Jack Friesen

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Education

Colorado State University **December 2028, Expected Graduation**

Bachelor of Science, Mechanical Engineering Cumulative GPA: 4.0

Scott Scholar – Recipient of the Walter Scott, Jr. Undergraduate Scholarship

Engineering Experience

BROADN Internship **Summer 2026**

- Designed a custom PCB in KiCad and watertight enclosure to control a 225 L/min bioaerosol air sampler, and developed a tuned PID feedback controller to maintain real-time flow rate using pressure and flow sensor data

Passive Thermosiphon Solar Still **January 2026 - May 2026**

- Designed and prototyped a solar water still with a 4-person team, involving research, CAD, and OpenFOAM simulations to validate convection-driven flow, achieving 3 L/hour of water output under $60 and accessible parts

SURE Research **January 2026 - May 2026**

- Collaborated with graduate students and research professors to design and prototype a mid-IR optical sensing system for fire detection, isolating 2 μm and 4 μm wavelengths using photodiodes, lenses, and prisms

Escape Room using Arduino and MATLAB **November - December 2025**

- Led a 4-person team through a leadership challenge (removing an underperforming member) to design and build a winter escape room with a background timer, MATLAB-Arduino integration, and a custom 3D-printed controller

Personal Projects

Car A/C System Overhaul **August 2026**

- Diagnosed a refrigerant leak and overhauled a vehicle's A/C system, replacing the compressor, expansion valve, and condenser, then flushed and recharged the system, building a working knowledge of refrigeration cycles

Walking AT-ST **Summer 2023 - Present**

- Designed and iteratively refined a scale AT-ST using Fusion 360, integrating Arduino-based control to develop experience in robotics, programming, and electronic systems

Full Size Hobbit Door **Summer 2024**

- Initiated the design and fabrication of an 8-foot functional Hobbit door beyond project requirements, applying CAD modeling, woodworking, and carpentry skills over three months

Upper Engine Rebuild **Winter 2024**

- Rebuilt the cylinder head of a 2001 Honda CR-V after a timing belt failure bent valves, completing a full teardown, repair, and reassembly over a single winter while balancing coursework and part-time employment

Skills

- **Technical**: PCB Design, Fusion 360, Python, Arduino, MATLAB, SolidWorks, vehicle mechanics, carpentry
- **Leadership and communication**: Teamwork, customer service, management structures, 8+ years of leadership

Involvement

Cru Treasurer **Fall 2025 - Present**

- Led discussions, organized group meetings, and collaborated with other leaders to shape the vision of the club

University Chorus **Fall 2026 - Present**

- Have not actually had a single rehearsal yet so will write about this when I have stuff to write about

Other Experience

Resource Central Sprinkler Tech **Summer 2025**

- Diagnosed and repaired sprinkler systems and controllers via customer service and coordinating appointments

Discount Tire Tech **2023 - 2025**

- Collaborated with technicians to maintain 30+ cars/hour while fixing tire balance, bead seating, and seized lugs