Hongzhen Du

Email: hongzhen.du19@student.xjtlu.edu.cn   Mob: +86-156-2646-9897   Website: https://rodridu.github.io/

EDUCATION

Xi'an Jiaotong-Liverpool University
Bachelor of Economics | Finance Track, Certificate in Financial Mathematics Jul 2023 (Expected)

- **GPA**: 3.74/4.00; **Major GPA**: 3.85/4.00 **Rank:** 4/121
- **Math Coursework**: Probability and Statistics, Mathematical Economics, Econometrics, Real Analysis, Game Theory, Stochastic Calculus, Financial Mathematics, Financial Engineering.
- **Economic & Finance Coursework:** Microeconomics, Macroeconomics, Mathematical Economics, Financial Management, Corporate Finance, Chinese Economy, Environmental Economics, Asset Pricing.
- **Honors:** University Academic Achievement Award (2022, Top 5%), Continuing Academic Merit Scholarship (Top 10%)

University of Chicago
Summer Visiting Student Jun 2022 - Aug 2022

- Coursework: Quantitative Portfolio Management & Algorithmic Trading

National University of Singapore
Summer Computing Workshop Student May 2022 - Jul 2022

- Research Topic: Machine Learning / Artificial Intelligence in Financial Services

Imperial College London
Winter School Student Jan 2022 - Feb 2022

- Coursework: Computer Vision and Natural Language Processing

PROFESSIONAL EXPERIENCE

GF Securities | Over-The-Counter Department Jun 2022 - Aug 2022
Quantitative Analyst Intern

- Built an **alpha equity model** by fundamental factors including ROE, monthly turnover and year-to-year growth and constructed portfolio by opening position in equities with highest return at each industry, achieving 12% excess return.
- Constructed a **pairs trading strategy** by finding the highest correlated stocks of Top 5 industries in CSI 500 index of past 5 years through ADF test and correlation analysis, resulting in 11% maximum drawdown and highest Sharpe ratio of 1.88.
- Constructed an **indicator to determine the bull and bear markets** by volatility and turnover rate between 2010 and 2019 and utilized a double moving average strategy for market timing, which achieved better Sharpe Ratio than CSI500.
- Classified anti-money laundering rating messages by subject keywords in Python and achieved an accuracy of 90%.

Orient Securities | Asset Management Department Jul 2021- Aug 2021
Summer Analyst Intern

- Analyzed financial statements to write 4 **in-depth recommendation reports** on several companies in the Li-ion battery industry illustrating my recommendation logic, which contributes to increasing the department fund by 10%.
- Analyzed the performance of the new energy vehicle market through macro data and **wrote an industry research report** concluding an optimistic scenario of the new energy vehicles consumption with achievement of 20% targeted market share.
- Performed interest & bid-price calculation using Excel in bookkeeping during security's consignment sales and **drafted a prospectus** for a 50 million CNY Asset-Backed Securitization.

RESEARCH EXPERIENCE

Machine Learning Application in Multi-factor Portfolio Management | *Individual Research* Oct 2022 - Nov 2022

- Performed visualization and standardization on HSI300 raw data of the past decade, **combined RankIC and Spearman matrices** on 30+ technical and fundamental factors to screen out 5 for the stock selection model.
- **Constructed multi-factor models** by Ridge and LASSO regression for mean-variance optimization and applied Alphalens to devise factor-weighted long-short portfolio cumulative return curves in Python, which attained an annual return of 33%.

Time Series Forecasting Analysis for an Investment Strategy May 2022 - Aug 2022
Summer Undergraduate Research Fellowships (SURF) at Xi'an Jiaotong-Liverpool University

- Exported the corresponding trading dates of the 5% VaR for daily returns for SP500, FTSE100 and HS300 via Excel, and **executed a buy-low-sell-high strategy** using MWRR using data from 2010 to 2014, achieving an annual return of 11%.
- Backtested the VaR of transaction days with abnormal accounting ratios through Christoffersen Test in R, with HSI300 and SP500 data between 2014 and 2019 after taking first-order difference, which verifies the effectiveness of the strategy.

Textual Analysis and Machine Learning in Predicting Stock Prices | *Project Leader* Jun 2022 - Jul 2022
National University of Singapore Summer Computing Workshop, Advisor: ***Prof. Anand Bhojan***

- Segmented words from texts in US equity news and constructed investor sentiment index by mapping to emotion word dictionary and assigned marks to every word to **construct sentiment index** representing the investors' attitude to stocks.
- Analyzed 10,000 pieces of news for 5 selected stocks, **utilized the LSTM model to forecast stock price** movement with sentiment score and achieved an accuracy of 82% for the period between 2019 and 2022.

Regression Analysis of Money Supply's Impacts in Turkey | *Individual Research* Mar 2022 - Apr 2022

- **Constructed 6 distributional lag models** with different factors in STATA to test correlations and changes of dynamic cumulative multipliers between money supply, unemployment rate and real interest rate with data downloaded from Turkish Central Bank, and rejected the feasibility of applying monetary neutrality assumption on Turkish economic crisis over the last decade.

Policy analysis of Hong Kong and Thailand during the 1997 Financial Crisis | *Group Leader* Feb 2022 - Apr 2022

UChicago & PKU MPIF Capstone Project Excellence Award, Advisor: ***Prof. Dave Schabes*** *at University of Chicago*

- Examined the exchange rate systems under different choices in the monetary trilemma and presented connections dynamically between monetary policies and the movements of GDP and short-term interested rates.
- Analyzed the different reasons why the domestic currency overvaluation happened and how the current account deficit impacted the overall economy of Hong Kong and Thailand during the 1997 East Asian Financial Crisis and demonstrated the rationale of corresponding fiscal and monetary policies on economic conditions.

Word Representation in Biomedical Domain Under Natural Language Processing | *Group Leader*

Best NLP Project, Imperial College London Data Science Winter School Jan 2022 **-** Feb 2022

- Tokenized academic papers titles downloaded from CORD-19 corpus into words in Python and **exported the 10 most relevant words** co-occurred with “COVID-19” by comparing Pointwise Mutual Information (PMI).
- **Performed PCA and t-SNE** to reduce the dimensions of word vectors with visualization of 100 selected biomedical entities, and **filtered the 10 most semantically similar entities** within the corpus by calculating cosine similarity.

Comparison between Domestic and Foreign Output Gap | *Research Assistant*

Supervisor: ***Prof. Syed Abbas*** *at Xi'an Jiaotong-Liverpool University* Oct 2021- Jan 2022

- Utilized HP filters to **calculate output gap and potential output** through monthly and quarterly total trade, GDP and IPI statistics after data cleaning and exported datasets containing trade weights and output gap through STATA.

Analysis and Forecast of the Chinese Stock Market Efficiency May 2021 - July 2021

Summer Undergraduate Research Fellowships (SURF) at Xi'an Jiaotong-Liverpool University

- Tested the impact of anomalies, including month effect, holiday effect and day-of-week effect between 2005 and 2020 by ranking the mean, volatility, and Sharpe ratio of the Shanghai Composite Index each month in Excel.
- **Constructed a hedging portfolio** based on the average proportions of industries by holding long top 5 stocks and short last 5 stocks ranked by average shares in every 10 trading days and compared the performance with the index.

LEADERSHIP EXPERIENCE

LinkedIn (China) Global Business Challenge | *Project Leader* Oct 2021 - Nov 2021

- Coordinated a team of 5 to analyze the business situation of LinkedIn (China) after withdrawing social functions and organized the investigation regarding the feasibility of offering online professional courses with recognized certificates to bridge skill gaps.

Xi'an Jiaotong-Liverpool University Student-Staff Liaison Committee | *Student Representative* Feb 2021 - Jun 2021

- Analyzed 200+ students' feedback on 4 different levels of Spanish courses and proposed a mandatory virtual speaking practice plan with the module leader.

SKILLS AND OTHERS

Language: Chinese (Native), English (Fluent), Cantonese (Fluent), Spanish (Basic), Russian (Elementary)
Technical: Python, STATA, EViews, R, SQL, Wind, Bloomberg, Microsoft Office, LaTeX
Interests: Traveling (180+ Cities), Urbex (30+ Sites), Fan Mail (600+ Replies), Stage Play (Club Leader), Trainspotting.
Open Courseware Certificates: Deep Learning (DeepLearning.AI), Financial Engineering and Risk Management (Columbia), Python and Statistics for Financial Analysis (HKUST), Reinforcement Learning in Finance (NYU), Python and Machine Learning for Asset Management (EDHEC), SQL for Data Science (UC Davis), Numerical Analysis (HSE University), Data Structures (UCSD), Operational Research (NTU), C++ For C Programmers, Part A (UCSC)