# Jocelyn Pern

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## EDUCATION

**Worcester Polytechnic Institute (WPI),** Worcester MA May 2026
Mechanical Engineering, 3.94/4.0 GPA

## TECHNICAL SKILLS

SolidWorks (CSWA), Ansys Fluent, Ansys Workbench, Onshape, Autodesk Inventor, Luminary Cloud, Computational Fluid Dynamics, MATLAB, JavaScript, Python, Geometric Dimensioning and Tolerancing (GD&T), Mastercam, CNC Milling, Lathe Machining, Fluid Dynamics, Fluid Mechanics, Thermodynamics, Heat Transfer, Material Science, Mechatronics, Dynamics, CAD, CAM, MongoDB, Siemens NX, Discord.js, VEX

## EXPERIENCE

**Student Researcher,** Honeywell GQP - Cathode Optimization for Low Temperature PEM Fuel Cells Oct 2025 - Present
- Exploring potential changes to the standard cathode configuration of a low temperature proton exchange membrane (PEM) fuel cell through the use of SolidWorks and Ansys Fluent.

**Undergraduate Instructional Assistant,** Worcester Polytechnic Institute March 2025 - Present
- Undergraduate Instructional Assistant and Peer Learning Assistant for the Mechanical Engineering Department at WPI: ES 2501 Introduction to Static Systems (D Term 2025), ES 2501 Introduction to Static Systems (E-1 Term 2025), ES 2501 Introduction to Static Systems (A Term 2025), ES 2503 Introduction to Dynamic Systems (B Term 2025)

**Design Engineer Intern,** Watts Water Technologies May 2025 - Aug 2025
- Utilized Luminary Cloud to develop computational fluid dynamics (CFD) models to calculate flow coefficients (Cv) for a variety of Watts' product lines to improve design specifications.
- Verified and validated simulation results with laboratory test results to develop a set of correction factors for future product designs and performance analyses.
- Explored water-based energy scavenging technologies and compiled a report on potential product development plans.

**LEAP Intern,** NASA Lucy Mission L'SPACE Mission Concept Academy Jan 2025 - Sep 2025
- Provided mentorship to 800+ students in the NASA Lucy Mission L'SPACE Mission Concept Academy for critical aspects of mission formulation, with a specific focus on risk identification, mitigation, and management.
- Ensured successful completion of the academy for students through their development of a mission concept from the Mission Concept Review to the Preliminary Design Review in the NASA Project Mission Lifecycle.

**Project Manager,** NASA L'SPACE Proposal Writing and Evaluation Experience Sep 2024 - Dec 2024
- Managed an interdisciplinary team of 10 students and organized the team's operations and procedures by undertaking several administrative tasks, such as; scheduling weekly meetings, leading task distribution and progress checks, and managing the team's document organization.
- Developed a novel solution to address a NASA pain point after researching existing state of the art technology.
- Co-authored a technical proposal in response to a request from NASA Marshall Space Flight Center.

**Project Manager,** NASA L'SPACE Mission Concept Academy - The Orion Alliance May 2024 - Sep 2024
- Led an interdisciplinary team of 13 students through the development of a 200+ page Preliminary Design Review of a selected space mission presented by the NASA L'SPACE Program.
- Managed a team management system; scheduling team meetings, distributing tasks via Gantt charts and sign up sheets with 3 subteam leaders representing Science, Engineering, and Programmatics.
- Learned from NASA professionals and earned 7 skill mastery badges for the following topics: Teaming, Requirements, Project Management, Systems Topics, Risk Management, Heat Transfer, and Siemens NX.

**STEAM Instructor,** The Robo Hub May 2024 - Aug 2024
- Delivered captivating and interactive STEAM learning experiences to ~100 students.
- Increased organization's community presence in Greater Boston through ~10 outreach events at local schools, town events, in-house, and tech companies such as Google and Boston Dynamics.
- Designed mechanical housing for a marketing project involving the development of a talking robotic head powered by ChatGPT that was showcased to 100+ members of the community.

**FIRST Intern,** Boston Tech Initiative Jun 2022 - Jun 2023
- Planned and promoted invitational event alongside the Boston Tech Initiative team and 16 other interns, aimed at the Greater Massachusetts FIRST Tech Challenge community to provide a platform for cross-team collaboration.
- Increased organization event visibility to teams outside of Massachusetts by over 90% through targeted outreach efforts such as establishing organization's Instagram and Facebook pages, utilizing analytical tools to make any adjustments to elevate the impact of information given by published content.
- Spearheaded project to increase Boston Tech Initiative's communications with the FIRST Tech Challenge community in Greater Massachusetts via a blog on the organization's website.

**Head Coach and Mentor,** Andover Youth Services Sept 2018 - Dec 2021
- Mentored and coached ~60 middle school students through the process of constructing a robot to compete in the FIRST Lego League competition.
- Empowered middle schoolers with the fundamentals of robot design, programming, project planning, and core values through a multitude of hands-on experiences.
- Collaborated with the robotics club to promote STEM to youth in the community, attracting 500+ students, families, STEM clubs, and STEM organizations to a community-wide event.

## PROJECTS

**ME 1800 Capstone Project - Rolling Ball Stirling Engine** Oct 2025 - Dec 2025
- Demonstrated CAM proficiency utilizing Mastercam and hands-on manufacturing skills to manufacture, test, and validate a working rolling ball Stirling engine.

**Major Qualifying Project Wings of Gompei - Design, Build, and Test a Remote-Controlled Airplane** Oct 2025 - Present
- Utilizing SolidWorks, Ansys, and XFLR5 to design, simulate, fabricate, and test a 10 foot wingspan remote-controlled airplane for competition in the SAE Aero Design East 2026 competition.

**Low Altitude Economy Service Cloud Platform for UAM in China,** RobSense Aug 2024 - Dec 2024
- Worked in a group of 15 students from Worcester Polytechnic Institute and Hangzhou Dianzi University in an International Joint Practice project in Hangzhou, China, sponsored by RobSense Technology and Education.
- Developed a high level conceptual design and business plan for a low altitude service cloud platform.

**RBE 1001 Capstone Project - Fruit Harvesting Robot** Aug 2024 - Oct 2024
- Designed, built, and programmed a VEX robot to autonomously harvest, transport, and sort fruit objects using computer vision, PID control, and sensors.

## RELEVANT COURSES

ES 1310 Introduction to Computer Aided Design, ES 2001 Introduction to Material Science, ES 2501 Introduction to Static Systems, ES 2502 Introduction to Dynamic Systems, ES 2503 Introduction to Dynamic Systems, ES 3001 Introduction to Thermodynamics, ES 3003 Fluid Mechanics, ES 3004 Heat Transfer, ME 4322 Modeling and Analysis of Mechatronic Systems, ME 4429 Thermofluid Application and Design, RBE 1001 Introduction to Robotics, ECE 2010 Introduction to Electrical and Computer Engineering, ME 1800 Manufacturing Science, Prototyping, and Computer-Controlled Machining

## ACTIVITIES

**Volunteer Manager,** Pan Asian Association, WPI Sept 2024 - May 2025
**Member,** American Society of Mechanical Engineers, WPI March 2024 - Present
**Member,** Society of Asian Scientists and Engineers, WPI Aug 2022 - Present
**Member, Member/Alumni/Volunteer,** FIRST Sept 2012 - Present

## AWARDS

**Worcester Polytechnic Institute Dean's List Award - 2023, 2024, 2025**
- Awarded by Worcester Polytechnic Institute for excellent work in rigorous courses and projects.

**2022 Retirees School Volunteer Association (RSVA) STEM Award**
- Awarded by the Retirees School Volunteer Association (RSVA), with the support of RTX Corporation, for outstanding STEM academic performance and leadership in extracurricular activities promoting STEM education.