

Wenbo Lv  
undergraduate

Curriculum Vitae  
Monday 28<sup>th</sup> October, 2024

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Education

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

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). <https://link.cnki.net/doi/10.26914/c.cnkihy.2023.061565>

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

Unpublished

First Author	gdverse: An R package facilitating spatial stratified heterogeneity analysis with geographical detector models	In writing
First Author	Spatially Explicit Stratified Power (SESP)	In writing
First Author	An Interpretable Stratified Power Model	In writing
First Author	Geocomplexity Mitigates Spatial Bias	In writing

In research

Leader

**Extract Urban Spatial Boundaries in Xi'an City Using Deep Learning**

- Utilized advanced spatial sampling methods and unsupervised algorithms to automatically generate sample sets. Employed geographically weighted neural networks combined with logistic regression to extract urban spatial boundaries

**Developed Spatial Analysis Toolkit**

Package	Description	Source Code	Language
gdverse	Analysis of Spatial Stratified Heterogeneity	<a href="https://github.com/stscl/gdverse">https://github.com/stscl/gdverse</a>	R, C++, Python
geocomplexity	Mitigate Spatial Bias Through Geographical Complexity	<a href="https://github.com/ausgis/geocomplexity">https://github.com/ausgis/geocomplexity</a>	C++, R, C
sesp	Spatially Explicit Stratified Power	<a href="https://github.com/ausgis/sesp">https://github.com/ausgis/sesp</a>	R, C++
sdsfun	Spatial Data Science Complementary Features	<a href="https://github.com/stscl/sdsfun">https://github.com/stscl/sdsfun</a>	R, C++
geosimilarity	Geographically Optimal Similarity	<a href="https://github.com/ausgis/geosimilarity">https://github.com/ausgis/geosimilarity</a>	R
GD	Geographical Detectors for Assessing Spatial Factors	<a href="https://github.com/ausgis/GD">https://github.com/ausgis/GD</a>	R
geocn	Loads Spatial Data Sets of China	<a href="https://github.com/stscl/geocn">https://github.com/stscl/geocn</a>	R
qgisprocess	R package to use QGIS processing algorithms	<a href="https://github.com/r-spatial/qgisprocess">https://github.com/r-spatial/qgisprocess</a>	R
spEcula	Spatial Prediction Methods In R	<a href="https://github.com/SpatLyu/spEcula">https://github.com/SpatLyu/spEcula</a>	R
tidyrgeoda	A tidy interface for rgeoda	<a href="https://github.com/SpatLyu/tidyrgeoda">https://github.com/SpatLyu/tidyrgeoda</a>	R