

Matthew Stottmann

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EDUCATION

The Ohio State University

Bachelor of Science in Aerospace Engineering

- GPA: 3.77 / 4.00, Dean's List: all semesters attended

Columbus, OH

Aug. 2024 – May 2028

EXPERIENCE

Research & Development Intern

Aerospace Research Center, The Ohio State University

May 2026 – Aug. 2026

Columbus, OH

- Engineered shock-resistant airframe mounts via CAM, CNC machining, and additive manufacturing, eliminating structural test failures and accelerating prototype iteration cycles by 30%
- Parsed high-frequency flight telemetry logs using custom MATLAB scripts to extract airspeed and glide dynamics, validating performance models within 5% of theoretical prediction
- Streamlined UAV development schedules by authoring standardized assembly docs and managing procurement, preventing supply chain bottlenecks to keep 2 flight-test vehicles on track

IREC Aerodynamics Engineer

Buckeye Space Launch Initiative

Aug. 2025 – Present

Columbus, OH

- Optimized fin geometry and nose cone construction using SolidWorks and ANSYS; automated simulation data analysis in MATLAB for an SRAD high-powered SRM rocket achieving nominal apogee of 30,000 feet
- Led airbrake drag force simulation and validation in MATLAB & Ansys, delivering calibrated drag-response data to software and avionics teams to optimize real-time flight control algorithms
- Trained Gaussian process model on 90+ distinct fin geometries, targeting a desired rocket center of pressure, accounting for launch site atmospheric conditions; increased fin flutter factor of safety by 45%
- Performed computational fluid dynamics and finite element analysis on multiple iterations using ANSYS simulation tools to validate flight stability; nose cone redesign reduced coefficient of drag by 15% from previous iterations

Undergraduate Research Assistant

Byrd Polar & Climate Research Center

Feb. 2026 – Present

Columbus, OH

- Optimized experimental fixed-wing UAV architecture by synchronizing propulsion interfaces, boosting electrical power efficiency and extending available loiter time by 55%
- Executed remote field flight operations in extreme altitude conditions with sUAV payload packages, capturing 100% of required atmospheric profile data across targeted elevation zones
- Mapped microclimate thermal and humidity gradients by parsing spatial sensor log data in MATLAB, validating UAV payload accuracy within 0.5°C for climate research models

PROJECTS

Autonomous Soaring UAV | SolidWorks, MATLAB, C/C++, Pixhawk

May 2026 – Present

- Engineered propulsion architecture for a scale sailplane, optimizing FES motor-ESC synchronization and throttle-to-thrust mapping to boost electrical power efficiency by 15%
- Designed Onshape CAD mounting hardware and power distribution schematics, interfacing a Pixhawk flight controller with onboard avionics and differential pressure and load sensors
- Embedding custom thermal soaring algorithms in C++ within ArduPilot firmware, parsing flight logs in MATLAB to optimize climb-rate trigger parameters and extend unpowered loiter by 35%

Octorotor Drone | Onshape, C/C++, MATLAB, Pixhawk

May 2026 – July 2026

- Assembled and configured an X-configuration multirotor testbed utilizing Pixhawk 6C flight controllers, TMotor motors, and ESCs executing DShot digital protocol
- Executed system-level bench diagnostics and signal analysis to troubleshoot ESC initialization, verifying synchronized motor response and eliminating throttle latency across all 8 rotors
- Designed a modular internal avionics tray in Onshape, integrating power distribution boards and vibration-isolated sensor mounts to protect flight electronics during high-thrust operations

TECHNICAL SKILLS

CAD/Manufacturing: SolidWorks, Onshape, Ansys, CAM, CNC machining, 3D printing, composites

Tools: CFD (Ansys Fluent, flow5, RASAeroII), FEA (Ansys Mechanical), OpenRocket, QGroundControl, Mission Planner, ArduPilot, PX4

Programming: Matlab/Simulink, C/C++, Python, Arduino IDE