Dylan Bowes

Tempe, AZ | U.S. Citizen | Willing to Obtain Security Clearance
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EDUCATION

Arizona State University — Tempe, AZ
B.S.E. Aerospace Engineering — Expected May 2028
GPA: 3.2/4.0
Relevant Coursework: Aerodynamics, Aircraft Structures, Thermodynamics, Fluid Mechanics, Mechanics of Materials, Design of Experiments

ENGINEERING PROJECTS

Doberman – Autonomous Fixed-Wing UAV Interceptor — May 2026 – Present

- Designed and fabricated completely on my own a 3.0 kg fixed-wing UAV with a four-surface X-tail; led airframe design, avionics integration, and autonomy development for a prototype under $400.
- Integrated Raspberry Pi 5, camera, telemetry, and power systems; built Python/pymavlink interfaces for vision-guided pursuit and predictive-lead commands.
- Trained and deployed YOLOv8 (0.97 mAP@50); accelerated onboard inference 4.4× through NCNN export and quantization.
- Tuned latency-aware PID control and predictive-lead interception guidance for ∼70 ms vision inference, balancing closed-loop stability and target-tracking responsiveness.
- Conducted flight testing and root-cause analysis of landing-gear and ground-handling failures, informing structural and controls updates for V2.

ArduPilot X-Tail Control Allocation | Open-Source Project — 2026 – Present

- Developed and flight-tested a 50 Hz Lua control mixer for a four-surface X-tail, demonstrating independent and simultaneous roll, pitch, and yaw control on a Matek H743 running ArduPlane.
- Implemented axis gains, servo reversal, trim parameters, PWM saturation, and DataFlash logging; working toward native C++ integration as a reusable ArduPilot control-surface option.

Fitzgerald – Medical Logistics Fixed-Wing UAV — April 2026 – May 2026

- Designed a 9 kg MTOW, 3.2 m twin-boom pusher UAV (OpenVSP, Fusion 360) with NACA 4415 wing, twist, and dihedral.
- Engineered custom wing geometry and twin-boom attachments to resist torsional loads at high speed and maximum control deflection.
- Sized 30 mm OD carbon-fiber spar (FoS ≈3 at 350 MPa); designed load paths, bulkheads, and G10 battery rail.
- Evaluated VSPAERO stability (∼12% static margin); integrated JSBSim with ArduPilot SITL to simulate flight dynamics and controls.

FBA Vision – Machine Learning Price Forecasting | ASU AI MakerSpace — Jan. 2025 – May 2025

- Conceived and led a three-person team; defined the project approach and set deliverable deadlines.
- Engineered features and trained LSTM and XGBoost models using Python and Keepa product data; helped debug the pipeline.

LEADERSHIP & EXPERIENCE

Vertical Flight Society — Tempe, AZ
Computer Vision Lead — Present

- Developing vision-based guidance for GNSS-denied flight using Raspberry Pi 5 optical flow, IMU derotation, rangefinder scaling, and yaw integration.
- Built and tested an OpenCV visual-odometry pipeline on a test drone; measured ∼4% position error relative to distance traveled.

Air Devils | AIAA Design Build Fly — Tempe, AZ
Aircraft Design & Testing Team Member — January 2024 – October 2024

- Built RC aircraft components; supported wing sizing, control surfaces, integration, and ground/flight testing.

Self-Employed — Tempe, AZ
Engineering and Mathematics Tutor — November 2023 – Present

- Tutor calculus, dynamics, mechanics of materials, thermodynamics, fluid mechanics, and numerical methods, 10 hours weekly.

TECHNICAL SKILLS

Systems Engineering & Test: Systems integration, interface design, V&V, test planning, flight testing, root-cause analysis, fault isolation
Avionics & Controls: ArduPilot/ArduPlane, MAVLink, pymavlink, UART, telemetry, control allocation, PID tuning, Raspberry Pi, Linux
Programming & Vision: Python, MATLAB, C++, Lua, PyTorch, OpenCV, optical flow, YOLOv8, XGBoost, LSTM, Git
CAD & Simulation: Fusion 360, OpenVSP/VSPAERO, XFLR5, JSBSim, ArduPilot SITL, ANSYS Fluent/Mechanical, Simulink
Hardware & Test: UAV fabrication, FDM 3D printing, wiring, sensor calibration, uncertainty analysis, technical reports

ACTIVITIES & HONORS

Sun Devil Rocketry; Formula SAE (Suspension); ASU AI MakerSpace.