David Kaufman

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Education

Cornell University Ithaca, NY

BS Mechanical Engineering, Aerospace Engineering Minor (GPA: 3.76) *May 2027*

- **Relevant Coursework:** Aeronautics*, Fluid Mechanics*, Thermodynamics, Mechanics of Materials*, Statics, Dynamics, System Dynamics*, Mechanical Design, Intro Computing (Python); (*In Progress)
- **Planned Spring '26 Courses:** Dynamics of Flight Vehicles, Heat Transfer, Mechatronics, Quantum Mechanics

Professional Experience

Full Team Lead (Jun '25 - Present) & Integration and Testing Engineer Oct 2023 – Present

CUAir designs, manufactures, and tests autonomous eVTOL UAVs. CUAir earned 1st place in Fixed Wing and the "Most Innovative" Award at the 2024 SUAS international competition. *Ithaca, NY*

- Leading the mechanical design, manufacture, and flight testing of a novel tilt-rotor quadcopter VTOL UAV.
- Managing a 70+ person team; responsible for team recruitment, budget management, and procurement/sourcing.
- Designed a ground vibration testing platform to gather resonant frequency data resulting from gas engine vibrations; performed ground vibration tests to qualify airframe through max RPM output of 7200RPM.
- Generated modal test procedure to reveal natural frequency data for plane components, including dihedral wing sections, using industry-standard artificial excitation devices and documented testing plan for future use.
- Plan and perform wing loading tests qualifying wing assembly to 3g's, static thrust tests for horizontal pusher motor, battery drain tests for vertical motors, and mechanical setup for software ground tests.
- Designed an Electrical Bay housing critical flight electronics including 5 batteries and 8 PCBs, leveraging rapid prototyping and precise tooling techniques appropriate for carbon fiber composite airframe.
- Manufacture airframe using 14 carbon fiber-honeycomb layups via CNC female molds and vacuum pumping.

Integration and Testing Intern Jun. 2025 - Aug. 2025

Brookhaven National Laboratory *Upton, NY*

- Led mechanical integration and testing of the superconducting helical magnet beam position monitor (BPM) assembly to reveal ion bunch location for improved beam collision and luminosity.
- Generated 10 novel designs and optimized geometry to integrate with ultra-high vacuum and for cryogenic (4K) thermal management; final BPM design to be used in 10 locations around the Electron-Ion Collider complex.
- Identified critical installation risks and designed tooling solutions leveraging GD&T techniques to manage tolerance stack-ups, prevent trapped vacuum volume, and ensure high-quality welds in challenging environments.
- Performed structural FEA in Ansys Mechanical to optimize strain relief designs for sensitive cable integration.
- Implemented argon purging using containment designs to prevent oxidation on critical surfaces during welding.
- Established & tested a detailed 45-step assembly workflow and designed a platform for future integration testing.

Mechanical Engineering Intern Jun. 2024 - Aug. 2024

Brookhaven National Laboratory *Upton, NY*

- Created a transient thermal model in Ansys leveraging physical test data to simulate heat load to ID of the beampipe during welding; optimized flange height decreasing unsinked temperature from 400C to 181C.
- Redesigned a heat sink reducing temperature at the inner diameter from 400C to 190C, preventing thermal disturbance to amorphous carbon and copper coatings within beampipe; ran physical weld tests via thermocouple.
- Researched, tested, and integrated thermal interface materials on heat sink improving thermal conductance.
- Heat sink & TIM design to be used in the upgrade of BPMs across all 40 helical superconducting magnet welds.

Machine Shop Instructor | *Cornell Manufacturing Learning Studio* Sep. 2025 - Present

- Gaining extensive understanding of manufacturing techniques through instruction of manual mill/lathe operation.

Student Pilot | *Brookhaven Calabro Airport*

- Developing extensive knowledge of general aviation mechanical, electrical, avionics, and flight control systems.

Skills

Manufacturing: Composite Structures, Wet Layup Techniques, Mold Production, Manual Mill/Lathe, Laser Cutting, 3D Printing, Drill Press, Belt Sanders, Dremel, Angle Grinder, Circular Saw, Band Saw, Common Hand/Power Tools
CAD & Analysis: Ansys Workbench & Mechanical, SolidWorks & SW PDM, Creo Parametric & Windchill, Autodesk Inventor & Fusion
Programming Languages: Python, MATLAB
Soft: Team Leadership, Technical Communication, Project Management, Problem Solving, Organization