YONGJIE (ERIC) ZHAO

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EDUCATION

Expected 12/26 **NEW YORK UNIVERSITY** New York, NY
The Courant Institute of Mathematical Sciences
M.S. in Mathematics in Finance

- ***Coursework:*** mathematical finance, stochastic calculus, scientific computing, algorithmic trading, numerical methods, machine learning

09/20 - 06/25 **UNIVERSITY OF WATERLOO** Waterloo, ON, Canada
B. Math in Statistics; Minors in Pure Mathematics & Computer Science

- ***Coursework:*** optimization, mathematical programming, quantitative risk management, probability, statistical inference, deep learning, stochastic processes, combinatorics, numerical linear algebra, real analysis
- ***Honors/Awards:*** Dean's Honours, Mathematics Undergraduate Research Award, President's Scholarship, Alumni@Microsoft Entrance Scholarship in Mathematics

EXPERIENCE

05/25 - Present **UNIVERSITY OF WATERLOO** Waterloo, ON, Canada
Undergraduate Research Fellowship (MATLAB)

- Formulate theoretical proofs for Gauss-Newton-based primal-dual interior point method applied to semidefinite relaxation (SDP) of Maximal Stable Set Problem
- Designed MATLAB-based algorithms that reached 16-decimal accuracy on small-scale SDP problems, and identified scalability challenges that informed directions for further optimization

09/24 - 12/24 **Undergraduate Teaching Assistant - Probability**

- Graded assignments and quizzes for over 150 students, and ensured grading was consistent with course rubrics and learning objectives

05/23 - 09/23 **Research Assistant (Python)**

- Applied neural networks to estimate hedging ratios for path-dependent options, designing custom loss functions and evaluating performance relative to classical hedging methods
- Implemented RNN and LSTM models; visualized and analyzed hedge ratios to assess accuracy and improve understanding of model effectiveness in financial markets

09/21 - 12/21 **CSC FINANCIAL CO., LTD.** Shenzhen, China
Product Director Assistant (Excel)

- Analyzed performance persistence of 1,000 mutual funds by calculating Spearman correlation coefficients in Excel and visualizing trends to support portfolio strategy recommendations
- Aggregated team performance data; created daily charts to monitor key business metrics for management

PROJECTS

08/24 - 09/24 **UNIVERSITY OF WATERLOO** Waterloo, ON, Canada
Reinforcement Learning Algorithms in Control Problems (Python)

- Implemented Soft Actor-Critic (SAC) algorithms to solve humanoid robot movement tasks in OpenAi gymnasium
- Achieved more than 4,500 moving average reward during first 4,000 episodes and stabilized performance at higher range thereafter

07/24 - 08/24 **Expectation-Maximization Algorithm Applications in Quantitative Risk Management (R)**

- Demonstrated convergence of EM algorithm for multivariate-t distribution through proofs
- Applied in R to simulated (n=1000, d=10) and real financial data (3 indices, n=1257), achieving rapid convergence and improved tail-risk fit vs Gaussian

COMPUTATIONAL SKILLS / OTHER

Programming Languages: Python, MATLAB, R, LaTeX
Languages: English (fluent), Mandarin (native)
Certification: FRM Level II Candidate