MICHAEL ROURKE

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EDUCATION

University of Notre Dame, College of Engineering, South Bend, IN *Expected Graduation: May 2026*
Bachelor of Science in Aerospace Engineering

- **GPA: 3.76/4.00**
- Activities: Rocketry Club, Bengal Bouts (Boxing Club), Rome Study Abroad Program

St. Francis High School, Wheaton, IL *Graduated Honors with Distinction: May 2022*

- **GPA: 5.00/4.00; ACT: 35**
- Activities: Class President, Varsity Golf Captain, Varsity Lacrosse

EXPERIENCE

SAI Advanced Power Solutions, Franklin Park, IL
Engineering Intern *May 2023 – July 2023, May 2024 – July 2024*

- Utilized Creo CAD software to design and optimize component layout for the new SAI manufacturing facility, streamlining assembly processes and creating detailed digital models for fabrication teams.
- Identified integration issues during early design phases, preventing costly rework and production delays.
- Conducted electronic testing of low and medium-voltage switchboards using Hypot tests, multimeters, and 480V systems, developing expertise in critical power distribution systems.
- Collaborated across engineering, procurement, and testing departments to coordinate comprehensive system evaluations and streamline material acquisition for high-priority projects.
- Assembled and prepared complex electrical components for final power-up and verification, implementing rigorous quality assurance protocols to ensure zero defects in critical production systems.

Notre Dame Rocketry Club, South Bend, IL
Design Engineer *August 2023 – Present*

- Executed comprehensive aerodynamic simulation testing using RockSim and Open Rocket software to optimize flight stability parameters, resulting in consistent flight paths and successful launches that closely matched projected trajectories.
- Engineered propulsion integration systems using Fusion 360, designing interface components that enabled the competition rocket to achieve its targeted 4,000 ft altitude with high precision.
- Performed materials analysis to select optimal composites for critical structural components, balancing weight reduction requirements with the need for structural integrity under high G-force flight conditions.

Thermodynamics Research (Notre Dame Global Gateway), Rome, Italy
Research Assistant *August 2024 – December 2024*

- Researched thermodynamic cycle efficiencies for aerospace propulsion applications under the guidance of Professor Pietro Paolo Ciottoli, focusing on optimization methods for next-generation propulsion systems.
- Developed MATLAB simulations modeling heat transfer and combustion dynamics across various engine configurations, enabling rapid iteration and performance analysis.
- Performed detailed Brayton cycle analysis under diverse operating conditions, identifying critical parameters that maximize thermal efficiency in aerospace applications.

PROJECTS

RC Car Drivetrain *January 2025*

- Engineered a high-performance RC car drivetrain system that balanced speed and torque requirements, utilizing SolidWorks for motion simulation and component stress analysis.
- Designed integrated mechanical systems balancing propulsion requirements with secondary defensive functions.

Mechanical Catapult *January 2024*

- Designed and fabricated an award-winning mechanical catapult using advanced manufacturing techniques including 3D printing and water-jet cutting, optimizing structural integrity while minimizing weight.
- Implemented iterative design process with simulation testing to optimize structural components.

SKILLS

MATLAB | Python | Linux | Fusion 360 | SolidWorks | Creo CAD | Microsoft Office

INTERESTS

Marathons (Two-time finisher) | Golf (Handicap: 6) | Community Service (EMI Africa)