

# Katelyn Steele

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## EDUCATION

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**Duke University**, Durham, NC | GPA: 3.66/4.00 Expected Graduation May 2027  
B.S.E. in Mechanical Engineering and Aerospace Engineering Certificate  
Relevant Coursework: Thermodynamics, Structure and Properties of Solids, Dynamics, Mechanics of Solids, Computational Methods in Engineering, Space Systems Design

## EMPLOYMENT

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**NSF REU Research Fellow**, Florida Center for Advanced Aero-Propulsion (FCAAP) May 2025 - Aug 2025  
● Led computational investigation on influence of variations in Mach number and wedge angle on shock-wave boundary layer interaction structures, including trends in pressure distribution, shock angles, and Mach stem formation  
● Applied findings to inform the design and aerodynamic loading considerations of high-speed aircraft and munitions

**First-Year Design LabRAT**, Duke University Pratt School of Engineering Aug 2024 - Apr 2025  
● Selected based on technical expertise; trained 300+ first-year students on safe and effective use of tools and equipment  
● Advised EGR 101L design teams, providing hands-on support throughout the prototype development process  
● Oversaw and maintained makerspace equipment including 3D printers, laser cutters, power tools, and a CNC mill

**Sport Club Supervisor**, Duke Recreation & Physical Education Sep 2023 - Apr 2025  
● Served as a liaison between sport club officers and professional staff, supporting 500+ student-athletes across 8 clubs  
● Oversaw logistics for events, monitored club communications, and maintained records to ensure safe and successful programming

## TECHNICAL EXPERIENCE

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**30k-ft SRAD Solid Fuel Rocket**, Duke AERO Aug 2024 - Present  
● Developed a 6" O-class solid rocket motor targeting a 30,000 ft altitude at IREC; mixed and cast solid propellant grains  
● Designed unified forward closure compatible with hydrostatic, test, and flight configurations, reducing machining time and cost by ~67%  
● Conducted FEA, hydrostatic, and static fire testing to validate structural integrity and motor performance  
● Performed wet and pre-preg composite layups for body tubes and couplers; fabricated and mounted composite fins  
● Maintained the master assembly of the rocket, coordinating integration of over 100 individual parts

**Flight Simulator Development**, Duke Aviators Jan 2025 - Present  
● Upgraded existing flight simulator configuration to progress toward a fully functional, to-scale Cessna 172 dashboard  
● Designed and constructed a custom wooden frame to support dashboard components  
● Engineered a realistic flaps panel using 3D printed components and Arduino electronics, fully integrated with Microsoft Flight Simulator software

**Garmin Tone Generator**, Duke First-Year Design Program Aug 2023 - Dec 2023  
● Developed a wrist-mountable testing device that emitted auditory tones ranging from 200 Hz to 19 kHz and enabled divers to provide feedback on those tones on a four-level subjective scale to engineers above the water in real time  
● Reduced Garmin's sound testing feedback loop time to 1.58 seconds, optimizing communication between diver and engineer

## SKILLS

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- **Software:** SolidWorks, Ansys, Fusion 360, Onshape, AutoCAD, Inventor, Arduino IDE, Microsoft Office
- **Programming:** MATLAB, Python, HTML, CSS
- **Fabrication Tools:** CNC Mill, Waterjet, 3D Printing, Soldering, Miter Saw, Bandsaw
- **Certifications:** OSHA 10-Hour (General Industry), Autodesk Certified User: Inventor - Imperial