AVA WILKEY

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EDUCATION

Utah State University **Logan, UT**
Master of Science, Aerospace Engineering May 2026 | GPA: 3.7
Bachelor of Science, Mechanical Engineering May 2025 | GPA: 3.6
Minor: Music

ENGINEERING PROJECTS

- Designed and modeled the avionics bay for the IREC competition rocket recovery system, integrating flight computers, wiring paths, and structural components in SolidWorks; also managed the team budget and contributed to cross-functional project coordination
- Developed copper electroplating process for 3D-printed hybrid rocket motor components, including surface preparation, bath chemistry control, plating rate characterization, and adhesion evaluation to improve high-temperature durability during static-fire conditions
- Developed a real-time six-degree-of-freedom flight simulation using Fortran for rigid-body dynamics and Unreal Engine for visualization and telemetry, enabling physics-based analysis of aircraft motion and control response

PROFESSIONAL EXPERIENCE

Undergraduate/Graduate Research Assistant September 2024 - Present
Dr. Stephen A. Whitmore's Propulsion Research Laboratory Utah State University, Logan, UT

- Conduct experiments for the NASA PSI (Plume Surface Interaction) project, analyzing plume-induced erosion and behavior to support lunar and Martian landing missions
- Support hybrid rocket propulsion research as part of an AFWERX funded U.S. Air Force project, with work involving long duration burns, high thrust burns, regression rate studies, and port geometry effects
- Investigate energetic performance of thermoplastic fuels for hybrid rocket motors, focusing on combustion behavior and material suitability

Aerospace Engineering Intern May 2025 - August 2025
HyBird Space Systems Huntsville, AL

- Conducted long-duration testing of hybrid rocket motors to evaluate performance, material degradation, and ignition reliability
- Performed system testing and data analysis for an AFWERX sponsored hybrid propulsion effort supporting Air Force technology development
- Developed and refined electroplating processes to enhance the thermal durability of plastic rocket motor casings

Engineering Assistant August 2022 – August 2024
Thermal Management Technologies Logan, UT

- Prototyped thermal management hardware using SolidWorks; supported spacecraft component testing and assembly
- Performed thermal qualification tests on diverse hardware to ensure performance and reliability
- Prepared components for satellite and space-related systems, contributing to major project milestones

Mechanical Engineering Intern January 2022 - August 2022
FA Engineering Pocatello, ID

- Designed equipment, piping, and mechanical layouts; generated technical drawings for engineering teams
- Coordinated with vendors and engineers to meet project specifications and timelines
- Managed multiple design tasks simultaneously while ensuring quality and accuracy

TECHNICAL SKILLS

Engineering Software:	Python, MATLAB, Fortran, SolidWorks, Autodesk Fusion 360, LabVIEW, Onshape, Unreal Engine
Office Software:	Microsoft Word, Excel, PowerPoint, Teams
Technical:	3D printing, lathe machining, test stand development

PUBLICATIONS AND PRESENTATIONS

- **Wilkey, A. T**., & Whitmore, S. A. *Energetic Characterization of Thermoplastic Fuels for Hybrid Rocket Propulsion Applications*. Abstract submitted to the AIAA SciTech Forum, 2026. *Accepted*.
- Sorenson, J., Mecham, L., White, C., & **Wilkey, A**. *Refined Hybrid Rocket Static Fire Testing with Increased Performance and Precision.* Conference on Characterization and Radiometric Calibration for Remote Sensing (CALCON), June 2025.