Zixuan Zhang

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EDUCATION

University of Freiburg, Germany **08/2024 - 04/2025**
Exchange Program in Environmental Sciences: Sustainability Assessment and Transformation

Chengdu University of Technology, China **09/2022 - 06/2025**
Master's Degree in Management Science and Engineering **GPA: 3.95/4.0**

Chengdu University of Traditional Chinese Medicine, China **09/2018 - 06/2022**
Bachelor's Degree in Medical Information Engineering **GPA: 3.39/4.0**

PUBLICATIONS

[1]. **Zhang, Z.,** Li, Y., Lv, Y., et al., 2024. Comprehensive Evaluation of "Three Waters" Carrying Capacity and Path Evolution Study: A Case of the Yellow River Basin. ***Science of The Total Environment.*** **(IF=9.8, JCR Q1 TOP)** https://doi.org/10.1016/j.scitotenv.2024.175464.

[2]. **Zhang, Z.,** Chen, X., Balezentis, T., et al., 2024. Capacity utilization and environmental impacts in: An empirical analysis of Chinese agriculture. ***Omega***. **(IF=6.4, JCR Q1 TOP)** (Minor Revision)

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

[4]. Yang, S., **Zhang Z.,** Yu, K., et al., 2024. 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***. **(IF=11.7, JCR Q1 TOP)** (Minor Revision)

[5]. Li, Y., **Zhang, Z.,** Zhang, Q., et al., 2024. 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***. **(IF=8.7, JCR Q2 TOP)** (Under Review)

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

[7]. Lv, Y., Li, Y., **Zhang, Z.,** et al., 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. **(IF=11.1, JCR Q1 TOP)** https://doi.org/10.1016/j.jclepro.2024.141229.

[8]. Yuan, M., Li, Y., **Zhang, Z.,** et al., 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. **(IF=5.19, JCR Q2)** https://doi.org/10.1007/s11356-023-28664-w.

RESEARCH EXPERIENCE

Comprehensive Evaluation of "Three Waters" Carrying Capacity and Path Evolution Study: A Case of the Yellow River Basin **12/2023 – 05/2024**

- Developed an evaluation index system for the carrying capacity of society- environment in the Yellow River Basin, utilizing System Comprehensive Index Evaluation, and ArcGIS tools to analyse spatiotemporal variations and provide early warning assessments.
- Employed System Dynamics (SD) modelling to project trends from 2020 to 2035 under four developmental pathways, offering strategic insights for sustainable basin management and integrated water system governance.

Capacity utilization and environmental impacts in: An empirical analysis of Chinese agriculture **03/2024 – 06/2024**

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

- Developed an extended Capacity Utilization (CU) model incorporating undesirable outputs and conducted panel

regression analysis using Stata, identifying significant provincial disparities in Chinese agriculture.
- Analysed key influences on CU, including environmental investment, urbanization, government support, and R&D, providing policy recommendations to enhance agricultural efficiency and sustainability.

Implications of Supplier Encroachment for Strategies in Upgraded Products Introduction **02/2024 – 06/2024**

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

- Analysed the impact of supplier encroachment on product upgrade incentives in a dual-channel supply chain, demonstrating that vertical competition from retailers reduces manufacturers' incentives to upgrade products.
- Provided strategic insights into the differing effects of vertical and horizontal competition within supply chains, highlighting key distinctions from external market competition.

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; Funded by the Sichuan Provincial Natural Science Foundation.

- Collected and organized comprehensive data from 2018 to 2022, including population, economic indicators, and various types of energy consumption, and quantified carbon emissions in Sichuan Province from 2018 to 2022 using the IPCC carbon emission calculation method.
- Developed a model to decompose carbon emission driving factors, applied the Logarithmic Mean Divisia Index (LMDI) method for analysis, and drafted Chapter Four of the project proposal, including data analysis and technical roadmap creation.

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; Funded by the Key Research Base of Humanities and Social Sciences.

- Conducted extensive literature review and collected 17 years of data from six major cities in the Tuojiang River Basin, focusing on three water systems, ecological compensation, and pollutant emission permits.
- Developed an integrated model combining bidirectional ecological compensation mechanisms with water pollutant emission permit allocation, and assisted in drafting the research results section and project report.

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; Funded by the Key Construction Project of Philosophy and Social Sciences.

- Conducted a comprehensive literature review on big data analytics, ecological compensation, and pollutant emission permits, outlining the research framework and developing a technical roadmap.
- Assisted in creating a data-driven optimization scheme for pollutant emission permits, designing non-dominated sorting genetic algorithms, and solving algorithms using MATLAB.
- Contributed to the research report by using ArcGIS and Origin software for data analysis and visualization, generating tables, and writing the conclusion section.

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.

- Led a team to review literature on chronic gastritis pathology, analyse data using SPSS and Python, visualize findings with Origin, and coordinated team tasks with weekly progress presentations.

HONOURS & AWARD

- Excellent Award in China National Undergraduate “Innovation, Creativity and Entrepreneurship” Challenge.
- National-level First Prize (Top 5%) in the 14th Chinese Collegiate Computing Competition (Team Leader).
- Provincial-level Second Prize (Top 20%) in the 14th Chinese Collegiate Computing Competition (Team Leader).
- Academic Excellence Scholarship (2019-2023), awarded consecutively for five years.

ADDITIONAL INFORMATION

Skills: GIS, MATLAB, Python, Stata, R language, Mathematica, SPSS, SAS, Microsoft Office.

Language: Mandarin (Native), English (Proficient).