

Andrew Xu

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EDUCATION

University of Waterloo

Candidate for Bachelor of Software Engineering

Sep. 2023 – Present

Waterloo, ON

- **GPA: 4.0 (93.2/100)**
- Awards: 2x Dean's Honours List, President's Scholarship of Distinction

TECHNICAL SKILLS

Languages: TypeScript/JavaScript, SQL, Python, C/C++, Scala, HTML, CSS

Frameworks/Libraries: React, Node.js, Express, FastAPI, Django, React Native, PyTorch, NumPy, OpenCV

Tools: MySQL, PostgreSQL, Redis, Docker, AWS, Postman, Expo, MLFlow, Jupyter Notebook, Git

EXPERIENCE

Software Engineer Intern

Jan. 2025 – Present

Sector Growth

Toronto, ON

- Architected and implemented **2 Node.js/Express** backend services integrating **HubSpot CRM** and client APIs to enable historical and scheduled data synchronization, managing **7000+** transactions per execution.
- Developed robust **TypeScript** data validation layers using typed models and batch-processing strategies, ensuring data integrity and enforcing relational mappings across **15+** interconnected entity types.
- Designed a logging and execution tracking system to monitor API interactions and flag failures in real-time.
- Engineered a HubSpot auditing tool with **React** and **FastAPI**, improving audit speed by over **100x**.
- Leveraged **Redis** to implement caching and session management, optimizing performance and scalability.
- Deployed **Docker**-ized applications on AWS (**ECS**, **EC2**, **Amplify**, **API Gateway**).

Software Developer Intern

May 2024 – Aug. 2024

Viridien (formerly CGG)

Calgary, AB

- Engineered a binary classifier using **CNNs** and **U-Net** model architecture in **PyTorch** to predict patterns in seismic data, improving accuracy from **82%** to **95%** and reducing job execution runtime by **40%**.
- Utilized **MLFlow** to manage model versioning, monitor performance, and deploy models to AWS **SageMaker**.
- Developed a **Python** package with command-line and graphical interfaces to read and process subsurface well data.
- Leveraged **NumPy**, **Pandas**, and **SciPy** to design user-configurable network synthesis filters and Fast Fourier Transforms within the package.

Software Developer

Feb. 2024 – Apr. 2024

Calgary Science Spelling Challenge

Calgary, AB

- Utilized **FastAPI** and **PostgreSQL** to develop the backend API and database for a spelling bee event dashboard.
- Refactored website using **React** and **TypeScript** to reduce site load time from **2.63s** to **0.54s**.

PROJECTS

Webnote — Note-taking Web Extension |

- Developed a Chrome web extension enabling users to seamlessly record notes directly within their web browser.
- Engineered a Markdown text editor with **React** and the **Remark** plugin for note input, integrating the **Chrome tabs API** to associate notes with specific URLs.
- Utilized the **Django** framework to implement a user authentication system and a **REST** API for note persistence within a **PostgreSQL** database.

Emoticon — Emoticon Sentiment Detector |

- Achieved **96%** accuracy by training a neural network to detect the sentiment of emoticons on **900+** data points.
- Implemented backpropagation and gradient descent algorithms from scratch using **NumPy** and **OpenCV**.
- Engineered a full-stack web interface using **React**, **Node.js** and **Express.js** to enable users to request predictions from the network, and deployed frontend and backend on AWS **S3** and **EC2** instances.