Mason Canfield

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Skills

CAD / Design: SolidWorks; Fusion 360 (parametric modeling, assemblies, drawings, CAM); OpenRocket
Simulation / Analysis: ANSYS Mechanical (Static Structural, Modal); Finite Element Analysis (meshing, boundary conditions, convergence)
Programming / Tools: MATLAB; Arduino (embedded programming, sensors); LaTeX

Projects

Engine Mount Backplate Structural Analysis ANSYS Mechanical, Fusion 360
- Simplified a small engine assembly to isolate a structurally critical rear mounting backplate
- Developed a solve-ready finite element model with material assignment, localized mesh refinement at bearing bores and fastener holes, and representative axial, radial, and torsional loading
- Interpreted deformation and stress results to identify load paths and critical regions

Model Rocket Design & Flight Performance Analysis Madison Aerospace Club
- Conducted OpenRocket trade studies examining fin geometry, body length, mass distribution, and motor selection
- Evaluated apogee, stability margin, and flight performance against competition requirements
- Supported preliminary design selection for fabrication and upcoming flight testing

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
- Collaborated on a three-person team to validate performance through wind tunnel testing

Experience

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 to support exam preparation and academic performance

Landscaping Technician Steeplechase Lawn Care
May 2023 – Aug 2025
- Maintained and repaired landscaping equipment, including small engines and power tools
- Diagnosed mechanical issues and performed routine maintenance to ensure equipment reliability

Education

James Madison University
Bachelor of Science in Engineering (Electro-Mechanical Systems Concentration)
Minor in Mathematics | Minor in Robotics
GPA: 3.44 / 4.00 Expected May 2027