Laura Ren

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EDUCATION

Cornell University, College of Engineering, Ithaca, NY **Expected May 2027**
Bachelor of Science, Mechanical Engineering
GPA: 3.8/4.0

Relevant Courses: *Statics, Thermodynamics, Dynamics, Mechanical Design, Linear Algebra, Differential Equations*

LEADERSHIP EXPERIENCE

VEX **VRC Robotics Competition,** Club&Team Lead, Chengdu, China **SEP 2020-MAY 2023**

- Led design, construction, and operation of robots' mechanical structures based on competition's seasonal goal and rule, and guided team in troubleshooting design, mechanical, and coding challenges.
- Programmed autonomous routes using VEX Code and C++, adjusting parameters for competition conditions.
- Secured sponsorships totaling $400 per season and managed team resources.
- Authored Engineering Notebook, earning the "Think Award"; guided team to multiple awards in the Asian-Pacific division (50+ teams)

TECH / PROJECT EXPERIENCE

CU Autodrone Project Team, Mechanical Subteam Member **OCT 2023-MAY 2024**

- Used *Onshape* to design and CAD drones and supporting structures to fulfill missions.
- 3D printed parts and collaborated with the ECE team to assemble drones.

Research on Musical Drum-head's (membrane) Vibration Mode, Chengdu, China **SEP 2021-MAY 2023**

- Self-studied Finite element analysis (FEA) software *COMSOL Multiphysics* to fulfill 2D membrane simulation.
- Simulated 2D membrane in polyethylene (common drum head material) of three surface tensions, excited the membrane center with simulated drum stick, and recorded the stimulated vibration image in 0.001s interval.
- Analyzed the vibration graph after excitation to derive the pattern of surface tension's effect on vibration mode.
- Constructed interferometer in optical laboratory to visualize the vibration pattern.

Wind Drag Analyzer for *F1 in Schools* competition, Team Supernova, Chengdu, China **OCT 2021-NOV 2022**

- Self-studied and used Finite element analysis (FEA) software *Solid Edge FLOEFD* to analyze wind drag performance on cars using graphs of flow path-lines and static pressure.
- Assisted with race car design and modeling with *Autodesk Fusion 360* by offering design adjustment advice according to FEA results.
- Assembled and decorated cars after 3D and CNC printing.

TEACHING EXPERIENCE

Intro to Python (CS1112) Class, Cornell University, Consultant **SEP 2024-Present**

- Provide 5 hours a week of hybrid one-on-one support for a *Python* class of 200 students.
- Grade weekly assignments, 6 large projects, and 3 exams.

Intro to MATLAB (CS1132) Class, Cornell University, Head Teaching Assistant **AUG 2025-Present**

- Host 4 hours a week of office hours and weekly discussion section for a fast-paced *MATLAB* application class.
- Write exercise materials, grade weekly assignments, coordinate course logistics.

New Oriental Education, Teaching Assistant **JUN 2025-AUG 2025**

- Provide one-on-one tutoring for Mandarin-speaking students preparing for English proficiency exams like IELTS, TOEFL, CET-4/6.
- Lead speaking practice and dictation sessions, offer real-time feedback, and share progress reports with instructors to support individualized learning.
- Develop strong communication and instructional skills in a fast-paced, student-focused environment.

SPECIALIZED SKILLS

CAD&3D Printing: *Autodesk Fusion 360*, *Onshape*, *Bambu Studio*
FEA&Simulation: *COMSOL Multiphysics*, *Solid Edge FLOEFD*
Programming&Languages: Python, MATLAB; Mandarin (native), English (native), Japanese (intermediate)