# Tom Guo

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## SUMMARY OF QUALIFICATIONS

- **Languages**: Python, R, SQL, TypeScript, JavaScript, C, HTML/CSS, Racket
- **Technical tools**: React, MongoDB, Excel, Node.js, PyTorch, MATLAB, NoSQL, Figma, Microsoft Power BI, LaTeX

## EDUCATION

**University of Waterloo**                                                                                                               **Waterloo, ON**
*Honors Mathematics Co-op Program*                                                                     *Sept 2021 – April 2026*
- Candidate for Bachelor of Mathematics, Mathematical Finance and Statistics Double Major, Computing Minor.
- VP of Statistics Club, Former Varsity Badminton Team Member, Member of Serve Volleyball Club

## PROJECTS

**Option Price Modeling and Trading Strategies**   | *Python, NumPy, SciPy, yfinance*
- Developed and implemented a variety of option pricing models and trading algorithms, including statistical arbitrage, hedging, and portfolio diversification strategies to optimize returns.
- Utilized in-depth statistical analysis and understanding of hedging, smoothing, and arbitrage concepts to apply advanced insights into market behavior, enhancing risk management practices and trading decision-making.

**Stock Forecasting**   | *Python, Quandl, pmdarima, Matplotlib, scikit-learn, pandas*
- Utilized stock price data to train and validate ARIMA/SARIMA models for time series analysis and financial forecasting.
- Automated model selection for both seasonal and non-seasonal data, achieving improved predictive accuracy and plotting results to visualize model performance against actual stock prices.

## WORK EXPERIENCE

**Quantitative Risk Management Intern**                                                                                   **Toronto, ON**
*Onex Corporation*                                                                                                         *May 2025 – Aug 2025*
- Monitor and assess risk exposure at both the fund portfolio level and the client level by analyzing key risk metrics and exposures with **Bloomberg**, supporting effective investment decision-making and portfolio risk mitigation strategies.
- Develop quantitative tools using **Python** to support investment research by analyzing relative value, historical trends, and cross-sectional market data, contributing to idea generation by transforming data-driven insights into actionable strategies.
- Assist in implementing scenario-based market shocks and stress-testing methodologies to evaluate the robustness of portfolio construction under various macroeconomic conditions, quantifying the potential impact of interest rate shifts, geopolitical events, and economic downturns on portfolio performance.

**Reserving Actuary**                                                                                                             **Palo Alto, CA**
*NEXT Insurance*                                                                                                             *Jan 2025 – Apr 2025*
- Streamlined reserving processes by automating data extraction with **SQL** and leveraging **Excel** macros for analysis and reconciliation of monthly claim data, emergence curves, and development triangles, enhancing data integrity and improving accuracy in loss ratio calculations and reserve forecasting.
- Built benchmark tools for base claim pulls and development factor interpolation in **Python** and **SQL**, to support cross-functional initiatives such as pricing strategies, risk assessments, and financial forecasting, enabling collaboration across actuarial, data science, and finance teams.
- Supported the preparation of first quarter reserving results by compiling and validating key data inputs such as reported loss, allocated adjustment expense, and expected emergence to inform executive-level insights on reserve adequacy.

**Machine Learning Research Intern**                                                                                       **Hamilton, ON**
*McMaster University*                                                                                                       *May 2023 – Aug 2024*
- Conducted in-depth research on a cutting-edge project centered around utilizing machine learning algorithms for diagnosing eye diseases, involving comprehensive analysis of retinal images.
- Designed and deployed a robust machine learning model using **Python**, **PyTorch**, and **Pandas**, aimed at standardizing retinal images and accurately assessing their quality, thus contributing significantly to the project's success.

## INTERESTS

- **Academic**: investing, sports statistics, video game analytics, machine learning
- **Recreational**: badminton, volleyball, NBA, NHL, poker, board games, strategy board and video games