

Sharjeel Malik

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EDUCATION	Embry-Riddle Aeronautical University (ERAU) <i>Bachelor of Science, Aerospace Engineering</i> Area of Concentration: Astronautics	Daytona Beach, FL December 2028 GPA: 4.00/4.00
	Florida Southwestern State College (FSW) <i>Associate in Science and Engineering Technology</i> <i>Associate in Arts</i>	Fort Myers, FL May 2025 GPA: 3.95/4.00
PROJECT EXPERIENCE	<i>Experimental Rocket Propulsion Laboratory (ERPL)</i> Lead Engineer Project R.E.D. (Regenerative Engine Development) - Lead the design of a regeneratively cooled Ethanol/LOX engine (1250lbf thrust and 350psi chamber pressure) - Refitted ERPL's in-house 1D regenerative cooling MATLAB solver to model the effects of PDMS thermal barrier coatings on engine wall heat transfer. - Developed and integrated a film cooling MATLAB model into the thermal analysis framework to evaluate coolant layer effectiveness and chamber wall temperature reduction. - Characterized thermal failure limits with MATLAB, including critical heat flux and thermal stress behavior, to evaluate engine survivability under nominal operating conditions. - Conducted injector trade studies evaluating injector element types, additive manufacturing methods, and manifold architectures to determine the optimal injector configuration for the engine. - Designed injector, combustion chamber, and regenerative cooling channel geometry in Autodesk Inventor and nTop for additive manufacturing integration. Project Faraday - Conceptual liquid bipropellant rocket engine development - Organized project workflow and coordinated a 4-member engineering team to manage engine development. - Integrated NASA CEAM with a MATLAB engine sizing framework to automate propulsion design. - Developed a MATLAB workflow to export generated engine geometry directly into Autodesk Inventor. - Optimized combustion chamber and nozzle sizing for ground test operations. Project Moe - Liquid rocket flight vehicle targeting 60,000 ft altitude - Analyzed ERPL's pressurized propellant feed system by calculating discharge coefficients and mass flow rates. - Created a Python model quantifying GN₂ leak-induced mass flow losses in the feed system. - Assembled, disassembled, and tested the feed system components to support system validation.	Daytona Beach August 2025 - Present
RESEARCH EXPERIENCE	<i>Embry-Riddle Undergraduate Research</i> Eigenvalue-Based Thermoacoustic Analysis of Rocket Engines - Developed a thermoacoustic model to analyze combustion instability in rocket engines. - Derived governing equations from the compressible Navier-Stokes and acoustic wave equations. - Linearized PDEs into an eigenvalue stability formulation for acoustic modes.	Daytona Beach, FL January 2026 - Present
INTERNSHIP EXPERIENCE	<i>Florida Gulf Coast University (FGCU)</i> FGCU Transportation Engineering Research Intern - Researched AI-driven traffic simulation methods, analyzing models and dataset usage under faculty supervision. - Analyzed transportation datasets to evaluate simulation outputs and support model validation. - Documented simulation methods and workflow practices for integration into departmental research processes.	Fort Myers, FL June 2024
LEADERSHIP EXPERIENCE	<i>Eaglenauts: ERAU Analog Astronaut Training Initiative</i> Training Officer - Led astronaut-style training exercises focused on decision-making, teamwork, and leadership under pressure. - Designed and ran mission scenarios to build communication, problem-solving, and crisis response skills. - Managed diverse teams in structured environments, improving leadership and coordination under constraints.	Daytona Beach, FL December 2025 - Present
SKILLS	<i>Design & CAD:</i> CATIA V5, Autodesk Inventor, Fusion 360, nTop <i>Programming & Analysis:</i> MATLAB, Python, ANSYS, NASA CEAM, CoolProp, HTML <i>Propulsion:</i> Regenerative and film cooling, turbopump-fed systems, feed system analysis <i>Thermal & Structures:</i> Heat flux characterization, thermal stress modeling, high-temperature material evaluation	
AWARDS	ERAU Presidential Scholarship (Fall 2025–Present) ERAU Honors Program (Fall 2025–Present) ERAU Dean's List (Fall 2025–Spring 2026)	