

## EDUCATION

### Lanzhou University

*School of Information Science & Engineering*

Lanzhou, GS, CHN

Sept. 2021 - Jul. 2025

- *Candidate* for B.E. in Computer Science and Technology.
- GPA: 3.45/5.00, Average Score: 85.60/100.
- Project 985, Double First Class (Type A).

## AWARDS

### Meritorious Winner of 2023 Mathematical Contest in Modeling

*Consortium for Mathematics and its Applications (COMAP)*

May 2023

- Award rate < 6.67%.
- Explained the results by building an LSTM model and comparing it with machine learning models (MLP, LR, DT, RF, LGBM, XGBoost).
- Determined the interval of the predicted values with the t-distribution with 95% confidence intervals.
- Predicted the distribution of reported results by GRNN and BPNN.
- Used K-means and DNN for the classification task.
- As the team leader, initially familiarized with the relevant knowledge in the field of statistics, artificial intelligence, the basic theoretical knowledge of machine learning and deep learning projects, developed a certain interest in the application of artificial intelligence.

### First Prize of 2023 Lanzhou University Mathematical Modelling Competition and Selection Competition for 2023 China/Contemporary Undergraduate Mathematical Contest in Modeling

*School of Mathematics and Statistics of Lanzhou University*

Jul. 2023

- Award rate < 8%.
- Derived the mathematical model of coverage width of multibeam bathymetry and the overlap rate between neighbouring strips. Proved the best direction for survey lines is parallel to the isobath direction in the design of survey lines in rectangular sea areas.
- Used the greedy algorithm to obtain the optimal layout of survey lines and verified the solution results by simulated annealing.
- Divided the sea area by isobaths and laid the survey lines in different areas.
- Based on the least-squares method to fit the the divided areas and solved the slope equations by the particle swarm algorithm. Established a single-objective optimisation model and solved by the greedy algorithm.
- As the team leader, earned the opportunity to compete in the China/Contemporary Undergraduate Mathematical Contest in Modeling (CUMCM) and trained as the top team for the summer intensive program.
- Initially acquainted with the relevant knowledge of operations research, showed some interest in the application of optimization algorithms and the application of numerical simulation.

## RESEARCH INTERESTS

### Artificial Intelligence and Data Science

- **Applications:** leveraging machine learning models to forecast future trends based on historical data; using AI to analyze and interpret human language for applications such as sentiment analysis or chatbots; applying computer vision techniques to recognize and categorize images or video content; utilizing algorithms to suggest products or content to users based on their behavior and preferences; identifying unusual patterns or outliers in data, which can be crucial for fraud detection or system monitoring.
- **Theory:** Machine Learning, Deep Learning, Bayesian Inference, Reinforcement Learning, Data Mining.

RESEARCH PAPERS	<ol style="list-style-type: none"> <li>1. Shouxu Zhi, <b>Shengjie Xia</b>, Rongrong Shi. Multibeam Line Design Modeling Approach Incorporating a Priori Seabed Topographic Information. <i>Hydrographic Surveying and Charting (A Chinese core Journal on Geodesy)</i>, 2024. (Accepted, in Chinese manuscript)</li> <li>2. <b>Shengjie Xia</b>. Machine learning and deep learning-based sentiment analysis of IMDB user reviews. <i>Applied and Computational Engineering</i>, Vol. 53, pp. 113-125.</li> <li>3. <b>Shengjie Xia</b>. Sailboat price prediction based on statistical and machine learning methods. <i>Proceedings of the 2024 Guangdong-Hong Kong-Macao Greater Bay Area International Conference on Digital Economy and Artificial Intelligence</i>, pp. 349-354, 2024.</li> <li>4. Zichen Song, Ziyang Chen, <b>Shengjie Xia</b>. Novel Regularization Method Exploiting Mutual Information for Deep Neural Networks. <i>2023 2nd International Conference on Robotics, Artificial Intelligence and Intelligent Control (RAIIC)</i>, pp. 329-333. IEEE, 2023.</li> </ol>
INVENTION PATENTS	<ol style="list-style-type: none"> <li>1. Shouxu Zhi, <b>Shengjie Xia</b>, Shuyu Wang, Yuhao Wang, Chengxuan Tian. <i>Method, apparatus, electronic device and storage medium for processing mathematical models</i> (CN Patent No. ZL 2024 1 0166444.6). China National Intellectual Property Administration (CNIPA), 2024.</li> <li>2. Shouxu Zhi, <b>Shengjie Xia</b>, Shuyu Wang, Yuhao Wang, Chengxuan Tian. <i>Methods, devices, equipment and media for the design of measurement wiring for multibeam measurement vessels</i> (CN Patent No. ZL 2024 1 0160915.2). China National Intellectual Property Administration (CNIPA), 2024.</li> </ol>
SOFTWARE COPYRIGHTS	<ol style="list-style-type: none"> <li>1. <b>Shengjie Xia</b>. <i>World Cup Event Query System Based on Python and C/S Architecture V1.0</i> (CN Software No. 2024SR1199097). National Copyright Administration of the People's Republic of China (NCAC), Aug. 2024.</li> </ol>
SKILLS	<p><b>Languages:</b> Mandarin (Native), English (Conversant, IELTS: 6/9, CET-6: 510/710).</p> <p><b>Programming:</b> Python, SQL, TeX, Java, C/C++, MATLAB, R, JavaScript, Common LISP.</p> <p><b>Developing:</b> Anaconda, Visual Studio Code, VMware Workstation Pro, Linux OS.</p> <p><b>Frameworks:</b> Hadoop, Spark, Vue, Flask, Qt, Docker, Kubernetes, Open-Stack, Ceph.</p> <p><b>Tools:</b> Pandas, Matplotlib, TensorFlow, PyTorch, Requests, Selenium, Scikit-learn.</p>

## Real-Time Multimodal Emotion Recognition

*tutored by Kun Zhan*

1<sup>st</sup> Mar. 2024 - 13<sup>rd</sup> Jul. 2024

- Implemented an integrated model that processes text, audio, and video inputs, offering a platform for job seekers for emotional and personality traits analysis to preset questions.
- Combined some feature dimensionality reduction methods (e.g. PCA), followed by comparing the traditional machine learning (e.g. SVM, Polynomial Naive Bayes) with deep learning methods (e.g. 1D-CNN, LSTM, CNN-LSTM) and by transforming the model architecture of the neural network (e.g., designing LFLB, DSCB, Xception).
- Employed data preprocessing and modeling methods, optimized hyperparameters, and successfully secured and saved the optimal model.
- Constructed web pages using Python's Flask framework for real-time assessment of user's emotional or personality traits, featuring dedicated pages for user evaluation.

## Fruits-360 Challenge

*tutored by Mark Vogelsberger*

5<sup>th</sup> Aug. 2023 - 26<sup>th</sup> Aug. 2023

- Designed and implemented Python and Tensorflow based deep learning models for fruit recognition and classification tasks.
- Used Python for object-oriented programming, data analysis, and data visualization.
- Modeling using AlexNet and MobileNet with test sets and visualization of results.
- Self-study of AlexNet and MobileNet neural network implementations and Data Augmentation techniques.
- Prepare presentations, create slides, prepare illustrations, and scripts.

## Pegasus Planet Bank Microsystem Design and Development

*tutored by Jun Ma*

14<sup>th</sup> May 2024 - 14<sup>th</sup> Jul. 2024

- Built the main code based on C/S architecture and performed server-side debugging using a cloud server.
- Used the AWT package for Java to design the client-side graphical interface. Establishing communication with the server via TCPsocket and set thread locks on the server side via the synchronized keyword.
- Went with itextpdf, jxl, mysql-connector-java three third-party libraries to generate pdf documents, read and write xls files and database connection.
- Self-study of MySQL installation and program compilation in cloud servers.

## World Cup 2022 Tournament Query System

*tutored by Aiping Yao*

11<sup>st</sup> Dec. 2022 - 17<sup>th</sup> Jan. 2023

- Designed and implemented a tournament query platform, including client-side and server-side, for World Cup viewers and administrators to query and update tournament information.
- Designed a web application based on C/S architecture using Python and various technologies to implement crawling, storing and client-side CRUD functions for tournament information, improving response speed and network communication.
- Practiced Python's multi-threading, OOP, string manipulation, custom functions, network communication, web crawling and data storage, and studied independently Selenium web crawler and PyQt GUI design.
- Deepen the understanding of graphical interface design, web crawler, network transmission, multi-threading and OOP, improve the understanding of the application of Python in the real industrial world, and stimulate the enthusiasm of programming.

OPERATIONAL EXPERIENCE	<b>Linux From Scratch (LFS)</b> <i>tutored by Li Liu</i>	26 <sup>th</sup> Feb. 2024 - 24 <sup>th</sup> Mar. 2024
	<ul style="list-style-type: none"> <li>• Compiled and installed a Linux kernel.</li> <li>• Mastered the compilation and installation of git and make commands.</li> <li>• Understood the basic operation of the Linux system, shell and C programming.</li> <li>• Got to GDB debugging methods.</li> </ul>	
	<b>Web Checkerboard Game</b> <i>tutored by Philip Moore</i>	11 <sup>st</sup> Oct. 2021 - 11 <sup>st</sup> Nov. 2021
	<ul style="list-style-type: none"> <li>• Set up the logic for random moves.</li> <li>• Gained knowledge of how to use JavaScript to manipulate HTML elements to dynamically update page content and styles.</li> <li>• Learned how to design and implement simple game logic, including the management of board state, writing game rules, and handling movement logic.</li> </ul>	
INTERNSHIPS	<b>iFLYTEK Co., Ltd.</b>   Hefei, AH, China	1 <sup>st</sup> Feb. 2024 - 23 <sup>rd</sup> Feb. 2024
	<ul style="list-style-type: none"> <li>• Analyzed market trends to understand user needs and industry dynamics, providing data support for product strategy.</li> <li>• Assisted in conducting product promotion activities, including planning, execution, and effect evaluation, to enhance product visibility and user activity.</li> <li>• Worked closely with the development team to track product development progress, ensuring that product quality and launch time meet expectations.</li> </ul>	
	<b>Tencent Music Entertainment Group</b>   Shenzhen, GD, China	Sept. 2023 - Dec. 2023
	<ul style="list-style-type: none"> <li>• Responsible for evaluating the personalized music recommendation module, participating in the research and evaluation of recommendation results.</li> <li>• Listened to QQ Music's recommended playlists, providing evaluations and research on the recommended results.</li> <li>• Conducted analysis on the effectiveness of the recommendations, providing corresponding suggestions and feedback.</li> <li>• Enhanced my understanding of personalized recommendation products from the perspective of user needs, sparking a strong interest in the field of personalized recommendations.</li> </ul>	
	<b>GuoYuan Securities Co.,Ltd.</b>   Hefei, AH, China	4 <sup>th</sup> Aug. 2023 - 30 <sup>th</sup> Aug. 2023
	<ul style="list-style-type: none"> <li>• Financial research and analysis: such as tracking market trends and making financial models.</li> <li>• Comprehensive reports: such as compiling data and presenting findings in a clear and concise manner.</li> <li>• Operations support: such as assisting administrative work, project management, and liaising with other departments to ensure smooth operations.</li> <li>• Customer service: such as responding to customer inquiries, providing information about products or services, and keeping customer satisfaction.</li> </ul>	
HONORS	<b>Outstanding Achievement &amp; Outstanding Team of 2022 Lanzhou University Summer Social Practice</b>	
	<i>Lanzhou University Committee of the Communist Youth League of China</i>	Dec. 2022
	<b>Outstanding Project of 2021 Lanzhou University Ambassador School Tour</b>	
	<i>Lanzhou University Admission Office</i>	Apr. 2022
	<b>Lanzhou University Qiyun International Relations Association Medal of Honor</b>	
	<i>School of Politics and International Relations Committee of the Communist Youth League of China</i>	10 <sup>th</sup> Jun. 2023

CAMPUS EXPERIENCES	<b>Lanzhou University Open Source Society</b> <i>Member</i>	Nov. 2022 - present
	<ul style="list-style-type: none"> <li>• Responsible for the basic preparation for the maintenance of university open source community mirror station.</li> <li>• Understand the operation of Linux operating system, and install Arch Linux operating system.</li> <li>• Deeply realize the meaning of open source community and the spirit of open source.</li> </ul>	
	<b>Lanzhou University Qiyun International Relations Association</b> <i>Head of Publicity and Technology Dept.</i>	Sept. 2023 - Jul. 2024
	<ul style="list-style-type: none"> <li>• Responsible for the publicity and development work of the association.</li> <li>• Mastered image processing and video editing.</li> <li>• Explored the development and numerical design of strategy games, and successfully organized the Third Simulated Diplomat Forum and the Third Strategy Simulation Challenge of Lanzhou University.</li> </ul>	
	<b>Beijing International Model United Nations Conference 2024</b> <i>UK Delegate to the United Nations Security Council</i>	23 <sup>rd</sup> May 2024 - 26 <sup>th</sup> May 2024
	<b>Topic:</b> Discussion on the Extension of the Multinational Security Support (MSS) Mission in Haiti. <ul style="list-style-type: none"> <li>• Actively engaged in consultations and organized resolution writing.</li> <li>• Involved in the settlement of international disputes and made speeches to clarify position.</li> <li>• Improved oral expression and document writing skills.</li> </ul>	
	<b>Lanzhou University Western Sky Association</b> <i>Volunteer</i>	1 <sup>st</sup> Aug. 2022 - 31 <sup>st</sup> Aug. 2022
	<ul style="list-style-type: none"> <li>• Conducted popularization of scientific knowledge and teaching activities in elementary school in remote areas.</li> <li>• Psychological counseling to strengthen the bond between children and parents.</li> <li>• Deepened understanding of the current state of education and economic development in China.</li> <li>• Improved interpersonal skills and brought more attention to vulnerable groups and social problems in remote areas.</li> </ul>	
SELF-STUDIES CERTIFICATIONS	• <b>DataCamp, Inc.:</b> Cluster Analysis in R	17 <sup>th</sup> Jun. 2024
	• <b>DataCamp, Inc.:</b> String Manipulation with stringr in R	12 <sup>th</sup> Jun. 2024
	• <b>DataCamp, Inc.:</b> Introduction to Regression in R	5 <sup>th</sup> Jun. 2024
	• <b>DataCamp, Inc.:</b> Introduction to the Tidyverse	25 <sup>th</sup> May 2024
	• <b>DataCamp, Inc.:</b> Introduction to Data Visualization with ggplot2	21 <sup>st</sup> May 2024
	• <b>DataCamp, Inc.:</b> Introduction to R	21 <sup>st</sup> May 2024
WORK CERTIFICATES	1. <b>Shengjie Xia.</b> <i>Frontier Miscellanies</i> (CN Work No. 2024-A-00228219). National Copyright Administration of the People's Republic of China (NCAC), Aug. 2024.	
	2. <b>Shengjie Xia.</b> <i>Preface to the Crisscrossing World</i> (CN Work No. 2024-A-00231508). National Copyright Administration of the People's Republic of China (NCAC), Aug. 2024.	

PASSIONS

- **Reading and Writing:** Published prose works in Lanzhou University Newspaper Court page
- **Sports:** Passionate about badminton and cycling
- **Adventurous Innovation:** I've ridden long distances for 50 kilometers, also attempted to climb the back of my school's mountain unassisted and succeeded, and manually installed several different types of operating systems.
- **International Affairs:** Actively participate in Model United Nations activities to broaden international perspective

ACADEMIC	<b>Institute of Electrical and Electronics Engineers (IEEE)</b>	
MEMBERSHIPS	<i>Membership ID: 99529660</i>	Aug. 2023 - present
	<b>Association for Computing Machinery (ACM)</b>	
	<i>Membership ID: 4782046</i>	Sept. 2024 - present
	<b>China Computer Federation (CCF)</b>	
	<i>Membership ID: V3345G</i>	Sept. 2024 - present