ZHILIN LIU

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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:*** Advanced Portfolio Management, IRFX models, Scientific Computing in Python, factor and principal-component models, CAPM, Optimization, volatility modeling, Time Series and Statistical Arbitrage, Market Micro-structure, Structured Securities, risk management
- ***Future Coursework:*** Alternative Data, linear/quadratic regression/classification/unsupervised learning, clustering methods, EM algorithm, Gradient Descent, non-linear high-dimensional supervised learning, kernel regression methods, SVM, Random Forest, CNN, RNN

UNIVERSITY OF CALIFORNIA, IRVINE Irvine, CA
BS in Mathematics with concentration on Finance (June 2018)
BA in Quantitative Economics (June 2018) **Minor in Statistics**

- ***Coursework:*** Logistics Regression, GLMs, Econometrics, Ito's Lemma, Brownian Motion, Derivatives pricing, Probability, Linear Algebra, ODEs, PDEs

EXPERIENCE

BANK OF CHINA INTERNATIONAL CO., LIMITED Shanghai, China
Investment Banking Analyst Internship, Investment Banking Division (Nov. 2018 - Jan. 2019)

- Assisted IPO team with due diligence, by reading financial and accounting statements
- Helped with the client's capital operations plan by using WIND and company annual reports

MORGAN STANLEY CAPITAL INTERNATIONAL Beijing, China
Part-time Assistance Internship, Risk Management Division (Sep. 2017 - Oct. 2017)

- Provided support for sample data generating, variance minimization and linear transformation using Python/R, and solved problems on PDEs and SDEs
- Processed BS model, Monte Carlo simulation and 10-day 99% VaR estimation using Python/R
- Helped with research in *Statistical Arbitrage in The US Equity Market* by M. Avellaneda

PROJECTS

NEW YORK UNIVERSITY New York City, NY
Machine Learning in Empirical Asset Pricing and Risk Premia Forecasting project (Summer 2020)

- Python code frame design and implementation including data preprocessing, modeling, portfolio construction, performance and visualization (pytorch/numpy/pandas/os/pypfopt/mlfinlab/etc.)
- Evaluated top Statistical, Machine Learning and hybrid models for time series forecasting, including ESRNN, Telescope, 1D-CNN, etc. (in progress)
- GitHub URL (private): https://github.com/zliu2019/ML-Asset-Pricing-Risk-Premia-Forecasting

Foreign Exchange project (Spring 2020)

- FX Volatility smile calibration for USDBRL market data with SABR model using Python

Time Series project (Fall 2019)

- Created a strategy to trade VIX future based on the result of Ornstein-Uhlenbeck model

UNIVERSITY OF CALIFORNIA, IRVINE Irvine, CA
Volatility in Stock Market - Econometrics project with R (Winter 2018)

- Identified ARCH effect in monthly returns of the US S&P 500 by Lagrange multiplier test
- Estimated the model and made predictions to support investment plan based on measures of risk
- Compared estimated ARCH, GARCH, T-GARCH, GARCH-in-mean models using R

Anteater Bed and Breakfast - Python project (Spring 2017)

- Programmed a hotel room reservation system with strong user interface using Python

COMPUTER SKILLS/OTHER

Programming: Python, R, Java, Stata
Languages: English, Mandarin (native)