

# Catherine Boss

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## 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