and coordinating up to 4 technicians at a time, and inspecting test panels for proper adhesion and lack of air bubbles or cracks
- Used NX to design 4 fixtures used in manufacturing to workhold 6 different on-satellite components during production
- Utilized design for manufacturing/assembly principles to reduce costs of ordered custom manufactured parts by altering designs to require fewer machining operations and replacing custom parts with lower cost COTS parts when able

Coburn Technologies

June 2022 - August 2022

Electrical Engineering Intern

South Windsor, CT

- Documented the layout and wiring of, and assisted in assembling of, a pre-production Integrity Alloy Recovery Machine
- Created BOMs and large part orders and compared COTS parts to find cost effective replacements for no longer produced parts
- Assisted with on-site modifications to the Integrity Alloy Recovery Machine during RF compliance testing

Projects

Unified Robotics III - Vision Enabled 4DOF Arm

August 2023 - October 2023

- Programmed in MATLAB to control an autonomous 4DOF arm with a stationary camera alongside a group partner
- Tuned and integrated color detection algorithms to continuously detect, grab, and sort colored spheres
- Utilized forward, inverse, and velocity kinematics to plan and model smooth motions, including the use of Jacobian matrices to avoid singularities

Unified Robotics IV - Space Mapping and Navigating ROS Robot

October 2023 - December 2023

- Worked in a 3 person group to use a LiDAR enabled robot to quickly and optimally navigate and map a new environment
- Coded in Python to create a state based system using A* algorithms, AMCL, and GMapping to perform SLAM, localization, and reliable path planning
- Tested and tuned program both in simulation and in a real space

Software Engineering - Full-stack Web Development

October 2024 - December 2024

- Worked in a 4 person group to plan and design a table reservation site for consumers and restaurant owners
- Worked with React, Typescript, HTML, and CSS to design a frontend for the site including multiple pages, a reactive user interface, and owner/administrator logins
- Worked with AWS and SQL to make a cloud database and an API to communicate with it

Combat Robotics

April 2021 - September 2023

- Fully designed, manufactured, and competed in 5 events with two 3 lb and four 1 lb combat robots, winning 4 of 8 matches at National Havoc Robotics League
- Used Fusion 360 and Solidworks to model and prototype new bots, including both custom and off the shelf parts
- Manufactured new plastic, metal, and carbon fiber parts through milling, turning, and 3-d printing

Interactive Qualifying Project (IQP) - Ecotourism Development Plan

January 2024 - March 2024

- Worked in an interdisciplinary group of 5 students to create a regional ecotourism development plan for the Caño Martín Peña communities in Puerto Rico that would direct tourists to local businesses and educate visitors on the communities' history
- Determined local assets, interviewed regional business owners, and reviewed existing literature to effectively make recommendations to a local non-profit corporation

Technical Skills

Design/Fabrication: Solidworks, NX, Fusion 360 (CAD & CAM), FDM Printing, CNC Milling, CNC Turning, DFMA, FEA
Programming: Java, MATLAB, Python, ROS/ROS2, C/C++, JavaScript/TypeScript, HTML/CSS, SQL, React, Git, AWS
Robotics: Serial Arm Control, Pathfinding, Motion Planning, Sensor Integration, Grasping Kinematics, Visual Servoing