

CHARMAINE GUO

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EDUCATION

Northwestern University
B.S. in Materials Science & Engineering
Overall GPA: 3.25/4.00

June 2028

SKILLS

Computer Languages	Python, Java, MATLAB, HTML, CSS
Soft Skills	Project Management, Teamwork, Time-Management, Adaptability
Hard Skills	Lab Safety, Capillary Rheometer, SEM, Spectrometer, ICP
Organizational Tools	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

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.

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.