

TARIQ AKILAH

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EDUCATION

Cumulative GPA: 3.88

University of California, Irvine

B.S. Mechanical Engineering

Irvine, CA

Expected 12/2028

Mission College

Santa Clara, CA

A.S.-T Physics

06/2026

TECHNICAL SKILLS

CAD & Design: SolidWorks, Fusion 360, Onshape, AutoCAD, GD&T / Tolerance Analysis, Engineering Documentation

Simulation & Analysis: STAR-CCM+ (CFD), SimScale (CFD), OpenRocket

Manufacturing & Fabrication: FDM 3D Printing, MIG Welding, Soldering, Engineering Drawings, Engineering Documentation, Mechanical Assembly

Programming: MATLAB, C / C++, Python

EXPERIENCE

Aerodynamics Engineer

07/2026 – Present

Anteater Electric Racing - FSAE

Irvine, CA

- Raised undertray downforce from under 50 N to 160 N by diagnosing turbulent flow entering the inlet from the floor's leading edge and reprofiling inlet and diffuser geometry in SolidWorks, validated in STAR-CCM+ across 0-3 degrees of braking pitch; targeting 200-250 N for the final iteration.
- Integrating the undertray into a full-car aero package by collaborating with engineers from the front wing, rear wing, and sidepod subteams within a 35+ member aerodynamics team, and confirming manufacturability with the composites team.
- Confirmed the team's baseline STAR-CCM+ setup produced reliable downforce values agreeing within 10% by independently building a second simulation template alongside the aerodynamics lead.

Fluid Dynamics Research Intern

06/2026 – 08/2026

Mission College

Santa Clara, CA

- Conducted 6,200 core-hours of SimScale CFD simulations for [Thrust Stack](#), a faculty-advised 4-student research team developing an active canard-controlled airframe for closed-loop roll stabilization.
- Delivered a 162-point roll torque coefficient dataset adopted into the rocket's flight control logic, selecting a smaller canard geometry for finer control, by running 244 CFD cases sweeping deflection from 0.55 to 9.9 degrees and freestream velocity from 33 to 113 m/s.
- Minimized parasitic drag by designing and manufacturing a custom servo housing in SolidWorks, integrated and sitting flush with the airframe.

Avionics Lead

07/2025 – 06/2026

Mission Launch Rocketry

Santa Clara, CA

- Led a 5-person avionics team through design, integration, and flight testing of a two-stage high-power rocket.
- Reduced avionics bay mass by 34% for a simulated 318 ft apogee gain by redesigning layout, component and material selection, and tuning FDM parameters.
- Modeled flight in OpenRocket, achieving a 1.12-cal stability margin and predicting apogee within 7% of previously measured flight data.
- Integrated dual-redundant flight computers that recovered critical data from two failed launches, diagnosing a faulty barometric reading and wind-induced tilt as root causes, then widened angle tolerance to 45° for a final flight simulated at 5,400 ft.

PROJECTS

NAR High Power Rocket Certification | Fusion 360, OpenRocket, FDM

- Designed and manufactured a high-power rocket in Fusion 360, FDM-printing the airframe from PETG-CF on a Bambu Lab P1S to achieve geometric symmetry under OpenRocket simulated flight loads while staying under 600 grams.
- Executed a stable Mach 0.747 flight to 4,600 ft, recovering the airframe without critical damage to earn NAR Level 1 High-Power Certification.
- Earned pre-flight certification from a NAR Level 3 mentor by verifying structural rigidity under load, proper construction and assembly, and motor retention and tolerancing.

Motorized Trike | Fusion 360, MIG Welding

- Built a motorized trike from recycled materials for under \$500 on a 5-week program deadline.
- Modeled the chassis in Fusion 360 and fabricated it from 0.0478-inch wall steel square tubing using self-taught MIG welding, validating structural rigidity under a 180 lb rider and lateral drifting loads with minimal chassis flex.
- Rebuilt a seized 212cc engine and mated a go-kart rear axle to a bicycle front fork, reaching a 40 mph top speed.

Coilover Assembly | Fusion 360, FDM

- Reverse-engineered a functional coilover assembly in Fusion 360 with spring, damper, shock body, adjustment ring, and mounts defining range of motion.
- Performed GD&T-based tolerance analysis across 3 design revisions, balancing fit and clearance in PLA-printed components to achieve smooth adjustment travel while maintaining secure fitting.

LEADERSHIP AND ACTIVITIES

Co-Founder & Vice President

07/2025 – 06/2026

Mission Launch Rocketry

- Grew the first Mission College project-based engineering club to 60+ members, with 14 active on its first project, raising \$5,300 in funding.

Founder & President

09/2025 – 06/2026

Mission College Muslim Engineering Society

- Founded a Muslim STEM networking society, growing to 35+ members and landing internships for 2 through engineering speaker events.

Secretary

03/2025 – 06/2026

Mission College Associated Student Government

- Published 70+ official agendas and meeting minutes, coordinating communication across students, faculty, and administrators.