Alex Lee

Waterloo, Canada | a55lee@uwaterloo.ca | LinkedIn | GitHub | Portfolio

Skills

Languages: Python, Java, C/C++, R, SQL(MySQL, MongoDB), Bash
Data/ML: Pandas, Matplotlib, SciKit, Pytorch, TensorFlow, NumPy, OpenCV
Tools: PowerBI, MS Office (Excel, Word, PowerPoint), Linux, Git, AWS

Projects

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 **imbalanced dataset**.
- Utilized **Shallow Neural Network** as a prediction model, comparing **5** different models for optimal results.

Customer Churn Prediction Model | *Python, SciKit, Pandas, Streamlit* | GitHub

- Built a **machine learning model** to predict customer churn, using **900+** telecom industry customers' datasets.
- Utilized the model with interactive **Streamlit** web app to improve accessibility and gain actionable insights.
- Identified **central factors**(tenure, monthly charges), helping companies plan their products more effectively.

FBREF Football Data Analysis | *Pandas, Matplotlib, PowerBI, Selenium* | GitHub

- Collected **100,000+** football match data using **Selenium** and organized the datas into a **Pandas DataFrame**.
- Performed exploratory analysis using **matplotlib** and **PowerBI** to create an interactive visualization.
- Identified **progress passing distance** as key predictor of math results, suggesting focused strategies to teams.

Academic Management System | *Spring, Javascript, HTML/CSS, MySQL, jQuery, Bootstrap* | GitHub

- Built a full-stack academic management web app of **20+** pages with **50+** users using **Spring** and **MySQL**.
- Distributed project on **AWS EC2** with **Apache Tomcat**, with optimized database schema and RESTful APIs.
- Implemented **10+** essential features, **CRUD** operations of course postings and assignments, self implemented real-time chat, custom course search filters, and dynamic operations and views with the database.
- Reduced query response time by **30%** using nested SELECT statements to handle grouped ID increments.
- Ensured reliability with **200+** test cases and resolved issues such as multiple PK, time zone mismatches.

Leadership & Involvement

Automation Developer May 2025 - August 2025
Daechitop English Institute *Seoul, Korea*

- Reduced working time by **75%** by developing an automation tool using **Excel VBA** and **PyAutoGUI** to streamline repeated work, enabling instructors to focus on personalized teaching.
- Collected and cleaned student performance data using **Excel**; performed exploratory analysis to design and offer adaptive education system that maximizes study efficiency.

Finance Lead September 2024 - December 2024
Association of Korean Canadian Scientists and Engineers *Waterloo, ON*

- Conveyed accountability and organization skills by analyzing and managing the cash flow of **$1,000+** annual income and expenses using **Excel**.
- Coordinated with the **team of 16** 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 recommending actionable strategies for better financial management of the organization.

Database Developer January 2025 - April 2025
Association of Korean Canadian Scientists and Engineers *Waterloo, ON*

- Led the **team of 6** to develop the official AKCSE website using **Express** and **MongoDB**, improving accessibility to career and academic help resources for students.
- Optimized query efficiency and database scalability by **300%** through implementation of **dynamic CRUD**, while implementing **authentication** and access control features to strengthen data security.
- Increased event participation by **150%** by demonstrating quality teamwork and leadership by collaborating with a **team of 5**, focusing on specialization to deliver higher quality outcomes.

Education

University of Waterloo September 2023 - April 2028

Bachelor in Data Science, Minor in Combinatorics and Optimization

Relevant Coursework: Data Structures, Algorithm Design, Statistics, Sampling Design, Linear Algebra, OOP
Scholarship: President's Scholarship of Distinction - $2,000 scholarship for students with average over 95%