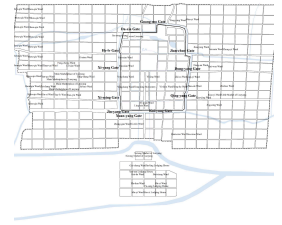




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Spatial Layout Characteristics of Northern Wei Luoyang: A Spatial Humanities Analysis of the "Record of the Monasteries of Luoyang"



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Protocol status: In development

We are still developing and optimizing this protocol

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Keywords: Spatial Humanities, Urban Spatial Structure, Geographic Information Systems (GIS), Complex Networks, Record of the Monasteries of Luoyang, Luoyang City of Northern Wei Dynasty, social stratification of northern wei dynasty luoyang city, spatial organization of northern wei luoyang, spatial layout characteristics of northern wei luoyang, northern wei dynasty luoyang city, northern wei luoyang, implications for other underground historical city, other underground historical city, urban spatial structure, monastery, spatial humanities analysis, geographic information system, spatial layout characteristic, application of geographic information system, geography, understanding of the spatial layout characteristic, record of the monastery, spatial organization, ethnic diversity, spatial humanities approach, factors such as geography, spatial arrangement, layout, city, central plains ritual, spatial, spatial analysis, urban development, traditional custom, planning efforts for the city, visualization, social stratification

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](#)).
 - 1.2 Using the *Record of the Monasteries of Luoyang annotation* as the Main Material
 - 1.3 Using *Record of the Monasteries of 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
 - 2.2 Screening of key text tables with information on functional and event spaces and their location  S3_File. Tables of Data source.zip 45KB
 - 2.3 Utilizing 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
 - 3.2 Kernel 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
 - 3.3 Formation of spatial analysis results and interpretation of the results

Event Spaces

- 4
 - 4.1 Using 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

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