HE XianRui

Education

Sichuan University   Chengdu, China
B.Eng. in Computer Science and Technology   expected 6/2023
Cumulative GPA: 3.81/4.0 (89.79/100); Ranking (8%)

National University of Singapore/School of Computing Summer Workshop 5/2022–7/2022
Topic: Web Mining; Grade: A-

Coursera Certificates
Introduction to Statistics (Stanford University), 10/2022
Introduction to Marketing (University of Pennsylvania), 1/2022

Publication

Hou, J.C., **He, X.R.**, Zhou J., Chen, L., & Gan, R.H. (2022). Prioritized Experience Replay with Balance between Exploration and Exploitation. *2022 7th International Symposium on Advances in Electrical, Electronics and Computer Engineering (ISAEECE 2022)*

Research Experiences

Priority-Replay Based 2v2 Close Air Combat Algorithm   11/2021–9/2022
- Advisor: Prof. LI Hui

- Proposed a priority experience replay with a balance between exploration and exploitation (PER/BEE)
- Stabilized the win ratio at 90% by considering the exploration utility and utilization utility of samples comprehensively on the basis of the soft actor-critic algorithm
- Simulated the algorithm programmed in Python with 2v2 Air Combat Agent Model
- Delivered an online conference video presentation in English to illustrate algorithm

Achievement: Published a conference paper as the second author
                        Rated as a National-level Project by the review committee

Research the Effect of Dynamic Equilibrium Analysis on Internet Hospital   11/2021–9/2022
- A Project for "2022 China University Applet Development Competition" | Advisor: Prof. LUO Li

- Collected data from questionnaires, cleaned data by means such as IP comparison, evaluated the reliability and validity of data with Cronbach's $\propto$ coefficient and Bartlett's Test of Sphericity
- Verified the prediction by combining SPSS's gravel plots and principal component analysis
- Presented the institutional fitting model based on AMOS structural analysis
- Developed mobile App according to constructed medical knowledge map and innovated concept of visual consultation

Achievement: Third-prize in Southwest Division; Software Copyright

Analysis and Modeling of Clinical Data   4/2022–Present

- Applied PCA and correlation analysis etc., to reduce data dimensionality
- Create medical applications such as disease classification, prognosis prediction, and pain-level inspection with machine learning techniques
- Construct an AI support system based on the statistical criteria
- Project Link: Research in West China Hospital of Sichuan University

NLP and Time Series Analysis of Stock Price Prediction   7/2022
- Advisor: Dr. Lek Hsiang Hui, National University of Singapore

- Visualized statistical characteristics of transaction data by Pyplot; constructed and compared three different models (LSTM, ARIMA, ARIMAX) for prediction
- Conducted correlation analysis on data collected by web mining and labeled by SnowNLP
- Applied time series analysis such as ADF test to determine the model's best parameters by ACF and PACF
- Reduced the RMSE to 1.89 and created the prediction model with the coefficient of determination 0.996

Internship Experiences

Quantitative Analysis Intern   6/2022–9/2022
BigQuant Co., Ltd. **|** Chengdu, China

- Built high-frequency factors with Python and evaluated its performance through trade backtests
- Optimized machine learning models in the financial market to improve the excess return and reduce maximum drawdown with methods like factor screening and hyperparameter search
- Acted as back-end developer to construct the BigQuant platform, test and repair transaction data, and provide technical support for quantitative trading community

Summer Intern   6/2021–9/2021
Postal Savings Bank of China Co., Ltd. (Yunyang County Sub-branch)

- Participated in constructing bank information service facilities, mining requirements for business data, and daily data operation and maintenance

Extracurricular Activities

Debate Team of the College of Computer Science   9/2019–Present

- Cooperate with the team members in practice and competitions, won awards in various contests
- Assist in recruiting new members, offer training/counseling to help their integration

Video Creation Contest   9/2019–12/2019

- Contributed to video post-processing by using software like Wondershare Filmora, participated in planning and shooting sitcoms
- Won First Prize in Micro Video Competition, 12/2019

"Internet+" Innovation and Entrepreneurship Competition   4/2021–8/2021

- Developed a web-portal platform for promoting local governments' poverty alleviation programs
- Awarded the Third-prize in the competition

Honors & Awards

Comprehensive Scholarship (3rd Prize) | Sichuan University | 10/2021; 10/2022
Outstanding Student Award | Sichuan University | 10/2022
Provincial First-prize of National Mathematical Modeling Competition for College Students |10/2022
Second Prize of the 5th National Undergraduate Mathematics Competition (Zhejiang Applied Mathematics Research Association) | 10/2022

Skills

Python, C++, SQL, SPSS, MATLAB