

# CHARMAINE GUO

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## EDUCATION

**Northwestern University**  
B.S. in Materials Science & Engineering

June 2028  
Overall GPA: 3.25/4.00

## SKILLS

<b>Computer Languages</b>	Python, Java, MATLAB, HTML, CSS
<b>Soft Skills</b>	Project Management, Teamwork, Time-Management, Adaptability
<b>Hard Skills</b>	Lab Safety, Capillary Rheometer, SEM, Spectrometer, ICP
<b>Organizational Tools</b>	Microsoft Excel, Google Drive

## EXPERIENCE

**Undergraduate Researcher** October 2024 - Present  
*Northwestern University* Evanston, IL

- Collaborating with a PhD candidate on cellulose crystalline research, focusing on color formation without dyes.
- Studying how UV light cures acrylic acid, solidifying cellulose crystals and creating structural colors
- Analyzing using MATLAB how varying cellulose concentrations affect crystal arrangements and resulting colors.

**Engineer Intern** June 2024 - August 2024  
*Weston Department of Public Works* Weston, MA

- Transferred water pipe data from hand-drawn maps into a GIS-based system, improving online access and organization.
- Identified five roads with lead pipes, leading to successful excavation and replacement.
- Assisted with water treatment operations, gaining hands-on infrastructure experience

**Architectural Intern** June 2022 - Feb 2023  
*Maple Hill Architects* Wayland, MA

- Created 3D models in SketchUp for active and future residential projects, enabling clients to better visualize architectural concepts and design plans.
- Contributed to interior design layouts and space planning, providing practical and aesthetic insights to ongoing projects.
- Modeled a full renovation plan for a residential property, including an energy-efficient greenhouse extension.

## PROJECTS

**Purrfect Care** Desktop (WildHacks)  
*Python, PyQt5, Gemini API* March 2025

- Built a PyQt5 desktop app with wellness reminders, to-do list, and animated notifications.
- Integrated Gemini API for contextual chat with a virtual assistant cat.

**Skynet System** Team Project (Design Thinking & Communication)  
*Onshape, Arduino IDE, ESP32* Jan - March 2025

- Designed solutions for remote zoo access, with prototypes including an interactive online tour prototype built with web technologies and a Hexbug like design.
- Final deliverable: a zipline-mounted camera system enabling live video feed controlled remotely by users.

## EXTRACURRICULAR ACTIVITIES

**Finance Lead** January 2025 – Present  
*Society of Asian Scientists and Engineers (SASE)*

- Organizing fundraisers and managing financial operations, budgeting, and expense tracking.
- Writing grants and collaborating with the club to ensure efficient financial planning and resource allocation.

**Power Distribution Management** October 2024 – Present  
*Northwestern Formula SAE (NUFSAE)*

- Working on the electrical systems team to design the back box harness and build the top hoop harness.
- Collaborating with the accumulator team to design the low voltage battery box.
- Learning and applying software like Altium, SolidWorks, and RapidHarness.