Zixuan ZHANG

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EDUCATION

Chengdu University of Technology, China **09/2022 - 06/2025**
Master's Degree in Management Science and Engineering

- **GPA: 90.3/100. Rank: 3/23**
- **Core Modules:** Big Data and Artificial Intelligence (90), Topics in Decision Research (89), Game Theory (90), Management Economic Analysis (89), Scientific and Technical English Reading and Writing (92), Machine Learning and Decision Analysis (89), Frontiers of Modern Management Science (80), Nonparametric Analysis on Efficiency and Productivity (95).

Chengdu University of Traditional Chinese Medicine, China **09/2018 - 06/2022**
Bachelor's Degree in Medical Information Engineering

- **GPA: 3.39/4.0. Rank: 12/120**
- **Core Modules:** C Language Programming (83), Advanced Mathematics (88), Database System Design and Programming (85), JAVA Language Programming (83), Engineering Linear Algebra (87.8), Python Language Programming (91.6), Fundamentals of Information Management (88.2).

MANUSCRIPTS

[1]. **Zhang, Z.,** Wang, L., Li, Y., Shen, Z. (2024, Submitted). Assessment and Determinants of Agricultural Plant Capacity Utilization in China: A Carbon Emission Perspective. *European Journal of Operational Research.* **(SCI, IF=6.4, Q1 TOP)**

[2]. Sun, L., **Zhang, Z.*** (2024, Submitted). Implications of supplier encroachment for strategies in upgraded products introduction. *Transportation Research Part A: Policy and Practice*. **(SCI, IF=6.4, Q1 TOP)**

[3]. **Zhang, Z.,** Li, Y., Lv, Y., Feng, X., & Chen, X. (2024, Under Revision). Comprehensive Evaluation of "Three Waters" Carrying Capacity and Path Evolution Study: A Case of the Yellow River Basin. *Science of The Total Environment.* **(SCI, IF=9.8, Q1 TOP)**

[4]. Wang, L., **Zhang, Z.,** Chen, X. (2024, Submitted). The effect of self-congruity on brand personality appealing in retailing: comparing online store and physical store. *Journal of Business Research.* **(SCI, IF=11.3, Q1 TOP)**

[5]. Li, Y., **Zhang, Z.,** Zhang, Q., Feng, X., & Chen, X. (2024, Under Review). Research on Optimized Allocation of Wastewater Emission Permits Based on the "Three Waters": a case of the Yellow River Basin in China. *Journal of Environmental Management.* **(SCI, IF=8.7, Q2 TOP)**

[6]. Yang, S., **Zhang Z.,** Yu, K., Li, Z. (2023, Under Revision) Analysis on the coupling coordination characteristics and key factors between high-quality economic development and water resource carrying capacity for cities in the Yangtze River Basin. *Sustainable Cities and Society*. **(SCI, IF=11.7, Q1 TOP)**

PUBLICATIONS

[1]. Li, Y., Lv, Y., **Zhang, Z.,** Feng, X., & Chen, X. (2024). Coupling coordination evaluation of the "Three Waters" system and impulse response analysis in the Yellow River Basin. *Sustainable Cities and Society*, 102, 105174. **(SCI, IF=11.7, Q1 TOP)** https://doi.org/10.1016/j.scs.2024.105174.

[2]. Lv, Y., Li, Y., **Zhang, Z.,** Luo, S., Feng, X., & Chen, X. (2024). Spatio-temporal evolution pattern and obstacle factors of water-energy-food nexus coupling coordination in the Yangtze River economic belt. *Journal of Cleaner Production*, 141229. **(SCI, IF=11.1, Q1 TOP)** https://doi.org/10.1016/j.jclepro.2024.141229.

[3]. Yuan, M., Li, Y., **Zhang, Z.,** Wang, L., & Chen, X. (2023). Collaborative optimal allocation of water resources and sewage discharge rights in watershed cities: considering equity among water sectors. *Environmental Science and Pollution Research*, 30(38), 88949-88967. **(SCI, IF=5.19, Q2)** https://doi.org/10.1007/s11356-023-28664-w.

RESEARCH EXPERIENCE

Implications of Supplier Encroachment for Strategies in Upgraded Products Introduction **2/2024 – Present**

Supervisor: Dr. Wei Yan, University of Electronic Science and Technology of China, China.

- Explored the impact of supplier encroachment on manufacturers' incentives for upgraded product introduction in dual-channel supply chains, emphasizing strategic challenges from internal competition.
- Developed a dual-channel model to analyze vertical and horizontal competition effects on product upgrading strategies, revealing that retailer presence diminishes manufacturers' upgrade incentives.
- Offered insights into how internal supply chain competition can pose unique strategic challenges for product upgrading compared to external market competition.

Output: Authored and submitted a manuscript as corresponding author to the Transportation Research Part A: Policy and Practice. (Under Review).

Assessment and Determinants of Agricultural Plant Capacity Utilization in China: A Carbon Emission Perspective **12/2023 – Present**

Supervisor: Dr. Zhiyang Shen, IESEG School of Management, France

- Extended the PCU model with undesirable outputs to a novel input and output-oriented long-run PCU measurement with by-product technology.
- Introduced an environmental PCU measure to capture the possible capacity of economic growth and pollution control.
- Explored factors influencing agricultural production efficiency using panel regression models, revealing the mechanisms behind their impacts.

Output: Authored and submitted a manuscript as first author to the European Journal of Operational Research. (Under Review).

Comprehensive Evaluation of "Three Waters" Carrying Capacity and Path Evolution Study: A Case of the Yellow River Basin **12/2023 – 04/2024**

Supervisor: Dr. Xudong Chen, Chengdu University of Technology, China.

- Developed a comprehensive assessment index system for the carrying capacity of the "Three Waters" system based on water resources, water environment, and water ecology.
- Implemented the entropy weight-TOPSIS method, System Comprehensive Index Evaluation (SCIE), and ArcGIS tools to calculate the comprehensive evaluation index of the Yellow River Basin's "Three Waters" system carrying capacity.
- Designed four different development pathways, and dynamic simulations and evaluations of the carrying capacity trends in the Yellow River Basin from 2020 to 2035 were conducted using System Dynamics (SD) models.

Output: Authored and submitted a manuscript as first author to the Science of The Total Environment (Revise Complete).

Optimized Allocation of Wastewater Emission Permits Based on the "Three Waters": A Case Study of the Yellow River Basin **12/2023 – 04/2024**

Supervisor: Dr. Xudong Chen, Chengdu University of Technology, China.

- Constructed a multi-objective optimization model aiming to maximize fairness in pollution rights allocation, minimize basin sewage discharge, and maximize the "Three Waters" Carrying Capacity (TWCC).
- Based on the water environmental status index, water resource utilization index, and water ecological service index, a mechanism for allocating basin ecological compensation funds was established to promote ecological conservation through economic incentives.
- Applied the improved Non-dominated Sorting Genetic Algorithm II (NSGA-II) and TOPSIS decision theory to solve multi-objective optimisation problems.

Output: Contributed as second author to a manuscript submitted to the Journal of Environmental Management (Under Review).

ACADEMIC PROJECTS

Research on Key Issues and Paths for Systemic Transformation in Sichuan Province under the Dual Carbon Goal. **01/2024 - 12/2025**

Core Member; Supervisor: Dr. Xudong Chen, Vice President of the College of Management Science.

- Collected and organized data from 2018 to 2022, including population, economic, and eight types of energy consumption data in Sichuan Province.
- Utilized the IPCC carbon emission calculation method to quantify carbon emissions in Sichuan Province from 2018 to 2022.
- Developed a model for decomposing carbon emission driving factors and applied the Logarithmic Mean Divisia Index (LMDI) method to analyze the contribution and trends of various factors to carbon emissions.
- Drafted Chapter Four of the project proposal, involving tasks such as table generation, data analysis, and technical roadmap creation.

Achievements: Completed a project proposal and secured funding from the Sichuan Provincial Natural Science Foundation.

Study of the Allocation Strategy of Water Pollutant Emission Permits in Tuojiang River Basin by Coordinating Water Resources, Water Environment and Water Ecological Management.

06/2023 - 12/2024

Core Member; Supervisor: Xue Feng, Deputy Sector Chief of the College of Management Science.

- Conducted literature review on three water systems, ecological compensation, and pollutant emission permits.
- Collected and cleaned data for 17 years from six major cities in the Tuojiang River Basin.
- Proposed integrating bidirectional ecological compensation mechanism with water pollutant emission permits allocation model.
- Assisted in drafting the research results section and project report.

Achievements: Published a paper (co-author) - Feng, X., Li, Y., Chen, X., Lv, Y., **Zhang, Z.,** & Chen, S. (2023). Study of the allocation strategy of water pollutant emission permits under a bidirectional ecological compensation mechanism. *Ecological Indicators*, 154, 110849.

Research of the Allocation Strategy of Water Pollutant Emission Permits Considering Ecological Compensation Mechanism Driven by Big Data - Taking Tuojiang River Basin as an Example.

11/2022 - 12/2024

Core Member; Supervisor: Dr. Xudong Chen, Vice President of the College of Management Science.

- Conducted a literature review on big data analytics, ecological compensation, and pollutant emission permits, outlining the research framework and drawing a technical roadmap.
- Assisted in developing a data-driven optimization scheme for pollutant emission permits, designing a non-dominated sorting genetic algorithm based on data analysis, and creating algorithm flowcharts.
- Contributed to the writing of the research report, including the use of ArcGIS and Origin software for data analysis visualization., table creation, and writing the conclusion section of the paper.

Achievements: Published a paper (co-author) - Li, Y., Chen, X., Feng, X., Lv, Y., **Zhang, Z.,** & Qi, Q. (2023). Investigation of the allocation and trading strategy of wastewater emission permits considering ecological compensation. Environmental Technology & Innovation, 30, 103103.

Chronic Gastritis AI Data Mining and Processing (undergraduate project). **03/2021 - 06/2021**

Team Leader; Supervisor: Chuanbiao Wen, Vice President of the College of Medical Information Engineering.

- Conducted literature review on chronic gastritis pathology and AI data analysis, identifying research gaps.
- Collected and anonymized data from 210 chronic gastritis cases.
- Utilized SPSS for statistical data analysis and Origin for data visualization.
- Coordinated team tasks, supervised team members, and conducted weekly work progress presentations.

Achievements: (1) Co-authored a project proposal. (2) Awarded the National-level First Prize in the 14th China Collegiate Computing Design Competition.

HONOURS & AWARD

Competitions and Awards

- Excellent Award in China National Undergraduate “Innovation, Creativity and Entrepreneurship” Challenge
  06/2021 - 10/2021
- National-level First Prize (Top 5%) in the 14th Chinese Collegiate Computing Competition (Team Leader)
  05/2021 - 08/2021
- Provincial-level Second Prize (Top 20%) in the 14th Chinese Collegiate Computing Competition (Team Leader)
  03/2021 - 05/2021

Honours

- Third-Class Graduate Academic Scholarship 09/2023
- Technological Innovation Scholarship 09/2021
- Second-Class College Academic Scholarship 05/2021
- Third-Class College Academic Scholarship 12/2020
- Third-Class College Academic Scholarship 06/2020
- Second-Class College Academic Scholarship 09/2019

ADDITIONAL INFORMATION

Skills: GIS, MATLAB, Python, Stata, EViews, Maple, Origin, SPSS, Microsoft Office
Language: Mandarin (Native), English (Proficient)