

# Gina Liu

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## EDUCATION

### Cornell University

Expected: May 2027

*Bachelor of Science in Mechanical Engineering, GPA: 3.9*

*Ithaca, NY*

Relevant Coursework: Mechanics and Heat, Electromagnetism, Statics and Mechanics of Solids, Thermodynamics, Introduction to Mechanical Design, Dynamics, Mechanics of Engineering Materials, System Dynamics, Introduction to Fluid Mechanics

## TECHNICAL SKILLS

**CAD:** SolidWorks (proficient), Fusion360 (proficient)

**Programming Languages:** Matlab, Java, Python

**Fabrication:** Lathe, Manual Mill

**Spoken Languages:** English, Mandarin

## PROJECTS

### Force Feedback Arm

September 2025 - Present

*Cornell University Extended Reality Project Team*

*Ithaca, NY*

- **Designed** and **modeled** the frame of the force feedback arm, ensuring optimal user comfort and functionality of the arm, such as the elbow locking mechanism.
- **Tested** and continuously reiterated the arm, increasing the usability of the frame with each assembly.

### Drivetrain Development

September 2024 - September 2025

*Cornell University Solar Boat Project Team for the Annual Solar Splash Competition*

*Ithaca, NY*

- Refined the **CAD model** of the boat's drivetrain, such as modelling new components that kept the miter gear on the driveshaft and ensured easy assembly and dismantling of the coupler holder.
- **Researched** properties of various materials to deduce the appropriate keys for the system, ensuring the drivetrain's optimal performance and durability.
- Utilized o-rings and sealants, securing the drivetrain's **waterproof** nature prior to system testing.
- **Assembled, tested, and troubleshooteed** the drivetrain, proving its effectiveness with other components on the boat.

### Multitool Brush

January 2025 - May 2025

*Cornell University Mechanical Design Group Project*

*Ithaca, NY*

- **Brief Overview:** The multitool brush contains an upside down L shaped body with an ergonomic handle. It highlights a built-in straw cleaner and exchangeable brush heads, ensuring efficient cleaning for every purpose.
- Obtained **interview data** on varied demographics, providing a basis for ideas to sprout.
- **Brainstormed** and **sketched** ideas to create initial scrappy **prototypes**, presenting a solid blueprint for the multitool.
- Built and continuously improved the **CAD model** of the multitool, ensuring appropriate dimensions for user use.
- **Assembled, tested, and troubleshooteed** 3D printed and purchased parts, increasing the product's usability with each iteration.

## EXPERIENCE

### Thermodynamics Teaching Assistant

August 2025 - Present

*Cornell University*

*Ithaca, NY*

- Led a weekly discussion with 30+ students, providing brief reviews of thermodynamic topics and answering student questions to bolster understanding of the course.
- Held office hours weekly to answer any questions students may have to build their confidence in thermodynamics.
- Provided feedback regarding exam drafts to ensure fairness and optimal test of student's understanding.

### Undergraduate Lab Learning Assistant

August 2024 - December 2024

*Cornell University*

*Ithaca, NY*

- Assisted 20+ students with lab equipment and data analysis in an introductory physics lab class, improving their knowledge of the usage and function of each equipment and enhancing their interpretation of data.
- Orchestrated check-ins throughout the lab session for student experimental planning and updates, resulting in an increase in project quality and diversified experimental goals.

### Tutor

July 2023 - August 2023, July 2024 - August 2024

*Chan Tutoring Center*

*Staten Island, NY*

- Developed and taught structured lesson plans for 30+ students in writing, grammar, and math, adapting content to different learning styles and tracking students' progress.
- Provided feedback to parents, enhancing understanding of student progress and supporting tailored strategies.
- Oversaw experiments, crafts, and group play for 20+ students, fostering hands-on learning and teamwork.