

David Fitzgerald

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Edgewater, MD 21037

EDUCATION: Purdue University – West Lafayette

B.S. Mechanical Engineering: Spring 2025

TECHNICAL PROFILE

Mechanical engineer focused on UAV mechatronics: airframe design, payload integration, embedded electronics, autonomy, and flight testing. Experience spans CAD/FEA, GD&T, PCB design, manufacturing, and field debugging.

ENGINEERING WORK EXPERIENCE

- **Independent UAV Systems Development & Commercial Flight Operations** (2025 - Present)
Designed multi-revision UAV companion-computer hardware integrating embedded Linux, telemetry routing, onboard vision, radio networking, PCB design, and flight-controller interfaces. Bench-tested, debugged, and redesigned through failure-driven iteration.
- **Jacobs Divergent Solutions - Air & Space Group** (Summer 2024)
Designed AgilePod payload hardware, applying GD&T, trade studies, and first-principles mechanical analysis. Supported satellite PCB failure investigation using Ansys FEA and stress-strain tensile coupon testing
- **UAS Independent Internship (Purdue & UMD Sponsored)** (2022 –2023)
Conceptualized, designed, fabricated, and flew SNAP, a novel drone frame integrating a magnetic current passthrough system

ENGINEERING EXPERIENCE & PROJECTS

- **Autonomous Fire Surveillance VTOL Drone:** (Spring 2025)
Senior design engineering lead for hybrid VTOL UAV
Owned project ideation, airframe design, manufacturing, systems integration, ArduPilot setup, flight testing, and design iteration
- **Racing Drones: (Scratch Build Custom Drones)** (2013 – Current)
Frame development. PID controller tuning. Top 5 collegiate FPV pilot
- **Advanced Siemens NX – RC Car Modeling:** (Fall 2024)
CAD team lead to replicate an RC car. Responsible for surface modeling
- **CAM2 Auto Drone Research Team** (2021)
Competition team developing autonomous UAVs with computer vision and lidar navigation
- **Ignite Cohort & Purdue Foundry (Entrepreneur Accelerator)** (2022)



Award-winning VTOL UAV

TECHNICAL SKILLS

- CAD Programs: Fusion 360, Siemens NX, SolidWorks, Creo
- Simulation: ANSYS, NX FEA, OpenFOAM, PIDToolbox, tensile testing
- Manufacturing: CNC, mill, lathe, waterjet, 3D printing, soldering, GD&T, PCB design, MIG welding
- Coding Languages: MATLAB, Python C, C++, Java, Simulink, Mavlink

ASSOCIATIONS AND LEADERSHIP EXPERIENCE

- Senior Design Project Lead, 5-person team (2025)
- Rapid Prototyping CAD Design Lead (2024)
- Academy of Model Aeronautics (2020)
- Purdue Drone Club & Racing Team Pilot (2020)