

# Mason Canfield

Electromechanical Engineering Student | James Madison University  
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## Skills

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**CAD / Design:** SolidWorks; Fusion 360 (parametric modeling, assemblies, drawings, CAM); OpenRocket

**Simulation / Analysis:**

ANSYS Mechanical (Static Structural, Modal FEA)

Finite Element Analysis (Meshing, Boundary Conditions, Convergence Studies)

MATLAB (Numerical Computation, Engineering Analysis)

**Programming / Tools:** Arduino(Embedded Programming, Sensors, Basic Control); LaTeX

## Projects

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### Small-Scale Vehicle Body Design & Wind Tunnel Testing

#### ASME Project Streamline

- Modeled and fabricated a small-scale vehicle baseplate in Fusion 360 for additive manufacturing
- Developed aerodynamic body iterations and evaluated drag trends using SolidWorks Flow Simulation
- Applied Flow Simulation findings and fundamental fluid dynamics concepts to sculpt a XPS foam body
- Collaborated on a three-person team to iterate on designs and validate performance through wind tunnel testing

### Model Rocket Design & Flight Performance Analysis

#### Madison Aerospace Club | Fall 2025 - Present

- Explored the effects of fin geometry, body length, mass distribution, and motor selection using OpenRocket
- Conducted trade studies to evaluate apogee, stability, and flight performance against competition requirements
- Contributed to preliminary design selection for fabrication and flight testing in the upcoming semester

### Two-Stroke Engine Mount Backplate Structural Analysis

- Modeled a complete two-stroke engine assembly and identified the rear mounting backplate as a critical structural component for analysis
- Applied representative static loading and mounting constraints to the backplate
- Performed static structural finite element analysis in ANSYS Mechanical
- Conducted mesh convergence studies with localized refinement around bolt holes

## Experience

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### Student-Athlete Tutor (Mathematics & Science)

#### James Madison University | Jan 2025 - Present

- Tutored student-athletes in mathematics and science, reinforcing core concepts and problem-solving strategies
- Developed individualized review materials and lesson plans to address learning gaps and exam preparation
- Supported improved academic performance through structured tutoring and progress tracking

### Landscaping Technician

#### Emoney Lawn Care | May 2022 - August 2025

- Maintained and repaired landscaping equipment, including small engines and power tools
- Communicated with clients to assess needs and deliver reliable service

## Education

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### James Madison University

Bachelor of Science in Electro-Mechanical Systems Engineering

Minor in Mathematics | Minor in Robotics

Expected Graduation May 2027

GPA: X.XX / 4.00