CHARMAINE GUO

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EDUCATION

Northwestern University   *June 2028*
B.S. in Data Science
B.S. in Materials Science & Engineering

SKILLS

Computer Languages	Python, Java, MATLAB, HTML, CSS
Soft Skills	Project Management, Teamwork, Time-Management, Adaptability
Hard Skills	Research Methods, Data Collection, 3D Printing, SolidWorks
Organizational Tools	Microsoft Excel, Google Drive

EXPERIENCE

Undergraduate Researcher — Schuh Group   Jan 2026 - Current
Northwestern University   *Evanston, IL*

· Synthesizing zircon ($ZrSiO_4$) coatings on micron-scale sand particles using the Pechini method, leveraging polymerizable precursors to ensure precise stoichiometric control and chemical homogeneity.
· Refining sol-gel processing routes by adjusting citric acid to ethylene glycol ratios, improving the stability of the resin precursor for more consistent particle encapsulation.

Student Tech Aide   September 2025 – Present
The Garage   *Evanston, IL*

· Manage makerspace operations and inventory for 3D printers, CNC, and woodworking tools, utilizing data-informed logistics to ensure equipment uptime and optimal material stock levels.
· Facilitate resident fabrication by translating complex project requirements into technical workflows, providing expert guidance on additive and subtractive manufacturing techniques and safety.

Quality Intern   June 2025 - August 2025
Littelfuse   *Beverly, MA*

· Engineered a centralized data repository using Power Query to automate the ETL process for 300+ legacy quality reports, standardizing disparate data formats into a relational structure.
· Architected a multi-parameter search engine by indexing part numbers, package types, and leadframe variables, enabling instantaneous data retrieval and cross-functional visibility.
· Optimized data retrieval latency, reducing mean search time from several hours to under 60 seconds (a ¿95

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 & Communcation)
Onshape, Arduino IDE, ESP32   *January - March 2025*

· Designed solutions for remote zoo access, with 3d printed protoypes including an interactive online tour proto-type 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

Low Voltage Team   October 2024 – Present
Northwestern Formula SAE (NUFSAE)

· Engineered the vehicle's Power Distribution Module (PDM) using Altium Designer, overseeing the full schematic capture and PCB layout process.
· Developing comprehensive wiring harness specifications, including connector selection, pinout mapping, and signal integrity routing.
· Leading technical onboarding for new members by delegating design tasks and conducting training sessions on RapidHarness and industry-standard documentation.