

# MARIA PATNI

## EDUCATION AND AWARDS

### University of Michigan, Ann Arbor – B.S.E. Computer Science GPA: 3.6/4.0

SEPT 2022 - MAY 2025

**Coursework:** ML, Robotic Manipulation, Algorithmic Robotics, SLAM & Nav, Operating Systems, Networking,

AI, Comp. Security, Hardware & Org, Foundations of CS, Data Struct. & Algorithms, Java,

**Skills:** Python, C/C++, Java, ROS, Golang, CAD (NX/Inventor/Solidworks), Fabrication, ML,

**Research:** Robot Manipulation and Machine Intelligence Lab (MMINT) - <https://www.mmintl.com/>

**FIRST Robotics Competition** – 1st Place Chairman's Award @ 2020 Midwest Regional, Dean's List Semi-Finalist

**Chicago Python Users Group** – 1st Place Project (GPS via Tracked Known Objects) @ ChiPy Mentorship Program

**NCWIT** – Aspirations in Computing Award Northern Illinois Regional Winner & National Honorable Mention

## EXPERIENCE

### Manipulation and Machine Intelligence Lab, Ann Arbor, MI – Undergraduate Researcher

JAN 2025 - PRESENT

- **Curious TaRFs:**

- Tactile Augmented Radiance Fields for objects via efficient probing
- Building a Contrastive Learning Model to determine surface characteristics of arbitrary objects

### Viam, New York, NY – Software Engineering Intern

MAY 2024 - AUGUST 2024

- **Custom Pin Control Library:**

- Created custom pin control library to support PWM, GPIO, and pull up/down resistors on the RaspberryPi5
- Developed infrastructure / processes to enable future pin control support on other processors

### EverestLabs, Fremont, CA – Robotics Software Engineering Intern

MAY 2023 - AUGUST 2023

- **Pick Point Optimization:**

- Prototyped 6 algorithms that determine the optimal contact surface for FANUC robots sorting trash
- Built infrastructure for recording object height data & depth map generation
- Preliminary testing shows 2% improvement in pick efficacy

### Zipline, San Francisco, CA – Mechanical Engineering Intern

MAY 2022 - AUGUST 2022

- **P2 Drone Serviceability Solution / Site Integration:**

- Listed Inventor on 2 Patents filed in 2023 by Zipline
- Designed & built prototypes for a menu of potential drone serviceability concepts & ground support equipment
- Determined best serviceability solution, taking into account CAPEX/OPEX, ergonomics, BOM complexity, time to service, reliability, & safety of solution

### Georgia Tech Biorobotics and Human Modeling Lab – Undergraduate Researcher

SEPT 2021 - MAY 2022

- **Vascular Access Cannulation Device:**

- Collaborated with students from the Emory School of Medicine in designing a device that improves vein visibility during cannulation (IV Fluid Line Insertion) of hypovolemic patients

- **AutoSpine Robot (performs invasive spinal procedures):**

- Designed a mounting system that conforms to the human body to hold the Autospine secure during use
- Iterated upon current design to allow 6 degrees of freedom of movement instead of 4; new design supports Radiofrequency Ablation, a procedure that provides long-term relief to patients with chronic pain

### Zipline, San Francisco, CA – Mechanical Engineering Intern

JUNE 2021 - AUGUST 2021

- **Delivery Accuracy:**

- Created standardized testing procedures to execute consistent mass testing & package behavior analysis
- Determined causes of outlier delivery cases, influencing design changes to the package, parachutes, and drone
- Improved drop accuracy of package delivery by 30%

- **Firmware Flasher:**

- Designed a fixture to easily flash GPS firmware onto operational drone circuit boards, eliminating the need for soldering / electrical work in the field; fixes a GPS failure mode 100% of the time