Jialu Yu

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EDUCATION

Northwestern University| GPA 3.75/4.0
Master in Robotics   Sept. 2023 – Dec. 2024

University of Michigan-Ann Arbor| Cum Laude
B.S.E. in Mechanical Engineering, Minor in Computer Science   Sept. 2020 – Apr. 2023
Awards: Top 2 Abbott OPDP Intern | University Honors | Dean's List | Provost Honors (Top 30%)

SKILLS

Technical Skills: C++, Python, MATLAB, ROS2/ROS, SolidWorks, Machine learning, Machining, LabView, Arduino, HTML, Java Script
Languages: English(fluent), Chinese(native), Japanese(high)

PROJECT EXPERIENCE

Embedded Systems in Robotics   Sept. 2023 – Dec. 2023

- Engineered a ROS2 navigation package and algorithm for simulated robot mapping, autonomous exploration, and environment interaction with `slam_toolbox` and `nav_stack`.
- Spearheaded orientation-constrained path planning in the development of a ROS2 Motion Planning Interface for a 7-DOF Franka robot within a collaborative group setting.
- Engineered four hardware components for a Franka robot, guaranteeing a secure gun grip and precise shooting capabilities. Led the design of the gun grip function, conducted testing, and crafted the launchfile for pin shooting tasks.

Physical Medicine & Rehabilitation   Jul. 2022 – Mar. 2023

- Designed and integrated the game handle with rotational encoder using C++ and Arduino to a semi-passive robot aimed at rehabilitating upper extremities. The contribution made towards investigating take-home self-guided rehabilitation robots.
- Designed and machined a medical recliner enabling the lab's Semi-Passive Rehabilitation Robot to collect muscle data, resulting the lab to initiate new research 1 month early.
- Developed a CAD model using Solidworks for a Hand Motion Coupling System, facilitating the creation of an affordable, compact rehabilitation device suitable for use at home.

INDUSTRIAL EXPERIENCE

Foresight (Autonomous Vehicles) - TechLab at MCity, Research Fellow   Jan. 2021 – Jan. 2022

- Developed a traffic light classification system for semi-autonomous vehicle obstacle detection in harsh lighting and weather conditions with a 89% minimum efficiency.
- Gathered a dataset of 10K+ images of traffic lights using RGB and IR sensors and built a custom model to detect and label the streetlights automatically.
- Wrote a Python script (json) to automatically fix formatting problems for an 8000+ image dataset to speed up model training by 1 week.
- Implemented a rigorous process for cleaning training data and coding scripts to speed up training time.

Abbott Laboratories, Project Lead on OPDP Operations Intern   Jun. 2021 – Aug. 2021
A leadership feeder program for top students consisting of rotations in operations and supply chain.

- Brought the largest Abbott factory's calibration processes into compliance with new QSB-R00 requirements through assessing 1,800+ critical instruments, bucketing failures into priorities, and negotiating with department heads on equipment and process changes. Compliance ensures the ability to sell products.
- Implemented $20,000 yearly cost savings by creating a new instruments calibration system to automate generation of work lists and statistics data. Acted as project lead, creating proposal and function requirements for two engineers.
- Conducted heat study on in-transit products to ensure temperature-sensitive enzymes in COVID test kits do not denature enroute. Collaborated with customer service & shipping department to mitigate their concerns over customs delays. No delays occurred.
- Finished calibration, heat study, intelligent calibration system project half a month early, resulting in 2$^{\text{nd}}$ highest project score among five graduate students and two undergrad interns.