

Matt Lasselle

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Education:

Iowa State University, College of Engineering

Expected Graduation: May 2026

Bachelor of Science, Mechanical Engineering | Dean's List Spring 2023, 2024, 2025

GPA: 3.42

Professional Experience:

Stratasys – Test Engineer Intern

May 2025 – August 2025

- Developed and programmed a compression test method on a MTS Criterion Model 43 using TestSuite TW Elite, enabling improved data logging and more accurate measurement of a wide range of material properties
- Assessed material data of 3D printed polymers to establish new metrics for defining compressive yield strength to improve data provided to customers
- Reduced required compression testing specimens by analyzing the effect of slenderness ratio on compressive yield strength, while maintaining ASTM D695-10 compliance
- Automated data formatting to increase post-test analysis efficiency and implemented safety measures in test methods to improve lab safety and protect equipment and operators

Leadership:

Cyclone Rocketry Club, Vice President of Engineering

June 2025 – Present

- Oversaw all engineering activities for the club, reviewed and approved critical design decisions, and led the development of subsystem technical documentation and reports
- Served as the flyer of record, ensured full competition compliance, and led system-level testing and validation

Technical Projects:

IREC 2026 Competition Rocket

June 2025 – Present

- Led the design and simulation of the competition flight vehicle consisting of over 500 independent components
- Performed load frame testing on composite and additively manufactured components to evaluate tensile, compressive, bending, high-temperature, and creep failure behavior
- Fabricated subsystem components from aluminum, stainless steel, composites, and plastics using machining, additive manufacturing, and molding processes

Solid Rocket Motor

November 2025 – February 2026

- Modeled motor components in SolidWorks and machined the combustion chamber, forward bulkhead, and nozzle from aluminum and graphite
- Iterated design of pressure vessel to contain hot combustion gases up to a maximum operating pressure of 1100 psi
- Optimized pressure vessel failure modes to promote safety in the event of over pressurization
- Qualified the combustion chamber strength and seals through hydrostatic testing up to 2 times the expected operating pressure

Solid Rocket Motor Test Stand

October 2025 – February 2026

- Designed a solid rocket motor test stand using SolidWorks and produced components via FDM additive manufacturing
- Integrated a multi-sensor DAQ system using Arduino microcontrollers to synchronously log thrust and dual-channel temperature data across multi-second motor burns
- Proof-loaded the test stand to 5 times expected capacity prior to live motor testing to confirm structural integrity
- Validated motor performance by correlating acquired thrust curves against openMotor simulations
- Acquired temperature data confirming external casing peak at 110°F, validating the thermal liner, and 210°F at the nozzle diverging section, confirming graphite insert effectiveness

Piston Ejection System

June 2024 – June 2025

- Fabricated a black powder-actuated 2" diameter piston ejection system to separate a 70 lb rocket with focus on failure modes produced from over-pressurization of the piston cylinder
- Implemented black powder canisters sealed with a polyvinyl burst disk tested to rupture at 1200 psi, maintaining the charge at ambient pressure until ignition
- Verified piston system and canisters through hydrostatic testing to a proof of 2 times the expected operating pressure
- Turned and milled piston components to sub-0.005" tolerances, ensuring sealing surfaces contained hot gases

Technical Skills and Certifications:

Tensile Testing	Compressive Testing	Data Analysis	SolidWorks	ANSYS Mechanical	Metals Manufacturing
FDM 3D Printing	Fusion 360 CAM	DC Electronics	C++	Excel	Tripoli L3 Certified