Jeronimo Ruiz Fernandez

+1 (346) 855 6367 jeronimoruizfernandez@gmail.com linkedin.com/in/jeronimo-ruiz-fernandez-5b9817200/z

Website: https://jeroruizfe.github.io

EDUCATION

Worcester Polytechnic Institute Exp. Graduation May 2027

B.S. in Robotics Engineering:

- Core Disciplines in Electrical, Computer, and Mechanical Engineering

B.S. in Computer Science

SKILLS

Technologies: Python, Java, C++, C, Arduino IDE, MATLAB, ROS2 (beginner), Solidworks, FEA Analysis, Autodesk Fusion 360, RViz, Moveit, Depth cameras

Job Experience

Efficient Learning and Planning for Intelligent Systems Lab

Undergraduate Assistant Researcher September 2024 - Present

Placement Location Pipeline(Summer 2025)

- Tasked with developing the **initial placement pipeline**, which will serve as a foundation to be **incorporated into future lab projects**.
- Implemented a **real-time system in Python** using **Intel RealSense depth sensing, OpenCV, and RANSAC-based plane fitting** to model the table surface, segment objects via background subtraction and depth masks, and compute stable placement locations with **non-maximal suppression and clearance checks**.
- Delivered a **working placement pipeline** validated in **real-world camera tests**, providing a scalable framework that enables future robotic experiments to **identify safe, collision-free placement regions**.

UR10 Robotic Arm – Camera Mount & Calibration

- Supported the lab's need for reliable perception by taking ownership of **camera integration and calibration** for the **UR10 robotic manipulator**.
- Designed and fabricated a **dual-angle mount in SolidWorks** for **Intel RealSense depth cameras**; performed **hand–eye calibration** using fiducial tags to align robot and camera frames.
- Delivered a **calibrated UR10 + RealSense setup** that improved **object localization accuracy** and enabled ongoing **pick-and-place experiments**.

Projects

Autonomous Trash Collection Robot

- Built and programmed Romi robots to simulate real-world waste management by retrieving **3D-printed trash bins** from a grid, using both **line-following at intersections** and **AprilTag detection** for collection.
- Integrated encoder feedback, reflectance arrays, and IMU sensing in C to enable reliable navigation, object handling, and delivery of bins to designated drop-off points.

Fruit Picking Autonomous Mobile Robot

- Collaborated with a **team of four students** to develop an **autonomous mobile robot**. The robot navigated an obstructed environment to **pick up and sort fruit-like objects** from tree-like structures.
- Programmed the robot's **control features using Python** and collaborated on its design and assembly. I focused on the code that allowed the robot to do linear navigation, align with a tree, approach the tree, recognize what fruit it was collecting, and return to the specific basket where the fruit was placed.