Xiuyuan Xiong

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Personal Profile

I am a third-year graduate student at Beijing Sport University, enrolled in the Sports Science programme, set to graduate next year. I am dedicated to sports performance analysis and have over two years of expertise in the field. My expertise includes the application of **statistical data analysis**, **complexity science**, and **machine learning algorithms** in sports performance analysis.

Education

Beijing Sport University   *Beijing, China*
MEd in Sports Science   *Sept 2021 - Current*
- **GPA:** 91.84/100
- **Courses:** Artificial Intelligence in Sport, Sports Statistics, Sports Biomechanics, Sports Physiology, Sports Biochemistry
- **Thesis:** Analysis of passing performance of high level football teams based on network science

East China University of Technology   *Nanchang, China*
BS in Mathematics and Applied Mathematics   *Sept 2017 - Jul 2021*
- **GPA:** 80.98/100
- **Courses:** Mathematical Statistics and Data Analysis, Mathematical Model, Data Mining, Numerical Analysis, Operations Research, Probability Theory, Fundamentals of C Language Programming, Ordinary Differential Equations, Graph Theory with Applications
- **Thesis:** Application of multivariate statistical analysis in modern basketball tactics research

Research Experience

Beijing Sport University   *Beijing, China*
Analysis of football passing performance   *Sept 2021 - Current*
- Analysing passing events in the football match using different **mathematical-physical models**.
- Focusing on **spatiotemporal data** of football matches.
- We have preliminarily explored the **spatial distribution patterns** of passing and receiving locations in all 2022 FIFA World Cup matches, and improved the construction method of the **passing network**.
- **Technical Skills: Python** (Pandas, PyTorch, NumPy, Scikit-learn. etc.), **Matlab**, **SPSS**, **GraphPad Prism**, **LaTex**.
- **Soft Skills:** Writing and Typesetting of Scientific Papers, Teamwork, Time Management, Communication, Presentation skills.

East China University of Technology   *Nanchang, China*
Quantitative Research on Chinese Stock Market   *Jun 2020 - Apr 2021*
- Collected data and preprocessed it, trained different **machine learning algorithms** using the data, evaluated the model through backtesting, and optimized the model.
- Developed a real-time trading system for the Chinese stock market.
- **Technical Skills: Python**, **Matlab**, **R**.

Publications

Journal Articles

Distribution pattern analysis of passing and receiving locations during the 2022 FIFA World Cup using the measure of spatial entropy
  Xiuyuan Xiong, Kuiying Deng, Jiale Wu, Yixiong Cui
Chaos, Solitons Fractals (Under review)

Impact of substitutions on elite soccer team performance based on player evaluation system
  Jiale Wu, Yuesen Li, Changjing Zhou, **Xiuyuan Xiong**, Xiaorui Qin, Yixiong Cui
Science and Medicine in Football (Under review)

Conference

Evaluation of comprehensive ability of CBA teams based on multiple regression and TOPSIS model
  Xiuyuan Xiong, Zhengliang Lin, Yanfei Shen, Kuiying Deng
13th National Sports Science Conference, 2023, Tianjing, China, Poster

Performance evaluation of the 2022 FIFA World Cup teams using the measure of spatial entropy of successful passes
  Xiuyuan Xiong, Yixiong Cui, Kuiying Deng
28th Annual Congress of the European College of Sport Science (ECSS2023), 2023, Paris, France, Poster

Robustness analysis of the passing network of Chinese Super League teams in case of random failure
  Xiuyuan Xiong, Yanfei Shen, Kuiying Deng
18th Chinese Conference on Complex Network (CCCN2022), 2022, Zhuhai, China, Oral presentation

Multi-factor investment strategies based on support vector regression
  Xiuyuan Xiong, Wenjuan Zhang, Hua Zeng
7th International Conference on Computational and Information Sciences (ICCIS 2019), 2019, Chengdu, China, Oral presentation

Passing performance of teams with low ball possession in the 2022 Qatar World Cup based on social network analysis
Yating Zhou, Yixiong Cui, **Xiuyuan Xiong**
13th National Sports Science Conference, 2023, Tianjing, China, Poster

University Projects

Tennis performance analysis
Beijing, China

Beijing Sport University
Jul 2023 - current

- Spoorts performance analysis based on video analysis.
- Collected and analysed the **spatiotemporal data** of male players in the 2022 and 2023 Australian Open.

Football Big data System
Beijing, China

Beijing Sport University
Spet 2022 - Jun 2023

- Collected football match data using **Python** and **Catapult**.
- Designed of the player and team rating system based on **machine learning algorithms**.
- Data visualization.

Academic appointment

Beijing Sport university
Beijing, China

Teaching Assistant
Oct 2023 - Nov 2023

- **Course name:** Sports Performance Data Analysis
- **Teacher:** Prof. Miguel Ángel Gómez Ruano

Beijing Sport university
Beijing, China

Teaching Assistant
Feb 2023 - Jun 2023

- **Course name:** Multivariate Statistical Analysis
- **Teacher:** Dr. Kuiying Deng

Beijing Sport university
Beijing, China

Teaching Assistant
Sept 2022 - Dec 2022

- **Course name:** Probability Theory and Mathematical Statistics
- **Teacher:** Dr. Kuiying Deng

Skills

Programming Python, Matlab, SPSS, R.
Miscellaneous LaTeX, Origin, GraphPad Prism, Microsoft Office.
Language Mandarin(Native), English.

Interests

Basketball
Football
Tennis
Swimming
Combat Brazilian Jiu-Jitsu, Filipino martial arts and Tai Ji