# Renjie Wang

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## EDUCATION

**Duke University** Durham, NC, USA

*Master of Engineering (M.Eng.), Financial Technology | GPA:4.0/4.0* Aug. 2023 - May. 2025 (Expected)

- **Courses**: Programming for Fintech, Quantitative Risk Management, Algorithm Trading, Financial Derivatives, Asset Pricing and Risk Management, Software Engineering, Applied Stochastic Processes, Machine Learning, Management of High-Tech Industries

  **Teaching Assistant of Programming for FinTech**

**Nankai University** Tianjin, China

*Bachelor of Management (B.Mgt.), Financial Management, Minor in Actuarial Science | GPA:3.80/4.0* Sep. 2019 - Jun. 2023

- **Courses**: Operations Research and Convex Optimization, Stochastic Processes, Security Analysis, Financial Econometrics, Financial Management, Theory of Investment, Time Series Analysis, Python for Finance with Intro to Data Science (Distinction on QuantNet)
- **Honors**: Academic Merit Scholarship (2020), First Prize at Provincial Level in National College Students MCM (2021), Top 100 in Munich Reinsurance Cup Actuarial Mathematics Competition (2021), Honorable Mention in MCM/ICM (2022)

  **Society of Actuarial Science (SOA: Probability, Financial Mathematics, Statistics for Risk Modeling)**

## INTERNSHIP EXPERIENCE

**Alibaba Group** Hangzhou, China

*Risk Strategy Analyst* May 2024 - Aug. 2024

- Developed comprehensive dashboards in order to monitor key risk indicators, enhancing risk control.
- Engineered a predictive model using LightGBM based on user purchasing data, achieving a 4.5 lift in identifying default users.
- Reduced loss rates by 0.5% and raised Fast Refund service approvals by 7%, saving the company around $150,000 monthly.
- Contributed to the development of a customer credit rating system, involving label determination, feature engineering, and model selection, to improve credit assessment accuracy.

**Bohai Huijin Securities Asset Management CO., LTD** Tianjin, China

*Quantitative Research Intern* Jun. 2022 - Aug. 2022

- Actively contributed to developing quantitative strategies, including trend-following, reversal, pairs trading, and multi-factor models with Python. Conducted strategy back-testing, performance monitoring, attribution analysis, and the optimization of portfolios.
- Independently designed and executed investment strategies leveraging XGBoost, achieving a 57.82% return rate while maintaining a maximum drawdown of 13.72% in out-of-sample testing.

**Shanshi Capital** Chongqing, China

*Project Assistant* Jan. 2022 - Mar. 2022

- Examined business models of a module factory from product line and business area perspectives, consolidated product financial data.
- Crafted investment highlights rooted in the industry and market conditions. Documented 10+ minutes of specialized meetings with high-level executives, clubs, law firms, securities brokerages, and other investment institutions.
- Systematically gathered market research data, scrutinized evolving trends within the sector to evaluate investment feasibility, and contributed to comparative company analyses (PE ratios) and assessments of investment returns.

## PROJECT & RESEARCH

**Depository Trust & Clearing Corporation (DTCC) Capstone** Jun. 2024 – Aug. 2024

*AI-Driven News Insights for Audit*

- Enhanced news classification accuracy from 84% to 92% by integrating and tuning large language models (LLMs), including Claude 3.5 Sonnet, Llama 3 8B Instruct, and GPT-4, to categorize news content into predetermined categories using ensemble techniques.
- Conducted sentiment analysis using the RoBERTa model to extract and quantify sentiment scores from news, facilitating nuanced insights into market conditions.
- Visualized sentiment trends over time by category, enabling more effective identification of potential market risks.

**Quantitative Risk Management** Jan. 2024 – May 2024

*Duke University*

- Introduced normal and t-distributions, EWMA variance models, SARIMA techniques to execute statistical analyses on historical data.
- Implemented direct/pair-wise covariance estimation techniques and devised solutions for non-positive definite (non-PSD) matrices, enhancing the reliability of financial simulations.
- Leveraged a variety of distributions and Copula methods within Monte Carlo simulations to estimate risk metrics accurately.
- Calculated Value at Risk (VaR) at $20,541.05 and Expected Shortfall (ES) at $26,617.81 for a 100-stock portfolio, thereby supporting strategic risk management and decision-making processes.

**Graduation Dissertation (Top 1% in Business School)** Dec. 2022 - May 2023

*Prediction of Cryptocurrency Market Based on Fractal Structure Analysis and Deep Learning Technology*

- Confirmed the existence of a fractal structure in the cryptocurrency (Bitcoin) market, as indicated by a Hurst exponent different from 0.5, establishing a theoretical underpinning for accurate forecasting methodologies.
- Employed Convolutional Neural Network (CNN) and Long Short-Term Memory (LSTM) to predict the Bitcoin market.
- Achieved a significant improvement in accuracy and stability using LSTM compared to CNN: 2.03% and 1.30% in the short-term, 2.26% and 1.25% in the mid-term, and 6.87% and 3.06% in the long-term.

## ACTIVITIES

**Duke University Reunion Student Ambassador** Feb. 2024 – Apr. 2024

**Class President of Financial Management** Sep. 2020 - Jun. 2023

**Youth International Communication Association** *Vice-minister, Public Relations Department* Sep. 2020 - Sep. 2021

## SKILLS

**Technical Skills**: C++, Python, SQL, R, MATLAB, VBA, Stata, Tableau, Microsoft Office

**Languages**: English (Fluent), Mandarin (Native)

**Interests**: Photography, Badminton, Traveling