JIE ZOU

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EDUCATION

SHENZHEN UNIVERSITY (SZU) 2019.09 – 2023.06

B. Sc. in Mathematics & Applied Mathematics; B.Econ in Finance(Minor)

- **Overall GPA:** 3.93/4.5 (87.5/100) First Degree (Mathematics) Ranking: 2/61
- Enrolled in the 2019 **Experimental Class of Mathematical Finance**, which consists of 60 students selected from 1,010 students in the College of Economics and the College of Mathematics by English and math aptitude tests
- **Courses:** Advanced Algebra, Mathematical Analysis 2, Probability & Mathematical Statistics, Ordinary Differential Equations, Partial Differential Equation, Mathematical Modeling, Stochastic Process, Time Series Analysis, Data Structure & Algorithm, Python Programming, Machine Learning, Financial Derivatives, Fixed-income Securities, Financial Engineering
- **Honors:** 2nd Prize in Star of Learning (No. 1 in academic performance, 2020.12), 2nd Prize in Star of Double Innovation (Top 5%, 2021.12), 3rd Prize in Star of Double Innovation (Top 8%, 2020.12&2022.12), Huawei Prize (0.07% in SZU, 2023.2)
- **Standardized Test**: **IELTS-7.0** (L7.0, R8.0,W6.0, S6.0), **GRE-316** (V152, Q164, AW4.0)

PREPRINTS & ACADEMIC PROJECTS

Deep Reinforcement Learning Based Automated Stock Trading System Using Cascaded LSTM 2022.08 – 2022.09

***Jie Zou**, Jiashu Lou, Baohua Wang, Sixue Liu*

- Used LSTM to extract time-series features from daily stock data and filter market noise; developed automated trading strategy using PPO in DRL, tested on 30 Dow Jones components and 30 SSE 50 stocks in a simulated environment
- Submitted to Neurocomputing on 2022/9/21 as first author and then was suggested to be transferred to Expert Systems with Applications on 2022/10/25, current status: decision in process. arXiv address: https://arxiv.org/abs/2212.02721

Palm Vein Recognition via Multi-task Loss Function and Attention Layer 2022.03 – 2022.04

*Jiashu Lou, **Jie Zou**, Baohua Wang*

- Designed a CNN model using VGG-16 transfer learning with attention mechanism to match palm veins using cosine similarity. Implemented a multi-task loss function and used clustering to adaptively determine the matching threshold
- Submitted to IEEE Access as second author on 2022/8/22 and revised on 2022/9/17 for minor edit. arXiv-issued DOI via DataCite: https://doi.org/10.48550/arXiv.2211.05970

Quantitative Research on the Mega Disasters Risk 2020.09 – 2021.10

***Jie Zou**, Huici Xue, Keyan Hu*

- To fit the distribution function between the economic damage and the magnitude of the earthquake
- Analyzed Chinese seismic data, used Excel, RStudio, and Python to process data, and fitted distributions with Copula, Pareto, and Gumble from scipy.stats.. Constructed a mixture distribution to fit the data within and outside a threshold and verified results using QQ plot

INTERNSHIPS

ZMate Science and Technology Company 2022.07 – 2022.10

Quantitative Researcher Intern

- Independently completed the research and programming of the restoration of the Shenzhen Stock Exchange's order book by using the taq data, trade data, and order data of the Level II Stock Quotes
- Completed Kalman Filter-based stock pairs trading strategy independently, including research, programming Kalman Filter, EM algorithm and OU process, and developing an improved EMA algorithm based on Kalman Filter
- Involved in testing and verifying quantitative investment models, and conducted data analysis and visualization for financial products

Shenzhen Customs 2021.06 – 2021.08

Data Analyst Intern

- Reduced tax evasion and leakage by identifying same entities with different tax rates among millions of data and determining unique tax rate. Assisted in constructing the knowledge map for the project, and used Neo4j graph database and Cypher to build a graph database with millions of data
- Help Shenzhen customs to check taxes and make up 22.5064 million CNY

COMPETITION

The 2nd "Greater Bay Cup" Guangdong-Hong Kong-Macao Financial Mathematical Modeling Competition 2021.12

Second Prize Winer (Top 7% of 3,297 teams)

- Used ARIMA models to forecast stock volumes, analyzed tick-level data with Numpy and Pandas, and performed text analysis using regular expressions. Used LSTM to predict future tick-level stock prices for high-frequency trading strategies

SKILLS

Technical: Proficient in Python, MATLAB, SQL, R, Neo4j, Microsoft Office Suite