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Retraction

Retracted: Analysis of the Spatial Distribution Pattern of the Urban Landscape in the Central Plains under the Influence of Multiscale and Multilevel Morphological Geomorphology

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This article has been retracted by Hindawi following an investigation undertaken by the publisher [1]. This investigation has uncovered evidence of one or more of the following indicators of systematic manipulation of the publication process:

(1) Discrepancies in scope
(2) Discrepancies in the description of the research reported
(3) Discrepancies between the availability of data and the research described
(4) Inappropriate citations
(5) Incoherent, meaningless and/or irrelevant content included in the article
(6) Manipulated or compromised peer review

The presence of these indicators undermines our confidence in the integrity of the article's content and we cannot, therefore, vouch for its reliability. Please note that this notice is intended solely to alert readers that the content of this article is unreliable. We have not investigated whether authors were aware of or involved in the systematic manipulation of the publication process.

Wiley and Hindawi regrets that the usual quality checks did not identify these issues before publication and have since put additional measures in place to safeguard research integrity.

We wish to credit our own Research Integrity and Research Publishing teams and anonymous and named external researchers and research integrity experts for contributing to this investigation.

The corresponding author, as the representative of all authors, has been given the opportunity to register their agreement or disagreement to this retraction. We have kept a record of any response received.

References

[1] H. Li, T. Zhao, and N. Ge, "Analysis of the Spatial Distribution Pattern of the Urban Landscape in the Central Plains under the Influence of Multiscale and Multilevel Morphological Geomorphology," *Complexity*, vol. 2021, Article ID 6587764, 10 pages, 2021.

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Research Article

Analysis of the Spatial Distribution Pattern of the Urban Landscape in the Central Plains under the Influence of Multiscale and Multilevel Morphological Geomorphology

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This paper presents an in-depth analysis and research on the spatial distribution pattern of the urban landscape in the Central Plains digital landscape form and proposes an optimization scheme. Based on the basic theories of systematics and complexity, this paper analyzes the self-similar characteristics of urban morphology, establishes the concept of schema, and constructs a multiscale and multilevel morphological map research framework by drawing on the "planar pattern" morphological analysis method of the school and the "matrix, patch, and corridor" spatial expression model of landscape ecology. The framework of morphological map research at multiple scales has been established, and the theory and method of describing, understanding, judging, and analyzing morphological evolution have been formed. Cities have self-similarity at different scales, and urban evolution is a process of recursion from small-scale hierarchy to large-scale hierarchy, and hierarchy is a phenomenon presented by the natural evolution of cities. After any morphological process is completed, it can only be transformed into the other two ways, so the static morphological description can be transformed into dynamic morphological process analysis.

1. Introduction

Through the combination of multiscale perspective and digital means, this paper explores a systematic and integrated approach to landscape pattern analysis, and through a preliminary attempt to build a framework for multiscale digital analysis of landscape patterns, it intends to provide support and strategies for urban planning and design work and also aims to promote the further improvement of landscape pattern analysis research. The study of landscape patterns is part of the spatial study of landscape science, which has not been systematically studied yet, and this paper intends to fill this gap [1]. Besides, as digital tools are becoming increasingly closely integrated with the practice and research of landscape disciplines, this paper hopes to enrich its research content from the side of landscape patterns and deepen the research connotation of digital landscape studies. The study and analysis of landscape patterns used to play a pivotal role in urban site selection, residence phasing, and garden creation, while the current planning and design of cities and landscapes are paying increased attention to ecological sustainability and local characteristics [2]. This paper constructs a framework for digital analysis of multiscale landscape patterns to provide a certain degree of reference for how to conduct systematic analysis and how landscape patterns can provide support and strategies for subsequent planning and design [3]. The process of human technological progress is explosive, and the goal of technological development is to facilitate people's better and more convenient life. However, in the face of the harsh climatic conditions of the cold regions, despite the rapid development of building technology, people here still prefer thicker walls, more direct light, and more enclosed spaces, resulting in many wasted resources and a lack of environmental experience.

Nowadays, people are no longer satisfied with the simple requirements of survival, and more demands for the built environment are becoming the main design points of architects' attention [4]. Architects in cold and special regions are influenced by the idea of landscape ecology and should keep a keen sense and clear logic to solve the problem of the relationship between architecture and the environment. Faced with the inherent harsh regional environmental conditions, the passive idea of resisting cold, and the long-standing single solidified aesthetic evaluation, the authors, under the influence of landscape ecology thinking, consider the three questions of how to use inherent resources to reduce the building's consumption, how to simulate and optimize environmental properties, and how to adapt to the changes in multiple environmental conditions to improve active cold adaptation [5]. However, with the development of human beings, the conquest of nature and the strong occupation of nature have become mainstream development thinking. This is especially true for cold-land architecture, where the harsh geographical conditions left the earliest survivors in the land with no more options, choosing the most direct confrontational posture to survive, which also led to complete neglect of environmental conformity. However, as time goes by, these ideas have not evolved with the advancement of technology but rather are stubbornly present in most of the cold-land architecture created today.

This more humane design strategy has become the focus of attention in contemporary architecture and is being used by more and more architects. The relationship between architecture and environment advocated by geoscape creation is a kind of integration, which not only refers to the integration of architectural forms but also includes the integration of the overall atmosphere of the building. Both the spatial arrangement and the choice of skin should be compared with the environmental elements and combined with the relevant elements extracted, simulated, and optimized from the base environment to create the "here and now" geoscape architecture. Combined with the results of economic development, people's satisfaction of spiritual needs is gradually placed above basic survival needs, and interaction with the environment has become an important criterion for people to choose a new place to live. At present, there is a lot of space to be filled between the achievements of China's cold-land architecture and the increasingly advanced technical ideas and increasingly diversified aesthetic standards. We must let architecture be rooted in our unique environmental conditions, forming a benign interaction between cold architecture and cold environment, while optimizing and structuring a complete and unified architectural system. The corresponding principle of adaptation is to make the creation of cold-land architectural forms shift from roughness to refinement and to pay more attention to form and function, urban architecture, and the relationship between development and heritage.

The rest of this article is organized as follows: Section 2 is devoted to the analysis of related works. Digital geomorphology influencing the optimal design of the spatial distribution pattern of the Central Plains urban landscape is discussed in Section 3. Section 4 is devoted to the analysis of results, and Section 5 summarizes the full text.

2. Related Research

Landscape ecology is widely used in modern ecology as a new subfield of ecology, and it can be used as a new idea derived from the extension of traditional ecological research to macro direction [6]. Its interaction between landscape heterogeneity and ecological evolutionary processes is one of the core issues of research in landscape ecology [7]. While using aerial photographs to study land use in East Africa, Xie et al. first proposed the concept of combining landscape and ecology, which represents a correlative analysis of natural biological complexes in different regional units of a region [8]. The development of the landscape idea and the development of geography and ecology are the original studies of landscape ecology [9]. Using the integrated thinking of ecosystems and landscapes to study landscape ecology as a basis, the basic theoretical and conceptual framework of landscape ecology is established and refined [10]. With respect for landscape structure, landscape, landscape and landscape control, and resource management, the study of ecological functions is gradually forming a relatively complete system [11]. Theoretically and practically, landscape environmental resources are closely related to the local role of regional sustainable development, biodiversity conservation, and global change and play an important role in social development, environmental protection, and land-use decisions [12]. Green and others have proposed some new theories, such as seepage theory and source-sink system theory. After more than 20 years of development, spatial heterogeneity in the relationship between landscape and ecology is generally treated as a central issue in landscape ecology in most of Europe and North America [13]. In recent popular foreign textbooks on the subject, landscape ecology is defined as a branch of ecology that examines the relationship between spatial patterns and ecological processes, as well as the causes and consequences of spatial heterogeneity at different scales [14]. This definition adequately reflects the core of North American landscape ecology, but many European scholars are not satisfied with this definition. Based on multidisciplinary theories and the synthesis of various perspectives, landscape ecology has been defined as a comprehensive discipline of socioeconomic relationships, and the evolutionary processes of spatial patterns and ecology have been studied and improved [15].

A broadly understood landscape can summarize spatial units with heterogeneous patchiness at different scales. It highlights the ecological characteristics of its spatial heterogeneity, and its spatial scale will change with the change of objects and purposes, emphasizing the ecological hierarchy [16]. The narrowly understood landscape refers to the heterogeneous symbiotic units composed of different types of ecosystems. It emphasizes wholeness, has a cross-level correlation between different systems, and stresses ecological stability. Therefore, it is one-sided to simply classify the above-ground objects into the concept of landscape, which is a complex territorial system composed of different components conjugated and regularly combined with interaction, and multiple basic units [17]. Along with the development of the times and the emergence of theories such

as landscape ecology, geoscape has emerged from the single concept that has lasted for more than three centuries and is no longer a proxy for landscape and a separate individual with only an aesthetic role [18], and "landscaping" is the answer to the inner law of the relationship between architecture and its environment and the process of homogenizing the long-term sustainable relationship between architecture and the environment and urban space, as well as the continuation and optimization of the culture and connotation of the field.

In addition to the conflicting regional environmental conditions, an important factor influencing the creation of cold-land architectural forms is the cold-land climatic environmental conditions. Today, the feedback of cold-land architecture to the cold-land climatic environment should evolve from helpless resistance to theoretical, systematic, and hierarchical cooperation. In this paper, the environmental factors that influence the creation of architectural forms in cold places are divided into three aspects: temperature, light, and wind and snow. The sun shines on different locations of the Earth and there is a difference in temperature, which causes air flow to form wind, and the wind brings evaporated water from the ground to form rain and snow at high altitude. In this chapter, the environmental factors affecting the creation of cold-land architectural forms are divided into three aspects: temperature, light, and wind and snow, and the geomorphic synergistic creation of these three aspects is investigated separately so that the geomorphic synergistic creation strategies for cold-land architectural forms in special climatic conditions are proposed.

3. Digital Geomorphology Influences the Optimal Design of the Spatial Distribution Pattern of the Central Plains Urban Landscape

3.1. Design of Digital Geomorphology of Urban Landscape Space in the Central Plains. This study hopes to analyze the landscape pattern more systematically and comprehensively based on the previous studies, so it is necessary to build a framework to organize the multiscale and digital tools. This chapter discusses the technical framework of multiscale digital landscape pattern analysis. The current research on the relationship between environment and urbanization is shifting to a longer and broader spatial and temporal scale in which the whole city is considered as a human-dominated complex system and a more integrated system approach, as well as urbanization-environment interaction patterns under different geographical and social gradients [19]. This has led to a more integrated view of the landscape substrate, as well as a greater focus on the interaction between landscape patterns and urban activities, and the construction of technical frameworks has gradually become a major means of systemic solutions. Although multiscale studies of landscape patterns are still relatively little carried out, digital analyses combined with or involving landscape pattern studies have been quite numerous and practiced in the field, and these have laid the foundation for the construction of technical frameworks. In this paper, we conduct multiscale research based on remote sensing data and construct a technical framework to analyze landscape patterns more systematically.

To avoid excessive errors, multiscale studies need to build a framework system of scale deduction based on appropriate theories. The multiscale study of landscape patterns is essentially a quantitative differentiation of its impact on the urbanization process. The purpose of the study of landscape pattern includes the renewal and expansion, view optimization and enhancement, habitat network construction, cultural heritage integration within the urban area, and the ecological exchange, landscape base relationship, and heritage network construction outside the urban area, as well as the influence of climate and rainfall in a larger geographic space. In conclusion, the scaling of the landscape pattern in this study is based on the development of the city (including the development of physical space and spiritual civilization), visuality, and ecology and is implemented in geographic space.

From Table 1, it can be seen that most of the multiscale analyses related to landscape pattern studies, except for some of them which take the unique structure of the research object as the scale division criterion, still take administrative division (region/city group, city/state, district/county, and community/neighbourhood) as the geographic scale division criterion; we guess this phenomenon is due to the disciplinary characteristics of the research combined with practice on the one hand and also to facilitate the follow-up consistency with specific planning and control measures. In Table 1, we define the different heights, and the values in the last column indicate examples of the values in this paper. At the same time, China is still in the developing stage, and the goal of planning and design is still mainly to serve the developmental requirements, which is also true for the study of landscape pattern, but it should also take the ecological requirements as the bottom line and meet the visual requirements. As this study serves the overall urban design, it is the content of the research chapter of the overall urban design, and its main content is the objective understanding of the natural processes and human elements within the site which are affected by the landscape pattern, where the content related to the natural processes includes the elevation, topographic relief, river network, and runoff within the site. As mentioned above, it is a city located on a hillside with a large difference in elevation between the north and south ends of the city, and the lack of water in the city is relatively serious; and the citizens also hope that the city can increase water and greenery, so, out of these realistic conditions and needs, the research content of the landscape pattern is determined, and the scale level of this study is delineated in combination with previous multiscale studies.

The DEM data used in this study is a common data source for objective analysis of geographic information of design sites within the discipline and is also the basic data for digitizing landscape patterns. The analysis of phenomena or processes related to landscape patterns will be overlaid on the DEM for visualization to better understand the

Table 1: Scale hierarchy in multiscale studies related to landscape patterns.

Basic form type	Relative height (m)	Values
Alpine	>800	1235
Zhongshan	600–800	750
Low mountain	100–600	342
Hill	10–100	59
Plain	<10	4

landscape patterns and their impacts. As mentioned above, there is a scale effect in the utilization of DEM data, so data preparation for each scale study is needed after the scale level is determined. The data processing is carried out through ArcGIS and MATLAB platforms [20]. The former resamples the downloaded DEM data, and the sampled data are used to calculate the box dimensions through the FracLab Toolbox of the latter, while the dichotomous method is used to continue the resampling to select the appropriate DEM data at each scale. The results of the fractal dimension calculation are plotted in a line graph of the trend change using the software, as shown in Figure 1.

The scale has fractal characteristics and DEM data have scale effects, so the data are not always as accurate as possible. As the geospatial extent of the analysis increases, the accuracy of the DEM data used should be reduced accordingly to avoid the computational pressure and trend dispersion caused by detailed data redundancy. Therefore, in this study, the fractal dimension is used to calculate the scale turning point to determine the accuracy of the DEM data used at each scale. The water system is also an important source of water vapor replenishment at the site.

Geographical names are an expression of people's perception of geographic entities, and they carry information about the natural environment of the region. The natural landscape names in the Daichi area include mountain, water, animal, and plant names, among which mountain names are represented by DEM elevation maps and kernel density to reflect the correlation between mountain names and topography and spatial distribution characteristics; water names are analyzed by buffer zones to analyze the correlation between water names and Dianchi watershed; animal names and plant names are explained by kernel density to explain their spatial distribution. The spatial distribution of animal and plant names is explained by the kernel density. The distribution status of the point elements of the natural landscape class of place names in the area around Dianchi is obtained by the kernel density estimation method, as shown in Figure 2.

Compared with the simpler topographic factors such as elevation and slope of conflict landscapes, moderate conflict landscapes have more complex effects on the creation of cold-land architectural forms in terms of topographic alignment, hydrology, boundaries, routing, and other matrix ecological patterns. In compliance with this degree of conflict landscape environment, the creation of cold-land architectural form should focus on the interaction between architectural form and natural landscape spatial pattern and respond to the ecological geological conditions with greater inclusiveness. Visual differences and other methods are used to eliminate the balance conflict between buildings, which is conducive to the recovery of the original ecological pattern composition. A balanced cold-land building form can have a better defined layout and a greater degree of regional ecological regulation.

For natural landscape ecological patterns with intact ecological structures, they represent patterns that are studied in the process of protecting and maintaining the original structural form. It is often applied to natural substrates with large patches of environmental resources that are self-sustaining, with unobstructed corridors to ensure the energy requirements within the ecological structure. At a later stage, all reinstalled heterogeneous patches and corridors will exist in a degraded state of maintenance in terms of grade and scale to maintain ecological symbiosis. With the movement of the Earth's crust and the intensification of human activities, more natural environments are at an ecological disadvantage. For such unfavorable conditions, we usually use relatively reasonable small patches in the substrate as the base unit and place artificial patches with active optimization into them, so that they can cocreate new regional ecological structures and create new pattern stability and biodiversity. This can weaken the ecological disadvantage and increase the user's participation and closeness to the ecology, reduce the risk factor of the unfavorable pattern, have better excessive properties, and can reconstruct the corridor to solve the original unfavorable truncation or filtering heterogeneity problem.

3.2. Landscape Space Layout Optimization Design. The convolution layer can extract feature values from the landscape by rectangular size regions, and each extracted feature rectangle becomes a convolution kernel. The convolution kernel performs a sliding window-like convolution operation to obtain all features of a picture and perform operations by the size of the step.

$$G_{ij} = \frac{\sum_{i,j=1}^{m,n} R_{ij} \cdot U_{ij}}{\sum_{i,j=1}^{m,n} E_{ij} \cdot U_{ij}}, \tag{1}$$

where G denotes the final value coming out of the convolution, R denotes the value of the convolution parameter, U denotes the integral value of the convolution process, and E denotes the corresponding error value. The dynamic nature of landscape big data is a universal characteristic of big data. With the rapid development of the Internet, data is exploding and dynamic changes in data have become the norm. Dynamic monitoring data, positioning communication data, network media data, and so forth change with time and crowd activities. Through positioning communication data, we can analyze the direction of crowd flow and the location and time of interest points in different periods, which is conducive to analyzing people's behavioral activities and the space usage of the site [21]. By dynamically monitoring online media data, we can understand the needs of people and their evaluation of the social service function of the site before and after renovation, which is beneficial to public participation in design.

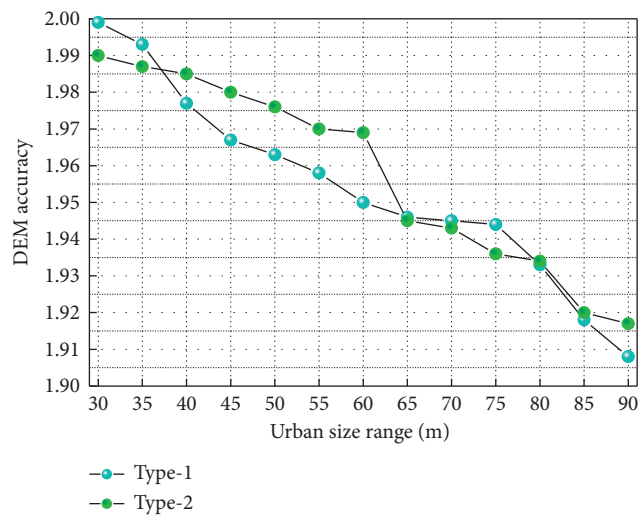

Figure 1: Variation of box dimension with DEM accuracy at each scale. Type 1 is DEM data for resampling and type 2 is sampled data for box size calculation.

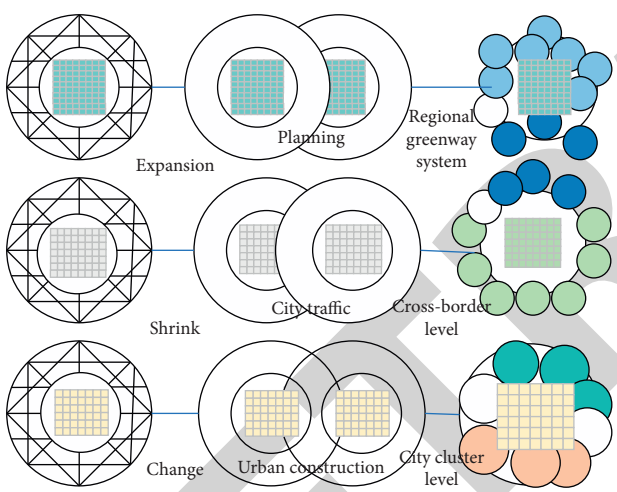

Figure 2: Graphic representation of planar plaque types.

Corresponding to the dynamic nature of landscape big data is the present situation of data, with the rapid update of data, the interception of data can only represent the current stage of change, reflecting the latest natural and human conditions of the site, information on the flow of people and evaluation, and so forth. For example, remote sensing image data generally shows the latest site images, and the use of socioeconomic data is also based on the latest statistical data and, through the latest population distribution and community data, can effectively allocate landscape resources and improve the use of resources to avoid the waste of resources.

$$f^{n}(t) = \lim_{h \longrightarrow 0} \frac{1}{h^{n+1}} \sum_{m=1}^{n} (-1)^{m} \binom{n}{m} f(t + mh). \tag{2}$$

With the improvement of equipment performance, the data that can be observed and collected are becoming finer and finer. The temporal and spatial resolution of the data has increased. The high temporal resolution can reflect the subtle dynamic changes of things and phenomena, and the high spatial resolution can see the fine details of things, which is important for identifying and analyzing the natural and human elements of the site. For example, the data of heat map has been changed from the original one hour to every fifteen minutes automatically, which greatly shortens the time interval and can improve the accuracy of analyzing the changing trend; the resolution of remote sensing image map has been changed from the original 30 m to the current 50 cm so that the planner and designer can see more detailed features, which is conducive to the excavation of human and natural features of small sites. The traditional site view may encounter the problem of inaccessibility. With the improvement of accuracy, the researcher can get a comprehensive understanding of the current situation of the site without leaving home, which improves work efficiency.

$$F = \frac{Ml \sin \alpha \cos^{2} \alpha}{\cos^{4} \alpha - 4 \cos^{2} \alpha + 1} \dot{\theta}(0)^{2},$$
$$b_{ij} = \left(\sum_{k=1}^{n} b_{kj} (i, j = 1, 2, \ldots, n) \right)^{-1}, \tag{3}$$

where M denotes the constant, F is the number of factors, and b denotes the value of the weights. The existing roads within the site are an important reference for planning and design. To reduce human intervention on the site, we advocate retaining the existing infrastructure within the site under the premise of meeting the overall style of the design. The existing road system is reflected in the planning drawings, which generally includes information on the location, width, and grade of the road. The nature of the roads and the daily opening hours and congestion times can also be learned through the official websites of various navigation software. The road system outside the site is also part of the current situation analysis. Combined with the surrounding road system, the interface between the road system inside the site and the outside can be set up to form a whole with the surrounding road system, as shown in Figure 3.

Based on the reality of urban development, which is a morphological expansion in the core of municipalities, administrative districts, and boroughs, as well as some urban villages and old urban areas undergoing turnover, the subsequent research in this paper focuses on expansion and turnover. The type of contraction over time at the same scale range is uncommon but does not mean it does not exist. The rate of contraction is not necessarily slower than the time of expansion, as in the case of the Ming and Qing dynasty sea bans, the collapse of houses and walls in the Shenzhen area, and the large population migrations that occurred in a very short time cycle.

Vegetation conditions are different for different sites, such as forest parks, botanical gardens, and conservation bases, where vegetation conditions are the focus of planning and are particularly important. The most important thing that the landscape emphasizes to respect the site is to preserve the resources of the site, and vegetation is an

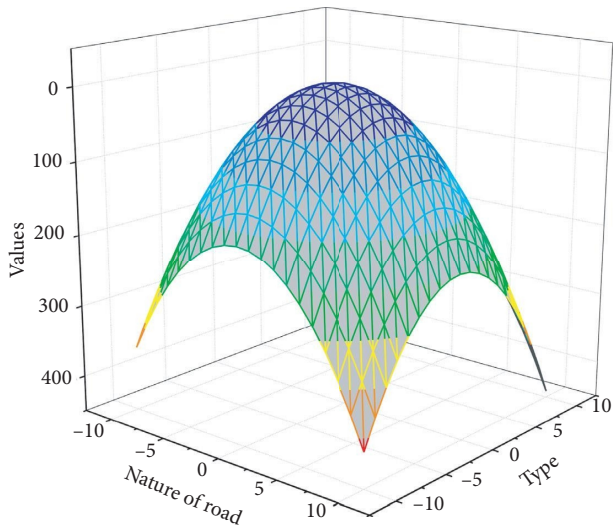

Figure 3: Schematic diagram of the calculation of symmetry salient features based on a contour map.

important resource within the site. Sustainable and ecological aspects are emphasized in landscape planning, and, for plants, we insist on using local species to maintain the biodiversity and ecological sustainability of the site.

$$\omega_i = \sum_{j=1}^{n} b_{ij} \, (i, j = 1, 2, \ldots, n),$$

$$\begin{cases} g_i = \dfrac{\omega_i}{\sum_{j=1}^{n} \omega_j}, \\ \sum_{i=1}^{n} g_i = 1, \end{cases} \tag{4}$$

$$k_{nn}(x) = \sum_{i=1}^{N} w_i s_i(x) = W^T S(x).$$

A relatively gentle cold-land landscape, a type of creative environment, has relatively little influence on architectural creation in terms of topographic elevation, slope, or even geological structure. However, the undulating surface folds also tend to form microclimate sites with light, air, and other elements assembled attached to and interacting with the larger cold-land environment. For cold-land buildings, both hot and cold temperature comfort can have a direct or indirect effect on the internal space, which defines its shape and thus changes the external space of the building [22–24]. Therefore, the key issue to deal with such features of the landscape environment is that the creation of cold-land architectural forms should abandon the simple placement of forms, and the ground should be subdivided into more layers, so that the transformation of the form of the landscape environment can be the source of the generation of architectural forms [25–27]. In line with the geomorphic folding trend, it is summarized through simplified lines and continued. It expresses an architectural form with the power of growth born here. The unique thermal stability of the land combined with the full use of the folded slope creates a thermal insulation zone and a cold wind barrier, forming a stable cold building space form that is dependent on the environment.

At different levels, morphology does not always need to be constructed by streets and street systems about the enclosure of building elements, and morphology at different levels must be graphically reflected as patches, as defined in the planning grid of this paper. There is a hierarchy of pivots; for example, most pivots in the sense of towns or streets are distributed in the interval of roughly 1–10 square kilometers, and some county morphological pivots are in the interval of a few square kilometers to 20 or 30 square kilometers. From the definition of hierarchy, we can define a system of scales to compare and analyze the morphological processes in different cities and different areas of the same city. For example, in Barcelona, the network of street blocks is roughly 100 m~200 m long, the scale of street blocks ranges from tens to hundreds of meters, and, in some large residential areas, the scale of street blocks even reaches several kilometers long; regardless of these, the morphological evolution of sprawl inevitably leads to an increase in the number of patches and an increase in the area. To study the urban evolution of Shenzhen, we can define six scale levels of $2\,km^2$, $10\,km^2$, $50\,km^2$, $200\,km^2$, and $1000\,km^2$, so that different scale levels are developed; we have a hierarchical concept of understanding, and of course, we can also define $1\,km^2$, $10\,km^2$, $100\,km^2$, and $1000\,km^2$ hierarchy. You can also construct sequences like 7, 28, 56, and 140, but this is not necessary.

4. Analysis of Results

4.1. Analysis of the Results of Digital Geomorphic Minded Cityscape. The above parts of this section are for a single plaque, while the reality is much more complex. Once the individual is clarified, the analysis of the multiple will have a basis. This section on morphological pivots and planar evolution types will analyze the relationships and interactions of multiple patches. The single case is the assumption that we can observe morphological regions in the plane at a certain scale which do not identify the internal structure. When we enlarge the scale and go deeper into the interior regions, we find something different. In a morphological region, assuming we observe the central area of Futian, which was previously viewed as a whole, and enlarge the scale to be able to identify the planar patches of each street block, we find that, after a certain period of morphological evolution, through the interweaving of three types of planar evolution, a stable boundary is formed, and the continuous area within the stable boundary, which we call the morphological pivot of the street block hierarchy, is graphically where we can see the continuous concentrated arrangement of patches. On the other hand, we consider the other discontinuous parts as fluctuations to the pivot. To illustrate the problem, the complex problem is simplified and graphical analysis is given, as shown in Figure 4. In Figure 4, types 1–4

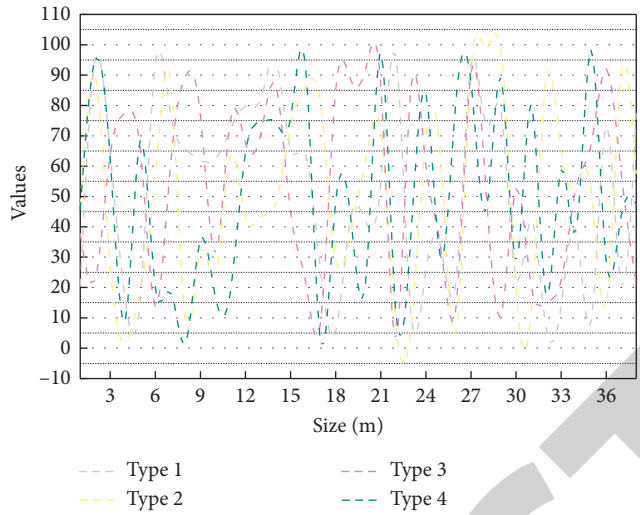

Figure 4: Numeric graphs.

represent the resultant output for each of the four different individuals.

From the perspective of urban design, the demand for landscape pattern research is mainly to understand the natural processes carried out by the landscape pattern of the site; the landscape pattern for the natural processes and construction needs of the site is mainly focused on the surface runoff process, the site temperature process, and topographic relief, which will further affect the subsequent ecological and construction processes, for example, surface runoff affects the layout of urban water engineering related projects. These three factors will further influence the subsequent ecological and construction processes, such as surface runoff influencing the placement of urban water engineering related projects, influencing urban landscape effects and design, and so forth, while temperature processes affect both urban climate and urban comfort and so forth, and topographic relief directly affects the subsequent development and construction and so forth.

Due to the landscape pattern, there are almost no natural elements in the east-west direction of Dengfeng city that can be used as a carrier of ecological and cultural corridors, and, to build a cultural network and green network in the city, the east-west corridor needs to be planned for, and the cultural and landscape setting combined with the road becomes the main consideration direction. Therefore, it is considered as a major landscape avenue for the east-west direction of the city to be built. On the north side of Shaolin Avenue, Dayu Road connects the main civic park Songyang Park and Fengsi Tan in the city and has good accessibility to Mazhuang Reservoir, which is also a road with high vitality in the city, so Dayu Road also serves as a possible carrier for the east-west ecological and cultural corridor. Besides, for the south side of the city, Zhenglu Expressway is the main cross-border expressway through the city, which has an important role in external communication. Considering that the construction of protective green space is needed on both sides of the expressway, it can be used as a connection node for the two remaining veins of Song Mountain in the south direction, so the third east-west ecological corridor takes Zhenglu Expressway as a possible carrier, as shown in Figure 5.

In any morphological process of any level, a completed morphological type containing at least two or more morphological pivots is called a morphological trend of that level. A morphological increase in area is called an expansion, and a decrease in area is called a contraction. The morphological types mentioned above must be the connection of a completed morphological type of a certain level with another. Corresponding to reality, the biggest confusion and difficulty is when is it completed? A morphotype that is not completed is called an extension of a morphotype. For example, a morphological change, after three neighboring consecutive subgrade morphological types, can be completed at any time; that is, it can be said that as long as three neighboring consecutive subgrade morphological types appear, the change can be finished at any time, but it can be completely not finished; it can be extended continuously and keep on changing in the morphological pivot until infinity, which is just like some old cities maintained for a long time at a relatively stable built-up area. These pivot levels get larger and larger, and the pivots rapidly connect to form larger pivots, producing larger levels of cities, as shown in Figure 6.

From the perspective of the city as a whole, the overall spatial pattern of the city can be described as two typical heterogeneous patches, namely, the "non-built-up area" and the "built-up area." In the earliest years, the built-up area accounted for a small proportion of the city, but, as time went on, the built-up area gradually expanded until it occupied more than 40% of the city map, at which time the built-up area and the non-built-up area were mosaic, and to a certain extent they could be regarded as two "patches" of confrontation and integration. The evolution of the overall urban morphological pattern can be seen as a dynamic process of spatial extinction. During the historical period, the districts were physically separated by morphological

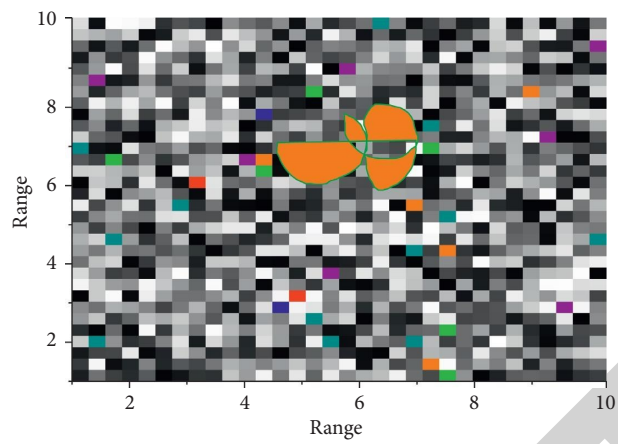

Figure 5: Simplified model of levels and pivots.

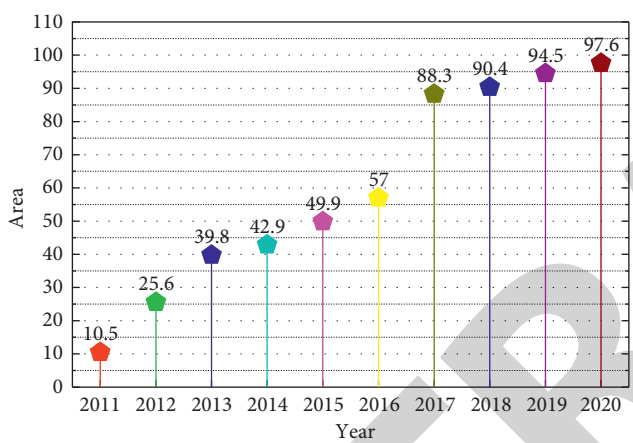

Figure 6: Change in a total area of built-up area.

areas, and when the hubs expanded, they were eventually connected into one by several morphological hubs, forming hundreds of square kilometers of contiguous patches from a few dozen square kilometers of morphological hubs. Dongguan, which borders with Shenzhen, has a built-up area close to it, but its structure is a multipivot structure with each town as the center, and each pivot is connected by a transportation road network, and the patches are not integrated. Therefore, the grade of urban form is determined by the largest form pivot. The scale of the built-up area is not only an important indicator of economic development but also a key element indicator showing the form of spatial change. The overall pattern of urban spatial form in Shenzhen is assessed by examining the total scale of the built-up area as well as the ringgit growth of the calendar year.

4.2. Analysis of the Results of Landscape Space Layout Optimization. The green network planning and design of the urban area need to be connected to the ecological pattern of the city. From the watershed scale, the river is located in the upper reaches of the Yinghe River, which is also a major tributary of the Huaihe River, and there is an urban gradient in the discharge and treatment of the river; from the city scale, Songshan, Jishan, Gutzishan, the Yinghe River, and Shuangcook River play a restorative and regulating role for the Greenland system and urban climate of the surrounding cities. On the one hand, it is necessary to link the large and small green areas in the current urban area to form a network system to enhance ecological communication, and, on the other hand, it is also necessary to consider the urban green network as part of the regional green network, which needs to communicate with the ecological pattern of the city, as shown in Figure 7.

Combining the analyses of landscape pattern at the city scale and urban scale, it is easy to find that the two remaining veins of Longshan Mountain not only divide the east-west group of the current city but also serve as important watersheds for the three rivers in the city and are important green areas for the north-south communication of the whole Dongfeng city, so it is very important to preserve and build green areas for the twin veins. At the same time, by combining runoff and rivers on the urban scale, the authors propose building a green network by combining green areas and rivers, hoping to strengthen the retention and utilization of rainwater and surface runoff in the urban area of Dongfeng to alleviate the water shortage in the city (requiring engineering support) on the one hand and to achieve the effect of "water is clear when there is water, and green when there is no water" in the three major waterways of the city on the other hand. The other is to achieve the effect of "water is clear, no water is green" in the three main waterways of the city.

As analyzed earlier, there is rich contextual information between targets and scenes in the real world, and the human visual system makes full use of this scene contextual relationship when performing visual tasks, which, usually, is an a priori information, closely related to experience or memory, as shown in Figure 8.

For example, in daily life, people may sometimes look for remote controls indoors, and, in searching for the target of remote controls, the human eye usually allocates more attention to the area of objects with support functions, such as tables, rather than ceilings or walls and so forth, because a priori

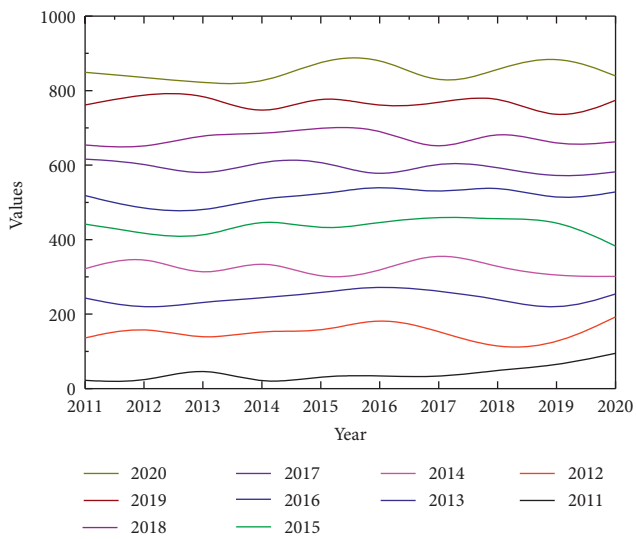

Figure 7: Sample distribution of the expanded LSUN data set, indicating the scene type.

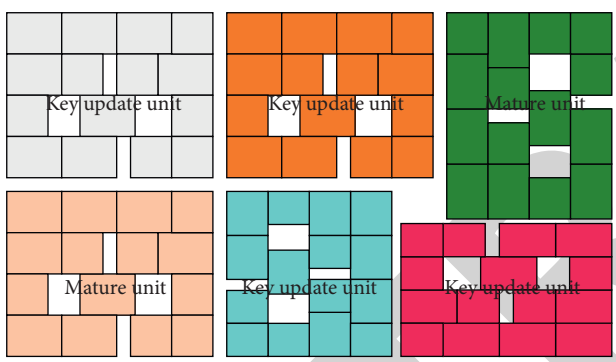

Figure 8: Urban landscape renewal plan.

knowledge tells people that remote controls are usually not likely to be found on ceilings or walls, and the creation of place spirit is a process of moving from large too small. The creation of the spirit of place is a process from large to small and from macro to micro. Often, many cold-land architects neglect the biochemical effect of environmental elements on the expression of the spirit of the whole building when they complete the overall architectural layout. The light, shadow, and vegetation that have always existed in the environment are often forgotten due to inertia, but it is the unconscious addition of such environmental elements that are dissolved in the blood that will enhance the sense of belonging and immersion brought by the overall architecture.

5. Conclusion

Based on the previous research on landscape patterns, this paper adopts a digital approach from a multiscale perspective to build a systematic method for multiscale digital analysis of landscape patterns and explores the subsequent planning and design strategies in conjunction with the actual situation. From the current development needs, the main obstacles, and the authors' professional background, we establish the target system, establish the scale level under the guidance of the target system to build the scale system, build the basic data set based on the scale system and carry out the specific analysis content under each scale, and use the analysis results to assist the strategy system. Based on these data, we summarize the current problems, construct the basic data sets, conduct multiscale analysis under the guidance of the methodological framework, and combine the analysis results with the planning and design contents to assist in the formulation of planning strategies. For realistic urban construction, the multiscale hierarchical planar pattern research system is fully capable of extrapolating from small-scale analysis to large-scale analysis. Cities are self-similar at different scales, and urban evolution is a process of recursion from small-scale hierarchy to large-scale hierarchy, and hierarchy is a phenomenon presented by the natural evolution of cities.

Data Availability

The data used to support the findings of this study are available from the corresponding author upon request.

Conflicts of Interest

The authors declare that they have no conflicts of interest.

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