**EMILY WU**
emilyywu@umich.edu • linkedin.com/in/wuemilyy
(703) 937-7188 • Fairfax, VA

## EDUCATION

**University of Michigan** **Ann Arbor, MI**
*Bachelor of Science in Engineering in Robotics, Minor in Computer Science* *August 2021 - December 2024*
*Coursework:* Data Structures and Algorithms, Computational Linear Algebra, Introduction to Differential Equations, How to Make Robots, Robot Operating Systems, Human-Robot Interaction
*Awards:* Dean's List, University Honors

**Langley High School** **McLean, VA**
*Advanced Studies Diploma, Science Olympiad State Team, Wind Symphony Band* *August 2017 – May 2021*

## PROJECT EXPERIENCE

**Student Trainee for Construction Engineering Research Lab (USACE, ERDC-CERL)** **Champaign, IL**
*Skills: C++, ROS, Git, Linux* *June 2023 – Present*
- Modified existing frontier exploration package to take in boundaries on Turtlebot, simulated on V8 vehicle
- Researched ROS2 to update existing stack

**UMARV (University of Michigan Autonomous Robotic Vehicle)** **Ann Arbor, MI**
*Student Affairs Lead, Navigations Subteam Member* *January 2023 - Present*
- Implemented ROS node to localize robot in global static map from map and odometry data topics from sensors data
- Transformed GPS coordinates into global map indices for a rosservice
- Simulated A* search algorithm implemented in ROS using Gazebo and RViz

**Self-balancing Ballbot** **Ann Arbor, MI**
*Skills: Python, MATLAB, 3D Printing, Soldering, Laser Cutting* *September 2022 – December 2022*
- Developed controllers for balance and steering based on kinematics of robot and PID control, also applied filters on sensor data and fine-tuned controller code
- Assembled chassis parts, wired Raspberry Pi, Raspberry Pi Pico, sensors, motor encoders, and batteries to collect and send velocity commands to three motors
- Achieved third place in class-wide competition (balancing for ten minutes, balancing on a vibrating platform, graphing angular maximum velocity, traversing square laps)

**Michigan Autonomous Aerial Vehicles** **Ann Arbor, MI**
*Treasurer, Software Subteam Member* *January 2022 – December 2022*
- Simulated drone takeoff, flight, and landing in Gazebo
- Researched ROS and OpenCV libraries to apply to drone when replacing an item on a moving mast
- Created C++ program to filter orienting features of mast for the drone
- Coordinated annual budget with subteams and leadership

## LEADERSHIP EXPERIENCE

**Robotics 101 (Computational Linear Algebra)** **Ann Arbor, MI**
*Instructional Aide* *August 2022 – Present*
- Explains concepts of linear algebra and beginner programming in Julia to students in weekly office hours
- Grades projects and homework for 150+ students, meets with staff weekly to improve the course

**Origami Club at the University of Michigan** **Ann Arbor, MI**
*Founder, Officer* *June 2022 – Present*
- Founded club through getting club approval, writing club documents (constitution, plans for meetings), designed leadership and club structure for longevity, manages funding and recruitment
- Hosts biweekly meetings and creates slideshow presentation of an origami project to members

**Design and Manufacturing I** **Ann Arbor, MI**
*Team Leader* *January 2022 – April 2022*
- Organized meetings to complete CAD design and manufacturing in the machine shop; robot aims to gain points by completing actions on obstacle field (lifting a dowel and placing it into a cup)

## SKILLS

*Programming Languages:* C++, MATLAB, Julia, Python, Java, Javascript
*CAD Software:* SOLIDWORKS, NX, Onshape, Rhinoceros 3D
*Fabrication:* Mill, Lathe, Band Saw, 3D printer, Laser Cutter, Waterjet