Zihan Wang

(929) 266-0816 | zw2517@columbia.edu

Education

Columbia University   *New York, NY*
Master of Science in Financial Engineering (Aug 2018 – May 2020) GPA: 3.8/4.0

Central University of Finance and Economics   *Beijing, CN*
Bachelor of Economics in Mathematical Economics & Finance (Sep 2013 – Jun 2017) GPA 3.7/4.0

Professional Experience

Société Commerciale de Réassurance SE (SCOR Reinsurance)   *New York, NY*
Quant Risk (June 2019 – Dec 2019)
- Developed retrocession **portfolio optimization algorithm** using gradient descent
- Independently produced interactive SCOR US dashboard (**web application**) of **capital modeling, credit risk** (PD, LGD, EAD)**, interest rate risk** (fixed income asset / payment) and exposure analysis under scenario analytic with CSS, HTML and plotly. Dashboard put into production as internal website. Presentation and achievements highly appraised by CRO of North America, Paris and Zurich
- Transferred calculation algorithm of VaR and TVaR from R to **python**, utilizing numpy vectorization and accelerating process from 2 min to 30 seconds. Connected to **SQL** and **Oracle** database for data analysis

Shenzhen Stock Exchange   *Shenzhen, CN*
Data Science (May 2019 – June 2019)
- Processed market data using inverse Lambert W transformation to normalize long tail data. Developed new simulation method for scenario analysis using **deep learning**
- Constructed generative adversarial network (GAN) using TensorFlow and PyTorch with temporal convolutional network (TCN) compared with multilayer perceptron (MLP) and LSTM network as both generator and discriminator to simulate market log return
- Utilized ACF, Earth Mover Distance Score to evaluate volatility clustering characteristics of time series data generated

Beijing Quantitative Platform Ltd.   *Beijing, CN*
Quant Research (Nov 2016 – Feb 2017)
- Calculated daily iVIX for 50ETF based on the pricing of variance swaps according to CBOE white paper. Designed 50ETF strategy using iVIX signals
- Validated alpha factors models with stepwise regression model. Tested alpha factors by In Sample and Out Sample Tests in back-testing system. Visualized regression and statistics results on web app using **R shiny**

Projects

Equity Derivatives Pricing Projects (Jan 2020 – Mar 2020)   *New York, NY*
- Priced and plotted P&L of Asset Swap, Amortizing Swap, (Convertible) Equity Linked Note and Total Return Swap using Excel and **VBA**
- Calculated Greeks of Equity Options including delta, gamma, vega, theta and implied volatility using Black-Scholes Model, Monte Carlo Simulation including Common Number simulation, Pathwise estimator and Likelihood Ratio. Compared with data on **Bloomberg**
- Priced American Option using partial differential equation (**PDE**) and simulation with/without exercise boundary. Priced Forward Start Option using **Conditional Monte Carlo**
- Updated projects using **Git** on https://github.com/zihan23?tab=repositories

Foreign Exchange Algorithmic Trading (Mar 2019 – May 2019)   *New York, NY*
- Processed FX spot and future rate data (USDKRW, KUZ7). Tested correlation between spot and future rate using Granger causality test with conclusion of future's lead effect on spot price
- Optimized **time series** model Vector Autoregression (VAR) with minimum MSE and BIC. Compared forecasted spot price with actual price with small error in most cases while large gap at first several minutes of each trading day
- Designed market making algorithm including Simply shift best bid and ask strategy and Bollinger Bands & RSI strategy with return at 2.46% and 8.14% respectively

Skills

Programming languages: Python, R, SQL, R shiny, Stata, SPSS, Git, Bloomberg
Coursework: Machine Learning, Time Series, Deep Learning, Fixed Income, Derivatives Pricing, Quantitative Risk