Zixuan Zhang

Email Address: zixuanzhang0120@outlook.com | Phone Number: +49 1636284797

EDUCATION

Chengdu University of Technology, China   **09/2022 - 06/2025**
Master's Degree in Management Science and Engineering   GPA: 3.95/4.0
Thesis: *Comprehensive Evaluation and Simulation Prediction of the "Three Waters" Carrying Capacity in the Yellow River Basin*

University of Freiburg, Germany   **10/2024 - 04/2025**
Visiting Student in Environmental Sciences: Sustainability Assessment and Transformation

Chengdu University of Traditional Chinese Medicine, China   **09/2018 - 06/2022**
Bachelor's Degree in Medical Information Engineering   GPA: 3.39/4.0
Thesis: *Analysis of Traditional Chinese Medicine Prescription Patterns in the Treatment of Diabetes*

Chengdu Yulin Middle School, China   **09.2015一06.2018**

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.* 951,175464. https://doi.org/10.1016/j.scitotenv.2024.175464.

[2]. Yang, S., Li, Z., **Zhang, Z.,** et al.,2025. Coordinating high-quality economic development and water resources carrying capacity in the Yangtze River Basin cities: Achieving sustainable development goals. Journal of Hydrology: Regional Studies, 60, 102502. https://doi.org/10.1016/j.ejrh.2025.102502.

[3]. 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. https://doi.org/10.1016/j.scs.2024.105174.

[4]. 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. https://doi.org/10.1016/j.jclepro.2024.141229.

[5]. 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. 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: 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.

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.

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, Mathematica, SPSS.

Language: Mandarin (Native), English (IELTS: 6).