

## SIHAN ZHA

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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 (Dec. 2020)

- **Coursework:** Machine learning, market microstructure with transaction data processing, trading energy derivatives, Black-Scholes, pricing of derivative securities, alternative data, risk mgmt

#### UNIVERSITY OF CHICAGO

Chicago, IL

#### MA in Economics (Aug. 2019)

- **Coursework:** PhD courses: machine learning & large-scale data, statistical modeling on Python, econometrics, game theory, mechanism design, microeconomics. Financial econometrics (Booth)
- **Awards:** Social Sciences Scholarship (\$38,664, granted 3 out of 50 students)

#### UNIVERSITY OF ILLINOIS AT URBANA-CHAMPAIGN

Champaign, IL

#### BS in Mathematics with Highest Distinction, BA in Economics, *Magna Cum Laude* (Dec. 2017)

- **Coursework:** Calculus, real analysis, linear & abstract algebra, ODE, probability & stats, complex variables, linear programming, numerical methods, monetary economics, macroeconomics
- **Awards:** Highest University Honor “Bronze Tablet” (top 3% in the college)

### EXPERIENCE

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#### GF SECURITIES

Hefei, China

#### Summer Analyst Internship (Summer 2017)

- Web scraped financial data using Python and formulated stock report based on fundamentals
- Estimated various GARCH models with Eviews to fit daily stock prices and predict volatility

#### PRICEWATERHOUSECOOPERS

Shanghai, China

#### Summer Internship: Financial Services-Assurance (Summer 2016)

- Assisted in auditing and compiling half-year financial report of a large commercial bank
- Calculated departmental revenue and validated results by analyzing past financial statements

### PROJECTS/RESEARCHES

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#### NEW YORK UNIVERSITY

New York, NY

#### Capstone Project: Machine Learning to Predict Stock Correlations, Advisor: Prof. Kenneth J. Winston

- Used K-means & ARIMA to cluster correlation pairs in S&P 500 with similar behaviors in Python
- Predicted stock correlations by Random Forest and LSTM with price and correlation data

#### UNIVERSITY OF CHICAGO

Chicago, IL

#### Individual MA Degree Thesis: Matching with Noisy Signals, Faculty Advisor: Prof. Philip J. Reny

- Established many-to-one matching model abstracted from college admission and job market
- Devised economic methods involving mathematical analysis and probability theory to measure inefficiency caused by the noisy ability signals sent from applicants to employers
- Proved Nash Equilibrium strategies for each college with noisy signals in different scenarios

#### Econometrics/Machine Learning Project: Application of Generalized Random Forests Method

- Implemented machine learning application based on Generalized Random Forests (GRF) method combining GMM and random forests proposed by Athey, Tibshirani, & Wager in 2019
- Extended and applied GRF method to million-scale dataset with multiple IVs using R and cloud computing server (Linux), together with multiple LASSO methods in first stage of IV regression

#### UNIVERSITY OF ILLINOIS AT URBANA-CHAMPAIGN

Champaign, IL

#### Illinois Geometry Lab, Advisors: Dr. Ruth Davidson and Dr. Rosemary Guzman

- Review papers on phylogenetic trees and researched on trees in non-Euclidean space
- Proposed combinatorial algorithm to measure tree distance between different numbers of taxa

### COMPUTER SKILLS/OTHER

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**Programming Languages:** Python, R, Java

**Other Software:** LaTeX, Microsoft Office, Eviews, Mathematica

**Languages:** Mandarin (Native), English (fluent)

**Certificate:** Passed CFA Exam Level I (scored above the 90<sup>th</sup> percentile)