

William Hogg

Project Portfolio:
WilliamWHogg.com



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Education

M.S. in Mechanical Engineering - GPA: 4.0

May 2026

Washington State University, Pullman, WA

Research: Characterizing and optimizing novel additively manufactured alloys for biomedical applications

Relevant Courses: Additive Manufacturing, Machine Learning, Cryogenics, Topology Optimization, Non-Linear Optimization

B.S. in Mechanical Engineering - GPA: 4.0

May 2025

Washington State University, Pullman, WA

Minors: Material Science, Mathematics

Relevant Courses: Mechanics of Solids, Mechatronics, Material Characterization, Linear Optimization

Experience

W.M. Keck Biomedical Materials Lab – Research Assistant

Aug 2025 – Present

- Optimized L-PBF printing of brittle MMCs using batch Bayesian optimization, reducing cracking and enabling successful builds on 3DS DMP 200 system
- Developed custom MATLAB apps to automate particle size analysis and mechanical test data processing (5X faster)
- Maintained, repaired and trained others on \$450k additive manufacturing system

W.M. Keck Biomedical Materials Lab - Undergraduate Researcher

Apr 2023 – Aug 2025

- Developed novel protocol for fatigue testing LPBF alloys in fluid environments, resulting in pending first-author publication.
- Redesigned fatigue sample preparation, cutting machining time 3X and improving reliability
- Programmed CAM (Fusion 360) for CNC milling and turning of miniaturized hip joints to evaluate novel alloys
- Performed full suite of materials characterization (tension, hardness, microscopy, fractography) on additively manufactured alloys.

Exotic Metals Forming Internship – Project Engineer Intern

Summer 2022

- Conducted root cause analysis on titanium SPF parts, preventing part failures and reducing tool wear
- Updated legacy GD&T documentation, reducing operator confusion and rework in manufacturing processes
- Designed and implemented ergonomic tool for roller seam welding of 90 lb. component

Frank Innovation Zone (FIZ) - Instructor/Technician

Jan 2022 - Apr 2023

- Trained 100+ students and researchers in safe use of shop equipment
- maintained a 3,000+ sq. ft. maker space, while securing \$80k of new equipment

Eagle Scout – Troop 624

2014-2021

- Organized 150+ hour eagle scout project during covid

Skills & Abilities

Design: SOLIDWORKS, MATLAB/Simulink, GD&T, Fusion 360, Siemens NX, Arduino, Python (basic)

Manufacturing: Additive Manufacturing (FDM, SLA, LPBF, DED), CNC Machining, MIG Welding, Waterjet Cutting, Laser Cutting, Sheet Metal Forming

Characterization: Mechanical Testing (Fatigue, Tension/Compression, Hardness), Optical Microscopy, SEM/EDS Analysis

Publications and Certifications

“Corrosion-Fatigue of Additively Manufactured Ti6Al4V”

Pending

Fundamentals of Engineering Exam

Feb 2025

“Fatigue Behavior of Additively Manufactured Ti3Al2V Alloy,” MSAM

Sep 2023

SOLIDWORKS Associate-Simulation Certification

Mar 2023

SOLIDWORKS Associate-Mechanical Design Certification

Feb 2023

Honors And Recognitions

VCEA-Outstanding Junior in Mechanical Engineering

April 2024

Barry Goldwater Scholarship-WSU Nominee

Dec 2023