

Paul Frank

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Summary

Mechanical engineering student with project experience in thermodynamics, fluid mechanics, and machine design. Skilled in thermal calculations, data analysis, and fabrication using mills, lathes, sheet metal tools and casting processes. SolidWorks CSWA certified; proficient in Python, C, and Java with strong problem-solving and hands-on engineering abilities.

Education

University of Wisconsin Stout, Menomonie, WI
Bachelor of Science in Mechanical Engineering | Expected Graduation: May 2027
Bachelor of Science in Physics | GPA: 3.75

Technical Skills

- **Thermal Analysis:** Modes of Heat Transfer, Transient and Steady-State Systems, Thermal Testing and Profiling
- **Fluid Mechanics:** Conservation Laws, Flow Characteristics, Model Scaling, Computational Fluid Dynamics
- **Technologies:** Heat Exchangers, Compressors, Turbines, Pressure Vessels, Valves, Nozzles, Gears, Wires
- **Concepts:** Material Stress Analysis, Fatigue Analysis, Corrosion, Electromagnetism, Semiconductors
- **Tools:** Solidworks, Solidworks FEA, MATLAB, Python, C, Java, Microsoft Excel, Mill, Lathe, Hand Tools

Mechanical Engineering Experience

Refrigerator Thermal Profile Analysis (Heat Transfer Class Fall 2025)

Objective: *Determine the thermal profile, cooling time, and power consumption behavior of a household refrigerator.*

- Created a thermal resistance network to identify how heat would move through layers.
- Derived system's governing equations through thermal resistance network to estimate thermal behavior.
- Used Python to calculate an estimated 2.33 minutes to reach operating temperature (air only inside volume).
- Analyzed steady-state data to determine an operating power draw of 132 watts.
- Presented findings as a group of four to the class and received an A on the project.

Vets-Plus Internship Manufacturing Engineer (Internship, Menomonie WI, June 2025-Present)

Objective: *Observe and collect data about processes and identify critical machine parts for continuous operation.*

- Led an independent project, defining approach, workflow, and deliverables.
- Developed an Excel-based system to define three goals and collect part data on 30 machines.
- Collaborated with maintenance technicians to gather empirical data and document common failure modes.
- Coordinated with global vendors to source replacement parts and technical information for machines.
- Identified over 100 critical components by analyzing both numerical data and technician insights to support maintenance planning.
- Presented recommendations of parts to the engineering manager via PowerPoint presentation.

Disassembly and Analysis of Snowblower Engine (Machine Component Design Class Spring 2025)

Objective: *Redesign an internal component of the snowblower to improve engine performance.*

- Disassembled a snowblower engine, as a team of five, and evaluated internal component interactions.
- Collected precise measurements on internal parts to observe the manufacturer's design decisions.
- Created technical drawings from measurements and modeled components in SolidWorks to gather simulation data.
- Utilized SolidWorks' static, design, topology, and fatigue studies to analyze stresses on manufacturer's parts.
- Combined results from studies and redesigned a lighter and stronger part compared to the manufacturer's design.

Additional Experience

- Member of Chemistry Club - UW-Stout, Menomonie, WI (September 2025-Present)
- University Dining Service Office Assistant - UW-Stout, Menomonie, WI (September 2024-Present)
- Digital Personal Shopper - Walmart, Eau Claire, WI (July 2022-May2025)