Nelson Siu

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Education

University of Toronto — Toronto, ON
Bachelor of Applied Science in Engineering Science — *Sep. 2024 – May 2028*

- ***Cumulative GPA:* 3.8/4.0** | ***Major:*** *Math, Statistics, and Financial Engineering*

Markville Secondary School — Markham, ON
Ontario Secondary School Diploma — *Aug. 2020 – Jun. 2024*

Experience

Software Engineer — Sep. 2024 – Present
Blue Sky Solar Racing - U of T Solar Car Engineering Design Team — *Toronto, ON*

- Developed and implemented 50+ unit tests utilizing hardware mocking to validate vehicle code logic, reducing critical bugs by 35% before deployment.
- Designed comprehensive integration test suite that simulated 12 different road conditions, enabling safe testing of vehicle systems and identifying 8 potential failure points.
- Led implementation of real-time telemetry system that tracks 25+ vehicle diagnostics parameters, improving response time to critical issues by 60% during test drives.

Quantitative Researcher — Sep. 2024 – Present
St. George Capital - UofT Quantitative Finance Design Team — *Toronto, Canada*

- Analyzed 10+ years of historical price data for 500+ SP500 stocks, developing 3 quantitative trading strategies that achieved 12% higher risk-adjusted returns in backtesting.
- Built supervised machine learning model using linear regression that predicted stock volatility with 78% accuracy, enabling more precise options pricing strategies.

Research/Projects

Analyzing Poker ICM Chip Counts | *Python, Data Analysis* — Oct. 2024 – Present

- Collaborating with Juho Kim (1st Year PhD Student @ Carnegie Mellon University) to analyze 95,000+ poker tournament screenshots from PVA dataset to assess chipcounts.
- Applied statistical methods to process 100GB+ of poker data, identifying patterns in chip stack fluctuations across different tournament stages.
- Developing research paper on ICM-optimal strategy to be submitted to IEEE CoG 2025, targeting 15% improvement over conventional tournament approaches.

MemoryMake | *Computer Vision, 3D Modeling* — Jan. 2024

- Led development of AI-powered 3D memory platform that processed 500+ user photos into interactive 3D scenes with 90% spatial accuracy using MiDaS depth estimation.
- Architected backend system that reduced 3D model generation time by 65% through parallel processing and optimized memory management.
- Designed responsive UI with advanced 3D manipulation controls that increased user engagement by 40% and extended average session duration to 15+ minutes.

Stock Volatility Prediction | *Python, Scikit-learn, yfinance* — Oct. 2024 – Nov. 2024

- Developed volatility forecasting model using Scikit-learn that predicted daily market movements with 72% accuracy, outperforming baseline models by 18%.
- Processed and cleaned 5 years of financial data from 100+ stocks, addressing 4,500+ outliers and missing values through custom preprocessing pipeline.
- Created interactive visualization dashboard that displayed model predictions and performance metrics, reducing analysis time by 40% compared to manual methods.

Technical Skills & Interests

Languages: Python, JavaScript/TypeScript, C
Technologies: React, Git, Flask, Docker, TensorFlow, PyTorch
Interests: AI/ML, Quantitative Finance, Competitive Programming, Music (Piano & Cello)