Alexander Solakhyan

Aerospace & Mechanical Engineer
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Aerospace & Mechanical Engineer (UC Berkeley M.Eng.) with hands-on experience in satellite GNC systems, CFD/FEA simulation, and applied machine learning. At Airbus U.S. Space & Defense, modeled propellant slosh dynamics using Ansys Fluent and Simulink 6DOF to support satellite attitude control design. Proficient in Python, C++, MATLAB, and industry-standard aerospace tools.

EDUCATION

University of California, Berkeley — M.Eng. in Mechanical Engineering — Class of 2026 · GPA: 3.9
Specialization in Aerospace Engineering

University of California, Davis — B.S. Aerospace & Mechanical Engineering — Class of 2025 · GPA: 3.5

SKILLS

Engineering: Control Systems (MPC, LQR, PID, Nonlinear) · ML (Logistic Regression, Adaboost, Random Forest, SVM, CNN) · Embedded Systems · CAD & CAM Design · Circuit Design · Machining

Programming: C++ · Python · MATLAB · R · Java · Golang · LaTeX

Aerospace Tools: SolidWorks · Ansys · NASTRAN · PATRAN · AVL · OpenVSP · XFoil

Languages: English · Russian · Armenian

EXPERIENCE

Airbus U.S. Space & Defense — Sep 2025 – May 2026

- Modeled liquid Xenon propellant slosh dynamics using Ansys Fluent CFD, quantifying disturbance forces across a range of acceleration profiles to support satellite GNC design.
- Developed a Simulink 6DOF simulation to assess sloshing-induced perturbations to satellite attitude, position, and torque, identifying worst-case operating conditions.
- Delivered findings to cross-functional GNC team, enabling informed trade-off decisions on slosh feasibility and potential energy reduction.

UC Davis, Department of Material Sciences — Apr 2023 – Oct 2024

Undergraduate Research Assistant — Crystallography

- Characterized crystalline structure of Ta_2O_5 thin films grown via multiple deposition methods using ParkSystems AFM, identifying structural differences correlated with growth conditions.
- Maintained sample lifecycles and presented results to faculty researchers, contributing to ongoing publication efforts.

Undergraduate Research Assistant — Spin Ice Systems

- Simulated $La_{0.7}Sr_{0.3}MnO_3$ nanomagnet arrays in GoLang/MuMax to model energy flow and magnetic state transitions in artificial spin ice structures.
- Designed a replicable six-bit logic gate system by exploiting six distinct polarization states in brick-like nanomagnet arrays.

PROJECTS

Multi-Point Turn Optimization (UC Berkeley) — Nov – Dec 2025

- Built a Model Predictive Controller in Python with hard/soft constraints to minimize multi-point turn distance; achieved smooth trajectories satisfying all kinematic bounds.

Semiconductor Defect Classification (UC Berkeley) — Oct – Dec 2025

- Trained and benchmarked Logistic Regression, Adaboost, Random Forest, SVM, and CNN classifiers on semiconductor material property datasets; CNN achieved highest accuracy at 95%

Viscoelastic Material Modeling (UC Berkeley) — Nov – Dec 2025

- Derived and implemented a Kelvin-Voigt finite element model to simulate time-dependent stress-strain behavior, validating results against analytical solutions.

Agricultural Aircraft Design and Analysis (UC Davis) — Jan – Jun 2025

- Performed dynamic stability analysis on a canard-equipped agricultural aircraft using AVL, Python, and OpenVSP; assessed longitudinal/lateral mode changes introduced by canard configuration.