

# Alex Lee

Waterloo, Canada | [a55lee@uwaterloo.ca](mailto:a55lee@uwaterloo.ca) | [LinkedIn](#) | [GitHub](#) | [Portfolio](#)

## SKILLS

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**Languages:** Python, SQL(MySQL, PostgreSQL, MongoDB), R, Java, C/C++

**Libraries:** Scikit-learn, PyTorch, TensorFlow, Pandas, NumPy, OpenCV, Matplotlib

**Tools:** Power BI, Tableau, Seaborn, Git, Linux, AWS

## EXPERIENCE

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### Data Scientist

Jan. 2026 - Aug. 2026

*Future Cities Institute (Partnered with City of Edmonton)*

*Edmonton, AB*

- Operationalized end-to-end data pipelines for **real-time** municipal sensor data, enabling data-driven decision-making for a city of 1 million residents.
- Engineered predictive models using **Python (Scikit-learn)** and **SQL** to optimize public transportation routing, directly supporting the “Future Cities” initiative.
- Collaborated with cross-functional teams to translate raw big data into actionable infrastructure policies, effectively bridging the gap between R&D and production.

### Database Engineer

May 2025 - August 2025

*Association of Korean Canadian Scientists and Engineers*

*Waterloo, ON*

- Designed and implemented **MongoDB** schemas and **Express** APIs for the official AKCSE platform, structuring member, event, and resource data for efficient querying and future analytics.
- Optimized query patterns and indexing strategy, improving database throughput and reducing response times by approximately **3x** for core user flows.
- Implemented authentication, role-based access control, and input validation across CRUD operations to safeguard member data and maintain data integrity.

### Finance Analyst

September 2024 - April 2025

*Association of Korean Canadian Scientists and Engineers*

*Waterloo, ON*

- Managed and audited Excel-based cash flow records for 1,000+ annual funding, ensuring accurate categorization of income and expenses.
- Analyzed historical expenditure patterns and vendor quotes to identify financial risks and opportunities, leading to a 10% reduction in unnecessary costs.
- Translated financial data into interactive **PowerBI** dashboards for the executive team, supporting strategic budget allocation.

## PROJECTS

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### FBREF Football Data Analysis | [GitHub](#)

- Collected **100,000+** football match data using **Selenium** and organized the data into a **Pandas DataFrame**.
- Identified **progress passing distance** as key predictor of match results, suggesting focused strategies to teams.

### Credit Card Fraud Detection | [GitHub](#)

- Developed credit card fraud classification model using **sklearn** and **TensorFlow** with **96%** prediction accuracy.
- Processed and cleaned **200,000+** transaction records, focusing on handling imbalanced financial datasets.

### Computer Vision Football Analytics | [GitHub](#) | [Link](#)

- 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.

## EDUCATION

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### University of Waterloo

Sep. 2023 - Apr. 2028

*Bachelor of Mathematics, Major in Data Science*

*Waterloo, ON*

**Relevant Coursework:** Data Structures, Algorithms, Statistics, Sampling Design, Linear Algebra

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