

AVA ALTON

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SUMMARY

Third year Aerospace Engineering Student at Saint Louis University, with numerous hands-on experiences in all sectors of aerospace: Rockets, Aircrafts, and Drones.

EDUCATION

Saint Louis University
Bachelor of Aerospace Engineering

Saint Louis, MO

August 2023 - May 2027

EXPERIENCE

NOVA: NASA Student Launch Initiative

August 2025 – Present

Lead the design and development of NOVA, a high-performance research vehicle engineered to evaluate the viability of additive manufacturing in future aerospace systems. Focused on the structural integrity of near-total 3D-printed airframes and the integration of autonomous robotic sampling payloads.

- Engineered a near-total 3D-printed airframe, optimizing aerodynamic surfaces and structural components while maintaining strict NASA requirements.
- Designed and manufactured a 3D-printable autonomous payload system equipped with robotic mechanisms for soil sample collection and real-time pH level analysis.

Project CleanCurrent

August 2024 – Present

Developed Aqua Vitae, an autonomous underwater vehicle designed to mitigate microplastic pollution through integrated BALEEN filtration systems. This research evaluates the terrestrial efficiency of the filtration design while investigating its scalability for extraterrestrial ocean exploration, specifically for the detection of microorganisms within the subsurface seas of Jupiter's moon, Europa.

- Utilized CAD software to engineer a 3D-printable airframe and a specialized electronics housing rated for high-pressure environments up to 80 meters.
- Conducted controlled flow-rate testing of microplastic particles to optimize filter intake geometry and maximize collection efficiency.
- Analyzed design approaches and manufacturing techniques to assess the vehicle's viability for future missions targeting biomarker detection in extreme aquatic environments.

Starlance: Spaceport America Cup

August 2024 – June 2025

Assisted in design and manufacturing of a 12-foot high-power rocket utilizing a custom M-class SRAD motor. Performed extensive structural analysis to achieve a precision target apogee of 10,000 feet while managing a rigorous nine-month development lifecycle.

- Engineered a 4.4-lb Seebeck-effect recovery system using Peltier modules to harvest waste heat, establishing a proof-of-concept for enhancing future avionics battery life.
- Ranked 4th in the SRAD category following a successful 9,597-ft launch and recovery; maintained flight-ready status post-mission through rigorous recovery system design.

Groundbreaker

August 2023 – June 2024

- Manufacturing an 8.8-lb scientific unit designed for the autonomous collection of atmospheric samples.
- Launched to 9,700-ft and achieved 56th place out of 156 international teams.

INVOLVEMENT

Boeing Mentorship Program Mentee

October 2023- May 2024

Chosen from a competitive group of students at Saint Louis University studying engineering. Gained a greater understanding of the field of engineering and created connections with employees.

FIRE BALEEN

January 2025- Present

Assisting in research on filtration systems inspired by the Baleen whales' method of filtering prey, aimed at removing microplastics. Conducting a self-directed study on the design of an underwater drone that will analyze, collect, and sort microplastics to aid in cleaning bodies of water.

CERTIFICATIONS

Tripoli Rocket Association

October 2023

Level 1 High Propulsion Rocket

November 2023

International Traffic in Arms Regulations

October 2024

American Institute of Aeronautics and Astronautics

November 2024

PUBLICATIONS

Groundbreaker

<https://doi.org/10.2514/6.2025-1094>

CleanCurrent: Aqua Vitae

To be Published April 2026

NOVA

To be Published April 2026