

Alex Zhang

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EDUCATION

University of Toronto

Toronto, ON

Bachelor of Applied Science in Computer Engineering, Minor in AI & Business

Sep, 2023 – May, 2028 (Expected)

EXPERIENCE

AI/Automation Engineer Internship

May. 2025 – Aug. 2025

JuniorKids co

Remote

- Collaborating directly with the CEO and led a team of 2 interns to develop a LangGraph-based AI agent powered by Qwen3 via OpenRouter, designed to autonomously source qualified leads using modular Python scrapers (Selenium + BeautifulSoup) tailored for ecommerce platforms.
- Integrating Gmail and Google Calendar APIs to automate personalized email outreach and meeting scheduling, reducing manual workload and accelerating lead engagement for the sales team.
- Engineering a lightweight CRM using the Google Sheets API to log interactions, manage follow-ups, and track lead statuses, providing end-to-end visibility across the sales funnel without relying on external CRM platforms.

CTO & Technical Co-Founder

Mar. 2025 – Aug. 2025

TrainerIQ - DMZ Basecamp

Toronto, ON

- Directed the end-to-end technical launch of TrainerIQ's MVP, collaborating with an external development team while contributing prototypes for future features and workflows to guide implementation and validate product direction with early users through Beta Testing.
- Managed production infrastructure, including AWS EC2 deployment, custom domain configuration, and DNS management, ensuring a stable, scalable foundation for growth.
- Strengthened founder capabilities in UI/UX design, branding, customer discovery, and market strategy through DMZ workshops, applying them to shape MVP feature priorities, align engineering decisions with market needs, and design TrainerIQ's logo, color scheme, and marketing website.

Software Engineer Internship

Jan. 2025 – Apr. 2025

Savi Finance

Toronto, ON

- Collaborated with a team to develop an AI-powered PDF parsing pipeline, expanding the upload options beyond CSV files, increasing flexibility, and improving the overall customer experience.
- Implemented middleware to validate backend API inputs by checking file type (PDF), size limits, and format compliance, ensuring robust data integrity and preventing invalid or malicious file uploads.
- Utilized TypeScript to implement UI fixes such as consistent header capitalization, improving visual consistency and user experience while gaining hands-on experience with front-end development.

Electrical Team Member

Sep. 2024 – Mar. 2025

Robotics for Space Exploration (RSX) - University of Toronto

Toronto, ON

- Designed and built a custom single-layer LED PCB in KiCAD to display rover subsystem signals; owned schematic/layout design, component selection, and signal mapping.
- Developed a PyQt GUI to generate and send mock signals to the PCB, enabling functional testing and faster validation of the Arduino shield interface.
- Hand-soldered and tested boards with voltmeter/oscilloscope, conducted battery load tests, and collaborated with new members to assemble units, one of which was later integrated on the rover.

Full-Stack Web Developer

Oct. 2024 – Dec. 2024

UTRA Hacks - University of Toronto

Toronto, ON

- Collaborated with a team of five to build the official website for UTRA Hacks 2024, used for real hackathon applications.
- Developed the front-end of the application form using Next.js and TypeScript, coordinating closely with backend developers.
- Used Git for version control to manage tasks, streamline collaboration, and track progress.

PROJECTS

React CSV Toolkit | *React, Vite, JavaScript, Tailwind CSS, Git* May. 2025

- Developed a React-based CSV toolkit using Vite that supports file upload, cell editing, and table manipulation, enabling users to interact with and modify tabular data directly in the browser.
- Implemented dynamic sorting, row/column operations, and real-time state updates with React hooks and context, resulting in a fast, intuitive, and scalable frontend experience.

CityScope (ECE297 Project) | *C++, OpenStreetMap API, EZGL* May 2018 – May 2020

- Collaborated in a 3-person team to develop an interactive C++ GIS app with OpenStreetMap data and EZGL rendering, enabling users to zoom, pan, and search points of interest.
- Implemented A* and Dijkstra's algorithms to compute optimal routes, delivering fast and accurate pathfinding.
- Designed multithreaded metaheuristic solvers (2-opt, simulated annealing, hill climbing) to solve the Traveling Salesman Problem in under 5 seconds.
- Integrated libcurl-based HTTP module to fetch and parse real-time JSON weather data, enhancing contextual relevance.

SkinGuard AI | *Python, Flask, PyTorch, NumPy, Matplotlib, scikit-learn* Jul. 2024 – Aug. 2025

- Fine-tuned a pretrained AlexNet CNN on the HAM10000 skin lesion dataset (10k+ images, binary classification) using transfer learning, achieving 80% accuracy on held-out test data.
- Applied data augmentation (rotation, flips), tuned hyperparameters (batch size, dropout, learning rate), and used train/validation/test splits along with SGD optimizer + BCEWithLogitsLoss to reduce overfitting
- Designed a prototype full-stack web app (Flask + JS) for image upload and inference, integrating preprocessing (resize, normalization) with the trained model in a co-founded startup prototype.

AI Spam Detector for text | *Natural Language Processing (NLP), PyTorch* Jul. 2024

- Trained character-level RNN models (vanilla, LSTM, GRU) on the UCI SMS Spam dataset (5k+ texts, 747 spam), achieving 98% test accuracy.
- Implemented custom tokenization with unknown-character handling and length-batched sequences to reduce padding and improve efficiency.
- Addressed dataset imbalance by oversampling spam texts, and validated model performance with separate spam/non-spam accuracy to ensure robustness across classes.

Diabetic Retinopathy Detection (APS360 Project) May. 2024 – Jul, 2024

- Fine-tuned a pretrained CNN on a competition dataset, achieving F1, precision, and recall scores that surpassed the benchmark by 10%.
- Conducted data preprocessing and analysis using NumPy/Pandas, applying augmentation techniques and transfer learning with fully connected layers to improve model generalization.
- Collaborated in a team of 4, dividing tasks across data pipeline, model design, and evaluation, while hosting code reviews and progress syncs.

TECHNICAL SKILLS

Languages: C, C++, Python, Java, JavaScript, TypeScript, Verilog, HTML, CSS

Frameworks: React, Next.js, Tailwind CSS, Bootstrap, Node.js, Express.js, Flask, Django

Developer Tools: Git, Docker, AWS, VS Code, Cursor, Vercel, Supabase, Figma, Anaconda Stack, KiCad, LTSpice, Quartus Prime, ModelSim, DESim

Libraries: PyTorch, NumPy, Pandas, Jupyter Notebooks

APIs & Services: OpenAI API, Google API, Twilio, RESTful APIs, Supabase