

Amelia Barr

☎ 206 604 4234 • ✉ amb98@uw.edu

I am a mechanical engineer using my strong interdisciplinary R&D background for the greater global good.

Professional Experience

- **University of Washington Applied Physics Lab** **Seattle, WA**
Mechanical Engineer II *Sept 2020–Present*
Design of components and systems to rapidly prototype sensor concepts. Fabrication of transducers, housings and acoustic sensor systems. Testing of prototype components and systems. Analysis of opportunity space associated with UUV docking and underwater acoustics. Co-chair of Diversity, Equity, and Inclusion (DEI) Advisory Group.
- **University of Washington Applied Physics Lab** **Seattle, WA**
Student Assistant *Sept 2017–Sept 2020*
Designed, deployed, maintained, repaired, and troubleshot marine sensor equipment. Planned and conducted laboratory and field testing.
- **Robot U** **Duvall, WA**
Robotics Instructor *2015–2017*
Developed my programming and design skills as the vice-president of an FRC robotics team for 4 years. Gave back to the community throughout highschool and two years of university by teaching robotics skills to youth including programming, physics, and mechanical design.

Notable Projects

- **Electric Propulsion Research Catamaran** *UW Applied Physics Lab*
Designed and integrated the propulsion battery and power electronics subsystem onto new research vessel.
- **Transducer Design for a High Frequency Sonar System** *UW Applied Physics Lab*
Led the design of an innovative flexible circuit, backing, tooling, and assembly procedure to create a novel transducer array. Navigated and resolved multiple design constraints including geometry/space limitations, manufacturing/assembly, and adhesive/material properties. Tested the transducer and integrated it into a sonar system.
- **Circuit Board Stack Model** *UW Applied Physics Lab*
Used a SolidWorks assembly of 15 circuit boards with heat sink plates to 3D print a 1:1 scale model. Used the physical model to verify standoff clearances, cable routing, and connector placements for alignment and cable pinch points.
- **Lab-Scale Wave Energy Converter** *UW Marine Renewable Energy Laboratory, Polagye Group*
Worked on a capstone team to design a lab-scale oscillating surge wave energy converter. Calculated wave forces on the device. Designed the underwater enclosure and driveline assembly; performed stress analyses on the drive shaft.

Education

- **University of Washington** **Seattle, WA**
Bachelor of Science in Mechanical Engineering, Minor in Chemistry, GPA: 3.88 *June 2020*
Honors/Awards: Interdisciplinary Honors, Magna Cum Laude, Women in Science and Engineering Honored Graduate Award, Mechanical Engineering Department Outstanding Scholar Award
Scholarships: UW Interdisciplinary Honors Scholarship, Brown Family Endowed Scholarship
Leadership: President of the Climbing Club at UW (2019-2020)
Relevant Coursework: Renewable Energy II, Advanced Energy Conversion Systems, Fluid Dynamics, System Dynamics, Scientific Computing (Matlab), Mechanical Design, Mechanics of Materials, Arduino Programming

Skills and Abilities

- **Industry Software Skills:** SolidWorks (Advanced), Excel (Advanced), Matlab (Intermediate), LaTeX (Intermediate), Arduino C++ (Intermediate), CAMWorks/SolidWorks CAM (3-axis), Fusion 360 (Familiar), EAGLE (Familiar)
- **Mechanical/Tool Skills:** Machine shop experience including lathe and mill, lasercutting, 3D printing, circuit board design and assembly, precision SMD soldering, duct tape, hand tools, materials knowledge, forklift license
- **Communications:** Teamwork, leading meetings, writing organized reports, 5+ years teaching and tutoring experience
- **Active DOD security clearance:** Secret