JIAPEI WU

+(86) 15885886719 ⋄ E-mail:wujiapei22@mails.ucas.ac.cn

EDUCATION

University of Chinese Academy of Sciences, Institute of geographic sciences and natural resource research
M.Phil. Cartography and Geography Information System| GPA:3.72/4.0 Expected June,2025
Relevant Coursework: Geospatial Statistics and Modelling, Remote sensing intelligent computing and information extraction, Theory and Application of Ecological Informatics, Foundations and Trends in Causal Inference, etc.

Sun Yat-sen University
B.S. Geographic information science| GPA:3.7/4.0 Sep,2018 - Jul,2022
Relevant Coursework:Spatial analysis, Computer graphics, GIS Software Engineering, Advanced Mathematics, etc.

RESEARCH INTERESTS

Ecosystem resilience, Global climate change, Applications of Remote Sensing and GIS, Causal inference.
I focus on the application of causal inference methodologies to evaluate the effects of global change and climate extremes on the resilience of natural ecosystems.

PAPERS & PUBLICATIONS

1. **Jiapei Wu**, Yuke Zhou*, Yong Ni, Junfu Fan, Q.K. Zhao*, 2024. Hydrometeorological and Temperature Conditions Dominate Vegetation Resilience Dynamics in China: An empirical study from causal perspective. (In preparation)

2. **Jiapei Wu**, Yuke Zhou*, Han Wang, Xiaoying Wang, jiaojiao Wang , 2023. Assessing the Causal Effects of Climate Change on Vegetation Dynamics in Northeast China Using Convergence Cross-Mapping. *IEEE Access,* 11, 115367-115379, **http://dx.doi.org/10.1109/ACCESS.2023.3325485**.

3. Chunxiao Wang, Lu Liu, Yuke Zhou, Xiaojuan Liu, **Jiapei Wu**, Wu Tan, Chang Xu, Xiaoqing Xiong*, 2024. Comparison between Satellite Derived Solar-Induced Chlorophyll Fluorescence, NDVI and kNDVI in Detecting Water Stress for Dense Vegetation across Southern China. *Remote Sensing*, 16(10), 1735. **https://doi.org/10.3390/rs16101735**.

4. Han Wang, Yuke Zhou*, **Jiapei Wu**, Chunxiao Wang*, Ruixin Zhang, Xiaoqing Xiong, Chang Xu, 2023. Human activities dominate a staged degradation pattern of coastal tidal wetlands in Jiangsu province, China. *Ecological Indicators*, 154, 110579. **https://doi.org/10.1016/j.ecolind.2023.110579**.

5. Chen Tianyu, Yuke Zhou*, Dan Zou, Jingtao Wu, Yang Chen, **Jiapei Wu**, and Jia Wang, 2023. Deciphering China's Socio-Economic Disparities: A Comprehensive Study Using Nighttime Light Data. *Remote Sensing* ,15, no. 18: 4581. **https://doi.org/10.3390/rs15184581**.

6. Dong Xiujuan, Yuke Zhou*, Juanzhu Liang, Dan Zou, **Jiapei Wu**, and Jiaojiao Wang, 2023. Assessment of Spatiotemporal Patterns and the Effect of the Relationship between Meteorological Drought and Vegetation Dynamics in the Yangtze River Basin Based on Remotely Sensed Data. *Remote Sensing* , 15, no. 14: 3641. **https://doi.org/10.3390/rs15143641**.

7. Yuxin Pan, Ren Yang*, Jianxiu Qiu, Jieyong Wang, **Jiapei Wu**, 2023. Forty-year spatio-temporal dynamics of agricultural climate suitability in China reveal shifted major crop production areas. *CATENA*, 226, 107073. **https://doi.org/10.1016/j.catena.2023.107073**.

8. Zhang Ruixin, Yuke Zhou*, Tianyang Hu*, Wenbin Sun, Shuhui Zhang, **Jiapei Wu**, and Han Wang, 2023. Detecting the Spatiotemporal Variation of Vegetation Phenology in Northeastern China Based on MODIS NDVI and Solar-Induced Chlorophyll Fluorescence Dataset. *Sustainability* ,15, no. 7: 6012. **https://doi.org/10.3390/su15076012**.

9. Yang Ren, Xiuli Luo, Qian Xu*, Xin Zhang, and **Jiapei Wu**, 2021. Measuring the Impact of the Multiple Cropping Index of Cultivated Land during Continuous and Rapid Rise of Urbanization in China: A Study from 2000 to 2015. *Land* ,10, no. 5: 491. **https://doi.org/10.3390/land10050491** .

RESEARCH EXPERIENCE

Xinjiang comprehensive scientific Expedition Jun 2023 - Jul 2023
Superviser: Dr. Yuke Zhou *Beijing, China*

- Utilized high-resolution satellite imagery and drone-based aerial photography to classify and map various dune types across the Tarim Basin. Conducted field surveys to validate remote sensing data, collecting samples from different dune formations.
- Deployed drones equipped with high-resolution cameras to capture detailed images of the terrain, focusing on areas with complex geological features.

Cesium-based 3D Geospatial Visualization Project Jun 2022 - Jan 2023
Superviser: Dr. Yuke Zhou *Beijing, China*

- Integrated CesiumJS with a Vue.js framework to build a dynamic, responsive web application for 3D geospatial visualization. This included setting up Webpack for module bundling and configuring Vue components to handle Cesium's 3D rendering capabilities.
- Leveraged Cesium3DTiles to efficiently stream and render massive geospatial datasets. Customized tile properties to include metadata and attributes such as building heights, material properties, and additional geospatial data, enhancing the interactivity and informativeness of the 3D visualizations.
- Configured Nginx as a reverse proxy and static file server to efficiently serve 3D Tiles datasets. Implemented caching strategies and compression techniques to improve load times and performance, ensuring smooth and fast rendering of 3D content in the web application.

Research on ENSO Intensity Prediction Based on Empirical Mode Decomposition and Convolutional Neural Networks May 2020 - Dec 2021
Superviser: Dr. Wei Sun *Guangzhou, China*

- Expertly handled and processed large datasets in NetCDF4 format, ensuring data integrity and readiness for subsequent analysis.
- Designed, implemented, and refined convolutional neural network architectures tailored for ENSO intensity prediction, contributing to the project's high accuracy and reliability.

EXTRA-CURRICULAR ACTIVITY

The 11th Mathematics competition of Chinese College Students

- Awarded the second prize in non-mathematics category

College students Natural resources Science and technology works Competition Oct. 2020 - Dec. 2020

- Project topic: Utilizing machine learning to analyze hydrometeorological big data for forest fire risk assessment in the humid regions of South China.
- Awarded the national third prize

SKILLS

- **Languages**: English (IELTS:6.5, CET-6), Mandarin (native).
- **Programming Languages:** R, python, MATLAB.
- **Tech Skills**: ArcGIS, QGIS, ENVI, GEE, Origin.