

EDUCATION

University of Arizona | College of Engineering | Tucson, AZ

Aerospace Engineering | GPA: 4.0 | Expected Graduation: May 2028 | W.A. Franke Honors College

SKILLS

Simulation & Analysis: CFD (ANSYS Fluent, CFX, CFD++, STAR-CCM+), meshing (Pointwise, HELDEN), FEA (Abaqus, ANSYS Static Structural), Thermal (ANSYS Steady/Transient, NASA CEA), Design of Experiments (DOE)

CAD/CAM & Electrical: NX, SolidWorks, Fusion 360, KiCad

Programming & Hardware: MATLAB, Python, C++, LabVIEW; Linux/HPC workflows; data automation & post-processing tooling; machining (lathe, mill), additive manufacturing, I²C sensor integration

AWARDS

2× Honeywell Aerospace Additive Manufacturing Contest Winner, Innovation Award (VEX Robotics Worlds), 1st Place – FAR-OUT Competition (Friends of Amateur Rocketry, Oxidizer Uninhibited Tournament), Forklift Certified

PROFESSIONAL EXPERIENCE

Engine Systems Engineering Intern – Boom Supersonic | Summer 2026

- On a tiger team for a mission-critical low-pressure compressor (LPC) stall-margin issue; traced the root cause to high Rotor 1 incidence and ran a DOE on IGV and rotor angles across 60–100% corrected speed to recover positive stall margin.
- Built an AI-integrated dashboard to triage DOE cases by performance impact and a pipeline to rapidly run unsteady CFD on top candidates.
- Redesigned the aft-turbine outlet diffuser for high-temperature, high-Mach flow, meeting the <1.77% pressure-loss target while cutting cost ~50% by switching from spin casting to sheet metal.

Aerospace Engineering Intern – R3 Aerospace | Winter 2026 – Ongoing

- Designed and validated solid rocket motor bulkheads for high-pressure operation, using ANSYS FEA to ensure structural integrity through hydro-proof and static-fire conditions.
- Bridged design and production, working directly with manufacturing to resolve fabrication and tolerance challenges.

Chief Engineer & Propulsion Manager – Wildcat Rocket Engineering Club | Fall 2025 – Ongoing

- Elected Propulsion Manager then Chief Engineer; led the first team to launch a liquid rocket twice in one competition, taking 1st place in Category A.
- Own end-to-end development of a 1,400 lbf nitrous–ethanol liquid engine and a student-designed N₂O/E98 rocket (8:1 TWR at 600 lbf max thrust) — design, manufacturing, a custom test stand, and cold-flow/static-fire testing (FAR-OUT).
- Spearheaded qualification testing for competition eligibility — hydrostatic proofs to 1500 psi and successful cold-flow tests characterizing electronic-dump and injector behavior.
- After a hard start failed the 1,400 lbf engine's first hot-fire, led the investigation — used ANSYS to identify the combustion-instability driver and redesigned the engine to resolve it.
- Led CFD/FEA nozzle trade studies with NASA CEA and ANSYS Transient Thermal, quantifying wall heat flux to size wall thickness and select a copper nozzle.
- Trained the team in ANSYS, CAD, and machining; secured ANSYS, SendCutSend, and Boltline/Stoke sponsorships, and ran program logistics, bill-of-materials tracking, and engineering–administration collaboration in Boltline.

Engineering Research Associate – The Space Analog for the Moon and Mars | Fall 2025 – Summer 2026

- Led a 3-person team delivering a CO₂-removal test campaign for Paragon Space Development and ICES; designed and built the AC electrical control system (manual override + relay automation) for adsorption/desorption cycling, producing system-effectiveness and half-cycle data.

Compressor Aerodynamic Design & Analysis Intern – Honeywell Aerospace (Fans and Compressors) | Summer 2025

- Analyzed HTF NG compressor performance maps in ANSYS CFX (post-processed in MATLAB/Excel), improving adiabatic efficiency ~0.5% via clearance and bleed-air studies.
- Built a FAST 1D-to-CFX benchmarking capability new to the team for surface-roughness studies (~1% efficiency gain toward the 10,000 lbf thrust target); ran large-scale CFD on Linux HPC with MATLAB tools that cut post-processing runtime 20%.

Risk Management Engineering Intern – U-Haul | Spring 2025

- Designed trailer-mover hardware in SolidWorks and validated a 200-component assembly in ANSYS Static Structural to mitigate ergonomic injury risk; presented to management (patent pending).

Test Engineering Intern – Honeywell Aerospace | Summer 2024

- Designed test articles for the updated RS-25 main fuel/oxidizer valves (NASA Artemis SLS) in NX with cryogenic test protocols, and ran actuator testing for NASA Gateway docking hardware in cleanroom thermal-cycle environments.
- Programmed (C++), machined, and designed controllers for EVTOL actuation qualification rigs — presented to management and adopted by the customer; also supported TVC actuator testing on a DoD contract.

PUBLICATIONS

Hentzen, G., Staats, K., Ackerman, A., Buskirk, J., Phoebe, B., & Knox, J. C. “Further Design and Initial AI&T of the Carbon Dioxide Removal System for SAM.” 55th International Conference on Environmental Systems (ICES-2026-524), 2026.