Wenbo Lv
undergraduate

Curriculum Vitae
Monday 21st October, 2024

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Some stuff about me

➤ I am passionate about developing innovative spatial analysis methods that leverage spatial relationships, such as spatial dependence, spatial heterogeneity, and geographical similarity, to advance urban sustainability and climate change mitigation efforts.

➤ I am proficient in data analysis, statistical modeling, and developing R packages, as well as open-source analytical software using R, C++, and Python.

➤ I have experience implementing complex statistical algorithms in C++ and can efficiently integrate torch for machine learning applications.

Education

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

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).

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**

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   **gdverse: An R package facilitating spatial stratified heterogeneity analysis with geographical detectors**
In writing

First Author   **Generalized Geographical Detector**   In writing

Developed Spatial Analysis Toolkit

Package	Description	Source Code	Language
geocomplexity	Mitigate Spatial Bias Through Geographical Complexity	https://github.com/ausgis/geocomplexity	C++, R, 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