

Alex Lee

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EDUCATION

University of Waterloo

September 2023 - Present

Bachelor in Data Science, Minor in Combinatorics and Optimization

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, R, SQL, Bash

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

Tools: MySQL, MongoDB, PowerBI, Git, AWS

EXPERIENCE

Data Manager

May 2025 - August 2025

Daeचितop English Institute

- Managed student performance data using **Excel** by analyzing and visualizing students' performance trend to identify key solution for improvement and generated reports that drove a **15%** improvement in test scores.
- Developed an automation tool using **PyAutoGUI** to streamline the creation of course materials of the institute, improving material creation efficiency by **40%**, enabling instructors to focus on personalized teaching.
- Ensured accuracy and consistency of student performance datasets through systematic record-keeping and data cleaning, reducing overall errors by **20%** and strengthening the reliability of academic performance insights.

Database Developer

January 2025 - April 2025

AKCSE

Waterloo, ON

- Led the development of official AKCSE website using **Express** and **MongoDB** to enhance accessibility to academic and career help resources for University of Waterloo Students and increased the participants of events by **150%**.
- Optimized website maintenance efficiency by **300%** by implementing **dynamic CRUD** and designing an efficient database, while implementing **authentication** and access control features to strengthen data security.
- Demonstrated high quality teamwork and leadership by collaborating with a team of **5**, improving project specialization which led to faster development and contributed to **20%** increase in event participation.

Finance Analyst

September 2024 - December 2024

AKCSE

Waterloo, ON

- Conveyed accountability and organization skills by analyzing, managing, and visualizing the cash flow of the organization using **Excel** to reduce reporting time by **30%** and improved reporting accuracy by **10%**.
- Reduced **10%** of unnecessary expenditures by writing annual financial reports and conducting accurate analysis to identify inefficiencies and recommended actionable strategies for better financial management of the organization.
- 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.

PROJECTS

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

- Designed and implemented a football analysis system using **Python** and **OpenCV** to preprocess football match videos and compute key metrics (ball possession, player speed, and interval) using displacement analysis.
- Achieved **0.877** mAP50 (goalkeeper: 0.982, player: 0.988, referee: 0.965) by training a **YOLOv11** model using **1,000+** annotated images, with **35.7** ms per-frame inference latency (preprocess: 1.4 ms, postprocess: 3.9 ms).
- Deployed scalable backend services with **AWS EC2** instance and **SQS** for reliable ML inference and processing, integrated into a **Next.js** web app for client video uploads and interactive analysis with real-time player statistics.

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

- Collected and cleaned **100,000+** data of team matchlogs from FBREF, a football statistic web page, into a Pandas DataFrames using web scraping pipeline created from **Selenium** to provide data-driven insights to football teams.
- Performed exploratory and statistical analysis to gain analysis such as relevance between shots on target percentage and match result by utilizing **PowerBI** and **matplotlib** to visualize the key findings interactively and intuitively.
- Identified expected goals(xG), possession rate, and passing progression distance as the most significant predictors of match outcomes, demonstrating strong relevance to win probability and critical value in performance evaluation.