

Amelia Barr

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I am a mechanical engineer with a strong background working on teams for marine mechanical design and testing.

Professional Experience

- **University of Washington Applied Physics Lab** **Seattle, WA**
Student Assistant *Sept 2017–Present*
Deployed, maintained, repaired, and troubleshooted marine sensor equipment. For example, helped solve critical cable routing and thermal management issues in the electronics compartment of a space-constrained sensor. Planned and conducted laboratory and field testing including design of a sensor housing for testing in a high pressure tank. Designed parts, tooling, and the procedures for manufacturing a high frequency sonar array.
- **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 as a university freshman and sophomore by teaching robotics skills to youth including programming, physics, and mechanical design.

Notable Projects.....

- **Transducer Design for a High Frequency Sonar System** *UW Applied Physics Lab*
Designed an innovative flexible circuit, backing, tooling, and assembly procedure to create a novel transducer array. Navigated multiple design constraints including geometry/space limitations, manufacturing, assembly, adhesive properties, and material properties.
- **Circuit Board Stack Model** *UW Applied Physics Lab*
Used a SolidWorks assembly of 15 custom circuit boards with heat sink plates to 3D print a scale model. Used the model to check standoff clearances, cable routing, and connector placements.
- **Flume-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. Estimated loading conditions on the device. Designed the underwater enclosure and driveline assembly and performed loading analyses on the drive shaft.
- **Leak Detector Sensor Package** *UW Applied Physics Lab*
Designed and programmed a moisture sensor that successfully protected expensive sensor equipment.

Education

- **University of Washington** **Seattle, WA**
Bachelor of Science in Mechanical Engineering *June 2020*
Minor in Chemistry
Honors: Interdisciplinary Honors, Magna Cum Laude, Women in Science and Engineering Honored Graduate Award, Mechanical Engineering Department Outstanding Scholar Award, GPA: 3.88
Scholarships: Brown Family Endowed Scholarship, UW Interdisciplinary Honors 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, Mechanical Design, Mechanics of Materials

Skills and Abilities

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