

Eric Melendez

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Education

Columbia University | Fu Foundation School of Engineering
M.S. Mechanical Engineering (Concentration in Energy Systems)

New York City, NY | Sep 2026 - Dec 2027

New York University | Tandon School of Engineering
B.S. Mechanical Engineering; Minor Aerospace Engineering
Dean's List: F22, S23, F23, S24, F24, S25, F25, S26

Brooklyn, NY | Sep 2022 - May 2026
GPA: 3.83

Experience

Engineering Director | NYU Rogue Aerospace

Brooklyn, NY | Sep 2024 - May 2026

- Oversaw all engineering operations as Engineering Director for university rocketry team of 60+ students during design of first ever hybrid propulsion system at NYU with a 5" diameter and 14" tall dual deploy launch vehicle with a targeted altitude of 6800 ft.
- Led payload sub-team of 6 student engineers to design and manufacture working water ballast prototype using a lead screw system to eject 1.63 lbs of water and reduce the mass of the payload module by 30% to reduce the landing mass of the rocket.
- Machined oxidizer tank bulkheads, injector holder, and other structural components of the hybrid rocket's propulsion system and airframe totaling 70+ hours operating time on the Tormach 770M.
- Designed and optimized solid high powered sub-scale rocket using OpenRocket simulation to choose vehicle geometry, mass distribution, fin shape, and parachutes which achieved stable flight and a targeted apogee of 3400 ft with a max speed of 286 mph.

Tech Intern | Lavner Education

Austin, TX | May 2023 - Aug 2023

- Developed and administered engaging lessons related to robotics, coding, and game design for students ages 6 - 12 to foster interest and understanding of science and technology in young thinkers.
- Managed behavioral differences and practiced conflict resolution in order to maintain a happy and fun environment conducive to learning, engagement, and curiosity.

Projects

Static Fire Test Stand | NYU Senior Design

Brooklyn, NY | Sep 2025 - May 2026

- Pitched, designed, and manufactured modular test stand for liquid, hybrid, and solid rocket motors up to 8 inches in diameter and for a peak thrust of 2000 lbf with a wireless DAQ system to record thrust, pressure, and temperature with a sample rate of 100 kHz.
- Created and managed SolidWorks assembly of 250+ components with assembly oriented sub-assembly structure and created technical drawing packet for all parts and sub-assemblies.
- Designed parts for manufacturability and machined aluminum parts for the test stand assembly within designed tolerance by means of Tormach 770M CNC mill with G-code generated by Fusion 360 CAM and manual mill.
- Presented status update presentations to peers throughout the design process and organized results in academic style design report and poster while tracking a weekly timesheet, kanban board, and bill of materials in Odoo.

Payload Landing Gear | NYU Rogue Aerospace

Brooklyn, NY | Sep 2024 - Apr 2025

- Designed and developed novel landing gear system for a high powered rocket as a part of the NASA USLI competition, which used a lead screw and stepper motor system to extend from within the nose cone allowing the payload module to land upright and transmit a competition required packet of data.
- Designed no-cost wooden prototype of landing gear system to validate stepper motor sizing, deployment time, and find optimizations for the assembly procedure.
- Prepared technical documentation for review by the NASA USLI competition including material selection justification, part and assembly drawings, and failure mode and effects analysis.

Skills

Machining: Lathe (novice - intermediate), Manual Mill (novice), CNC Mill (Tormach 770M) (novice)

Software: SolidWorks (advanced), Fusion 360 CAM (intermediate), Ansys (intermediate), Simulink (intermediate)

Coding: Python (intermediate), MATLAB (intermediate), LaTeX (intermediate)

Project Tools: Failure Mode and Effects Analysis (intermediate), Odoo (intermediate), Kanban (intermediate)

Licenses & Awards

HAM Radio License (Technician)

2022 TMEA All State Jazz Band 2 (Tenor Saxophone)