

Nathan A. Barnes

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EDUCATION

The University of Texas at Austin, Austin TX

May 2027

- *Cockrell School of Engineering - Honors*: Bachelor of Science in Mechanical Engineering
- *College of Natural Science*: Programming and Computation Certificate

GPA: 3.94

EMPLOYMENT

Daikin Comfort Technologies, *Design Engineering Intern*, Waller TX

May 2026 – Aug. 2026

- Optimized heat exchanger geometry to reduce fin count (**20%**), leading to **\$1.75** million cost savings.
- Conducted AHRI-compliant testing to ensure thermal performance was maintained with design changes.
- Performed FMEA for wrapper assembly redesign, collaborating with cross-functional teams (engineering, quality, manufacturing) to produce comprehensive risk report.
- Utilized simulation (CoilDesigner) to reduce lab testing time by over a week, accelerating the design cycle.

Valeron Strength Films, *Engineering Administrative Assistant*, Houston TX

May 2025 – Aug. 2025

- Learned film extrusion and lamination processes to write accurate technical documentation for machine operators.
- Created technical documents (**100+**) for equipment to ensure ISO certification and improve training efficiency.
- Collaborated with machine operators to improve machine usability and reduce downtime/errors.
- Developed a test procedure to validate a future product, using quantitative comparisons across test iterations to guide design changes.

ACTIVITIES / STUDENT ORGANIZATIONS

Longhorn Racing (FSAE), *Combustion Engine Development*, Austin TX

Aug. 2024 – Present

- Collaborated across a **60+** member FSAE team to design and validate the intake system.
- Applied thermodynamic and fluid principles to optimize intake airflow, leading to a **5%** increase in horsepower.
- Validated designs using both simulation and real-world testing (Dynamometer), iterating based on results.
- Machined intake mounts using the machine shop's lathe and manual mill, following proper tolerancing.

24 Hours of Lemons, *Driver/Mechanic*, Houston TX

Nov. 2021 – Present

- Diagnosed and repaired mechanical and electrical failures mid race under tight time and budget constraints.
- Worked with a four person crew to prep and race at a total of ten endurance events.
- Performed safety inspections and tech compliance to protect drivers and meet racetrack requirements.
- Improved engine performance by removing restrictive 90-degree turns along the intake system.

University of Texas Battle Bots, *Fabrication Lead*, Austin TX

Jan. 2024 – Present

- Coordinated schedules to ensure all team members' parts were fabricated before deadline.
- Operated 3D printer to fabricate robot chassis, manual milling was required for load bearing components.
- Selected different materials (TPU, PLA and Nylon) depending on structural and impact requirements.

PROJECTS

5.0L Engine Rebuild for '87 Mustang

- Rebuilt 302 CI Ford engine from salvage, complying with a strict budget of **\$1,000**.
- Diagnosed various failures using service manuals, wiring diagrams, and technical documentation.
- Restored engine to functioning state and returned vehicle to road use.

SKILLS & INTERESTS

Skills: Python, SQL, MATLAB, CAD Software (SolidWorks, Onshape, AutoCAD), 3D Printing/Additive Manufacturing, Arduino, Laser Cutting, Microsoft Office 365, Technical Writing, Prototype Testing, FMEA & dFMEA, DFM, CoilDesigner, Root Cause Analysis, App Development, Xcode/Swift