Xinyi Wang

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Education

IGSNRR, University of Chinese Academy of Sciences (CAS) *Beijing, China*

Master in Geographical Information Science *Sep. 2022-Jun. 2025 (expected)*

- **Supervisors:** Prof. Fenzhen Su, Assoc. Prof. Fengqin Yan
- **GPA: 3.78/4.0** (no ranking)

Zhengzhou University *Zhengzhou, China*

Bachelor in Geographical Information Science *Sep. 2018-Jun. 2022*

- **Supervisor:** Dr. Xinjia Zhang
- **GPA: 3.74/4.0** (**Ranking: 2/58**)

Research Interests

- Ecological remote sensing and carbon cycle.
- Applications of artificial intelligence techniques in ecology and remote sensing.
- Ecosystem Services and landscape changes.

Research Experience

Inversion of Key Process Parameters in Regional Ecosystems Core member

Led by Assoc. Prof. Fengqin Yan of IGSNRR, CAS. *Dec. 2023-Present*

- Integrated existing cloud cover scalar and environmental remote sensing variables using machine learning to improve solar radiation estimation in the traditional Light Use Efficiency (LUE) model.
- Designed a deep learning-based methodology to estimate Solar-Induced Fluorescence (SIF) data, improving the capture of variable factor characteristics and utilizing the high temporal resolution of meteorological satellites to reconstruct spatiotemporally continuous SIF datasets.
- Currently organizing experimental results and preparing manuscripts.

Optimization and Regulation of Sea-Land Scenarios in the Guangdong-Hong Kong-Macao Greater Bay Area under High-Intensity Perturbations Core member

Led by Prof. Fenzhen Su of IGSNRR, CAS. *Jan. 2021-Jun. 2023*

- Analyzed the impact of rapid urbanization on regional habitat using the Integrated Valuation of Ecosystem Services and Tradeoffs (InVEST) model and geographically weighted regression, focusing on spatial driving mechanisms in a large coastal urban agglomeration.
- Integrated the System Dynamics (SD) model and Future Land Use Simulation (FLUS) model to simulate land use patterns under different scenarios for a rapidly urbanizing coastal city in southern China. This approach allowed for the analysis of dynamic changes in urban ecological security patterns across temporal and spatial dimensions.
- Developed a Matlab program based on the circuit theory model to analyze the effectiveness of conservation policies in maintaining urban ecological network stability under landscape fragmentation, assessing the potential impact of future urban development on landscape connectivity.
- Used bibliometric analysis to summarize spatial allocation approaches in coastal zones and analyzed the challenges of integrated management in the context of climate change.

Intelligent Technology for Early Warning of Security Situations in Key Border and Sea Areas

Led by Assoc. Prof. Fengqin Yan of IGSNRR, CAS. *Dec. 2022-Present*

- Collected and analyzed global sea surface height, wave flux and meteorological datasets.

- Constructed regression models to analyze the drivers of suspended particulate matter in global offshore waters.

Publications

[1] **Xinyi Wang**, Fenzhen Su, Xuege Wang, Tingting Pan, Yikun Cui, Lyne Vincent, Fengqin Yan*. Adaptive Integrated Coastal Zone Planning: History, Challenges, Advances, and Perspectives. *Chinese Geographical Science*, 2024, 34(4): 599-617. doi: 10.1007/s11769-024-1440-y.

[2] **Xinyi Wang**, Fenzhen Su, Fengqin Yan*, Xinjia Zhang, Xuege Wang. Effects of Coastal Urbanization on Habitat Quality: A Case Study in Guangdong-Hong Kong-Macao Greater Bay Area. *Land*, 2023, 12(1), 34. doi: 10.3390/land12010034.

[3] **Xinyi Wang**, Fenzhen Su, Fengqin Yan*, Vincent Lyne, Yikun Cui, Bin He, Rong Fan. Future Challenges to Current Policies for Low-Carbon Urban Expansion. 2024. (*submitted to Sustainable Future*)

[4] Jiaojie Zhang, Fengqin Yan, Fenzhen Su, Vincent Lyne, Xuege Wang, **Xinyi Wang**. Response of habitat quality to land use changes in The Johor River Estuary. *International Journal of Digital Earth*, 2024, 17(1). doi: 10.1080/17538947.2024.2390439.

Working Experiences

Teaching Assistant Zhengzhou University of Earth Science and Technology

Course: GIS Spatial Analysis *Sep. 2021-Jun. 2022*

- Connected with the professor and organized the teaching material.
- Attended weekly TA classes and provided students with detailed feedback and guidance to help them understand complex concepts.
- Provided personalized feedback on assignments and projects, and assisted in examination materials preparation and grading.

Director Zhengzhou University of Earth Science and Technology

Academic Innovation Department of the Student Union *Sep. 2020-Jun. 2021*

- Organized academic seminars and built an online platform for integrating academic resources.
- Spearheaded the organization of academic seminars that brought together students, faculty, and industry experts to discuss recent trends in geographical sciences.

Honors and Awards

- Meritorious Winner (Second Prize), Mathematical Contest in Modeling *2021*
- First Prize, Provincial Level, Chinese Mathematics Competition *2019*
- Outstanding Graduate, Zhengzhou University *2022*
- Merit Student, Zhengzhou University (Top 1%) *2018-2022*
- First-Class Scholarship for Outstanding Students, Zhengzhou University (Top 5%) *2018-2022*

Language and Skills

Language: IELTS 7.0 (Reading:8.5, Writing:6.5).

Skills:

- **QGIS:** Spatial data analysis and visualization.
- **Python/Matlab:** Data analysis, model construction and evaluation (deep learning).
- **ENVI/Google Earth Engine:** Processing and analysis of remote sensing images.
- **SPSS/Lingo/Origin/Vensim:** Data visualization, statistical analysis, and dynamics simulation.
- **MySQL:** Management of spatial databases.

Other:

- **Association of Chartered Certified Accountants (ACCA) Qualification:** Passed 4/14.