

Kayla Fox

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EDUCATION

University of Pennsylvania

Philadelphia, PA

B.S.E. in Mechanical Engineering & Applied Mechanics, GPA: 3.95 / 4.0

Aug 2024 – May 2028

Current Coursework: Mechanics of Solids, Fluid Mechanics, Mechanical Engineering Design Lab, Product Design, Energy Engineering in Power Plants and Transportation Systems

SKILLS

CAD & Analysis: Siemens NX & Teamcenter, SolidWorks (CSWA), FEA (SolidWorks), Tolerance Analysis, Python, MATLAB

Manufacturing & Fabrication: GD&T (GeoTol certified), DFM/DFA, CNC & Manual Machining, 3D Printing, Laser Cutting

WORK EXPERIENCE

Relativity Space

Long Beach, CA

Vehicle Structures Design Engineering Intern | CAD, NX, Teamcenter, GD&T, DFM

May 2026 – Aug 2026

- Designed four S1 LOX Lid insulation panels and created an installation assembly
- Redesigned ring frame joiners for flights 3+ to solve a manufacturing installation challenge; gathered cross-functional requirements, evaluated 3 concepts through a trade study, and verified the final CAD through hand calcs
- Modeled the internal volume of S1 fuel tank (working with ~3,800 components) for propellant volume measurement; developed a structured approach to break down large assembly into manageable sections prioritizing efficiency and accuracy
- Coordinated with 5 engineers to finalize and release 2 assemblies for a major stage-separation mechanism, reconciling conflicting feedback and developing clear assembly, inspection, and packaging documentation
- Developed and released 39 manufacturing drawings using GD&T and DFM principles

University of Pennsylvania - Department of Mechanical Engineering & Applied Mechanics

Philadelphia, PA

Research Assistant, PURM Award | SolidWorks, Python, G-Code

May 2025 – July 2025

- Independently designed, prototyped, and iterated custom 3D-printed lab components based on verbal problem descriptions, ensuring final parts met functional requirements
- Developed microfluidic devices to generate and control microdroplets with precise size, composition, and placement
- Programmed and calibrated a 3D printer, improving precision and repeatability of experimental droplet placement
- Contributing author of research published in the *Journal of Micromechanics and Microengineering*

Columbia University - Biomedical Engineering Department

New York, NY

Research Assistant | MATLAB, PowerPoint, Excel

July 2023 – Aug 2023

- Researched at the Ultrasound and Elasticity Lab at Columbia Medical Center, focusing on ways to open the Blood Brain Barrier with ultrasound and microbubbles; conducted full experiments; analyzed large data sets in MATLAB to create graphs that identified key trends; presented these findings in weekly lab meetings

PROJECTS

Jet Engine Afterburner - Designing and manufacturing a functional afterburner system for a JetCat turbojet; developing CAD and CFD models to iterate injector, combustion chamber, and nozzle geometry; designing components for manual machining, additive manufacturing, and hardware testing Present

Stirling Heat Engine - Created CAD models and engineering drawings for a gamma-type Stirling engine and machined components using manual mill/lathe operations and CNC machining; assembled and tested the fully functional engine. Sept – Dec 2025

CAMPUS INVOLVEMENT

Penn Jet Propulsion - Co-Lead R&D Team

Sept 2025 – Present

- Designing and building propulsion devices gaining hands-on experience in the engineering design process
- Co-lead of a 12-member R&D team across 2 propulsion projects, establishing project phases, schedules, budgets, team roles, and risk considerations while also developing a mentorship and technical training program for incoming members

Garage Lab - Assistant

Aug 2026 – Present

- Guiding students in safe and effective operation of machining and woodworking tools (e.g. drill press, bandsaw, miter saw), promoting creativity and hands-on experience

Society of Women Engineers - Educational Outreach Committee

Sept 2024 – Present

UPenn Women's Club Soccer

Sept 2024 – Present