ZHEN GUO

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EDUCATION

NEW YORK UNIVERSITY New York, NY
The Courant Institute of Mathematical Sciences
MS in Mathematics in Finance (Expected – Dec 2020)

- ***Coursework*****:** Stochastic Calculus, Portfolio and Risk Management with Econometrics, Computing in Finance, Scientific Computing, Time Series Analysis & Statistical Arbitrage

WAKE FOREST UNIVERSITY Winston-Salem, NC
BS in Mathematics, BS in Finance (Aug 2015 – May 2019)

- ***Coursework*****:** Multivariable Calculus, Linear Algebra, Abstract Algebra, Real Analysis, Differential Equation, Probability and Statistics, Financial Derivatives, Fixed Income
- ***Awards:*** Dean's List, all semesters; Mathematical Honor Society

EXPERIENCE

MORGAN STANLEY CAPITAL INTERNATIONAL Beijing, China
Intern, Risk Management Analyst (Jun 2018 - Aug 2018)

- Wrote a program for valuation of American styled call option based on European call option, simulated delta hedging of American options with underlying equities using historical prices
- Analyzed risks of equities traded on NYSE and NASDAQ, performed a comparison of historical, parametric and Monte-Carlo methods of calculating VaR and Expected Shortfall
- Performed Markowitz Mean Variance Analysis on a portfolio of bonds and equities in the American, European, and Japanese markets, optimized the portfolio by investing in risk-free asset
- Wrote a program for swap rates and swap positions valuation of interest rate swap, developed a hedging strategy against exchange-rate risk using a currency swap, predicted its opportunity cost using a stochastic differential equation for EUR/USD
- Built an option-based convertible bond pricing model, analyzed VaR and payoff profile to evaluate investment opportunities on convertible bond, wrote a report and presented to manager

CHINA MERCHANT SECURITIES Beijing, China
Intern, Industry Analyst (Dec 2017 - Jan 2018)

- Tracked macro trends of green industries in China, maintained communication with leading companies, analyzed prospectuses and industry's historical data, and wrote a research report
- Evaluate investment opportunities of a target firm by analyzing year-on-year financial ratios, innovations and marketing strategies, accelerated data processing using Excel and Java

GOLDMAN SACHS Shanghai, China
Intern, Securities Department (Jul 2017 - Aug 2017)

- Wrote a program that performed a scalping trading strategy and output transactions and payoffs
- Developed a cross-market arbitrage model, calculated the optimal margin of safety, and tested the model using historical data from Shanghai Futures Exchange
- Developed a linear model for prediction of trading volumes based on periodicity using R

PROJECTS

Local Depth Based Clustering (C++) Winston-Salem, NC

- Formed a parameter-free solution to clustering, which is robust to outliers, entirely deterministic and run three time faster than K-Means, applied the algorithm on classifying S&P 500 components for diversifying portfolio, resulting in portfolios with Sharpe ratios of nearly 1.9

Valuation Modeling (R) Winston-Salem, NC

- Developed and validated a real estate valuation model based on property type, age, location and floors with application to Bootstrap Sampling and Kernel Regression

COMPUTER SKILLS/OTHER

Programming Languages/Other Software: Java, C++, MATLAB, R, Python, SQL and LaTeX
Languages: English (fluent), Mandarin (native)