# FENGRUI (SAM) TIAN

(551) 371-2278 // sam.tian@nyu.edu / linkedin.com/in/samtian/

## EDUCATION

Expected 12/25 **NEW YORK UNIVERSITY** New York, NY
**The Courant Institute of Mathematical Sciences**
**M.S. in Mathematics in Finance**
- ***Expected Coursework:*** stochastic calculus, algorithmic trading, dynamic asset pricing, equity derivatives, risk & portfolio management, data-driven modeling, financial securities and markets

09/19 - 06/23 **THE UNIVERSITY OF WESTERN ONTARIO** London, Canada
**B.Sc. Honor Specialization in Financial Modeling**
- ***Coursework:*** machine learning, Black-Sholes, derivative pricing, Ito's lemma, time series, regression, ODE, PDE, linear algebra, probability, mathematical statistics, corporate finance
- ***Honors/Awards:*** Governor General's Silver Medal (# 1st / 7000+ students); Western Gold Medal

## EXPERIENCE

**SUN LIFE FINANCIAL** Toronto, Canada

07/23 - 08/24 **Actuarial Associate – Quantitative Risk Management, Capital Optimization (Python, VBA)**
- Developed and automated robust risk metrics and capital planning models to project capital generation, ensuring strong alignment between capital consumption and business drivers
- Conducted quantitative risk analysis for diversification benefits and capital allocation strategy
- Implemented time series model to identify the trend and seasonality in Group Benefits policies
- Engineered automated data ETL pipeline integrating multi-source datasets of fixed income and equity, saving 15 hours of manual operation each quarter
- Coached 3 interns; developed their data analysis skills and understanding of insurance business

05/22 - 08/22 **Actuarial Co-Op – Pension Management (Python, Excel)** Toronto, Canada
- Identified inconsistency in estimated payments to retirees aged 71+; created analysis to quantify overestimated reserves; worked with the data science team and released $10M in excess capital
- Designed Machine Learning algorithm for defined benefit pension pricing; performed cross-validation with historical data, achieving high prediction accuracy (MAE of <0.1 cents)

05/21 - 08/21 **Actuarial Co-Op – Corporate Actuarial (SQL, Power Query)** Toronto, Canada
- Implemented stress tests on credit, market, and insurance risks to quantify undesirable financial impacts; determined required amount of solvency capital to hold using 99.5% VaR
- Built automated risk data validation pipeline; reduced validation turnaround time by 50%

## PROJECTS

05/22 - 04/23 **The University of Western Ontario, Banking Analytics Lab (Python)** London, Canada
Publication: **Multi-Modal Deep Learning Model for Credit Rating Prediction**
- Benchmarked 4 information fusion strategies based on commonly used deep learning models in 3 multi-modality datasets (containing financial data and earning call speech texts)
- Implemented cross-modality data fusion algorithms with cross-attention layer using TensorFlow
- Developed 16 networks in CNN, LSTM, transformer-based models and NLP models (BERT) with designed fusion strategies to predict credit ratings, achieving 0.93 AUC and 0.67 F-1 score

09/22 - 10/22 **University of Toronto, Rotman School of Management Datathon (Python, SQL)** Toronto, Canada
- Led team of 3 to develop promotion strategy using Kaggle dataset; team ranked #2 of 50
- Performed data integration and descriptive analysis by joining 2M+ records; employed clustering analysis in sklearn and regression model to identify market segments and major profit drivers

01/22 - 03/22 **Munich Re North America Case Competition (Python)** Toronto, Canada
- Led team of 4 to develop post-Covid pricing model for long-term disability insurance; ranked #2 out of 8 North American teams (first-ever winning team from UWO)
- Conducted regression analysis on LTD incidence/termination rates to predict future claim frequency; supported findings with research in industrial practices

## COMPUTATIONAL SKILLS / OTHER

***Programming Languages:*** Python (NumPy, Pandas, SciPy, sklearn, Keras), SQL, VBA, R, QlikView
***Affiliation/Certification:*** Associate of the Society of Actuaries (ASA) candidate (completion expected Dec 2024)