

Ruthie Zhang

548 390 6821 | [linkedin.com/in/ruthierzhang](https://www.linkedin.com/in/ruthierzhang) | rr5zhang@uwaterloo.ca | Waterloo, Canada

TECHNICAL SKILLS

- **Programming & Software:** C++, Python, MATLAB, React, JavaScript
- **Hardware & Design:** SolidWorks, 3D CAD
- **Wet Lab:** Pipetting, Immunostaining, Calcium Imaging, Patch Clamp
- **Tools:** Microsoft Excel, Word, PowerPoint, GitHub

EXPERIENCE

Neural Engineer – University of Modena and Reggio Emilia | *Python, MATLAB, Wet Lab* May 2026 - Present

- Cultured primary rat neurons over a month-long experimental cycle, performing immunostaining and calcium imaging to assess cell viability and neural activity
- Used MATLAB to analyze electrophysiological data, quantifying electrical firing patterns and signal properties across neuron populations

Lab & Design Team Member – iGEM | *Wet Lab, Excel, Word* January 2026 - Present

- Investigated Staphylococcus aureus bacterial sensing and inhibition mechanisms as a synthetic biology solution for skincare applications within the iGEM international competition
- Conducted literature reviews and contributed to research papers proposing genetically engineered biological systems to detect and suppress S. aureus on skin

Founder & Operator – Natural Designs Candle Co March 2021 - August 2025

- Founded and operated a handmade candle business, working directly with customers and retail partners to sell 500+ units across markets and online
- Built and managed a customer-facing e-commerce store, handling branding, inventory, and fulfillment while responding to customer feedback and inquiries
- Led sales initiatives with community stakeholders, raising and donating \$1,000+ toward cancer-related causes

Web Developer/ Designer – Social Venture Partners | *HTML, CSS, JavaScript, GitHub* September 2023 - August 2024

- Designed and maintained responsive webpages to improve accessibility, usability, and mobile performance
- Collaborated with stakeholders to translate needs into clean, functional web features aligned with branding and mission
- Improved site navigation and engagement by optimizing layout, structure, and visuals based on user feedback

PROJECTS

LinkedOut | *Next.js, TypeScript, React, Tailwind CSS, Supabase* April 2026 - Present

- In the process of building a full-stack passion-based social networking platform where users join interest-based clubs, with features including a feed, messaging, and profile pages
- Integrated Supabase for authentication, PostgreSQL database management, and an automated email verification pipeline triggered on account creation
- Deployed on Vercel with CI/CD pipeline and responsive UI built with Tailwind CSS

Machine Learning Bicep Counter | *Python, OpenCV* May 2026 - June 2026

- Developed and trained a Python based machine learning model using PyTorch to detect and count bicep curls from video input, enabling automated exercise tracking
- Evaluated and fine-tuned model performance, achieving 90% accuracy through iterative testing and optimization
- Deployed the model in a real-time application capable of analyzing live video feeds for practical fitness guidance

EDUCATION

University of Waterloo — Bachelor of Applied Science Biomedical Engineering

September 2025 - April 2030