

Shukai Gong

(+86) 15721022905 | shukai_gong@ruc.edu.cn | GitHub

EDUCATION

Renmin University of China

Beijing, China

Double Major in Data Science and Economics; GPA: 3.89/4.00; Rank: 1

2022.09 – 2026.07

Relevant Courses: Introductory Programming(4.0), Data Structure and Algorithms(4.0), Introduction to Data Science(4.0), Probability Theory(4.0), Mathematical Analysis(4.0), Advanced Linear Algebra(4.0)

Honor: 2023 Academic Merit Scholarship in Renmin University of China(2023)

University of California, Berkeley

Berkeley, United States

2024 Spring Exchange Student

2024.01 – 2024.05

Relevant Courses: STAT 135: Concepts of Statistics(A+), ECON 141 Econometrics (Math Intensive) (A+)

TECHNICAL SKILLS

Programming Language: C/C++, Python, MATLAB, R, STATA

Statistical Modeling: Regression Analysis, Clustering, PCA, SVM, Random Forest, Deep Neural Network

CONTESTS & PROJECTS

2023 COMAP's Mathematical Contest in Modeling | Meritorious Prize

2023.02.17 – 2023.02.20

- Constructed a modified **TOPSIS-EWM model** to evaluate the light pollution level in California, US.
- Created a **fuzzy comprehensive** evaluation model and applied a **K-means clustering** algorithm to evaluate and rank light pollution levels in California, US. Categorized California into 4 types of locations based on the model.
- Proposed light pollution control strategies which yield 15.4% and a 12.9% decrease in light pollution levels on 2 cases in CA.

2023 Chinese University Math Contest in Modeling | Beijing First Prize

2023.09.07 – 2023.09.10

- Solved the detailed optimal replenishment amount and pricing strategy of a supermarket for each vegetable category given the forecasted future demand by applying **seasonal ARIMA method** and in-category correlation discovered before.
- Proposed a social welfare indicator measuring consumer disappointment and designed a **bi-directional optimization** algorithm to maximize the profit of groceries while meeting the market demand as much as possible.

Machine-Learning-based NBA Playoffs Prediction model | [GitHub](#)

2023.05.31 – 2023.06.14

- Performed **PCA** on the NBA technical statistics data and conducted **K-means clustering** to determine the types of teams.
- Trained a **Random Forest** model and a **Deep Neural Network** model on the regular season dataset by Python to predict playoffs elimination results. Achieved a 66.7 % accuracy in the playoffs prediction.

Micro-blockchain Systems Development and Data Analysis | [GitHub](#)

2023.10.08 – 2023.12.01

- Designed the **data structures of accounts, transactions and transaction graphs in a micro-blockchain system** with $O(1)$ **reading and operation speed**. Read 2129 block information and 1048575 transaction records in 15 seconds.
- Developed a **query system** that retrieves account transfer records, current balances based on user input within 5 seconds.
- Implemented loop-detection in the transaction network by **topology sorting**. Used an **priority-queue-optimized Dijkstra algorithm** to find the shortest path between any two accounts in the trading network within 3 seconds.

INTERNSHIP

Zeping Macro

Beijing, China

Industry Research Intern, Science and Technology Group

2023.01.08 – 2023.02.17

- Participated in writing industry research reports on NEVs and photovoltaic power generation. Deeply investigated and wrote a 3,000-word commentary on the "patent war" between Chinese new energy giants CATL and CALB.
- Responsible for collecting data required for industry reports through Wind and drawing corresponding graphs.

LEADERSHIP & EXTRACURRICULAR ACTIVITIES

Unilever Club, Renmin University Branch

Beijing, China

Mentor/Project Manager

2022.09 – 2023.09

- UC Club is a highly selective and premium member career development club supported by Unilever since 2009.
- Served as the team leader of the Quantitative Finance internal training project. Constructed a trading model for a gold-bitcoin-dollar portfolio using ARIMA times series analysis, MA moving averages and CVaR methods.