DAVID STOUT

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Portfolio: career-portfolio.david-stout.com

SKILLS

Design & Analysis: SolidWorks CAD, Fusion CAM, CFD, FEA review, XFOIL, MEFoil, SimScale, Gmsh/OpenFOAM/ParaView, MATLAB, OptimumLap | **Programming & Systems:** Python, VBA, SQL, Microsoft Access, Linux/Ubuntu, automation
Manufacturing: CNC/manual milling, fourth-axis machining, lathe/threading, MIG welding, carbon-fiber layups, vacuum bagging

EDUCATION

Mississippi State University, Bagley College of Engineering — Starkville, MS
Bachelor of Science in Engineering — Expected Graduation: May 2027
Major: Aerospace Engineering | Concentration: Aeronautics | Cumulative GPA: 3.52/4.00

PROFESSIONAL EXPERIENCE

Mississippi State Aerospace Department — Starkville, MS
Lab Assistant — January 2025 - Present

- Co-manage aerospace labs with one lab engineer and two student engineers for 8+ research professors and three student teams.
- Milled and deburred a cable-routing slot in a turbojet wind-tunnel mount; the modified fixture fit and functioned as intended.
- Maintained the hydraulic pumps that power the aerospace materials-testing machines.
- Designed and machined a nut and handle, restoring rotational adjustment and locking of the frequently used shop vise.

Kimberly-Clark Global Nonwovens Mill — Corinth, MS
Summer & Winter Intern — June - August 2024; December 2024 - January 2025

- Observed a mechanical engineer inspect an emptied water tank's dents before refurbishment, learning Lockout/Tagout practices.
- Reorganized a meeting-results whiteboard with taped sections to make information clearer for machine operators.
- Observed plant-wide and machine-specific reviews with engineers, operators, technicians, and office staff.

STUDENT ORGANIZATIONS

Formula SAE at MSU — Starkville, MS
Team Member — *January 2024 - Present*
Aerodynamics Section Lead (2026 Season) — *May 2025 - May 2026*

- Led tooling, manufacturing, training, and design review while teammates developed aerodynamic layouts and structural details.
- Reduced 2026 front-wing weight about 10% versus the weighed 2025 wing while improving rigidity.
- Established the team's first CFD design workflow, creating analysis capability and a foundation for experimental validation.
- Reviewed a teammate's 3D CFD investigation of 2D separation warnings, identifying reverse flow on the final rear element.
- Directed 10 core aerodynamics members, expanding to 30 early in the season through subsystem assignments.
- Owned weekly meetings, schedules, a $5,400 section budget, and sponsor coordination.

PROJECTS

Formula SAE at MSU - NACA 2412 CFD Benchmark — October 2026 - Present

- Built a 2.03-million-cell finite-wing mesh with local refinement and prism layers to develop repeatable team CFD methods.
- Ran 2,000 steady RANS iterations with k-omega SST, learning boundary conditions, wall y+, and convergence checks.
- Flagged roughly 50% excess drag and trailing-edge skewness; pressure and mesh effects remain under investigation.

Capstone - Aerodynamic Load Measurement | Project site — August 2026 - Present

- Lead load analysis, test design, sensor-calibration planning, and software development for a two-person Formula SAE capstone.
- Ran 1,500 synthetic MATLAB trials per noise case, exposing unreliable position estimates at low downforce.

MSU Aerospace Lab - Aileron Table — January 2026 - Present

- Reverse-engineered a nearly 20-ft FedEx aileron for a student-lounge table using tape measurements and CAD checks.
- Designed the legs, steel frame, and aluminum fairings as a parametric SolidWorks assembly.
- Produced drawings and co-fabricated the MIG-welded steel frame with laboratory engineers, fitting within a 1/4-in allowance.

Formula SAE at MSU - Aerodynamic Analysis — May 2025 - Present

- Automated Python/XFOIL airfoil and angle-of-attack sweeps, ranking lift and lift-to-drag ratio for wing development.
- Screened 720 NACA candidates with 12 worker threads; built a separate parallel workflow for DAT-file airfoils.
- Created a MATLAB/OptimumLap workflow to batch-run lift-drag pairs and develop preliminary vehicle aerodynamic targets.
- Used 2026 vehicle engine, weight, and traction inputs in a point-mass lap model; full-vehicle polar calibration remains planned.