

Syed Tahsin

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EDUCATION

Stony Brook University

Bachelor of Science in Mechanical Engineering

Stony Brook, NY

Expected May 2028

EXPERIENCE

Chief Powertrain Director

RedRacing, Stony Brook Formula SAE

Sep. 2025 – Present

Stony Brook, NY

- Optimized engine calibration in MATLAB and INCA, improving fuel efficiency 8% across three vehicle platforms.
- Cut cooling system pressure drop 35% and package volume 15% by iterating designs in SolidWorks and Fusion 360 and validating them with ANSYS Fluent CFD benchmarks and DVT workflows.
- Led concept-to-BOM powertrain development, design reviews, technical drawings, and root-cause analysis.

Payload Engineer

NASA Student Launch Team, Stony Brook University

Sep. 2024 – Present

Stony Brook, NY

- Cut payload structural mass 18% under 15G loads using SolidWorks CAD and ANSYS FEA/CFD at sub- and full-scale.
- Achieved 100% autonomous deployment and recovery by manufacturing flight hardware with CNC milling, lathe machining, SLA/FDM printing, custom PCB circuitry, and Arduino microcontrollers.
- Programmed closed-loop MATLAB and Python telemetry pipelines reaching 99.2% flight-prediction accuracy against RockSim, supporting NASA CDR and FRR reports.

Petroleum Research Intern

Koehler Instrument Company Inc.

Aug. 2025 – Present

Bohemia, NY

- Co-authored 4 technical articles (2 published, 2 in preparation) on renewable diesel, solar, combustion, and PFAS.

PROJECTS

EV Battery Module Enclosure | *SolidWorks, ANSYS Mechanical, VisVSA, Minitab, GD&T, DFM/DFA* 2026

- Designed a 48-cell Li-ion enclosure in SolidWorks over 5 iterations with GD&T per ASME Y14.5 on 32 critical dimensions, cutting tooling rework cycles 58% and mold lead time by 3 weeks.
- Raised structural survivability from 69% to 96% under 1.5 m drop and 15 kN crush loads in nonlinear ANSYS FEA by redesigning rib geometry and validating 6 polymer candidates, cutting material cost 21%.
- Reduced assembly scrap 39% through Monte Carlo tolerance analysis in VisVSA on a 26-component stack-up, tightening 7 critical and relaxing 11 non-critical tolerances at the cell-to-busbar interface.
- Ran a full-factorial DOE in Minitab across 4 injection-molding variables, cutting short-shot defects 44% and eliminating all 3 failure modes before first article inspection with CMM Gauge R&R under 9%.

Robotic Surgical System | *ESP32, Embedded Firmware, CNNs, Inverse Kinematics, VR Teleoperation* 2024 – 2025

- Built a gantry-based surgical robot with real-time force-feedback teleoperation by integrating NEMA 17 steppers, A4988 drivers, ESP32 microcontrollers, and FlexiForce haptic gloves.
- Prototyped CNN gesture recognition and inverse kinematics for Oculus Quest 2 VR control of Da Vinci-style tools.

PUBLICATIONS

Hydrogen Demand, Catalyst Durability, and Feedstock Variability in Renewable Diesel, *Petro Industry News*, Jan. 2026.

Recent Advances in Solar Cell Technology for Transportation Applications, *Alternative Energy Magazine*, Sep. 2025.

AI-Driven Optimization of Combustion in Engines Using Alternative Fuels, *in preparation*.

PFAS as Performance Materials: Structure-Function Tradeoffs and Substitution Paradigms, *in preparation*.

LEADERSHIP & INVOLVEMENT

Social Media & Marketing Assistant | *Stony Brook University*

Jan. 2026 – Present

- Grew @sbengaged Instagram viewership 62% across 30K+ followers with Canva carousels and reels totaling 500K+ views.
- Analyzed engagement metrics in Excel to guide content strategy, increasing follower growth and engagement 40%.

VP of Scholarship & Academic Wellness | *Sigma Chi Fraternity*

Dec. 2025 – Present

- Raised the chapter's average GPA to 3.70 by leading academic accountability initiatives and member resume reviews.

Orientation Leader | *Stony Brook University*

Aug. 2025 – Present

- Led student groups through orientation for 10,000+ incoming students across 3 seasons and 100+ events.

TECHNICAL SKILLS

CAD & Simulation: SolidWorks, Fusion 360, ANSYS Mechanical (FEA), ANSYS Fluent (CFD), RockSim

Programming & Embedded: MATLAB, Python, Arduino, ESP32, INCA

Manufacturing: CNC Milling, Lathe Machining, SLA/FDM 3D Printing, Custom PCBs

Analysis & Standards: GD&T (ASME Y14.5), DFM/DFA, DOE, Minitab, VisVSA, Tolerance Stack-Up, Excel