Zihan Wang

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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

Skills

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

Professional Experience

Societe Generale Corporate and Investment Banking *New York, NY*
Market Product Control (Aug 2019 – current)

- Produced completeness report on product level including **interest rate swap, option, FX forward, future, repo/reverse repo, prime**
- Implemented daily certification on counterparties (Financial institution, Hedge Fund, Corporate and Sovereign) with different pricers (Monte Carlo, DEC, with/without netting agreement) for all kinds of **OTC exotic products**
- Investigated bi-weekly overshoot issues with salesperson and trader including data quality, block trading etc
- Automated weekly MAT report generating and visualized analysis using Power BI and dash, HTML by python

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 of **capital modeling, interest rate risk** (**Treasury, Corporate Bond, Covered Bond & Agency MBS**) 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

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

Projects

Derivatives Pricing Projects (Jan 2020 – Mar 2020) *New York, NY*

- Calculated Greeks of Equity Options including delta, gamma, vega, theta and implied volatility using Black-Scholes Model and Monte Carlo Simulation. Compared with data on **Bloomberg**
- Priced American Option using partial differential equation (**PDE**) and simulation with/without exercise boundary.
- Updated projects using **Git** on https://zihan23.github.io

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