ZELIN DING

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EDUCATION

Expected 12/23 **NEW YORK UNIVERSITY** New York, NY
The Courant Institute of Mathematical Sciences
M.S. in Mathematics in Finance
- ***Coursework:*** object-oriented programming, Black-Scholes, market impact model, linear regression, stochastic processes, Monte Carlo method, data-driven modeling, derivative pricing

08/18 - 05/22 **PENN STATE UNIVERSITY** University Park, PA
Dual B.S. in Computational Statistic and Applied Mathematics
- ***Coursework:*** calculus sIII, linear algebra, probability, ordinary differential equations, partial differential equations, real analysis, time series analysis, Bayesian statistics, programming in R, Python, data structure and algorithms, dynamic programming
- ***Honors/Awards:*** Dean's List for 7 semesters

EXPERIENCE

06/23 - present **NUMERIX LLC** New York, NY
Financial Engineer Intern
- Priced exotic derivatives by writing payoff script for barrier option, Asian option, and corridor variance swap using CrossAsset XL and Python SDK
- Validated EQ/FX Greeks report from CrossAsset library and manually; found and reported dismatch of formula for Vega and Vanna regarding percentage shift
- Replicated methodologies of variance swap and American option BackwardMC pricing through academic paper, and matched result with CrossAsset

06/21 - 07/21 **CHINA SECURITIES** Beijing, China
Investment Banking Intern
- Conducted enterprise risk assessments for clients of Nanjing Metro from qualitative and quantitative perspectives
- Performed due diligence to obtain comprehensive understanding of Nanjing Metro's capital structure and credit risk
- Calculated credit rating scores with China Securities' model, using financial statistics such as quick and working capital ratios for client companies
- Developed KMV rating model, calibrated by historical default data of Chinese corporate bonds over prior 5-year period; estimated probability of defaults and mapped to ratings buckets

PROJECTS

09/21 - 11/21 **MORGAN STANLEY** New York, NY (remote)
Quantitative Research (Python)
- Analyzed SPY and risk-on/risk-off US sector ETFs' correlations and dynamic co-movements using Pearson and Spearman correlations and ML algorithms (linear regression, cluster analysis)
- Evaluated risk attributes of selected ETFs by studying their historical volatility
- Designed quantitative trading strategy that used risk attributes of each selected ETF by allocating to different sectors under various market scenarios and volatile regimes
- Backtested strategy over 20 years of data; achieved 7.2% annualized return and 0.4 Sharpe ratio, benchmarked against SPY

11/22 - 12/22 **NEW YORK UNIVERSITY** New York, NY
Derivative Pricing (Python)
- Simulated Nikkei-225 and 3-month LIBOR rate using GBM and Vasicek stochastic model
- Used Monte Carlo simulation to price option of given payoff (product of growth rate of Nikkei-225 in USD and ratio between realized and expected 3-month forward LIBOR rate)

COMPUTATIONAL SKILLS / OTHER

Programming Languages: Python (Numpy, Pandas, Statsmodels, Sklearn, Tensorflow), R
Languages: English (fluent), Mandarin (native)