

# Jenny Wu

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## Technical Skills

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- **Languages:** Python, C, C++, Java, TypeScript, HTML, CSS, JavaScript, VBA
- **Robotics & Vision:** OpenCV, Computer Vision, Image Processing, Motion Control
- **Tools & Design:** SolidWorks, OnShape, Altium, KiCAD, MATLAB
- **Software:** Git, Linux, Firebase, React, Visual Studio Code

## Experience

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### Mechatronics Engineering Intern | FuelCell Energy May. 2024 - Jun. 2025

- Developed and deployed a **Raspberry Pi-based vision alignment system**, using **OpenCV and Python** to control the movement of a **3-axis mechanical platform**. Improved screen printing alignment by 99% and achieved a **precision of 0.01 mm**.
- Designed, machined, and implemented a **pneumatic flipping system** in **SolidWorks**, and led design review meetings with team executives.
- Designed and tested **sensor-control PCBs in KiCAD**, optimizing communication between a **PLC** and **6-axis Epson robot arm**, automating the build process of hydrogen fuel cells and reducing production time by 70 seconds.

### Firmware Engineering Intern | Attest Laboratories Sept. 2023 - May 2024

- Programmed **C firmware** for a gradient shim module in a **nuclear magnetic resonance system** to precisely modulate coil currents.
- Designed and manufactured **custom PCB & adapter boards in KiCAD**, performing component selection, schematic verification, and **Design for Manufacturing** reviews.

### Research Assistant | University of Hawai'i at Mānoa Jan. 2023 - Apr. 2023

- Developed **automated data analysis workflows** for a pulmonary surfactant study using constraint drop surfactometry.
- Built a **VBA-based automation tool** to process experimental data and generate figures, **reducing analysis time by 80%**.
- Designed and executed instrumentation setup and data collection protocols to measure **surface tension dynamics** in lung surfactants exposed to e-cigarette aerosols.

### Co-Founder & Full Stack Developer | Impact Without Contact Apr. 2020 - Mar. 2024

- Co-founded federally registered COVID-relief non-profit organization with **1100+ volunteers** across **85+ cities**, brainstormed and led **35+ volunteer initiatives** for various sectors impacted by the pandemic.
- Developed organization website and incorporated volunteer blog page, and newsletter registration form, reaching **800+ monthly users**.
- Managed development of volunteer portal with **React & Firebase**, allowing volunteers to receive opportunities based on their preferences.
- Secured **\$7200+** in sponsorships and grants, featured in publications & news outlets including **Global News & Toronto Star**.

## Projects

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### Electrium Mobility | Arduino, C++, SimpleFOC, DRV8833 Motor Driver May 2023 - Aug. 2023

- Designed firmware for **regenerative braking** on a sustainable e-bicycle using **Arduino, C++, and DRV8833 motor driver**.
- Integrated hardware subsystems (battery management, sensors, and control board) into full electromechanical assembly.

### Project Echo: Hand Prosthetic | Arduino, C++, EMG, HS-645MG Motor Controller May 2023 - Aug. 2023

- Built an **Arduino-based EMG hand prosthetic** using signal conditioning and a HS-645MG servo.
- Designed mechanical housing in **SolidWorks**, achieving reliable grasp control from muscle activity.

### Toyota Innovation Challenge Hackathon | Python, Machine Vision May 2023

- Implemented a **machine vision sticker inspection system** in **Python and OpenCV** in a team of 4 for a **2-day hackathon**

### Secure Sockets Layer Certificate Checker | Stars Technologies Services Apr. 2020

- Developed a **Secure Sockets Layer certificate checker** using **Python** script to check for expiration and validity of a website's SSL certificate.

## Education

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### University of Waterloo | Waterloo, ON, Canada Sept. 2021 - Apr. 2026

*Bachelor of Applied Science in Biomedical Engineering (Co-op), Minor in Computing & Medical Artificial Intelligence*

- University of Waterloo's President's Scholarship of Distinction Recipient, CABHI NextGen Award Recipient, Yuen Family Foundation Award for Healthy Aging Recipient, Engineer of the Future Fund Recipient

**Activities & Interests:** Sudoku, Reading, Geography Quizzes, Spreadsheets