

Catherine Boss

jcb6560@psu.edu | Portfolio: CatherineBoss.com

EDUCATION

Bachelor of Science in Mechanical Engineering, Minor in Mechatronics

The Pennsylvania State University, University Park, PA

GPA: **3.88/4.00**

Anticipated Graduation: May 2027

Major GPA: **4.00/4.00**

SOFTWARE & SKILLS

SolidWorks Modeling and Drafting, Python, C++, Fusion 360, MATLAB, Microsoft Suite, nTop

Soldering, TIG/MIG Welding, Fuse Assembly, Advanced Fire Safety, Basic Fabrication, GD&T, MS Office

WORK EXPERIENCE

R&D Engineering Intern

Applied Research Laboratory (ARL), State College, PA

September 2025 – Present

- Training in FPV drone fabrication and operation, including headset navigation, manual controller skills, and preparation for university drone certification and FAA Part 107 exam
- Selected as Pipeline Student and maintain an active security clearance

Mechanical Engineering Intern

Communications & Power Industries, State College, PA

May – August 2025

- Proposed a compact power supply design for improved efficiency and failure resistance, validated thermal and functional viability through simulations
- Created and updated cable assembly drawings for internal assembly and testing procedures
- Assisted with electrical and RF tasks, gaining exposure to radio communication constraints and basic PCB layout practices
- Observed manufacturing processes to understand broad machining limits

Student Trainee - Code 34

The Naval Undersea Warfare Center (NUWC), Newport, RI

May – August 2024

- Transformed 20+ poor quality legacy engineering drawings into comprehensive 3D models
- Produced manufacturer-ready technical drawings from 3D models, including modern GD&T notation and assembly instructions, while maintaining backwards compatibility
- Followed, critiqued, and created Assembly Guides for multiple complex components
- Performed hands-on technical tasks, including soldering, TIG welding, connecting circuit boards, and constructing SMA and other connectors from bare wire
- Collaborated with 12+ electrical engineers as the sole mechanical engineer, offering critical mechanical feedback and support on a wide range of projects

Drone Crew Member

Sky Elements Drone Shows, Dallas, TX

April 2021 – January 2023

- Repaired and maintained 100 UAVs per show by changing damaged propellers
- Arranged drones in preparatory formations to ensure show quality
- Prepared batteries, labels, and supply kits for shows
- Monitored and inspected flammable and hazardous equipment

LEADERSHIP & INVOLVEMENT

American Society of Mechanical Engineers (ASME)

January 2025 – Present

- Elected to Dual Secretary role, supporting both the Design Team and the Executive Board
- Contributed to multiple Design Team projects including Industrial Drone Technical Lead, the winning Hovercraft team, and Battle Bots, focusing on mechanical design and logistics.

Secretary, 3D Printing Additive Manufacturing Club

August 2023 – May 2025

- Oversaw operations beyond Secretary role, including website management, social media outreach, meeting facilitation, and technical support on club equipment.
- Reorganized operations and developed new internal structures to guarantee future success