

# Zelin (Zack) Zhao

Brighton, MA 02135 | 608-698-8952 | zelinzhao267@gmail.com | linkedin.com/in/zzhao267/

## Education

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**M.S. Mathematical Finance & Financial Technology [GPA 3.61]** Expected January 2023  
Boston University, Questrom School of Business Boston, MA

- Coursework: Statistics, Programming (R, Python, C++), Stochastic Methods of Asset Pricing

**B.S. Mathematics for Economics and Finance, Computer Sciences (Certificate)** May 2021  
University of Wisconsin-Madison Madison, WI

- Coursework: Programming (Java), Multi-variable Calculus, Probability & Statistics, Ordinary/Partial Differential Equations, Linear Algebra, Numerical Analysis, Stochastic Processes, Investment Theory, Derivative Securities, Artificial Intelligence

## Skills

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**Spring 2022 Coursework:** Fixed Income, Portfolio Theory I, Advanced Machine Learning Applications in Finance, Data Analysis and Financial Econometrics

**Programming:** Python, C++, Java, R, SQL, MATLAB, L<sup>A</sup>T<sub>E</sub>X

**Mathematics:** Stochastic Calculus, Computational Methods, Time Series Analysis

**Finance:** Factset, Bloomberg (BMC certificate)

## Experience

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**Machine Learning Research Assistant** Sept 2020 - August 2021  
University of Wisconsin-Madison Madison, WI

- Trained and tested convolutional neural networks with various data sets on a high-throughput computing system, which explicitly addressed the symmetries in phylogenetic trees with four taxa (Python)
- Model produced more accurate results than standard phylogenetic inference methods on long branch attraction trees, and achieved higher memory efficiency than other neural networks by about 8%

## Projects

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**Programming for Mathematical Finance Projects** Fall 2021  
Boston University, Questrom School of Business Boston, MA

- Parsed and preprocessed historical price and factor data online, and computed betas using multi-factor time series models (Python)
- Simulated randomly generated paths for the underlying asset, compared the simulation price to the Black-Scholes formula price, and calculated simulation prices of exotic options (Python).

**Pairs Trading Strategy** Fall 2021  
Boston University, Questrom School of Business Boston, MA

- Led a team of four to implement the market-neutral pairs trading strategy that trades the 11 sectors of stocks included in the S&P 500 index (Python)
- Utilized cointegration tests to identify the candidate stock pairs, constructed trading signals via Z-scoring and fitted parameters through backtesting to achieve the highest Sharpe Ratio.

## Additional Information

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**Languages:** English, Mandarin, Japanese (elementary)

**Interests:** Bodybuilding, Street Fashion, Film Analysis, Video Games