

Alex Lee

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EDUCATION

University of Waterloo

Bachelor in Data Science, Minor in Combinatorics and Optimization

September 2023 - Present

Waterloo, ON

Relevant Coursework: Data Structures, Algorithm Design, Statistics, Sampling Design, Linear Algebra

Scholarship: President's Scholarship of Distinction - \$2,000 scholarship for students with average over 95%

SKILLS

Languages: Python, Java, C/C++, R, SQL, Bash, Typescript, Javascript

Frameworks/Libraries: Pandas, Matplotlib, NumPy, SciKit, TensorFlow, OpenCV, Selenium, Express, React

Tools: MySQL, MongoDB, PowerBI, Git, Linux, AWS, Make

EXPERIENCE

Database Developer

AKCSE

January 2025 - April 2025

Waterloo, ON

- Led the development of official AKCSE website using **Express** and **MongoDB** to enhance accessibility to career and academic help resources for students and increased the event participants by **150%**.
- Optimized website maintenance efficiency by **300%** by implementing **dynamic CRUD**, while implementing **authentication** and access control features to strengthen data security.
- Demonstrated quality teamwork and leadership by collaborating with a team of **5**, focusing on specialization for better outcome quality, and led to **20%** increase in event participation.

Finance Analyst

AKCSE

September 2024 - December 2024

Waterloo, ON

- Conveyed accountability and organization skills by analyzing and managing the cash flow of the organization using **Excel** to reduce reporting time by **30%** and improved reporting accuracy by **10%**.
- Coordinated with executive members to exercise strategized marketing while promoting academic resources such as Open House, and Resume Critique for the greater Kitchener-Waterloo community.
- Reduced **10%** of unnecessary expenditures by writing annual financial reports to identify inefficiencies and recommended actionable strategies for better financial management of the organization.

PROJECTS

AI/ML Football Analysis | *Python, OpenCV, Pandas* | [GitHub](#) | [Link](#)

- Built a football analysis system using **OpenCV** to track key metrics such as ball possession and player speed.
- Trained a **YOLOv11** model with **10,000+** images, achieving **0.877** mAP50 with 35.7 ms per-frame latency.
- Deployed services on **AWS EC2** with **SQS**, and built a **Next.js** web app for video upload and real-time analysis.

Credit Card Fraud Detection | *Jupyter Notebook, Pandas, Scikit-learn, Tensorflow* | [GitHub](#)

- Developed credit card fraud classification model using **sklearn** and **TensorFlow** with **96%** prediction accuracy.
- Collected **200,000+** transaction data and cleaned by reshaping and scaling to handle **imbalance dataset**.
- Utilized **Shallow Neural Network** as a prediction model, comparing **5** different models for optimal results.

FBREF Football Data Analysis | *Pandas, Matplotlib, PowerBI, Selenium* | [GitHub](#)

- Collected **100,000+** football match data using **Selenium** and cleaned raw datas into a **Pandas DataFrame**.
- Performed exploratory analysis using **matplotlib** and **PowerBI** to visualize findings interactively and intuitively.
- Identified progress passing distance as key predictor of math results, suggesting focused strategies to teams.

Academic Management System | *Java, Spring, MySQL, EC2* | [GitHub](#)

- Built a full-stack academic management web app of **20+** pages with **50+** users using **Spring** and **MySQL**.
- Ensured reliability with **200+** test cases and resolved issues such as multiple PK, time zone mismatches, etc.
- Reduced database response time by **30%** using nested SELECT statements to handle grouped ID increments.

Personal Portfolio Website | *Typescript, React, SASS* | [GitHub](#) | [Link](#)

- Developed a personal portfolio website using **Typescript** and **React** to showcase professional skills and projects.
- Enhanced personal brand visibility and resulted in **150%** increased networking and interview opportunities.
- Designed a modern portfolio website using **SASS**, including responsive layouts, for better user experience.