# Jihua Hu (Jonathan)

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Dear hiring managers,

I am writing this letter to demonstrate my interest in the posted investment management position. As a first year PhD in Finance student at the Baruch College, I am working towards transitioning from the academia to the investment industry. While a bachelor's degree in Mathematics with minors in Economics and Computer Science taught me the fundamental tools in finance, my graduate studies specializing in analytics and financial engineering furthered my expertise.

Possessing keen interest in investing, I seized the opportunity to participate in multiple research projects, during which I used innovative approaches to solve investment related problems. In a research project funded by BMO, my supervisor and I applied machine learning models to the Canadian equity market by constructing a long-short portfolio strategies that uses high dimensional factor inputs. Our portfolio beat the benchmark index by more than 1% monthly in the 15-year out of sample test (2015-2019) with annualized Sharpe Ratio of 1.4. Other projects that I worked on includes extracting and refining sentiments from prospectuses scrapped from the SEC website using NLP techniques, creating applications to assist systematic trading on the TradeStation platform, etc. Since May 2020, I have also started managing a personal trading account on Binance, yielding over 750% of growth calculated in USD (or over 150% of growth calculated in Bitcoin) up till today trading BTC and ETH long/short positions.

As demonstrated in previously experience, I learn new technologies quickly and I keep an open mind to apply innovative approaches to achieve performance improvement. I am willing to adapt to the ever changing and evolving investment world. The skills that I have learned during this process are plenty, including but not limited to financial knowledge, economic thinking, programming, and data mining. As a result-driven person, I would like to work in the market because it is also driven by results: hypothesis can be verified by the market - either right or wrong, feedback can be quickly given by the market - either profit or loss. The market is the only golden standard. I see all these as an interesting challenge, and I would like to evolve with the market. I realize that this is a unique opportunity to apply my specialties and to grow a career, and I believe that I would meet its requirements. I look forward to hearing from you.

Thank you for your time and consideration.

Sincerely,

Jihua Hu (Jonathan)

# Jihua Hu (Jonathan)

*Email: jonathanjihua.hu@mail.utoronto.ca | Phone: (647) 860 6978 |*

## Education

**PhD Student in Finance**
*GPA: 3.5 / 4.0, 2020 – present, Baruch College, New York, New York*

**Master of Engineering with Specialization in Analytics**
*GPA: 3.4 /4.0, 2018 – 2021, University of Toronto, Toronto, Ontario*

**Bachelor of Mathematics with Minors in Computer Science, Economics**
*GPA: 70 /100, 2012 – 2017, University of Waterloo, Waterloo, Ontario*

## Work Experience

**Researcher** – *BMO Funded Fintech Project with University of Toronto*
*Toronto, Ontario, September/2019 – September/2020*
- Collaborated to collect and organize over 200 Canadian equity market asset pricing factors from 1990 to 2019.
- Experimented in tailoring highly non-linear machine learning algorithms to assist a long-short portfolio strategy.
- Built the out-of-sample performance evaluation framework, achieving 1.4 Sharpe Ratio and 2% monthly returns.

**Research Analyst** – *University of Waterloo*
*Waterloo, Ontario, March/2016 – September/2018*
- Created applications on the TradeStation platform with EasyLanguage to assist trading and portfolio monitoring.
- Scrapped and parsed corporate bond prospectuses from the SEC to conduct textual and sentiment analysis.

**Analyst** – *Foreign Exchange Team, TD Securities*
*Toronto, Ontario, August/2014 – April/2015*
- Assisted in managing the SQL databases of foreign exchange pairs and portfolios.
- Automated and managed reports on FX curves and risk reports with Accurate and excel VBA.

## Summary of Skills

**Programming**
- Working knowledge of computational and functional programming in Python, R and Matlab.
- Applied object-oriented programming knowledge to projects such as trading app in C# and Rouge game in C++.

**Data Mining and Machine Learning**
- Working knowledge in extracting information and creating forecasting models from high dimensional data.
- Exposure to big data and machine learning tools such as Spark, Databricks, Tensorflow, Keras, sklearn, etc.

**Finance and Asset Pricing Related Researching**
- Capable of understanding the recent development in research literature in finance and empirical asset pricing.
- Keen interest in innovating and applying new methodologies to improve existing models and methods in finance.

## Other Relevant Experience

**Managed a Personal Binance Cryptocurrency Trading Account Since May 2020**
- Yielding >750% growth in USD (>150% growth in BTC) trading BTC and ETH with long and short positions.

**Member of University of Toronto Team in SWUFE Chengdu80 Fintech Hackathon**
- Participated to build a financial research search engine with graph data structure, winning the Innovator Award.

**AI in Finance Course Project**
- Applied NLP modeling technique to trained embeddings to improve the sentiment accuracy of finance vocabulary.

**Financial Engineering Course Project**
- Tested and compared MVO, robust MVO, risk parity, and maximum Sharpe Ratio optimization for 30 stocks.
- Applied Monte Carlo simulation and lattice model to price options such as Asian options and American options.

**Financial Econometrics Course Project**
- Experimented time series models such as ARMA, SARIMA, ARCH/GARCH to S&P500 with programming in R.

## *List of Relevant Course History*

**PhD Student in Finance, Baruch College**

- FIN83200 - Market Microstructure
- ECO82100 - Econometrics

**Master of Engineering with Specialization in Analytics, University of Toronto**

- APS1070H - Foundations of Data Analytics and Machine Learning
- MIE1624H - Introduction to Data Science and Analytics
- APS1080H - Introduction to Reinforcement Learning
- MIE1628H - Big Data Science
- APS1052H - Artificial Intelligence in Finance: From Neural Networks to Deep Learning
- APS1051H - Portfolio Management
- APS502H1 - Financial Engineering 1
- APS1022H - Financial Engineering 2
- MIE1622H - Computational Finance and Risk Management
- APS1050H - Blockchain Technologies and Cryptocurrencies
- CSC2511H - Natural Language Computing (Audit/NCR)

**Bachelor of Mathematics with Minors in Computer Science, Economics, University of Waterloo**

- AFM423 - Topics in Financial Econometrics
- AFM415 - Data Mining
- AFM424 - Equity Investments
- MATBUS472 - Risk Management
- ECON302 - Macroeconomic Theory
- ECON405 - Financial Econometrics
- STAT331 - Applied Linear Models
- STAT332 - Sampling and Experimental Design
- STAT443 - Forecasting
- CS230 - Introduction to Computer Systems
- CS234 - Data Types and Structures
- CS246 - Object-Oriented Software Development
- CS330 - Management Information Systems
- CS335 - Numerical Models in Finance
- CS338 - Databases