Aadam Awad

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EDUCATION

Columbia University – Bachelor of Science in Mechanical Engineering; Minor in Computer Science, 3.5 GPA May 2026

EXPERIENCE

Propulsion Fluids Lead – Columbia Space Initiative Rocketry Team, New York, NY June 2023 – Present

Responsible for designing, manufacturing, testing, and documenting the student-developed nitrous oxide blowdown system for our 2023-2024 hybrid rocket. Now building an electronic regulated pressure system for liquid oxygen.

- Built a double-acting PTFE-sealed pneumatic valve with 1" orifice. Designed with first principles, validated with FEA and Ansys Fluent, modeled in Python. Leak-proof operation up to 1,350 psi with 20 millisecond actuation.
- Built an improved 22L bolted closure pressure vessel that is 50% longer and 7% lighter compared to 2022-23.
- Used REFPROP to model autogenously pressurized nitrous oxide blowdown through a two-phase injector.
- Capable CNC programmer and machinist for 4-axis Haas ST-20Y and 3-axis Haas Mini Mill.
- Designed and flew reliable motorized valves and integrated sensors for oxidizer management systems.

Propulsion Intern – Astranis Space Technologies, San Francisco, CA May 2024 – August 2024

- Responsible engineer for geostationary satellite pressurant system, performed trade studies for lifetime optimization, designed and procured components, and ensured SSCMAN 91-710 compliance.
- Developed product lifecycle management, welding DFM, and CAD skills.
- Defined requirements for component procurement and supported vendor relationships.
- Developed and executed acceptance tests for steady-state and transient flow in components.

Mechanical Engineering Intern – Olympian Motors**,** Brooklyn, NY June – August 2023

- Produced materials for industry-wide education about electric vehicle market positioning and manufacturing.
- Wrote documents summarizing and justifying system-level design decisions.

Entrepreneur – Ubix LLC, San Diego, CA January 2021 – September 2023

- Founded and operated an e-commerce startup. Deployed on the app store, the Ubix platform provided a secure marketplace for university students to rent goods, including books.
- Learned and wrote code for iOS (Swift) development for the Ubix mobile app. Wrote user stories and test cases for product creation, debugging, and rapid iterative deployment.

PROJECTS

High-Powered Rocket (Viper)

Designed, tested, flew, and certified on a custom, scratch-built fiberglass high-powered rocket during the summer of 2023. Recovered successfully twice, certifying NAR Level 1 and 2 on separate flights. Max apogee of 3200' recorded.

- Custom fabrication using fiberglass, epoxy resin, and 3D-printed molds.
- Ran simulations in OpenRocket, calculated fin flutter, and designed a modular motor system.
- Successful test flight of avionics for the Columbia rocket in Jan. 2024.

Electric Skateboard

Modified an existing skateboard with an electric belt drive, lithium-polymer battery pack with a fiberglass shell, and remote control. Learned spot welding, fiberglass manufacturing, and ESC technology for this project.

Racing Drone

Custom-built a racing quadcopter with FPV (first-person view).

SKILLS

Design: SolidWorks, Fusion 360 CAD/CAM, HSMWorks, GD&T
Simulation and Analysis: Ansys Fluent, SolidWorks FEA
Manufacturing: 4-axis and 3-axis CNC machining, Waterjet, Laser cutter, 3D Printing
Coding: Java, Python, C, Swift, HTML, MATLAB