Robert Marlow

rob.a.marlow@gmail.com
(650)-391-6915
Madison, WI 53726
https://ramarlow.github.io

EDUCATION

University of Wisconsin-Madison
Bachelor of Science, Mechanical Engineering, expected May 2025
- GPA: 4.0/4.0 Dean's List (7/7 Semesters)
- Coursework: Fluid Dynamics, Materials Science, Intro to Robotics, Design of Machine Elements

ENGINEERING EXPERIENCE

Product Development Engineer Intern, Triton Medical Robotics May - August 2024
- Developed python scripts to compile and analyze robot telemetry data from rosbags, extracting driving statistics from physician and internal labs to underpin endoscope and capital equipment cyclic durability test protocols
- Supported manufacturing operations by designing and implementing assembly line fixtures, drafting and updating process instructions, and investigating reject components to improve yields, identify training gaps, and inform specs
- Doubled device verification testing capacity by duplicating and improving fixtures for 5+ test methods
- Built upon previous summer's successful equipment by implementing fault-tolerant design and assembling new units

Undergraduate Researcher, UW-Madison BADGER Lab Spring 2024 - Present
- Wrote and maintained ROS nodes for teleoperation and odometry of a unique two-wheeled stable mobile robot
- Communicated underlying kinematic principles and represented the lab at local engineering outreach events
- Researched and implemented docker images to circumvent versioning conflicts and manage dependencies

Engineering Intern, Triton Medical Robotics May - August 2023
- Designed test fixtures and performed 2000+ trials to measure behavior of endoscopes and components, incorporating water-resistant components and design strategies to enable ongoing characterization in submerged environments
- Validated new test methods by conducting statistical analysis of new and historical data for catheter components
- Streamlined device testing through ergonomic fixturing and automation of data processing, enabling faster iteration
- Refined product demonstration equipment while gaining experience with pneumatic control and instrumentation

Volunteer Mechanic, Silicon Valley Bicycle Exchange May - August 2022
- Gained hands-on experience troubleshooting cable actuated systems, chain drives, and angular contact bearings
- Mentored groups of underserved high school students in bike maintenance through the GetSET STEM program

Robotic Arm Project, Wisconsin Robotics
- Collaborated on an interdisciplinary team to prototype a humanoid 3-dof robotic arm for community outreach events
- Incorporated PID control of joint position and wrote inverse kinematics algorithms for more intuitive manipulation

Lighted Turn Signal Glove Project, UW MadMakers
- Developed a wearable device to help improve visibility and communication when bicycling at night
- Implemented simple gesture recognition using an IMU sensor and ESP32 microcontroller
- Designed and assembled a custom PCB to hold LEDs, battery charging, ESP32, IMU, and UART/SPI connections

SKILLS

Software:	Solidworks, Onshape, EES, Inventor, ROS, ROS2, KiCad, Docker, Minitab, Excel
Programming:	Python, Java, C++, R, Matlab, Arduino
Tools:	Shop Machines, 3D Printing, Soldering, Oscilloscope, Welding, Metal Casting, Glassblowing
Design:	DFM, GD&T, Microcontroller Integration, Electrical Schematics, PCB Design
Foreign Languages:	Mandarin Chinese

ACTIVITIES

Wisconsin Robotics (Outreach/Minibots Subteam Lead), UW-Madison, Fall 2021-Present
UW MadMakers, UW-Madison, Fall 2021-Spring 2022
FTC Robotics, Team 14078, Spring 2018-Spring 2021
Scouts BSA, Troop 14, Fall 2014-Fall 2020
- Earned Eagle Scout Rank, September 2020