

SAMER MARMASH

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EDUCATION

Rice University <i>Bachelor of Science in Mechanical Engineering, Minor in Engineering Design</i> <ul style="list-style-type: none">Relevant Coursework: Matrix Analysis, Differential Equations, Multivariable Calculus, Mechanics/Statics, Stress Analysis, Rigid Body Dynamics, Classical Thermodynamics, Computational Thinking, Engineering Design	Houston, TX Expected May 2027
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TECHNICAL SKILLS

Programming Languages: Python, MATLAB, Java, JavaScript, LaTeX
CAD & Engineering Tools: SolidWorks, Fusion 360, OnShape, Excel, AutoCAD
Manufacturing & Prototyping: 3D Printing (FDM/SLA), CNC Machining, MIG Welding, Manual Machining, Rapid Prototyping
Hardware & Electronics: Arduino, Servo Control Systems, Sensor Integration, Circuit Design, Embedded Systems

PROFESSIONAL EXPERIENCE

Rice Wind Tunnel <i>Mechanical Design Engineer</i> <ul style="list-style-type: none">Engineered redesigned wind tunnel base structure featuring dual longitudinal steel support frames, increasing test section accessibility by 60% and reducing experimental setup reconfiguration time from 45 to 15 minutesExecuted precision fabrication of 8 structural components using CNC mill with $\pm 0.005"$ tolerance, performed MIG welding for frame assembly achieving 95% joint efficiency, and integrated load-bearing elements supporting 500+ lbs aerodynamic loadingCollaborated with 4-member research team to validate structural integrity through FEA in SolidWorks, ensuring compliance with safety factors above 2.5 under maximum operational wind speeds of 120 mph	Houston, TX May 2025 – Present
Rice Electric Vehicle <i>Mechanical Systems Engineer</i> <ul style="list-style-type: none">Designed and fabricated 12 custom aluminum mounting brackets for 72V battery pack system, reducing installation time by 40% while maintaining <2mm positional tolerance across thermal cyclingIntegrated suspension components including A-arms and coilover assemblies for fully electric vehicle chassis, coordinating mechanical and electrical subsystem interfaces across 8-person teamConducted stress analysis on chassis mounting points using hand calculations and SolidWorks FEA, validating safety factors >3.0 for peak cornering loads of 1.5g lateral acceleration	Houston, TX October 2024 – Present
Arabic Language Research Assistant <i>Research Consultant</i> <ul style="list-style-type: none">Reviewed 50+ student assignments weekly and provided detailed grammar and style corrections, contributing to 15% improvement in average class proficiency scores across semesterSourced and translated 20+ primary Arabic texts for professors conducting research on Arabic literature, ensuring academic accuracy and contextual integrity of historical documents	Houston, TX January 2025 – Present

ENGINEERING PROJECTS

Robotic Prosthetic Hand with Haptic Feedback <i>Arduino, Fusion 360, C++, FSR Sensors</i> Project Details <ul style="list-style-type: none">Designed and prototyped 5-finger articulated mechanism with servo motors achieving 90° range of motion per joint, integrating force-sensitive resistors at fingertips to detect 0-10N grip pressure with $\pm 5\%$ accuracyProgrammed Arduino Uno to process real-time sensor data at 100Hz, implementing PID control algorithm mapping pressure readings to proportional vibration motor intensity (0-255 PWM) on user's forearm for haptic feedbackIterated through 6 design revisions in Fusion 360, optimizing finger geometry to reduce weight by 30% while maintaining structural integrity under 15N grip forces during object manipulation testing	January 2025 – Present
Rocket Telemetry Tracking System <i>SolidWorks, Antenna Systems, Field Operations</i> Project Details <ul style="list-style-type: none">Engineered dual-axis gimbal tripod system for Yagi directional antenna achieving $\pm 2^\circ$ tracking precision, enabling continuous telemetry lock on rocket trajectories reaching 100,000 ft altitude and Mach 0.8 velocitiesFabricated secondary 10-ft extension pole tripod for omni-directional antenna using aluminum tubing, designing custom hinge mechanism and performing stability testing under 2 mph wind conditions to ensure secure field deploymentCollaborated with 3-person telemetry team to validate antenna performance through ground station testing, achieving 95% uplink reliability during launch operations	August 2025 – December 2025
Electric Bike Performance Optimization <i>Carbon Fiber, 3D Printing, Mechanical Design</i> Project Details <ul style="list-style-type: none">Designed and assembled custom electric bike integrating carbon fiber seat post and handlebars, achieving 2.3 lb (18%) weight reduction while maintaining structural rigidity for 140lb rider and 25 mph commuting speedsModeled and 3D-printed ergonomic thumb throttle using TPU filament, iterating through 5 prototype versions to optimize grip comfort and control precision, resulting in 40% improved throttle response feedbackIntegrated 1000W brushless motor with 48V battery system, achieving 28-mile range and reducing daily commute time by 35% compared to traditional cycling	December 2024 – December 2025