

JESSIAH MORRISON

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EDUCATION

University at Buffalo - Amherst, NY

Expected May 2028

Bachelor of Science in Mechanical Engineering and Aerospace Engineering, Minor: Robotics

GPA: 3.9/4.0

WORK EXPERIENCE

OPTIMATOR Laboratory | Warehouse Inventory Drone

Amherst, NY

Research Intern

January 2026-Present

- Used Fusion 360 to design the frames, arms, propeller guards, and mounts for an autonomous drone that can track inventory in a warehouse environment.
- Reduced the drone's total weight by 25% from the original concept by using material such as LW-PLA, improving overall performance, especially flight time.
- Performed FEA in Fusion 360 to evaluate the stresses and bending under different loading conditions.
- Generated CNC toolpaths in Fusion 360 CAM for the carbon-fiber arms and deck.
- Collaborated with multi-disciplinary team on the integration of electronic systems such as the flight controller, Raspberry Pi, and Intel RealSense camera.

UB Space Bulls | Mars Rover

Amherst, NY

Mechanical Engineer

September 2025-Present

- Designed the rover end effector in Fusion 360 for the URC rover challenge tasks involving rocks, containers, and other objects.
- Implemented a worm gear mechanism due to its non-backdrivability, allowing the end effector to maintain its position under load while reducing reliance on motor torque.
- Used TPU over other materials such as PLA/PETG for the gripping surface to improve the traction and grip of the end effector.

ENGINEERING PROJECTS

Autonomous Fixed-Wing UAV

August 2026-Present

- Developed the preliminary design for a fixed-wing 1.5 meter span UAV for inspection tasks in industries such as construction and infrastructure.
- Compared multiple airfoils such as SD7037, NACA 4412 and E205 in XFLR5 across low Reynolds number conditions and selected SD7037 for wing design.

Motor Thrust Test Stand

May 2026-June 2026

- Designed and built a low-cost motor thrust test stand to evaluate the performance of different motor and propeller combinations.
- Calibrated a load cell and achieved approximately 98% accuracy when measured against known weights.
- Built in an interface utilizing an I2C LCD to display the real-time thrust measurement during testing and generated thrust vs input power graphs for comparison.

SKILLS

CAD & Design: CATIA, SolidWorks, Fusion 360, Onshape, AutoCAD, CAD Modeling, GD&T

Analysis & Manufacturing: FEA, Static Load Analysis, CNC, CAM, 3D Printing, Rapid Prototyping, Soldering

Programming & Electronics: Python, MATLAB, Altium, GitHub, Microcontrollers