

Aadam Awad

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EDUCATION

Columbia University – Bachelor of Science in Mechanical Engineering; Minor in Computer Science, 3.6 GPA May 2026

EXPERIENCE

Fluids Propulsion 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 engine. Also a key contributor to the 2022-2023 rocket as a fluids member.

- Designed a single-acting pneumatic valve with 1" orifice from first principles. Ran simulations using FEA and Ansys Fluent, also modeled o-ring friction and force balance in Python. Planned manufacturing February 2024.
- Designed an improved 26 L bolted closure pressure vessel that is 50% larger and 7% lighter compared to 2022-23.
- Hydrostatically proof tested the pressure vessel to 1,350 PSI for 30 minutes, validating design optimizations.
- Experienced CNC programmer and machinist for 4-axis Haas ST-20Y and 3-axis Haas Mini Mill.
- Wrote Python code using REFPROP libraries to simulate nitrous oxide tank blowdown and model mass flow rates.
- Conducted integrated flight configuration tests, including static fires and cold flows.
- Designed, machined, and tested a two bar linkage for a servo-actuated ball valve, successfully flown in June 2023.
- Integrated Kulite pressure transducers and Futek load cells into our system for the testing and launch.
- Onboarded and mentored new members, delegating projects and providing guidance in a leadership role.

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

- Collaborated with regulators and certifiers for review and approval of candidate prototype vehicles.
- Wrote documents summarizing and justifying system-level design decisions.
- Produced materials for industry-wide education about electric vehicle market positioning and manufacturing.

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.
- Led and collaborated with a team of software developers.
- 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.
- Cooperated, led, and arbitrated decisions for a small team of developers throughout a product development cycle.
- Utilized my university resources and technical skills to administrate a startup, obtaining official LLC status.

PROJECTS

High-Powered Rocket (Viper)

Designed, tested, flew, and certified on a custom, scratch-built fiberglass high-powered rocket during the summer of 2023. Flew to 2700' and recovered successfully twice, certifying NAR Level 1 and 2 on separate flights.

- 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 electronics for our larger hybrid rocket in January 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