

PATRICK M. O'LEARY
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EDUCATION

University of Florida Herbert Wertheim College of Engineering
B.S. Mechanical Engineering - Junior
GPA: 3.93

Gainesville, FL
Expected May 2028

TECHNICAL SKILLS

- **Design & Analysis:** SolidWorks (CSWA), Fusion 360, ANSYS Mechanical (FEA), ANSYS Fluent (CFD), OpenRocket, Excel
- **Manufacturing:** DFM/DFA, tolerance stack-up analysis, manual milling and lathe, welding, 3D printing, laser cutting, soldering
- **Programming:** MATLAB, Python

UNIVERSITY RESEARCH

AIAA Student Conference Research – University of Florida
Undergraduate Researcher | Dr. Siddharth S. Thakur

Gainesville, FL
Sep 2026 – Present

- Comparing straight-inlet, plenum, and Y-split cooling configurations in ANSYS Fluent under fixed inlet/outlet geometry.
- Writing an AIAA Student Conference paper for April 2027 evaluating thermal performance and airflow uniformity across these designs.

Spacecraft Technology and Research (STAR) Lab – University of Florida
Mechanical Design Research Assistant | Dr. Christopher Peterson

Gainesville, FL
Aug 2025 – Present

- Developing a spacecraft attitude-control testbed in Fusion 360 for rotational-dynamics and guidance and control research.
- Integrating an Arduino, LiPo battery, DC gearmotor, and custom power-distribution PCB into the spacecraft testbed.
- Presented research progress at the 2nd SpaceU Symposium hosted by the Florida Space Institute at UCF.

Office of Undergraduate Research & Inquiry (OURI) – Florida Atlantic University
Grant Researcher

Boca Raton, FL
Sep 2023 – Mar 2023

- Built an underwater ROV with camera hardware and an AI coral-classification system; awarded a \$1,200 research grant.
- Presented the project at FAU's 13th Undergraduate Research Symposium.

ENGINEERING PROJECTS & INVOLVEMENT

Florida Rocket Lab – University of Florida
Vehicle Engineer

Gainesville, FL
Sep 2026 – Present

- Design rocket structures and components in SolidWorks using DFM/DFA and dimensional tolerancing.
- Model 10,000-ft-class flight performance in OpenRocket and Excel for apogee and maximum dynamic pressure estimates.
- Evaluate airbrake and recovery concepts through trade studies and ANSYS Mechanical FEA.

Solar Gators – University of Florida
CFD Analyst | Battery Thermal Management

Gainesville, FL
Aug 2026 – Present

- Model battery-pack airflow and heat transfer in ANSYS Fluent to evaluate cell temperatures and cooling performance.
- Refine CFD meshes and boundary conditions around cells, modules, and flow passages.
- Analyze temperature, airflow, and heat-flux results to identify hot spots and guide cooling design.

CFD Analyst | Cooling Duct Airflow

May 2026 – Sep 2026

- Analyzed cooling-intake airflow in ANSYS Fluent for velocity, pressure, and mass-flow performance.
- Refined the mesh and solver setup to achieve a converged CFD solution.

Design & Manufacturing Laboratory – University of Florida
Mechanical Design & Manufacturing Project

Gainesville, FL
Jan 2026 – May 2026

- Designed an air-powered food slicer in SolidWorks under cost, manufacturing, safety, and functional constraints.
- Created toleranced production drawings and revised dimensions to improve manufacturability and part interchangeability.
- Machined and inspected air-engine components using manual mills and lathes to verify dimensional requirements.

Swamp Launch – University of Florida
Propulsion Design Engineer

Gainesville, FL
Jan 2026 – May 2026

- Designed custom propellant-processing hardware in Fusion 360 for mixing and curing operations.
- Applied DFM/DFA and assembly constraints to improve hardware manufacturability.