Wenbo Lv

undergraduate

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SpatLyu
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Curriculum Vitae
Sunday 20th October, 2024

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
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/ausgis/esp	R, C++
sdsfun	Spatial Data Science Complementary Features	https://github.com/stscl/sdsfun	R, C++
gdverse	Analysis of Spatial Stratified Heterogeneity	https://github.com/stscl/gdverse	R, C++, Python
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 **gdverse: An R package facilitating spatial stratified heterogeneity analysis with geographical detectors**
In writing

Publications

1. Lv, W., Liu, F., Cai, K., Cao, Y., Deng, M., Liang, W., Yan, J., & Wang, G. (2024). Distinguishing the impacts and gradient effects of climate change and human activities on vegetation cover in the weihe river basin, china. *Journal of Geophysical Research: Biogeosciences*, *129*(10). https://doi.org/10.1029/2024jg008297
2. 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
3. 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).