

Owen Miller Senior at Worcester Polytechnic Institute

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Robotics & Mechanical Engineering | Autonomous Systems | Electromechanical Design

Focused on autonomous systems, embedded robotics, and field-deployable hardware. Experienced designing, integrating, and testing robotic systems across mechanical/electrical/software domains, and leading multidisciplinary engineering teams.

EDUCATION

06/2027
Worcester, MA **BS in Robotics Engineering, BS in Mechanical Engineering, WPI – Worcester, MA**
WPI GPA: 3.89

PROFESSIONAL EXPERIENCE

- 05/2026 –
08/2026
Wallingford, CT **Quality Engineer, ESCO Maritime**
- Implemented new documentation reducing production times by 10% (3 hours per build)
 - Trained and mentored staff in best practices for quality assurance
 - Investigated 17 manufacturing process variation issues using root-cause analysis; coordinated with product engineering to resolve 3 design-related issues.
- 04/2025 –
Present **Founder/Lead Mechanical Engineer, ARENA Robotics LLC** 🔗
- Designed and prototyped a low-cost PCB vacuum tweezer assembly tool, including mechanical enclosure design, component sourcing, user testing, and product validation.
 - Led user testing and iterated the design based on customer feedback to develop a \$120 target-cost product.
- 05/2025 –
08/2025
Stafford Springs, CT **Product Engineer, TTM (Time-to-Market) Technologies**
- Designed, built, and programmed a custom fixture and test device for machine assembly, saving 8 hours per machine built
 - Identified key machine metrics that correlate to performance
 - Machined custom components to ± 0.005 " tolerances using a manual mill
- 05/2024 –
07/2024
Norwalk, CT **Lead Assembly Engineer, Cognition Controls**
- Developed optimized assembly processes, resulting in a 40% increase in production efficiency
 - Collaborated with cross-functional teams, including design, engineering, and quality assurance, to troubleshoot and resolve assembly issues, enhancing overall product reliability and performance
- 06/2022 –
03/2026
Norwalk, CT **Hardware Safety Officer, NHRL**
- Perform safety inspections on 3-, 12-, and 30-lb combat robots, identifying mechanical and electrical hazards
 - Ensure adherence to safety guidelines, taking an active approach to risk management
 - Coordinates with emergency services, ensuring effective communication in case of emergencies
- 06/2019 –
09/2024
Darien, CT **Head Sailing Instructor, Darien Junior Sailing Team**
- Led a team of 6 instructors responsible for training and safely managing 22 campers in dynamic on-water environments
 - Diagnosed and repaired mechanical, electrical, and propulsion-system issues across a fleet of boats, minimizing downtime during operations

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SELECTED ROBOTICS & ENGINEERING PROJECTS

WPI HPRC Project Titan, *A Deployable Autonomous Rover in Satellite Form Factor*

- Led mechanical and systems integration of a deployable autonomous rover, balancing mission requirements, payload mass, power budget, actuator requirements, and deployment reliability.
- Managed 5 teams (~25 engineers) setting milestones, enforcing interfaces, resolving cross-team conflicts over a full academic year.
- Created interface control documents (ICDs), design review preparation (PDR/CDR), and requirements traceability for International Rocket Engineering Competition (IREC) with participation from 150+ global teams.
- Presented 4.4lbs payload with 6 actuators, custom 2S2P 6Ah battery, 40cm x 10cm x 10cm frame, and 2 miles of range

Extreme Environment Datalogger, *Founder/Lead Mechanical Engineer*

- Designed an embedded telemetry system for combat robots (NHRL) integrating sensor data acquisition, 2.4 GHz wireless telemetry, and remote diagnostics on ESP32 hardware with an LCD SPI screen and commercial-grade IMU.
- Awarded \$1,500 through the NSF I-Corps UConn Propelus Program to support customer discovery and prototype development.
- Translated user needs into requirements, led four (4) prototype iterations, validated design decisions through testing & feedback.

FireWatch, *Founder/Technical Lead*

- Developed a swarm robotics concept for autonomous wildfire detection and residential protection
- Interviewed 3 firefighters, 2 drone companies, and 3 professors across North America and reviewed 8 research/white papers
- Awarded \$1,000 as a finalist in WPI Igniting Innovation Competition

AWARDS AND CREDENTIALS

05/2023	Eagle Scout, Senior Patrol Leader, Troop 53, Darien, CT
04/2024	Finalist, WPI Ignite Innovation FireJam Competition , <i>Firefly Sentry Proposal</i>
02/2023	2nd, Lockheed Martin CYBERQUEST Competition
04/2023	STAMP Certified Biliterate in Spanish
04/2022	Certified CPR First aid Junior Sailing Association Level 1 Instructor, USA Sailing
06/2024	Head Sailing Instructor , <i>Darien Junior Sailing Team</i>

SKILLS

PROGRAMMING & ROBOTICS

- Python, MATLAB, C++, ROS 2, Gazebo, Nav2, SLAM, Linux, Git

ROBOTICS & EMBEDDED

- Microcontrollers, Sensor Integration, Telemetry, PCB Design, UART, I²C, SPI

MECHANICAL

- SolidWorks, Fusion 360, CNC Machining, Welding, FDM & SLA 3D Printing, Rapid Prototyping

Systems Engineering

- Requirements Analysis, Interface Control Documents, Design Reviews, DOE, Six Sigma, Risk Analysis