Dorothy Zheng

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EDUCATION

University of Toronto, St. George — Toronto, ON
Honours Bachelor of Science in Computer Science — *Sept 2025 - May 2029 (Expected)*
- **Arbor & C. David Naylor Scholar ($24,500)** — Selected as one of 8 University of Toronto National Scholarship finalists. Awarded on the basis of academic merit and demonstrated leadership excellence.
- **Don Walker Scholarship Recipient ($12,000)** — One of 80 global recipients based on academic performance and contributions to the community. Awarded by Magna International Inc.

PROJECTS

ASLingo – Hack the Valley 2025 | *React.js, MongoDB, PyTorch, MediaPipe, Auth0, Vercel, Docker*
- Co-developed ASLingo, an **AI-powered web platform** that teaches American Sign Language (ASL) through real-time gesture feedback and interactive lessons.
- Built a **React.js frontend** integrated with **Auth0 authentication** and a **Node/Express.js backend**, connected to **MongoDB** for user data and progress tracking.
- Trained a **custom PyTorch sequence model** using **MediaPipe and OpenCV** to classify ASL gestures and generate human-readable coaching tips (e.g., "move right hand higher").

sEMG Bionic Arm Control System | *Python, MicroPython, Data Processing*
- **Developed and engineered bionic arm** processing muscle activity from biceps and triceps to control hand and elbow movement.
- Processed data from surface electromyography (sEMG) signals and **created algorithm to filter noise.**
- Won Gold, Best Engineering, Sanofi BioGenius, Innovation and $2000 Scholarship at Windsor Regional Science, Engineering, Technology and Engineering Fair.

Music XML Parser | *Java Swing*
- Built a **Java Swing application** to parse and render MusicXML files into readable sheet music, combining **structured data parsing** with **real-time UI rendering.**
- Integrated an **audio playback engine** supporting tempo modifications and synchronized score highlighting, enhancing usability for musicians.
- Applied **object-oriented design principles** and **modular architecture** for maintainability and extensibility.

EXPERIENCE

MasseyHacks — Windsor, ON
Co-Director — *Apr 2024 – Jul 2025*
- Directed the technology and operations teams for **Canada's oldest high school hackathon**, coordinating development, logistics, and event execution for 160+ participants.
- Led the development of a modern, responsive event website using **HTML, CSS, and JavaScript**, streamlining registration and improving accessibility.
- Built a secure identity verification system with a **Python-based Discord bot**, automating attendee validation for 200+ users.
- Developed the **Hackenger Hunt**, a series of web-based puzzles built with **HTML, CSS, and JavaScript** that stored user progress and scores in **JSON**-based data structures.

CodeReach — Windsor, ON
Director — *Sept 2024 – June 2025*
- Led a **10-member team** to develop and deliver weekly lessons in **Python** and **Pygame** for **100+ students**, introducing programming fundamentals through interactive, game-based projects.
- Created **educational materials and example programs** showcasing key **game development concepts** such as **collision detection**, **sprite animation**, and **event handling** to reinforce computational thinking.

TECHNICAL SKILLS & HONORS

Languages: Python, C++, HTML/CSS, Javascript, Swift Java, R
Technologies: React.js, MongoDB, Pytorch, Three.js, MicroPython, Git, PyGame
Canadian Computing Competition: '24 Sr. Top 5%, '23 Jr. National First Place
NASA International Space Apps: '24 Top 8% of 15000+