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ALEXANDER TAVASSOLI

EDUCATION

Bachelor of Science and Engineering, Honors, Cum Laude – Aerospace Engineering (Aeronautics) May 2026
Barrett, The Honors College | *Arizona State University, Tempe, AZ*

Master of Science – Aerospace Engineering Expected May 2028
Ira A. Fulton School of Engineering | *Arizona State University, Tempe, AZ*

TECHNICAL SKILLS

Software & Tools: MATLAB, Simulink, Python, C/C++, ANSYS Fluent, FEA, Siemens NX, SolidWorks, Autodesk CAD/CAE, Blender, Git, Linux (Ubuntu Server), Proxmox, Embedded Systems, Microcontrollers, Structural/Thermal Analysis, Numerical Methods

Engineering Expertise: Systems Engineering (Requirements/V&V), Trade Studies/Optimization, Failure Analysis, Rapid Prototyping, Testing/Verification, GD&T, Technical Documentation

PROFESSIONAL EXPERIENCE

DARPA Lift Challenge: Aerial Experimental Unmanned Systems (AXUS) Lab May 2026 – Present
Chief Technical Lead, Project Manager & Remote Pilot in Command • *Arizona State University, Tempe, AZ*

- Led the system-level design, fabrication, integration, and flight testing of a heavy-lift unmanned aircraft for the DARPA Lift Challenge.
- Define aircraft architecture and subsystem interfaces across structures, propulsion, power distribution, avionics, flight controls, payload integration, and landing gear. Perform thrust-to-weight, battery endurance, center-of-gravity, structural-load, and mass-budget analyses to guide configuration and component selection.
- Oversee integration of motors, electronic speed controllers, flight controllers, receivers, telemetry, power modules, and high-current electrical systems.
- Develop and execute verification procedures including continuity checks, propulsion testing, restrained runs, tethered hover, payload testing, and flight-control tuning. Diagnose structural, electrical, thermal, vibration, and control-system issues using test data, flight logs, current draw, voltage sag, and component-temperature measurements.
- Direct rapid design iterations and configuration changes to improve structural stiffness, propulsion reliability, payload retention, maintainability, and flight readiness.

WORKFORCE PREPARATION

NASA ORBIT Finalist: Lunar Autonomous Navigation & Timing Relay Network (LANTRN) Feb 2026 – Present
Chief Engineer and Guidance, Navigation & Control Lead • *Sun Devil Satellite Laboratory, Arizona State University, Tempe, AZ*

- Lead GNC development for a lunar satellite constellation supporting autonomous surface positioning and communications in the 2026 NASA ORBIT Challenge. Designed multi-satellite architectures, including auto-correcting polar elliptical constellations and relay network topologies, for lunar coverage and navigation support.
- Developed Doppler-based and reverse-ephemeris navigation methods and simulation models for lunar orbital design, coverage analysis, and surface positioning.
- Advanced to Phase III based on a system-level design proposal.

Next-Generation Blade Tip (NGBT) Aug 2025 – Present
Graduate Researcher & Designer • *Arizona State University, Tempe, AZ*

- Develop a next-generation blade tip concept (NGBT) to reduce tip vortex strength and induced drag in rotating and fixed-wing systems. Design and conduct wind tunnel and rotor-based experiments to evaluate vortex formation and wake structures.
- Analyze aerodynamic data in MATLAB, including lift and drag coefficients, Reynolds number effects, and error propagation.
- Collaborate with an international team to refine design direction and align project objectives.

Next-Generation ASW Aircraft Design Capstone Jan 2026 – May 2026
Aerodynamics Lead & Conceptual Design Engineer • *Arizona State University, Tempe, AZ*

- Lead design of a next-generation anti-submarine warfare aircraft targeting $L/D \approx 17$. Optimize wing geometry, airfoil selection, and lift distribution for long-endurance mission performance.
- Designed and validate spanwise airfoil progression using NASA supercritical series airfoils, lift-drag polars, and sweep-corrected coefficients to ensure efficient cruise and controlled stall behavior.
- Developed conceptual aircraft configurations and high-quality three-view visualizations to communicate design intent to technical and non-technical stakeholders.