

Lucas Zheng

Computer Science Co-op Student at McMaster University | Seeking 4–16 month co-op opportunities

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EDUCATION

McMaster University

B.A.Sc. in Honours Computer Science Co-op; GPA: 3.8/4.0

Hamilton, Ontario

Sep 2024 – Jun 2028

Relevant coursework: Data Structures and Algorithms (COMPSCI 2C03), Computer Architecture (COMPSCI 2GA3); Introduction to Software Development (COMPSCI 2ME3); Databases (COMPSCI 2GA3); Concurrent Systems (COMPSCI 2SD3)

SKILLS

Languages: Python, Java, TypeScript, C/C++, SQL, MATLAB

Frameworks & Libraries: Next.js, Flask, MySQL, Git, npm, NumPy, PyTorch

Methodologies: Agile, OOP, Functional Programming, SDLC, Software Engineering Principles

PROJECTS

SyllaBuddy 🤖 | Python, Typescript, Flask, Next.js, Tailwind CSS, OpenAI

- Built a syllabus analyzer that extracts and summarizes academic course data from PDFs.
- Implemented a Flask API using pdfplumber for structured syllabus parsing and keyword extraction.
- Designed a responsive dashboard with React.js and Tailwind CSS for real-time syllabus visualization.
- Improved student efficiency by automating manual syllabus review and textbook lookup using ISBNs.

Toronto Airbnb Price Predictor 🤖 | Python, PyTorch, scikit-learn, NumPy, Pandas, Matplotlib

- Developed a linear regression model to predict nightly Airbnb prices in Toronto using real listings from the Inside Airbnb dataset.
- Processed key features (neighbourhood, bedrooms, room.type) with one-hot encoding and scaling; trained with early stopping for optimal validation loss.
- Achieved $R^2 = 0.46$, $MAE \approx \$56$, visualized results with predicted-vs-actual scatterplots, loss curves, and feature-weight charts to explain key pricing drivers across Toronto neighborhoods.

TrailSense 🤖 | Node.js, Flask, TwelveLabs Pegasus/Marengo, Google Maps, OpenAI

- Developed a web app that indexes crowd-sourced mountain biking footage to recommend trails based on rider prompts.
- Integrated TwelveLabs Marengo and Pegasus models to extract scene-level embeddings and generate summaries with difficulty ratings (0–10) and terrain type.
- Automated EXIF metadata extraction to correlate video frames with geolocation and elevation.

OptiHealth 🤖 | Python, Typescript, Flask, React.js, Tailwind CSS, Cohere

- Co-developed an AI-driven fitness planner that personalizes exercise routines based on user goals, disabilities, and available equipment.
- Delivered a functional prototype within 36 hours at DeltaHacks-XI.

Blackjack Probability Advisor | Python, NumPy

- Built a real-time card-counting and probability engine implementing the Hi-Lo counting system.
- Designed a terminal-based advisor that calculates optimal hit/stand decisions with dynamic probability updates.

EXPERIENCE

Fortinos

Deli Associate

Burlington, Ontario

Sep 2023 – Present, Part-time

- Delivered friendly, efficient customer service in a fast-paced grocery retail environment.
- Collaborated with team members to coordinate orders and maintain clean, organized work areas.