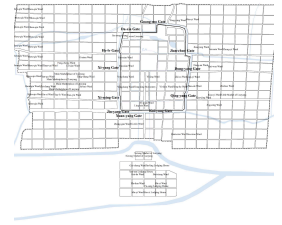Jan 20, 2025

🌐 Spatial Layout Characteristics of Northern Wei Luoyang: A Spatial Humanities Analysis of the "Record of the Monasteries of Luoyang"

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Protocol status: In development
We are still developing and optimizing this protocol

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Abstract

This paper explores the urban spatial structure and social stratification of Northern Wei Dynasty Luoyang City, based on Record of the Monasteries of Luoyang. Adopting a spatial humanities approach, the study integrates quantitative approaches, including the application of geographic information systems (GIS) for spatial analysis and complex network analysis. The findings indicate that the spatial organization of Northern Wei Luoyang was primarily concentrated within and around the inner city. People of different social classes and statuses occupied distinct spaces, forming socially stratified groups. As one moves outward from the city's center, the social rank of these groups decreases. The city's layout is characterized by a single central axis, with multiple spatial divisions, and the west side being associated with higher-status groups. This spatial arrangement was shaped by factors such as geography, urban development, Central Plains rituals, traditional customs, and ethnic diversity. This study enhances our understanding of the spatial layout characteristics of Northern Wei Luoyang. It provides innovative insights and methods for understanding the city's structure and its implications for other underground historical cities. Furthermore, it provides valuable data and visualizations that could support future preservation and planning efforts for the city.

Guidelines

Step-by-Step Instructions can be seen at Steps

Materials

The digitized Chinese text can be found at:中国哲学书电子化计划（CText）

Troubleshooting

Safety warnings

⊗ No Warnings

Ethics statement

We commit to using data ethically and responsibly, ensuring accurate representation of results without manipulation.

Data Source

1   1.1 The digitized Chinese text can be found at:**Chinese Text Project(中国哲学书电子化计划)**
1.2Using the *Record of the Monasteriesof Luoyang annotation*" as the Main Material
1.3Using *Record of the Monasteriesof Luoyang* by Yi-t'ung Wang for the English translation
of terms from the original text.

Data Processing

2   2.1 Labeling using the MARKUS website to facilitate subsequent data processing**MARKUS**
Marked MARKUS files need to be opened using the MARKUS website

> 📄 S2_File. Annotated "Record of the ... 392KB

2.2Screening of key text tables with information on functional and event spaces and their location   📄 S3_File. Tables of Data source.zip 45KB

2.3Utilizing the information of Li Fang recorded in the book, combining with archaeological excavation and other data to recover the base map of Northern Wei Luoyang City

Functional Spaces

3   3.1 Spatialize functional spatial data and import into GIS to form shp files

> 📄 S4_File. Functional space Data-Sh... 53KB

3.2Kernel Density Analysis, Mean Centers, Standard Deviation Ellipses, etc. are performed, and the input parameters are described in detail at

> 📄 S5_File. Functional Space Input Par... 9KB

3.3Formation of spatial analysis results and interpretation of the results

Event Spaces

4   4.1Using the locations where the starting and ending points of the events in the Luoyang Gazetteer are located as nodes, and the movement of the characters between locations as edges, the network information is filtered

4.2 Importing information into Gephi to perform calculations

📁 S7_File. Complex Network Files-Ge... 322KB

4.3 Match the calculated information with the spatial information in a table and import it

into GIS 📁 S8_File. Complex Network Tables ... 9KB

4.4 Make complex network diagrams with spatial information in GIS and interpret the results

Acknowledgements