mpatni@umich.edu
www.linkedin/in/mariapatni
https://mariapatni.github.io/

MARIA PATNI

EDUCATION & AWARDS

University of Michigan, Ann Arbor – B.S.E. Computer Science **GPA:** 3.6/4.0 SEPT 2022 - MAY 2025

Coursework: Machine Learning, Robot Manipulation, Robot Learning for Control/Planning, Algorithmic Robotics, SLAM & Navigation, Operating Systems, Networking, AI, Security, Architecture

Languages: Python, C/C++, Go, Java

Skills: OpenCV, ColMap, Nerfstudio, FoundationPose, SAM, YOLO, PyTorch, ROS, Linux, CAD (NX/Inventor/Solidworks), Fabrication/Prototyping

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

EXPERIENCE

Manipulation & Machine Intelligence Lab, Ann Arbor, MI – Undergraduate Researcher JAN 2025 - SEPT 2025

- **Curious TaRFs:**
  - Designed visuotactile data collection system for DIGIT tactile sensors & IntelRealsense D435/405 cameras
  - Built tooling to generate synthetic data from object models via SAM, Colmap, Nerfstudio, & FoundationPose
  - Training a Contrastive Learning Model to determine surface characteristics of arbitrary objects
  - Co-authored "Touching the Future: Visuo-Tactile Reactive Robot Grasping", ICRA 2026 (submitted)

Viam, New York, NY – Software Engineering Intern MAY 2024 - AUGUST 2024

- **Custom Pin Control Library:**
  - Created custom pin control library to support PWM, GPIO, & 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 algorithms that determine the optimal contact surface for FANUC 6DOF robots sorting trash via RANSAC, Segmentation, & other CV techniques
  - Built infrastructure for object height data collection & depth map generation via IntelRealsense Camera
  - Achieved 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 Patent D1091457
  - Designed & built prototypes for a menu of potential drone serviceability concepts & ground support equipment
  - Devised "mast-based" final design, balancing CAP/OPEX, ergonomics, BOM, downtime, reliability, & safety

GeorgiaTech Biorobotics & Human Modeling Lab, Atlanta, GA – 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 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
  - Redesigned system to allow 6 degrees of freedom of movement instead of 4 – now 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
  - Identified root causes of outlier delivery cases; changes to package & drone later adopted in production.
  - 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