

# David Zhao

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## EDUCATION

### Wilfrid Laurier University

Bachelor of Science in Data Science(co-op) - 4.0 Program GPA

Waterloo, ON

Sept 2024 - Present

## EXPERIENCE

### Software Developer

Emergconnect

January 2026 – Present

Waterloo, ON, Canada

- **Enhanced and optimized** an NLP model to improve classification of patient complaints into standardized triage categories; conducted error analysis and prompt refinement to **reduce misclassifications**.
- **Built automated evaluation pipelines** with curated test cases and **confusion analysis** to benchmark performance and iteratively improve precision and prediction consistency.
- **Debugged and documented mobile and web application** issues, performing root-cause analysis.

### Instructional Assistant

Wilfrid Laurier University

Sept 2025 – Present

Waterloo, ON, Canada

- **Improved clarity** of student projects by a **20% increase** in assignment accuracy by teaching data cleaning techniques in **R** and guiding visualization with **ggplot2** and **Matplotlib**.
- **Enhanced** project performance by training predictive models (**linear regression, decision trees**).
- **Taught statistical methods** (hypothesis testing, regression, ANOVA) to improve students' analysis skills.

### Software Developer

TeachTrack AI

May 2025 – August 2025

Toronto, ON, Canada

- **Streamlined ETL workflows** by a 25% reduction in manual data handling, by **automating pipelines in Python, SQL, Flask, and HTML** for multiple datasets.
- **Improved data accuracy and accessibility** by designing and managing relational databases.
- **Integrated predictive analytics and statistical models** to improve personalized teaching support.

## PROJECTS

### Fitmotion - Fitness Exercise Predict | Python, pandas, NumPy, Dask

Remote

- **Visualized smartwatch sensor data** from **gyroscope** and **accelerometer** to identify exercise patterns.
- **Improved model performance** by applying **feature engineering, tuning hyperparameters, and testing multiple algorithms** to optimize predictions from motion data.
- **Achieved 88.9% prediction accuracy** in classifying user exercises by training and validating a **machine learning model** on motion datasets, enabling reliable real-time activity recognition for wearable devices.

### Spectra - AI monitoring App | Next.js, TypeScript, Solana Web3.js, Supabase, PostgreSQL, Tailwind CSS

Remote

- Built a **real-time security and analytics platform** for autonomous **AI agents** on **Solana**, monitoring on-chain behavior with sub-second latency to prevent treasury drains and rogue execution.
- Engineered an **anomaly detection system** using **transaction frequency** and **spending velocity**.
- Built a **WebGL dashboard** in **Next.js 14** for real-time agent monitoring and rogue behavior detection.

### ShopSmart - Full Stack E-commerce Web app | Python, HTML, React, Typescript, API

Remote

- **Developed a responsive e-commerce web app** with product listings, shopping cart, and secure checkout.
- **Built a scalable backend API** to handle user authentication, order processing, and database management.
- **Optimized server performance, reducing response time by 25%** as measured by API benchmarks, by refining backend logic, optimizing queries, and implementing caching strategies.

### Eventfinder | Python, Flask, React, PostgreSQL, Docker

Remote

- **Integrated external APIs for real-time event listings** with search and category filters.
- **Developed** a location-based event discovery platform that allowed users to find nearby events in real time, **integrating geolocation data** and multiple **external APIs** to deliver accurate and responsive search results.

## TECHNICAL SKILLS AND CERTIFICATIONS

**Certificates:** Harvard CS50

**Languages:** Java, Python, C/C++, SQL (Postgres), JavaScript/TypeScript, HTML/CSS, R, Ruby, Go, Rust

**Frameworks:** React, Node.js, Vue, Flask, JUnit, Material-UI, FastAPI

**Libraries:** Chart.js, NumPy, Matplotlib, ggplot2, scikit-learn, TailwindCSS, Axios