

# Wenbo Lv

undergraduate

## Curriculum Vitae

Monday 12<sup>th</sup> August, 2024

📍 Xi'an, Shaanxi  
🏠 [spatlyu.github.io](https://github.com/spatlyu)  
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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	Family of geographical detector models in R	<a href="https://github.com/SpatLyu/gdverse">https://github.com/SpatLyu/gdverse</a>	R, C++, Python
geocomplexity	Mitigate Spatial Bias through Geographical Complexity	<a href="https://github.com/SpatLyu/geocomplexity">https://github.com/SpatLyu/geocomplexity</a>	C++, Python, C
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
SpatBox	A Python Library For GeoSpatial Data Propressing and Modeling	<a href="https://github.com/SpatLyu/spatbox">https://github.com/SpatLyu/spatbox</a>	Python
sptorch	Spatial neural network methods based on torch for R	<a href="https://github.com/SpatLyu/sptorch">https://github.com/SpatLyu/sptorch</a>	R
sdsfun	Functions for Spatial Data Science	<a href="https://github.com/SpatLyu/sdsfun">https://github.com/SpatLyu/sdsfun</a>	R
geocn	Loads Spatial Data Sets of China	<a href="https://github.com/SpatLyu/geocn">https://github.com/SpatLyu/geocn</a>	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      **Distinguishing the impacts and gradient effects of climate change and human activities on vegetation cover in the Weihe River Basin , China** Under revision

First Author      **gdverse : An R package for spatial stratified heterogeneity modeling through geographical detectors** 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).