Daniel Zhao

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EDUCATION

University of Waterloo   **GPA: 4.0/4.0**
Honours Bachelor of Computer Science (Co-op)   *Sep. 2024 – Apr. 2029*

TECHNICAL SKILLS

Languages: C, C++, C#, Python, Java, Ruby, HTML, CSS, JavaScript, TypeScript, SQL, Racket
Technologies: React, React Native, Rails, Next.js, Express.js, Node.js, Flask, Django, Tailwind CSS, Unity
Tools: Git, Bash, Linux, Docker, Postman, Figma, MongoDB, PostgreSQL, Firebase, GCP, Vercel, Ollama

EXPERIENCE

Cineplex Digital Media   Sep. 2025 – Dec. 2025
Software Developer   *Waterloo, ON*
- Developed a media analysis pipeline with **Python**, integrating **Gemini API** and **SAM 3** to automate content tagging, saving **200+ hours** of manual annotation work across hundreds of video and image files.
- Implemented a robust server-upload service in **C#** and resolved key data handling issues for a user engagement analytics system deployed to over **70** digital signage units across 12 malls.
- Built an interactive analytics dashboard with **React** and **Flask**, creating **RESTful API** endpoints to display relationships between on-screen ads and Kinect-tracked physical movements in shopping centers.
- Created a real-time people counting system in **Python** using **2D LiDAR**, integrating clustering and a **Random Forest classifier** to detect and track individuals in open spaces.

Waterloo Aerial Robotics Group   May. 2025 – Aug. 2025
Autonomy Software Developer   *Waterloo, ON*
- Developed an autonomous landing module in **Python**, implementing configurable target selection algorithms that enable drones to identify and land on targets with under **2cm** precision.
- Implemented real-time landing pad detection using **YOLOv8** and **OpenCV**, achieving **95%** detection reliability.
- Created unit and integration tests using **Pytest**, reinforcing maintainability and development best practices.

Waterloo Reality Labs   Sep. 2024 – Apr. 2025
Software Developer   *Waterloo, ON*
- Designed a context-aware prompting interface in **Unity** using **C#** and the **Meta XR SDK** to capture user gaze, proximity, and object interactions, in order to drive personalized feedback in a VR environment.
- Built a unified integration layer across **4 LLM backends**, allowing seamless switching between cloud-based APIs and local models run via **Ollama** for flexible model evaluation.
- Integrated voice interaction with LLMs by implementing **OpenAI Whisper**, reducing user input time by **5x**.

PROJECTS

ⓞ **Notation — AI LaTeX Transcription** ↗   *React, Ruby on Rails, Gemini API, Docker, GCP*
- Built a **React** app that converts handwritten math PDFs and images into LaTeX using **Gemini API**.
- Implemented LaTeX compilation with a **Ruby on Rails** backend, deployed on **Google Cloud Platform**.

ⓞ **ChordCraft — CRUD Music Notes** ↗   *React, Node.js, Express.js, MongoDB, ABCJS*
- Developed a **React** app with an interactive piano interface that renders sheet music in real time using **ABCJS**
- Built a **Node.js** backend with **MongoDB** for user authentication and persistent compositions serving **50+** users.

ⓞ **Terra — AR World Building** ↗   *C#, Unity, AR Foundation, ARCore*
- Created an **AR mobile app** that allows users to place 3D blocks in physical spaces using **Unity** and **ARCore**.
- Implemented **raycasting** and touch controls improving object placement precision by **70%**.

ⓞ **MotionWave — Vision AI Harmonization** ↗   *Next.js, TypeScript, MediaPipe, Web Audio API*
- Developed a gesture-controlled music app with **Next.js**, using **MediaPipe** for real-time hand tracking.
- Integrated a **WebAssembly** neural network for SATB harmony generation, maintaining **60FPS** UI performance.