Aryan Nehete

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EDUCATION

University of Toronto Expected April 2027

BASc in Engineering Science — Engineering Math, Stats, Finance Major & AI Minor *Toronto, Canada*

- Dean's Honours List Scholar, **cGPA:** 3.65
- Quantitative Research Team Lead at St. George Capital | Member in UofT Engineering Finance Association
- **Relevant Coursework:** Engineering Finance & Economics, Financial Principles II, Financial Optimization Models, Economic Analysis & Decision Making, Financial Engineering, Mathematical Programming, Fundamentals of Deep Learning, Praxis (Engineering Design)

PROJECTS

Prediction Market Trading Bot Dec. 2025 – Present

- Developed a algorithm to **find market inefficiencies** on certain prediction markets by watching for rapid price movements, resulting in guaranteed returns of **0.5-2% over 15-min** periods.
- Created historical datasets by recording live data over five days; then back tested various parameters achieving an ROI of **80%+ over five days**.

NBA Prop Predictor September 2025

- Built an end-to-end NBA odds service that ingests historical data and serves probabilities via a **FastAPI** web API and **Streamlit** UI; stack: **Python, pandas, NumPy, scikit-learn, nba_api, Parquet** (for caching).
- Developed **matchup-aware** models for player/team markets with features for opponent defense, pace, home/away, rest, minutes, and recent form; applied probability **calibration** and surfaced clear "why" explanations in-app.
- Validated with rolling backtests over **3 seasons**: **Brier** = 0.089, **calibration error** = 2–3%, **ROC AUC** = 0.78.

Handwriting to LaTeX [Report] May – Aug. 2025

- Engineered a **CNN (ResNet-18) encoder + LSTM/Transformer decoders** for Handwritten Mathematical Expression Recognition (HMER), converting rasterized InkML strokes into LaTeX strings.
- Optimized training with **PyTorch**, label smoothing, teacher forcing, AdamW, and beam search (k=3–5), achieving **BLEU** $\approx$ 0.71 on **CROHME** test data for long/nested expressions.
- Performed robustness and interpretability analysis using **cross-attention** visualizations, **entropy** diagnostics, and **OOD** stress tests to identify syntax brittleness and guide augmentation-matched fine-tuning.

EXPERIENCE

Teaching Assistant Sept. 2025 – Present

University of Toronto *Toronto, Canada*

- Lead programming lab practicals for **ESC180: Introduction to Computer Programming** and **ESC190: Computer Algorithms and Data Structures** for 100+ first year Engineering Science students.
- Guide students in learning Python and C fundamentals, including variables, control flow, functions, and problem-solving strategies.
- Help students analyze and compare the efficiency of algorithms, developing intuition for designing more effective computational solutions.

Team Leader Sept. 2024 – Apr. 2025

St.George Capital, University of Toronto *Toronto, Canada*

- Led a team focused on identifying cyclic arbitrage opportunities in decentralized cryptocurrency exchanges
- Developed **API integrations** and **in-house data structures** to retrieve and store real-time price and liquidity data
- Applied graph theory and implementing deep-cycle algorithms to detect profitable trade cycles

TECHNICAL SKILLS

Programming: Python, C++, C, R, MATLAB, Java, HTML/CSS, System Verilog, and Assembly
Frameworks and Libraries: PyTorch, NumPy, GUROBI, Flask, BeautifulSoup, Seaborn, and PyGame
Data and Analysis: SQL, Pandas, MatPlotLib, Financial Modeling & Optimization
Other: Advanced MS Excel, Git, Visual Studio Code, PowerPoint, Overleaf, Fusion360