Khyle Dhanani

LinkedIn • (647) 963 9370 • k2dhanani@uwaterloo.ca

EDUCATION

University of Waterloo **Sep 2020 – Present**
Honours Math/Financial Analysis & Risk Management with a Minor in Computing
- Bachelor of Mathematics '25
- Relevant course work: Reinforcement Learning, Applied Linear Models, Numerical Computation, Probability Models for Business and Accounting, Differential Equations, Data Structures & Algorithms, Neural Networks, Forecasting

Lawrence Park Collegiate Institute, Toronto, Ontario **Sep 2017 – Jun 2020**
Upper Canada College, Toronto, Ontario **Sep 2013 - Jun 2017**

WORK EXPERIENCE

Global X Investments – Investment Management | Quantitative Analyst Co-op **Sept 2024 – Dec 2024**
- Developed Python backtesting environment by adding an automated data pipeline for volatility surface construction and implemented ridge regression models to estimate transaction costs in the simulation
- Performed comparative analysis of options investment strategies using regression and ensemble methods (XGBoost) to identify key performance drivers and risk factors using Python
- Added Black's Approximation to the backtesting environment to understand when early call option redemption was likely

Manulife Investments – Fixed Income Investment Risk | Fixed Income Analyst Co-op **May 2023 – Aug 2023**
- Conducted comparative research on machine learning models such as robust regression, ridge regression and neural networks for the purposes of enhancing daily yield spread regression
- Managed and trained the robust regression models; these became the primary source of yield spreads used across the firm
- Fixed and refactored Python scripts used for FX swap data procurement from the Bloomberg Terminal

TD Asset Management – Investment Risk | Asset Management Co-op **Sep 2022 – Dec 2022**
- Conducted multiple private valuation reviews involving market, company and general economic research on mid-late-stage startups to analyze risk and valuation accuracy related to sub-advisors' ventures
- Developed and provided customized ad-hoc performance reporting and analysis requests for the TD Mutual Funds
- Customized and automated multiple reporting creation processes using Excel VBA and SQL

TD Securities - Global Markets, Automated Execution | Global Markets Co-op **Jan 2022 – Apr 2022**
- Created reporting and analysis templates in Python and led end of day reporting for trade allocations of client's trades using Excel VBA and TD's trade matching platform
- Developed ad-hoc equity and options trading summary visualizations using SQL and Python

Daisy Intelligence – Analytics & Finance | Data Analytics Co-op **May 2021 – Aug 2021**
Mission2Mask Initiative, Toronto, Ontario | Logistics Manager **Apr 2020 – Aug 2020**
Schwartz & Schwartz Law Firm, Toronto, Ontario | Law Clerk Co-op **Sep 2018 – May 2019**

SKILLS & PROJECTS (https://github.com/khyledhanani)

Languages: Python (NumPy, Pandas, PyTorch, Matplotlib), Javascript, Go, VBA, SQL
Skills: Git, Object Oriented Programming, Bloomberg Terminal, Financial Modelling

WageX (Link)
- Co-developing sports betting exchange which allows users to place sports bets on an open market/exchange
- Co-developed a highly performant order processing and trade matching engine which operates like a financial exchange in Go
- Created the website using a React frontend and ExpressJS and Go microservices

Independently researched, developed and implemented projects including:
- Neural Collaborative Filtering Recommender System for Curated Fashion Lookbook
  - Implemented a multi-modal recommender system based on the Neural Collaborative Filtering (NCF) paper by He et al. (2017), combining user-item interaction data with user and garment style attributes to generate personalized fashion recommendations
  - Data procurement included web scraping from Instagram/retailers and synthetic data generation of interactions for initial testing
  - Compared the results to simple matrix factorization method, the NCF was slightly stronger on its Hit Ratio and the difference in performance should increase as more real interaction data is procured
- Monte Carlo Simulation of Heston Stochastic Volatility Model in Python
  - Used stochastic calculus and numerical integration methods (Euler & Milstein) to approximate future price and volatility of the S&P 500, approximation allows us to find risk neutral option prices and visualize the volatility smile
- Implemented simple multi-layer perceptron in Python from scratch (using only NumPy)