Wang Jin   Research Associate

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Education

Sep 2014 – Jun 2018   PhD: University of Chinese Academy of Sciences
                        Major in: Environmental Science; Supervisor: Prof. Zhifeng Wu
                        Dissertation: Monitoring and analyzing the geospatial pattern and nearshore environment in the Pearl River Estuary

Sep 2011 – Jun 2014   Master of Science: South China Normal University
                        Major in: Geography; Supervisor: Prof. Yaolong Zhao

Sep 2007 – Jul 2011   Bachelor of Science: South China Normal University
                        Major in: Geography

Research Experience

Sept 2024 – Present   **Research Associate** at Michigan State University, East Lansing, US.
Project Participant: Decoding Land Transitions across the Urban-Rural Continuums (URC): A Synthesis Study of Patterns, Drivers, and Socio-environmental Impacts in Southeast Asia (SEAL) (Founded by NASA).

Apr 2022 – August 2024   **Research Professor, Master's Supervisor** at South China Normal University, Guangzhou, China.
Principal Investigator: Spatial-temporal big data computing and positioning navigation application platform (Research Initiation Project of Foshan);
Principal Investigator: Fine-grained Urban Functional Zone Evolution Method with Impervious Surface Data Assistance: A Case Study of Nansha District, Guangzhou (Guangzhou Basic and Applied Basic Research Project).

Dec 2020 – Apr 2022   **Assistant Professor** at Shenzhen Institute of Advanced Technology, Chinese Academy of Sciences, Shenzhen, China.
Principal Investigator: Multitemporal monitoring for sub-pixel urban impervious surfaces based on RS imagery change detection (National Natural Science Foundation of China);

Project Participant: Research of ecological environment monitoring and emergency response technology in the Guangdong-Hong Kong-Macao Greater Bay Area (<u>Fundamental Research Foundation of Shenzhen Science and Technology Program</u>).

Aug 2018 – Nov 2020   **Assistant Professor & Postdoctor** at Shenzhen Institute of Advanced Technology, Chinese Academy of Sciences, Shenzhen, China.
Project Participant: Monitoring of spatiotemporal changes in the ecological environment of the Belt and Road (<u>Strategic Priority Research Program of the Chinese Academy of Sciences</u>);
Project Participant: Research and application of information technology for ecological monitoring and natural disaster warning (<u>Fundamental Research Foundation of Shenzhen Science and Technology Program</u>).

Jun 2019 – Feb 2020   **Visiting scholar** at Department of Geography, University of Wisconsin-Milwaukee, Milwaukee, US.
Collaborate with Prof. Changshan Wu. Research: Continuous subpixel monitoring of urban impervious surface.

Jan 2017 – Jul 2018   **PhD candidate** at Guangzhou Institute of Geochemistry, Chinese Academy of Sciences, Guangzhou, China.
Project Participant: Spatial measurement and landscape perception of urban fringe based on multi-source remote sensing information (<u>National Natural Science Foundation of China</u>).

Jan 2017 – Jul 2017   **Visiting scholar** at Department of Land, Environment, Agriculture and Forestry, University of Padova, Padova, Italy.
Collaborate with Prof. Paolo Tarolli. Research: Anthropogenic effects on coastal wetlands in Northeast Italy.

Oct 2014 – Dec 2016   **Doctoral student** at Guangzhou Institute of Geochemistry, Chinese Academy of Sciences, Guangzhou, China.
Project Participant: Monitoring the change of geospatial pattern in the Pearl River Estuary.

Skills and Expertise

I am interested in contributing to a deeper understanding of the earth's environment, especially in urban and coastal areas. My current research is mainly explored by employing and improving the GIS, remote sensing, and geospatial analysis techniques. It mainly consists of the following skills and expertise: Regression modeling, machine learning techniques, R programming, GEE programming, land use/cover analysis, urban remote sensing, fine-grained wetland identification, environmental quality monitoring, geostatistical analysis, urban analytics.

Teaching and Supervision Experience

South China Normal University: Progress of Spatial temporal big data technology (graduate course, 2023-2024); Cartography (undergraduate course, 2022-2023); Geospatial big data analytics (graduate course, 2022);

Supervised MSc students: 3.

Review:

Reviewer of journals: *Ecological indicators, Land Degradation & Development, Science of the Total Environment, Sustainability, Natural Hazards and Earth System Sciences, etc.*

Service Activity:

Deputy Secretary-General of The Society of Remote Sensing and Geographical Computation of the Chinese Association for Remote Sensing Applications (Since 2023);

Contact and secretary of the 12th Forum on Spatially Integrated Humanities and Social Science (2022);

Member of Preparatory Committee 4th Digital Belt and Road international conference (2019);

Member of Preparatory Committee 4th Advanced Symposium on Earth Observation by Imaging Radar (2018).

Awards & Scholarships

2013   Scholarship: National Scholarship;

2015   Scholarship: Academic Scholarship of Chinese Academy of Sciences;

2016   Scholarship: Academic Scholarship of Chinese Academy of Sciences;

2017   Scholarship: Academic Scholarship of Chinese Academy of Sciences;

2018   National Geographic Information Technology Progress Award.

Journal Publications (Peer-Reviewed)

W Jin, H Li, J Wang, L Zhao, X Li, W Fan*, J Chen*. (2023). "Continuous remote sensing ecological index (CRSEI): A novel approach for multitemporal monitoring of eco-environmental changes on large scale." *Ecological Indicators*, 154, 110739.

J Zhao **W Jin***, Z Abbas, Y Yang, Y Zhao*. (2023). "Ensemble learning analysis of influencing factors on the distribution of urban flood risk points: a case study of Guangzhou, China." *Frontiers in Earth Science* 11 1042088.

W Fan, J Chen, X Li, P Tarolli, **W Jin***. (2022). "Multitemporal impervious surface estimation via an optimized stable/change pixel detection approach." *GIScience & Remote Sensing*, 59(1), 1406-1425.

W Jin, Y Zhao*, Y Fu, L Xia, J Chen. (2022). "Improving LSMA for Impervious Surface Estimation in an Urban Area." *European Journal of Remote Sensing*, 55(1), 37-51.

W Jin, J Chen, Y Wen*, W Fan, Q Liu, P Tarolli. (2021). "Monitoring the Coastal Wetlands Dynamics in Northeast Italy from 1984 to 2016." *Ecological Indicators*, 129, 107906.

W Jin, Z Wu*, C Wu, Z Cao, W Fan, P Tarolli. (2018). "Improving Impervious Surface Estimation: An Integrated Method of Classification and Regression Trees (CART) and Linear Spectral Mixture Analysis (LSMA) Based on Error Analysis." *GIScience & Remote Sensing*, 55(4), 583-603.

W Jin, Z Wu*, S Li, Z Cao. (2018). "Monitoring and Analyzing the Geospatial Patterns of the Pearl River Delta (PRD) from 1960 to 2012." *ISPRS International Archives of the Photogrammetry*, Remote Sensing and Spatial Information Sciences, 42, 1729-1732.

W Jin, Z Wu, J Chen*. (2021). "Monitoring and Analyzing the Coastal Wetland Dynamics and Its Influential Factors in Northeast Italy." *Ecology and Environment*, 30(2), 242.

W Jin, Z Wu*, L Shaoying, W Shuaishuai, Z Xiaoshi, G Qun. (2016). "Coastline and Land Use Change Detection and Analysis with Remote Sensing in the Pearl River Estuary Gulf." *Scientia Geographica Sinica*, 36(12), 1903-1911.

J Zhao, C Zhang, **W Jin**, Z Abbas, Y Zhao*. (2024). "Machine learning and SHAP-based susceptibility assessment of storm flood in rapidly urbanizing areas: a case study of Shenzhen, China." *Geomatics, Natural Hazards and Risk*, 15(1), 2311889.

G Yang, J Qin*, L Wang, S Fang, W Li, Y Chen, Y Gong, Y Dian, C Sun, **W Jin**, Y Chen. (2024). "Accurate solution of the SAIL model by leaf inclination angle calculation based on laser point clouds." *Geo-spatial Information Science*, 1-19.

X Li, J Chen*, L Zhao, H Li, **W Jin**, L Sun, S Guo, P Chen, X Zhao. (2023). "Superpixel Segmentation Based on Anisotropic Diffusion Model for Object-oriented Remote Sensing Image Classification." *IEEE Journal of Selected Topics in Applied Earth Observations and Remote Sensing*.

H Li, L Zhao, L Sun, X Li, **W Jin**, Y Han, S Liang, J Chen*. (2022). "[Capability of Phenology-Based Sentinel-2 Composites for Rubber Plantation Mapping in a Large Area with Complex Vegetation Landscapes.](#)" *Remote Sensing* 14(21), 5338.

H Li, J Chen, L Sun, L Zhao, X Li, **W Jin**, Y Han, J Chen*. (2021) "[On the Extension of Cameron Decomposition Helicity Asymmetry Parameter From Single-Look to Multi-Look PolSAR Imagery.](#)" *IEEE Transactions on Geoscience and Remote Sensing*, 60, 1-16.

W Fan, C Wu*, **W Jin**. (2019). "[Improving Impervious Surface Estimation by Using Remote Sensed Imagery Combined with Open Street Map Points-of-Interest (POI) Data.](#)" *IEEE Journal of Selected Topics in Applied Earth Observations and Remote Sensing*, 12(11), 4265-4274.

Z Cao, T Liu, X Li, **W Jin**, H Lin, L Chen, Z Wu*, W Ma*. (2017). "[Individual and Interactive Effects of Socio-Ecological Factors on Dengue Fever at Fine Spatial Scale: A Geographical Detector-Based Analysis.](#)" *International Journal of Environmental Research and Public Health*, 14(7), 795.

S Chen, M Hu, GC Liu, **W Jin**, T Ou, L Gu, Z Huang*, J Tan*. (2016). "[Visualization of NRAS RNA G-Quadruplex Structures in Cells with an Engineered Fluorogenic Hybridization Probe.](#)" *Journal of the American Chemical Society*, 138(33), 10382-10385.

Publication Summary

h-index 8, Citations 308 ([Google scholar](#))

Patents

"Optimization Method and Device for Estimation Algorithm Based on Pixel Change Detection." (2024), China, Patent No. ZL 2023 1 0981248.X (First Inventor)

"Optimization Method and Device for Estimation Algorithm Based on Error Analysis." (2024), China, Patent No. ZL 2023 1 0981272.3 (First Inventor)

Book Chapters

Urbanization and its ecological environmental effects in Pearl River Delta (Chapter 9). (2017). Science Press. ISBN: 9787030517067;

Research on the coordination of human-land relationship in the Guangdong-Hong Kong-Macao Greater Bay Area (Chapter 14). (2020). Guangdong Science & Technology Press. ISBN: 9787535974211.

Presentations:

Honolulu, US, Apr 2024: Continuous Remote Sensing Ecological Index (CRSEI): Unveiling Annul Eco-Environmental Quality Changes of the Continental Coast of East and Southeast Asia, in *American Association of Geographers Annual Meeting* (Oral);

Denver, US, Mar 2023: Improving Multitemporal Impervious Surface Mapping by Remote Sensing Change Detection, in *American Association of Geographers Annual Meeting* (Oral);

Online, Nov 2022: Multitemporal monitoring for sub-pixel urban impervious surfaces based on pixel change detection, in *the 4th Symposium on Urban Remote Sensing* (Oral);

South China Normal University, Guangzhou, China, Nov 2022: Multitemporal monitoring for sub-pixel urban impervious surfaces based on pixel change detection, *in the 12th Forum on Spatially Integrated Humanities and Social Science* (Oral);

Guangzhou, China, May 2022: The evolution, protection and enlightenment of coastal wetland environment in northeastern Italy (Keynote Speech), *in Annual meeting of the Natural Resources Monitoring Forum* (Oral);

Online, Oct 2021: Monitoring and Analyzing the Coastal Wetland Dynamics and its Influential Factors in Northeast Italy (Invited Speech), in *China Conference on Remote Sensing of Wetlands* (Oral);

Washington, US, Apr 2019: Mapping Impervious Surfaces with Integrated Method of Classification and Regression Trees (CART) and Linear Spectral Mixture Analysis (LSMA) Based on Error Analysis, In *American Association of Geographers Annual Meeting* (Oral);

Beijing, China, May 2018: Monitoring and Analyzing the Geospatial Patterns of the Pearl River Delta (PRD) from 1960 to 2012, in *ISPRS TC III Mid-term Symposium* (Oral);

Vienna, Austria, Apr 2017: Detection and Analysis of Coastline and Landuse Change from 1960 to 2012 in the Pearl River Delta, China, in *European Geosciences Union General Assembly* (Poster);

Wuhan University, Wuhan, China, Dec 2016: Monitoring Geographical Conditions in Guangdong Province: The Geographical Spatial Patterns of Pearl River Estuary (1960~2012), in *International Symposium on National Geographic State Monitoring* (Oral);

Nanjing Normal University, Nanjing, China, October 2016: Analyzing Multitemporal Spatial Change of Coastline and Landuse in Pearl River Estuary (1960~2012), in *7th National GIScience Doctoral Forum* (Oral);

Hangzhou Normal University, Hangzhou, China April 2015: Monitoring the change of coastline in Pearl River Delta Using Remote Sensing. In *Tropical and Subtropical Resources Annul* (Oral).