

Wenbo Lv

undergraduate

Curriculum Vitae

Sunday 6th October, 2024

📍 Xi'an, Shaanxi
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Some stuff about me

- I am deeply interested in developing new spatial analysis methods based on spatial relationships (such as spatial dependence, spatial heterogeneity, geographical similarity) to support urban sustainability and climate change mitigation.
- I am proficient in R language data analysis, statistical modeling, and R package development.
- I am familiar with implementing computationally complex statistical algorithms using C++, and I can flexibly call upon torch.

Education

2021-2025 **Geographic Information Science** Shaanxi Normal University
Xi'an, Shaanxi

Honor

2023.12 **Grand Prize in the 12th National University Student GIS Application Skills Competition**
2023.11 **First Prize in the Second National University Student Ecological Environment Management Research Innovation Competition**
2023.12 **Second Prize of the 5th 'Guodi Cup' National College Student Natural Resource Science and Technology Competition, China Society of Natural Resources**
2021.10 **Outstanding Individual in Military Training Publicity for College Students, Shaanxi Normal University**
2024.06 **National University Student Innovation and Entrepreneurship Training Program Qualified Completion**

Developed Spatial Analysis Toolkit

Package	Description	Source Code	Language
gdverse	Analysis of Spatial Stratified Heterogeneity	https://github.com/ausgis/gdverse	R, C++, Python
geocomplexity	Mitigate Spatial Bias Through Geographical Complexity	https://github.com/ausgis/geocomplexity	C++, Python, C
geosimilarity	Geographically Optimal Similarity	https://github.com/ausgis/geosimilarity	R
esp	Enhanced Stratified Power	https://github.com/stscl/esp	R, C++
sdsfun	Spatial Data Science Complementary Features	https://github.com/stscl/sdsfun	R
geocn	Loads Spatial Data Sets of China	https://github.com/stscl/geocn	R
spEcula	Spatial Prediction Methods In R	https://github.com/SpatLyu/spEcula	R
tidyrgeoda	A tidy interface for rgeoda	https://github.com/SpatLyu/tidyrgeoda	R
SpatBox	A Python Library For GeoSpatial Data Propressing and Modeling	https://github.com/SpatLyu/spatbox	Python
qgisprocess	R package to use QGIS processing algorithms	https://github.com/r-spatial/qgisprocess	R
Rsagacmd	A package for linking R with the open-source SAGA-GIS	https://github.com/stevenpawley/Rsagacmd	R

In research

- Leader

Extraction of Urban Spatial Boundaries in Xi'an City Using Deep Learning

► Combining advanced spatial sampling and unsupervised algorithms to automatically construct sample sets, and then using geographical neural networks weighted logistic regression to extract urban spatial boundaries
- Leader

Geocomplexity mitigates spatial bias

► Considering the Complexity of Spatial Data in Spatial Data Analysis to Improve Modeling Accuracy

Unpublished

- First Author

Generalized Geographical Detector

In writing
- First Author

Spatial stratified heterogeneity analysis enabled by geographical detectors: the gdverse package

In writing

Publications

1.

Song, Z., Liu, F., Lv, W., & Yan, J. (2023). Classification of urban agricultural functional regions and their carbon effects at the county level in the pearl river delta, china. *Agriculture*, 13(9). <https://doi.org/10.3390/agriculture13091734>

2.

Song, Z., Liu, F., & Lv, W. (2023). *Spatiotemporal characteristics and optimization strategies of urban-rural development disparities in china's urban agglomerations(in chinese)* (pp. 1418–1429). People's Cities, Empowered by Planning - Proceedings of the 2023 China Urban Planning Annual Conference (14 Regional Planning; Urban Economy).