Wei Wang

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Education

New York University, Tandon School of Engineering	Expected May 2029

Ph.D. in Mechanical Engineering
Advisor: Prof. Katepalli R. Sreenivasan (former Director of ICTP)
- **Research Interests:** Fluid Dynamics, Quantum Computing, N-Vortex Problem, Jacobi Coordinates, Koopman-von Neumann Mechanics
- **Coursework:** Thermal Engineering Fundamentals, Computational Fluid Mechanics and Heat Transfer, Physics of Quantum Computing, Quantum Mechanics

New York University, The Courant Institute of Mathematical Sciences	Sep 2022 – Dec 2024
Master of Science in Mathematics in Finance	New York, NY
University of California, Berkeley | Berkeley, CA	Jun 2024 – Aug 2024

- **Coursework**: Fluid Dynamics, Abstract Algebra, Complex Analysis, Stochastic Calculus, Object-Oriented Programming (Python), Monte Carlo Simulation, Dynamic Asset Pricing, Active Portfolio Management, Black-Scholes, Blockchains and Cryptocurrency, Advanced Statistical Inference and Machine Learning, Alternative Data in Quantitative Finance

The Chinese University of Hong Kong, Shenzhen | Shenzhen, China	Sep 2018 - Jun 2022
University of Oxford | Oxford, UK	Oct 2020 - Jun 2021
- Bachelor of Business Administration in Financial Engineering	GPA: 3.6/4.0 (top 10%)

- **Honors/Awards:** Dean's List Honor (2019, 2020); Academic Performance Scholarship 2019-2020
- **Coursework**: Probability Measures, Ordinary Differential Equations, Linear Algebra, Calculus, Mathematical Models of Financial Derivatives, Discrete Mathematics, Probability and Statistics, Time Series (ARIMA Models, Spectral Analysis and Filtering), Stochastic Process, Computer Science (Python), Game Theory, Econometrics, Accounting, Microeconomics

Research Experience

Optimal Hedging Strategy Development	Sep 2024 – Dec 2024

Quantitative Project Group Leader (Instructed by Prof. Bruno Dupire, New York University)
- **Strategy Design:** Investigated multiple hedging approaches under various constraints, including time-based strategies and move-based strategies triggered by price movements
- **Monte Carlo Simulations:** Conducted simulations of diverse hedging techniques to measure and compare the variance in hedging P&L, systematically assessing their effectiveness
- **Analytical Verification:** Proved that a single hedge at the T/2 midpoint minimizes variance for quadratic payoff functions through both analytical derivations and simulation-based confirmation
- **Dynamic Programming Implementation:** Adapted methods from American option pricing to compute optimal hedging boundaries using dynamic programming techniques
- **Advanced Methods Exploration:** Currently extending the analysis to multi-hedge scenarios, incorporating numerical solutions and neural network applications to identify optimal strategies across diverse payoff structures

Valuation of Google Snowball Option	Sep 2021 - Oct 2021

Quantitative Project Group Leader (Instructed by Prof. David Shimko, New York University)
- **Model Development:** Developed an extensive pricing model that meticulously details various price expressions to accurately assess the financial scenarios impacting the valuation of the Google snowball option
- **Monte Carlo Simulations:** Simulated 1,000 Google stock price paths to calculate and average the corresponding prices for Google's snowball option, enhancing accuracy in option valuation
- **Sensitivity Analysis:** Analyzed the sensitivity of the option's pricing to variations in knock-out price, knock-in price, and volatility (sigma), delivering key insights for effective risk management
- **Research Publication:** Co-authored "The Valuation of Google Snowball Option", published in the *Advances in Economics, Business and Management Research* journal, contributing to academic and practical understanding in the field

Programming Skills

Advanced: Python (QuantNet Certificate: Python for Finance with Intro to Data Science), Stata, R
Intermediate: SQL, Java, C++