Ryan Zhao

15 Milroy Crescent, Scarborough, ON, M1C 4B6
647-213-6068 | ryannayr.zhao@mail.utoronto.ca | https://ryannay.github.io/

Summary of Qualifications:

- Strong analytical, abstract thinking and research ability, essential to my curriculum

- Out-of-the-box thinking developed through mathematics and physics competitions, consistently placing in top percentiles

- 4+ months of experience transforming raw data into actionable insights, utilizing Python, SQL, and Power BI to support strategic decision-making in a university department setting

- Proficient in Python, R, Pandas, NumPy, PyTorch, Flask, Plotly, Django and Regex, leveraging these skills to build multiple deep learning web applications

- Strong understanding with Normalization, dimensionality reduction, strong experience with training algorithms (linear regression, random forest, K-NN, decision tree) and AI models.

- Strong experience with Git version control and Shell / Unix scripting for collaborative development and automation workflows with AWS and Azure warehouses.

- Experience with SQL databases (SQLite, MySQL, NoSQL, SQL Server) for efficient information retrieval and data modeling across ETL processes

- Well-versed in web technologies including Flask, HTML, CSS, and JSON, demonstrated through building responsive web applications

- Proficiency in MS Office, including Excel, Outlook, PowerPoint, and Word

- Excellent presentation and communication skills developed through explaining complex data concepts to non-technical stakeholders

Technical Projects:

Image Similarity Checker (Independent Project)
April 2025

- Engineered a responsive web application using Flask and PyTorch that classifies images into 10 categories with over 78% accuracy over an efficient selection of epochs.

- Implemented a convolutional neural network (CNN) architecture with batch normalization and dropout layers to optimize model performance and streamlined the data preparation process by creating scripts to efficiently extract and label CIFAR-10 dataset images.

Stock Price Prediction Platform (Independent Project)
May 2025

- Developed a comprehensive web application that predicts stock prices for three major indices (Dow Jones, S&P 500, NASDAQ) using Linear Regression and ARIMA models from Numpy and Pandas with real-time data visualization through candlestick charts.

- Architected a scalable cloud-based solution integrating AWS S3 for model storage, local file systems for smaller models, and implemented memory optimization techniques for handling large-scale financial datasets.

- Engineered robust data processing pipelines that handle data anomalies, implement business day calculations, and maintain data normalization across multiple price points (Open, Close, High, Low) with configurable prediction time steps.

- Successfully deployed business-ready application on Render platform with proper error handling, environment-aware configurations, and JSON API endpoints.

Course Search Helper - Interactive Course Visualization System (Independent Project)
May 2025

- Engineered an efficient data processing system that parses and serves over 2,000 courses and over 8,000 course relationships from JSON, enabling real-time relationship mapping without database queries.

- Developed an intuitive course visualization system using Cytoscape.js and Flask, enabling students to dynamically explore and understand course prerequisites through an interactive graph interface.

Education & Training:

Bachelor of Science in Mathematics (Co-op), 3nd year
University of Toronto | September 2023 – present

Introduction to Computer Programming I (CSCA08)
University of Toronto | January 2024 - May 2024

- Exhibited creative thinking abilities by implementing an AI-like project that generates random stories based on limited datasets, completed under time constraints.

Milliken Mills High School | January 2022 - June 2023

- STEM-focused Grade 11 and 12 courses

- Achieved excellent results in mathematics and physics competitions.

Introduction to Computing Studies (ICS2O)

- Excelled in VB-based coursework, frequently collaborating with instructors to design interactive interfaces and implement efficient local file management solutions with VBA

Work Experience:

Data Analyst & Business Intelligence
University of Toronto Scarborough | January 2025 - April 2025

- Developed a fully automated data pipeline in collaboration with cross-functional teams, increasing dashboard accessibility for marketing and customer service departments by individually designing and streamlining 50% of ongoing dashboards.

- Applied Python, SQL, and Power BI to digest, clean, transform, upload and visualize student data, enabling the identification of trends that informed targeted outreach strategies.

- Enhanced technical proficiency with GitHub Actions and YAML-based workflow automation, successfully implementing Azure-based solutions for scalable data processing.

- Improved team data literacy by regularly explaining complex data processes to non-technical colleagues using clear, accessible language and visual aids.

- Working on a standard project management software like MS Teams.