



# Kai Ren

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

Curtin University, Perth, Australia

☎ (+61) 04 6869 8085 | ✉ kai.ren@curtin.edu.au | 🏠 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 - Dec. 2024

### 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 Erosion and Dryland Farming on the Loess Plateau, Institute of Water and Soil Conservation

Sep. 2020 - Dec. 2024

### 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

|                    |  |
|--------------------|--|
| <b>Programming</b> | R, Python, Java, LaTeX, C, C#, C++, SQL, and Machine Learning (Random Forest, Decision Tree, Neural Networks etc.) |
| <b>Software</b>    | Google Earth Engine (GEE), ArcGIS Pro, Erdas, ENVI, Illustrator, Eclipse, IntelliJ IDEA, Pycharm, Photoshop        |
| <b>Back-end</b>    | Java, Spring Boot, Struts - Spring - Hibernate, Flask  |
| <b>Front-end</b>   | HTML - CSS - JS, Vue   |
| <b>Languages</b>   | English, Mandarin  |

## Presentations

### 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.

### 6<sup>th</sup> 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:** Identifying Climate and Environmental Determinants of Spatial Disparities in Wheat Production Using a Geospatial Machine Learning Model. *Computers and Electronics in Agriculture*. (Under review)
- **Co-author:** [1] 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](#)  
[2] 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](#)
- **Conference:** [1] **Ren, K.**, Song, Y. and Yu, Q. (2024). Assessing the Impact of ENSO and Indian Ocean Dipole on Australian Bushfires Using Random Forests. *2024 American Geophysical Union (AGU24)*. Washington, D.C.  
[2] **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.
- **Software Copyright:** Structural Surface Recognition and Intelligent Analysis System of Layered Geological Body. (No. 2019SR0706808)
- **Software Copyright:** Dianchi Lake Water Body Cyanobacteria Bloom Drift Simulation System. (No. 2018SR955442)
- **Software Copyright:** Simulation System of Total Suspended Solids in Large Water Bodies. (No. 2018SR798096)
- **Software Copyright:** Hydrogeological Modeling and Simulation System. (No. 2017SR427979)
- **Software Copyright:** 3D Modeling and Analysis System of Underground Space. (No. 2017SR431955)
- **Software Copyright:** Multi-Dimensional Grid Adaptive Generation System For Geoscience Simulation. (No. 2017SR374939)

## 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 10<sup>th</sup> 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

2025 **International Conference Committee**, One of the Committees of an the 11<sup>st</sup> 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<sup>th</sup> 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<sup>st</sup> Challenger Cup Shaanxi University Student Entrepreneurship Plan Competition

Xi'an, China

2022 **Silver Award**, in the 10<sup>th</sup> 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