

# Raquel Sweet

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## EDUCATION

**Cornell University**, College of Engineering, Ithaca NY - **GPA: 4.02**

**B.S. Expected May 2027**

Bachelor of Science, Mechanical Engineering; Dyson Business Minor for Engineers

**Engineering Coursework:** Dynamics, Statics and Mechanics of Solids, Thermodynamics, Mechanical Design, Mechanics of Engineering Materials, System Dynamics, Introductory Fluid Mechanics, and Introduction to Aeronautics

## PROFESSIONAL EXPERIENCE

**Magnus Ultralight Research Project**, Cornell University, *Undergraduate Researcher*

**May 2025 - Present**

- Work under the direction of Professor Mason Peck to build and test the first production Magnus Effect-powered ultralight aircraft
- Fabricate prototype of eVTOL aircraft, including quadcopter rotor system, landing skids, and wiring system
- Flight-test aircraft lifting 4 kg of external payload for the duration of ten five-minute hovers
- Apply data from ANSYS and MATLAB to guide design decisions
- Develop models using SOLIDWORKS and Fusion 360 for aircraft design and to aid in analysis
- Design and build a gear-driven hub system for rotating a Magnus Effect sphere at over 1,500 RPM, ensuring dynamic balance for smooth and stable operation

**Design Build Fly Project Team**, Cornell University, *Mechanical Sub-team Lead/Composite Lead*

**Oct 2023 - Present**

- Lead a 12-member sub-team responsible for the mechanical and structural subsystems of an aircraft to compete in the international AIAA DBF competition for the 2025-26 year
- Utilize FEA to lead structural analysis of mechanical subsystems, including landing gear and fuselage
- Lead dynamic testing of aircraft towable banner to validate aerodynamic drag models and optimize design performance
- Supervise and support sub-team projects, and provide mentorship and onboarding for new members
- Developed DBF's first ever composite fabrication plan by gauging material feasibility and tensile strength and researching available resources
- Successfully implemented plan and reduced fuselage mass by 65% from previous year with carbon fiber model
- Designed fuselage of aircraft utilizing CAD software and manufactured double layered carbon fiber fuselage by hand cutting and layering components

## WORK EXPERIENCE

**Academic Excellence Workshop Facilitator: Statics**, Cornell University

**Aug 2025 - Present**

- Teach 20 students in a weekly supplementary class for the Statics and Mechanics of Solids course
- Prepare original presentations and review material for each session
- Attend eight trainings to improve lesson plans, teaching techniques, and conflict resolution

**Beach Chalet Brewery and Restaurant**, San Francisco CA, *Concierge/Hostess/Server*

**May - Aug 2024**

- Managed reservations and responded to customer inquiries regarding the establishment and local attractions
- Handled tabling assignments and maintained customer satisfaction for approximately 200 customers per day
- Served tables to meet customers' needs with a hospitable attitude

**Another Planet Entertainment**, San Francisco Bay Area, *Musical Performance Usher*

**Jan 2022 - Present**

- Support concert venues by guiding patrons, scanning tickets, assisting VIP and ADA guests

## CAMPUS INVOLVEMENT

**HumorUs - Cornell University Sketch Comedy Group**

**Oct 2024 - Present**

- Write and present sketch material at bi-weekly meetings
- Revise my own work and provide feedback for peer revisions
- Rehearse, film and perform sketches for live audience of 400 people at bi-annual event

## SPECIALIZED SKILLS

- **Software:** SOLIDWORKS, Fusion 360, Python, MATLAB, ANSYS (Fluent and Static Structural)
- **Hardware:** Composite Fabrication, Machining (bandsaw, lathe, and mill), 3D printing, Soldering