

# PHOEBE CUTTER

## Mechanical Engineer

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## SKILLS

SOLIDWORKS | CREO EDM | MATLAB | ANSYS Fluent | Python | Mechanical Design | Rapid Prototyping | Bluehill Universal | Soldering & Wiring | Tensile & Flexure Testing | Fatigue Testing | Problem Solving | Clear Communication

## EDUCATION

Worcester Polytechnic Institute | B.S. Mechanical and Biomedical Engineering May 2026  
AUV Club Mechanical Team, The Period Agenda Vice President, Society of Women Engineers Member

## PROFESSIONAL EXPERIENCE

TEMPORARY RESEARCH ASSISTANT | Woods Hole Oceanographic Institute | Falmouth, MA Dec 2025 – Present

- Operated control software for a deep-sea Laser-Induced Breakdown Spectroscopy (LIBS) instrument used for in situ geochemical analysis at hydrothermal vents alongside the ROV Jason team during a one-month research cruise.
- Contributed to the design and mechanical integration of a LIBS deployment system, including a lander-style frame with a hydraulically actuated leg-release mechanism for stable placement above the seafloor in deep-ocean environments.
- Troubleshoot LIBS software and internal system performance during at-sea operations, including diagnosing power delivery to the laser, independently testing laser and camera subsystems, and performing full-system optical and mechanical alignment.

ENGINEERING CO-OP | General Dynamics Electric Boat | Groton, CT Aug 2025 – Dec 2025

- Assembled and tested electrical and mechanical cable systems for submarine applications; produced detailed part drawings and reviewed large assembly drawings.
- Performed fatigue testing and assisted in material selection to evaluate durability, structural integrity, and cost effective performance of critical components.
- Designed and prototyped ruggedized sensor test enclosure to improve reliability of submarine sensor validation systems.

MECHANICAL ENGINEERING INTERN | Dyno Nobel | Simsbury, CT May 2025 – Aug 2025

- Engineered redesigned pintle mechanism to improve operator accessibility, maintenance efficiency, and system maneuverability.
- Designed hopper stand with manual shuttle gate to streamline material flow, reduce operator effort, and increase throughput.
- Created CAD models, presented design proposals, and incorporated supervisor and technician feedback to ensure manufacturability and seamless system integration.

## PROJECTS

MAJOR QUALIFYING PROJECT | Underwater Drone Development | WPI Jun 2025 – Present

- Project lead for design and build of a functional underwater vehicle, responsible for posture control and programmed mission execution.
- Individually applied biomimicry by implementing shark-skin inspired riblet surfaces; used ANSYS Fluent and CAD flow simulations to analyze and optimize hydrodynamic drag reduction.
- Designed vehicle frame, thruster mounts, and enclosure mounts; assisted with wiring, soldering, and integration of electrical systems.

INDEPENDENT PROJECT | BlueROV Refurbishment and Deployment Jun 2025 – Present

- Refurbished a second-hand Blue Robotics ROV, including troubleshooting electronics, replacing components, and 3D printing a custom hull section to restore underwater integrity.
- Practiced manual piloting and mission planning in coastal waters; preparing for field use inspecting boat hulls, moorings, and underwater infrastructure.
- Gaining hands-on experience in vehicle control, waterproofing, thruster operation, and real-time underwater video feeds.

- Designed and prototyped biomimetic silicone insert to improve comfort and efficiency in breast pumping by replicating infant oral geometry.
- Developed CAD models, 3D-printed molds, and cast PDMS prototypes; refined curing techniques to improve material performance and prevent air leakage.
- Filed provisional patent application and conducted user testing showing improved comfort without loss of suction.