

RAHIL MAHMOOD

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EDUCATION

The University of Texas at Austin	B.S. in Mechanical Engineering Overall GPA: 3.7, SAT: 1540	May 2029
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EXPERIENCE

Longhorn Racing Electric – Frame Lead September 2025 – Present

- Leading **4130 steel FSAE EV chassis** architecture, structural packaging, manufacturing strategy, and cross-team vehicle integration efforts
- Developed **ANSYS Mechanical torsional rigidity model** to correlate simulation results to physical chassis test data and fixture constraints
- Ran in-person **torsional rigidity validation test** using rear frame constraints, FBH loading, and dial-indicator displacement measurements
- Validated suspension hardpoints under **6 kN load cases**, keeping peak **von Mises stress < 240 MPa** using an ANSYS FEA model
- Designed, fabricated, and assembled **welding fixtures** for suspension tabs, holding **±0.015 in positional accuracy** during frame assembly
- Designed **VCU and telemetry enclosures** with O-ring seals, cable routing, ventilation, and fan packaging for electrical system integration
- Coordinating frame CAD, shop drawings, tab design, packaging, and fabrication handoff across suspension, aero, and electronics subteams

Seanergy.AI

Robotics Systems Strategy Contractor June 2026 – Present

- Evaluated **20+ robotics vendors, software platforms, and open-source frameworks** across **4 warehouse automation** use cases
- Authored **4 executive-ready robotics reports**, synthesizing technical capabilities, implementation risks, ROI, and deployment considerations
- Developed comprehensive **research matrix** comparing hardware, software, maturity, integration complexity, and **build-vs-buy** tradeoffs
- Mapped **WMS, WES, fleet management, and robot software** architecture to identify integration opportunities for Seanergy's AI platform
- Recommended **3 commercialization strategies** spanning vendor partnerships, software middleware, and automation intelligence layers

Operations Engineering Intern June 2025 – August 2025

- Automated **40+ hours/week** of outbound workflows using **Clay, HubSpot, and AI-driven data enrichment**, scaling client targeting
- Developed and optimized **CRM workflows, lead qualification, and GTM operations** supporting sales outreach and customer acquisition

Rolfson Compression– Engineering Intern

June 2024 – August 2024

- Designed **pressure vessels, compressor skids, and mechanical assemblies** in **SOLIDWORKS** and **Compress** for oil & gas applications
- Produced **manufacturing drawings, BOMs, and engineering documentation** supporting fabrication, assembly, and internal deliverables
- Developed **quality assurance procedures** and standardized shop workflows to streamline fabrication and support **ASME code** compliance
- Collaborated with engineering and production teams to review designs, resolve manufacturing issues, and improve documentation accuracy

PROJECTS

Autonomous Person-Tracking Camera – Mechanical / Embedded Systems Project June 2026 – Present

- Building **Raspberry Pi** camera system with **YOLO person detection**, live video streaming, and toggleable remote web interface control
- Implemented **computer vision pipeline** to detect people, track center target position, and command panning/tilting alignment corrections
- Developed browser-based interface for remote viewing, live camera feedback, and system control for beta testing and debugging purposes
- Iterating toward autonomous aiming behavior using **Python, YOLO, OpenCV**, and mechanical, motor driven, pan-tilt system integration

BattleBot – Mechanical / Electrical Designer

January 2026 – May 2026

- Retrofitted **1:16 scale vehicle platform** into RC combat robot with custom weapon, mounts, armor, electronics, and chassis packaging
- Integrated **1000KV brushless motor, 30A ESC, FlySky receiver, and 14.8V battery** into compact drivetrain and weapon architecture
- Iterated **3D printed weapon mounts, guards, and chassis adapters** under tight weight, packaging, safety, and impact durability constraints
- Debugged **ESC calibration, throttle mapping, motor direction, and power delivery** through bench testing and tournament preparation
- Competed in local combat robotics tournament and placed **3rd overall** after iterative testing, repairs, strategy, and pre-match adjustments

TECHNICAL SKILLS

- Mechanical Design & Analysis:** SOLIDWORKS, ANSYS Mechanical, FEA, structural analysis, GD&T, DFM, tolerance analysis
- Robotics & Programming:** Python, YOLO, OpenCV, Raspberry Pi, Arduino (C++), computer vision, embedded systems
- Manufacturing & Prototyping:** 3D printing, welding, fixture design, shop drawings, fabrication assembly, bench testing, breadboarding
- Engineering Tools:** Compress, AutoCAD, Revit, technical documentation, BOMs, QA workflows, systems integration, design reviews

LEADERSHIP & ADDITIONAL INFORMATION

TEDxFrisco HS Youth – Operational Executive, Founding Team August 2023 – May 2025

- Managed **50+ speaker auditions** and led event logistics, scheduling, and operations for inaugural student facilitated TEDx event
- Oversaw ticketing, speaker support, and day-of audience operations for event; featured on official **TEDx YouTube** with **40M+ reach**

Young Men Service League (YMSL) – President, Class of '25 May 2022 – May 2025

- Directed high school chapter contributing **3,900+ volunteer hours** while promoting leadership development through service seminars
- Organized and led member meetings to improve participation, communication, and engagement across **200+ student and parent members**

Frisco HS Soccer – Varsity Captain (2025) August 2021 – May 2025

Interests: Minute Cryptic, theology, Texas Two-Stepping, running 10Ks, fixing my driver swing