William M. Rohren

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Education

Texas A&M University - GPA : 3.150 **Graduation: Dec 2026**

***BSME**: Bachelor of Science in Mechanical Engineering* *College Station, TX*

Skills

Design & Modeling
SolidWorks CAD, Ansys/Femap FEM

Electronics & Embedded Systems
Altium, Bare-Metal MCU, Mixed-Signal PCB, Soldering

Prototyping
Machining, 3D printing, Woodworking

Advanced Analysis
Topology Optimization, Modal/Buckling Analysis

Experience

Texas A&M SAE Aero Design Team **May 2025 – Present**

Structures & Material Science (SMS) Engineer *College Station, TX*

- Proposed and solely designed a cantilevered nose beam motor configuration, replacing wing-mounted pylons to consolidate propulsion electronics, improve static margin by 0.6%, and reduce motor wire length by 3x
- Through self-taught topology optimization and iterative FEA, produced a 9.12 oz balsa truss for the nose structure; max stress of 750 psi (MoS 0.85) validated within 5% via physical motor run-up testing
- Personally designed and built 5 noses across 3 aircraft iterations with zero structural failures under all design load conditions

Rapid Prototyping Studio (RPS) **Jan 2024 — Present**

Student Technician *College Station, TX*

- Supervise daily shop operations overseeing $14,000 in annual consumables and repair costs across $95,000+ of fabrication equipment, ensuring student safety and continuity of operations
- Lead student training sessions under a reservation-based system introduced 3 semesters ago, personally training 500+ students and 5 new staff members on RPS equipment
- Repaired $12,000 Torchmate plasma cutter and authored a detailed SOP for its safe handling and operation
- Authored training documentation using Wiki.js and Markdown, standardizing onboarding materials across the studio

Industrial Engineering Department **May 2025 – Aug 2025**

Undergraduate Research Assistant *College Station, TX*

- Led cross-departmental design of a custom autoclavable binder-jet 3D printer in coordination with PhD students from the ISEN and microbiology departments; engineered around autoclave constraints (110°C steam, 2'×2'×2' envelope)
- Operated an $80,000 ExOne binder-jet printer to support MDPI-published PhD compaction studies across materials including tungsten, titanium, SiC, and aluminum-ceramics; managed print parameters, monitored deposition quality, post-processed samples, and reported density measurements back to the research team

Aggies Create **Aug 2022 — Dec 2023**

Member *College Station, TX*

- Designed a smart filament storage enclosure with humidity/temperature monitoring for Accelerate 3D, teaching myself Arduino and I2C sensor interfacing to build the electronics package
- Built a supercapacitor regen braking prototype to validate energy recovery feasibility for the SRF-Gen4 hybrid powertrain

Projects

Project SAVIOR - Structural and Aerodynamic Validation via an Integrated Onboard Recorder **Apr 2026 – Present**

- Designed a custom 4-layer mixed-signal avionics PCB from scratch (Teensy 4.1 MCU, 6-DoF IMU, GPS, and 16-channel 24-bit strain gauge ADC array) to validate FEA and CFD models against live in-flight structural and aerodynamic data
- Implemented isolated analog/digital power domains on a strain gauge daughter board to protect 24-bit ADC signal integrity

Custom Atmega32U4 Development Board **Aug 2024 — Jan 2025**

- Designed a custom ATmega32U4 dev board in Altium with bare-metal MCU architecture, manufactured via JLCPCB
- Debugged USB-C implementation failures across two board revisions; successfully flashed firmware via ICSP

Additional Interests

Fishing, Astro-Photography, Trumpet, PC-Building, Rocketry, 3D Printing, Embedded Systems, RC Aircraft