

## ZHILIN LIU

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### EDUCATION

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**NEW YORK UNIVERSITY** New York, NY

**The Courant Institute of Mathematical Sciences**

**MS in Mathematics in Finance** (expected - Dec. 2020)

- **Current Coursework:** Stochastic Calculus, OOP in Java, Time Series, Statistical Arbitrage, Risk and Portfolio Management with Econometrics
- **Future Coursework:** HMMs, Markov Chain Monte Carlo methods, EM algorithm, alternative data, unsupervised/supervised machine learning, FX models, interest rate models

**UNIVERSITY OF CALIFORNIA, IRVINE** **GPA: 3.894/4.0** 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, Hedging, Numerical Analysis, Probability, Linear Algebra, ODEs, PDEs

### EXPERIENCE

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**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
- Conducted research by using WIND and client's annual reports, and assisted with the client company's capital operations plan

**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 and R, and solved problems on PDEs and SDEs
- Processed BS model, Monte Carlo simulation and 10-day 99% VaR estimation using Python/R
- Helped to implement algorithms and to reproduce the results in *Statistical Arbitrage in The US Equity Market* by M. Avellaneda and J.-H. Lee.

### PROJECTS

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**UNIVERSITY OF CALIFORNIA, IRVINE** Irvine, CA

**Volatility in Stock Market - Econometrics project with R** (Winter 2018)

- Researched Time-varying mean process, AR/ARDL, Dickey-Fuller test, heteroskedastic errors
- Explained the various perspectives of the leptokurtic fat-tailed nature of real stock returns
- Identified ARCH effect in monthly returns of the US S&P 500 by Lagrange multiplier test, then compared estimated ARCH, GARCH, T-GARCH, GARCH-in-mean models using R
- Proposed investment plans with five risk indicators, forecasted conditional volatility, and return

**Numerical Analysis and Algorithm - MATLAB project** (Fall 2017)

- Implemented Power Method, built algorithms for Jacobi/GS/SOR methods with MATLAB
- Discovered the relation among spectral radius, matrix size and speed of convergence

**Anteater Bed and Breakfast - Python project** (Spring 2017)

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

**Calculus on Manifolds - Advanced Mathematics Research** (Fall 2017 - Spring 2018)

- Led a team to discover omissions and presented improved proofs from *Calculus on Manifolds: A modern approach to classical theorems of advanced calculus* by Michael Spivak

### COMPUTER SKILLS/OTHER

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**Programming:** Java, R, Python, MATLAB, Stata

**Languages:** English, Mandarin (native)