

Wenbo Lv  
undergraduate

Curriculum Vitae  
Thursday 19<sup>th</sup> December, 2024

📍 Xi'an, Shaanxi  
🏠 spatlyu.github.io  
✉ lyu.geosocial@gmail.com  
🔗 SpatLyu  
🆔 0009-0002-6003-3800

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 possess expertise in *data analysis*, *statistical modeling*, and the development of *R packages* and open-source analytical tools utilizing **R**, **C++**, and **Python**.
- I have contributed to the **development** and **maintenance** of several open-source spatial analysis tools within the R community and remain dedicated to **advancing open-source geospatial analysis software**.

Education

2021-2025	<b>BSc In Geographic Information Science</b> 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). <https://link.cnki.net/doi/10.26914/c.cnkihy.2023.061565>

Honor

2024.12	Longi Non-Education Major Scholarship
2024.11	First Prize in the 13th National University Student GIS Application Skills Competition
2024.06	National University Student Innovation and Entrepreneurship Training Program Qualified Completion
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

Unpublished

First Author	<b>gdverse: An R package for spatial stratified heterogeneity family</b>	Submitted to TGIS, currently under revision
First Author	<b>On the role of explicit spatial information in stratified heterogeneity</b>	In writing
First Author	<b>A correlation indicator based on spatial patterns</b>	In writing
First Author	<b>Geocomplexity Mitigates Spatial Bias</b>	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
sesp	Spatially Explicit Stratified Power	<a href="https://github.com/stscl/sesp">https://github.com/stscl/sesp</a>	R, C++
sshicm	Information Consistency-Based Measures for Spatial Stratified Heterogeneity	<a href="https://github.com/stscl/sshicm">https://github.com/stscl/sshicm</a>	C++, R
spEDM	Spatial Empirical Dynamic Modeling	<a href="https://github.com/stscl/spEDM">https://github.com/stscl/spEDM</a>	C++, R
geocomplexity	Mitigate Spatial Bias Through Geographical Complexity	<a href="https://github.com/ausgis/geocomplexity">https://github.com/ausgis/geocomplexity</a>	C++, R, C
cisp	A Correlation Indicator Based On Spatial Patterns	<a href="https://github.com/stscl/cisp">https://github.com/stscl/cisp</a>	R
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
sdsfun	Spatial Data Science Complementary Features	<a href="https://github.com/stscl/sdsfun">https://github.com/stscl/sdsfun</a>	R, C++
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