



Kai Ren

GIS & RS · AGRICULTURE · CLIMATE CHANGE · GEOSPATIAL INTELLIGENCE · SOFTWARE DEVELOPMENT

Northwest A&F University, China / Curtin University, Australia

☎ (+86) 190 9848 5060 | ✉ renkaigis@nwfau.edu.cn | 🏠 renkaigis.cn | 📱 renkaigis | 🌐 Kai Ren

“You have to believe in yourself. That’s the secret of success.”

Summary

Kai Ren is a Visiting Research Associate at Curtin University and a Ph.D. Candidate at Northwest A&F University. Dedicated to advancing knowledge in GIS and Agriculture through rigorous research and academic inquiry. Passionate about GIS · RS · Agriculture · Climate Change · Geospatial Intelligence and wanna to be an academic excellence.

Education

Curtin University - RESEARCH ASSOCIATE IN GEOSPATIAL ANALYSIS AND SUSTAINABILITY

Perth, Australia

• School of Design and the Built Environment · Curtin Geospatial Intelligence Lab

Mar. 2023 - Mar. 2025

Northwest A&F University - PH.D. STUDENT IN LAND RESOURCES AND SPATIAL INFORMATION TECHNOLOGY

Yangling, China

• College of Natural Resources and Environment · State Key Laboratory of Soil and Water Conservation and Desertification Control, Institute of Water and Soil Conservation

Sep. 2020 - Sep. 2025

Nanjing Normal University - M.S. IN CARTOGRAPHY AND GEOGRAPHIC INFORMATION SYSTEM (GIS)

Nanjing, China

• College of Geographic Sciences · Key Laboratory of Virtual Geographic Environment Ministry of Education (VGE)

Sep. 2016 - Jun. 2019

Northwest A&F University - B.S. IN GEOGRAPHIC INFORMATION SYSTEM (GIS)

Yangling, China

• College of Natural Resources and Environment

Sep. 2012 - Jun. 2016

Skills

Programming R, Python, Java, LaTeX, C, C#, C++, SQL, and Machine Learning (Random Forest, Decision Tree, Neural Networks etc.)

Software Google Earth Engine (GEE), ArcGIS Pro, Erdas, ENVI, Illustrator, Eclipse, IntelliJ IDEA, Pycharm, Photoshop

Web Development Back-end: Java, Spring Boot, Struts-Spring-Hibernate, Flask; Front-end: HTML-CSS-JS, Vue

Presentations

International Conference IPC2025 - Presented an Oral Report

Perth, Australia

TITLE: “A Novel Geospatial Machine Learning Approach for Uncovering Wheat Production Disparities: Evidence from Australia”

Aug. 2025

• Contributed to the discussion on geospatial machine learning applications in agricultural production research through the presentation.

GIS Workshop

Perth, Australia

GAVE A PRESENTATION “Sharing Tools and Techniques in Data Visualization”

Dec. 2023

• Introduce and teach the scientific drawing tool Adobe Illustrator and the use of LaTeX tools, and introduce how to build social media matrix.

6th City+ International Conference (City+@Perth)

Perth, Australia

PRESENTATION ON THE CONFERENCE DURING SESSION 5 WITH THE THEME OF SPATIAL METHODS.

Sep. 2023

• Integrating machine learning and spatial stratified heterogeneity to analyze spatial disparities and determinants of wheat production in Australia.

Publications

- **Author:** [1] Ren, K., etc. Identifying Climate and Environmental Determinants of Spatial Disparities in Wheat Production Using a Geospatial Machine Learning Model. *GIScience & Remote Sensing (CAS Top Journal in Zone 1)* (Minor revisions and pending acceptance.)
[2] Ren, K., etc. Second-dimension outliers for spatial prediction. *International Journal of Geographical Information Science (CAS Top Journal in Zone 1)* (Minor revisions and pending acceptance.)
- **Co-author:** [1] Yang, X., Song, Y., Yoo C., Ren, K., Zhao, L., Wu, P., Irregular anisotropy in surface urban heat island footprint. (Under review)
[2] Yang, L., Luo, P., Zhang, Z., Song, Y., Ren, K., Zhang, C., Awange, J., Atkinson, P.M. and Meng, L., 2024. A spatio-temporal unmixing with heterogeneity model for the identification of remotely sensed MODIS aerosols: Exemplified by the case of Africa. *International Journal of Applied Earth Observation and Geoinformation*, 132, p.104068. [url](#)
[3] Zhang, X., Song, Y., Dewan, A., Guo, Z., Cao, X., Bie, Q., Xie, Y., Ma, X., Ren, K., Zhang, H. and Xi, G., 2024. Ecological influence of oasisation on peripheral regions. *International Journal of Applied Earth Observation and Geoinformation*, 132, p.104004. [url](#)
- **Software Copyright:** [1] Structural Surface Recognition and Intelligent Analysis System of Layered Geological Body. (No. 2019SR0706808)
[2] Dianchi Lake Water Body Cyanobacteria Bloom Drift Simulation System. (No. 2018SR955442)
[3] Simulation System of Total Suspended Solids in Large Water Bodies. (No. 2018SR798096)
[4] Hydrogeological Modeling and Simulation System. (No. 2017SR427979)
[5] 3D Modeling and Analysis System of Underground Space. (No. 2017SR431955)

- [6] Multi-Dimensional Grid Adaptive Generation System For Geoscience Simulation. (No. 2017SR374939)
- [7] Dynamic Visualization System For Geoscience Model Simulation. (No. 2017SR374929)
- **Conference:** [1] **Ren, K.**, Song, Y. and Yu, Q. (2025). A Novel Geospatial Machine Learning Approach for Uncovering Wheat Production Disparities: Evidence from Australia. *The 11th International Conference on Innovative Production and Construction (IPC2025)*. Perth, Australia.
 - [2] **Ren, K.**, Song, Y., & Yu, Q., etc. (2024). Assessing the Impact of ENSO and Indian Ocean Dipole on Australian Bushfires Using Random Forests. *2024 American Geophysical Union (AGU24)*. Washington, D.C.
 - [3] **Ren, K.** & Song, Y. (2023). Local spatial heterogeneity of Wheat Yields in Western Australia. In *Proceedings of City+2023@Perth International Conference on Geospatial Big Data and Artificial Intelligence for Cities*. Perth, Curtin University.

Peer Review

- Resources, Conservation and Recycling (**IF 11.2**)
- International Journal of Applied Earth Observation and Geoinformation (**IF 7.6**)
- All Earth (IF 2.2)
- GIScience & Remote Sensing (**IF 6.0**)
- Geoscientific Model Development (**IF 4.0**)
- Journal of Spatial Science (IF 1.0)

Experience

ISPRS Technical Commission IV Symposium 2024 - CONFERENCE STAFF

- Assist in the management and organization of the Conference.

Perth, Australia

22 -25 Oct. 2024

The 10th International Conference on Innovative Production and Construction (IPC 2024) -

COMMITTEE AND CONFERENCE STAFF

- Participate in organizing conferences and manage the official website.

Perth, Australia

11 & 12 Jul. 2024

City+2023@Perth International Conference - ORGANIZER AND CONFERENCE STAFF

- Participate in organizing the conference and conducting all of the work during the conference.

Perth, Australia

8 - 10 Sep. 2023

GISphere - COMMUNITY VOLUNTEER

- Manage and edit the GISInfo Study Abroad Guide, and operate the official WeChat and study abroad group for updates.

Perth, Australia

Dec. 2022 - Present

Activities

Visited Rio Tinto (the world's Top 2 largest metals and mining corporation)

Feb. 2024, Perth, Australia

Australian-French Association for Research and Innovation (AFRAN) Forum

26 Oct. 2023, Perth, Australia

Vicarious calibration of the NASA PACE: deployment of the MarONet (Marine Optical Network) off Perth

20 Oct. 2023, Perth, Australia

Precision Agriculture meeting at Centre for Crop and Disease Management, Curtin University

6 Sep. 2023, Perth, Australia

Project exchange meeting at Main Roads Western Australia

Mar. 2023, Perth, Australia

Honors & Awards

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| 2025 | International Conference Committee , One of the Committees of an the 11 th International Conference on Innovative Production and Construction (IPC 2025, 4-9 August 2025, Perth, Australia) | Perth, Australia |
| 2024 | International Conference Staff , ISPRS Technical Commission IV Symposium 2024. October 22 - 25, 2024, Fremantle, Perth, Australia. | Perth, Australia |
| 2024 | International Conference Committee , One of the Committees of an the 10 th International Conference on Innovative Production and Construction (IPC 2024, 11-12 July 2024, Perth, Australia) | Perth, Australia |
| 2023 | International Conference Committee , One of the Organizers of an International Academic Conference, City+2023@Perth, with the theme of Geospatial Big Data and Artificial Intelligence for Cities | Perth, Australia |
| 2022 | Bronze Award (Provincial Level) , in the 11 th Challenger Cup Shaanxi University Student Entrepreneurship Plan Competition | Xi'an, China |
| 2022 | Silver Award , in the 10 th Challenge Cup College Student Entrepreneurship Plan Competition of Northwest A&F University | Yangling, China |
| 2019 | Outstanding Graduate , Nanjing Normal University | Nanjing, China |
| 2018 | Excellent Postgraduate (Four times) , Nanjing Normal University | Nanjing, China |
| 2017 | First-class scholarship (Two times) , Nanjing Normal University | Nanjing, China |
| 2015 | Excellence Award , Organize the pastoral envoy team of Northwest A&F University and won the "Excellent Award" at the university level | Yangling, China |
| 2015 | Excellence Award , The National Science and Technology Innovation Project Numerical Simulation and Mechanism Research of Loess Slope Cultivated Land Microtopography | Yangling, China |
| 2014 | Excellent Award , Organize the activity of Three Visits to the Countryside, Investigation Service in Ansai Comprehensive Test Station of Soil and Water Conservation, and won the Excellent Award at the school level | Yangling, China |