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:** 3.61
- **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)

EXPERIENCE

Teaching Assistant   Sept. 2025 – Present
University of Toronto   *Toronto, Canada*
- Lead programming lab practicals for **ESC180: Introduction to Computer Programming** for 100+ first year Engineering Science students.
- Guide students in learning Python 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.

Founder & Tutor   May – Aug. 2023, 2024, 2025
Freelance Tutoring Business   *GTA, Canada*
- Improved outcomes for **50+ students** with **10%+** average score gains by tailoring lessons in calculus, linear algebra, and CS; tracked baselines and progress in **MS Excel** with simple **Python** summaries.
- Standardized **intake & scheduling** (templates, SOPs) and instrumented funnel KPIs (inquiry → booking → attendance), reducing lead time and no-show rates through data-informed follow-ups.
- Created interactive lessons and leveraged LLM's to create **personalized problem sets** that reinforced **problem decomposition**, debugged habits, and clearly communicated solutions.

PROJECTS

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 **2–3 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.

Pong [Writeup]   December 2023
- Created a **NumPy**-based Pong engine with predictive trajectory modeling to forecast ball positions **50 bounces** ahead.
- Implemented opponent strategy analysis to target vulnerable corner zones, optimizing shot selection and increasing scoring opportunities.
- Ranked **2nd** out of **300** Engineering Science students with a **95%** win rate.

TECHNICAL SKILLS

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