

KEVIN NI

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EDUCATION

University of Toronto, St. George Campus

Sept 2021 – May 2026

Bachelor of Applied Science in Engineering Science (Robotics)

Toronto, ON

- Double Minor: Engineering Business; Artificial Intelligence.

- **Relevant Coursework:** Financial Engineering, Fundamentals of Accounting and Finance, Economic Analysis and Decision Making, Principles of Microeconomics, Probability and Statistics, Introduction to Artificial Intelligence, Introduction to Learning from Data, Applied Fundamentals of Deep Learning.

- **Award:** 2025 Jeffrey Skoll Engineering Business Scholarship (\$11,225).

PROJECTS

Markowitz Mean Variance Optimized Portfolio Generator

Sept 2025 – Dec 2025

Python, MATLAB, pandas, NumPy

- Modeled and Solved the Markowitz Mean-Variance Optimization problem for a portfolio of n assets to generate the efficient frontier.
- Engineered Data Pipelines using Python to calculate expected returns, covariances, and standard deviations over a 10-year period.
- Executed Iterative QP to derive optimal asset weights and portfolio volatility under both shorting and non-shorting constraints.

Deep Learning Audio Diffusion Model

May 2025 – Aug 2025

Python, PyTorch, NumPy

- Built a diffusion-transformer audio generator with test-time training, improving CLAP alignment scores by over 140% vs. baseline.
- Engineered preprocessing pipeline, standardizing 18.5 hours of audio via resampling, clipping, and normalization to enhance stability.
- Integrated adaptive MLP blocks within 24 transformer layers, enabling real-time model refinement and reducing generation instability.

Accounting & Finance Integrated Project

May 2023 – Jun 2023

FactSet, Excel, DCF, CAPM

- Built DCF and CAPM valuation models for Caterpillar and Deere using FactSet data to analyze capital structure and intrinsic value.
- Performed IRR and NPV analyses on a \$120M project evaluating investment feasibility under varying tax and discount rates.
- Compared equity ratios and risk metrics via Dupont and CAPM frameworks to assess leverage and profitability impacts on valuation.

EXPERIENCE

FORM Lab, Roy Kwon

Sept 2025 – May 2026

Undergraduate Thesis: ML-Enhanced Statistical Arbitrage Markowitz Portfolio

Toronto, ON

- Determined ML adds value at parameter estimation, not pair selection, by benchmarking 6 models across both pipeline stages.
- Built ML pipeline (ElasticNet + RandomForest → daily QP) over 12,668 CRSP equities; achieved Sharpe 0.661 and +49.4% return.
- Eliminated survivorship bias via CRSP/WRDS (19.4% survival rate vs. ~93% for free sources), quantifying a 73 pp backtest inflation.
- Uncovered regime-dependency: outperformed EW by 18.5% Sharpe in bull markets; limited drawdown to -14.1% vs. -15.3% in 2022.

Smith + Andersen

May 2024 – Aug 2025

Junior Designer, Electrical

Toronto, ON

- Designed electrical and lighting systems for 100+ interiors, ranging from 500 sq. ft. retail to 60,000+ sq. ft. corporate offices.
- Produced 100+ AutoCAD/Revit engineering drawing sets, consistently achieving a one-week average project delivery turnaround.
- Reviewed contractor pricing and material quotes to verify cost accuracy and maintain alignment with client budgets.
- Consulted with architects and contractors to resolve design challenges and develop efficient, code-compliant solutions.

aUToronto, Autonomous Vehicle Team

Oct 2024 – May 2025

Systems, Drivers Member

Toronto, ON

- Automated camera driver configuration in C++/ROS2, cutting setup time by 30% improving reliability in perception system calibration.
- Collaborated with perception and controls teams to streamline sensor integration, enabling faster testing and higher system uptime.
- Annotated and validated 2,000+ training images to enhance perception model accuracy for lane and object detection.

Kevares Autonomous Services

Jun 2023 – Oct 2023

Junior Mechatronics & Embedded Systems Specialist

Remote

- Developed a ROS + Streamlit dashboard integrating real-time robot telemetry, diagnostics, and control interfaces.
- Built a Python-based stereo-vision backend (Open3D) to automate defect detection, cutting analysis time by 40%.
- Deployed and tested embedded systems on autonomous platforms, refining communication latency and system reliability.

PERSONAL

- **Technical:** Python, Java, SQL, MATLAB, C/C++, PyTorch, NumPy, pandas, scikit-learn, Excel
- **Finance:** Portfolio Optimization, Risk Modeling, DCF/CAPM Valuation, Data Analytics, Quantitative Finance, AI in Markets, Optimization, Technology Investing
- **Personal:** Swimming, Weightlifting, Cooking, Flute, Ukulele, Scuba Diving, Model Kits