Computer-Aided Dynamic Evolution Analysis of Roof Decoration Art in Northern Jiangsu Based on Low-Frequency Remote Sensing Image Technology

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Abstract:In the application of remote sensing image fusion based on wavelet packet, the wavelet packet frequency shifting algorithm used to adjust the frequency sequence of wavelet packet decomposition is introduced to solve the frequency aliasing phenomenon caused by interval sampling. The roofs of ancient residential buildings in northern Jiangsu have a unique art. Features: Discusses the roof decoration art of residential buildings in northern Jiangsu, aiming to provide some references for modern architecture. It shows that the roofs of residential buildings are deeply influenced by the land culture and marine culture, and have both normative, delicate and exaggerated factors. . The roof ridge of the folk houses embodies the uniqueness and rich connotation of Nantong culture, and we need to actively explore the beneficial elements in it. By examining the overall trend of international computer-assisted language testing research, high-yielding countries, authors, institutions and high-cited journals, research hotspots and high-innovation literature.

Keywords: Computer-Aided Dynamic Evolution, Roof Decoration Art, Northern Jiangsu, Low-Frequency, Remote Sensing Image

1. INTRODUCTION

Remote sensing image fusion refers to the information fusion of remote sensing images of different wavelength bands, spectral resolution, spatial resolution and temporal resolution about the same target. Describe [1].

Image fusion processing is mainly performed at three different levels: pixel-level fusion, feature-level fusion, and decision-level fusion. Remote sensing images are an important data source for obtaining large-scale surface distribution]2[. At present, there are more and more remote sensing images available at home and abroad, such as SPOT panchromatic images [3], TM multispectral images, synthetic aperture radar images (SAR) and other traditional dwellings in northern Jiangsu are no exception. It is one of the regions with the longest history in the region [4], with a special geographical location, and the shape of the dwellings shows the characteristics of "Southern Show and Beixiong". Therefore, the roof art also shows its unique charm [5].

These rich and colorful regional cultures with distinctive characteristics together constitute a broad and profound Chinese culture. Probing the diversity of traditional cultures is an important way to demonstrate "cultural confidence" in the Jiangsu take advantage of local materials [6], craftsmanship and technology, adapt measures to local conditions, use local materials, and reflect the beauty of decorative art through stone carvings, brick carvings, wood carvings and other forms. After the building has been washed over and over again by history [7], its significance is not only simple for people to live in and shelter from wind and rain, but every building is endowed with its unique culture and appearance by history, and it carries a city.

The traditional residential buildings in our country have a unique cultural heritage, and the charm of the roof is also meaningful [8]. The traditional residential buildings in northern Jiangsu are no exception. The social culture in northern Jiangsu is one of the regions with the longest history

in the region, and its geographical location is special. From simple objective evaluation to complex subjective evaluation such as composition and translation [9], from stand-alone test to online test, from computer proposition to automatic language level evaluation, it has played an increasingly important role in teaching. From stand-alone test to network test, from computer proposition to automatic language level assessment, it has played an increasingly important role in teaching [10].

The 558 computer-aided language testing research literatures included in SSCI journals are systematically sorted and analyzed using CiteSpaceV [11], which aims to help domestic scholars better grasp the development trend and direction of this field, so as to further promote the research on computer-assisted language testing in my country [12]. develop. Remote sensing image fusion is also one of the key technologies in remote sensing image processing, which is related to the further development of remote sensing applications. At present, the research on image fusion can be divided into pixel-level fusion, feature-level fusion and decision-level fusion [13]. The algorithm can generally achieve better results, but the choice of different fusion rules has an important impact on the fusion effect [14].

In this paper, wavelet transform is used to fuse images, and multi-window area statistical variance maximum is used to achieve effective edge detection of high-frequency images. Therefore [15], people expect to obtain high-resolution images in reality. There are two main ways to improve the spatial resolution of low spatial resolution remote sensing images. One is to improve the accuracy and stability of the imaging system based on hardware [16]. The northern Jiangsu region is located in the Huaiyang boundary, with superior natural conditions and both north and south. The climate and temperature are moderate, and the characters and customs of the residents are also a combination of north and south characteristics [17].

The roof ridge design in the traditional dwellings in Nantong has distinct artistic features and contains unique and rich value connotations [18]. It is an important representative of Nantong's traditional culture. Through the decorative art design of the traditional residential roof, we will find the colorful Nantong traditional culture, where there is the shadow of the delicate Wu culture [19].

2. THE PROPOSED METHODOLOGY

2.1 The Low Frequency Remote Sensing Image Technology

The interval sampling in the wavelet packet decomposition process reduces the sampling frequency of the signal, which leads to the phenomenon of frequency aliasing in each decomposition series, that is, the natural order of frequency bands in each subspace is not the frequency order. Now take TM image and SPOT image as examples Explain the effect of fusion. Based on the above algorithm, the image is fused and compared with the results of other fusion strategies decomposed by wavelet transform.

The super-resolution reconstruction process is the inverse process of the image degradation model. The reconstruction result has the following three problems due to its ill-formedness, which can avoid the frequency aliasing phenomenon caused by continuing to decompose high-frequency components. The description of the frequency-shifting algorithm can be found in the literature. From the qualitative and quantitative analysis, it can be seen that the wavelet transform can decompose the original image into a series of different directions and different resolutions. It can fully reflect the local change characteristics of the original image. In this paper, the method of ordinary image reconstruction is introduced, and the super-resolution reconstruction of remote sensing images is studied through the decomposition of remote sensing images, the recovery of high-frequency information, and the application of mature wavelet tools under the Matlab platform.

It can be seen from the above structure that, different from wavelet analysis, the natural order of frequency bands and energy order after wavelet packet decomposition do not match. The regional energy fusion strategy reduces the preprocessing of the image, and the distribution of the regional energy realizes the fusion of the image, taking into account the overall characteristics of the image, and the blur function describes the degree of blur degradation in the image formation process. Therefore, blur recognition is the key factor of super-resolution image reconstruction technology, and the accuracy of the blur function directly affects the imaging quality of super-resolution reconstructed images. However, the details of the image are not reflected in detail, which affects the fusion quality.

2.2 The North Jiangsu Folk House Ridge Decoration Art

The structure and shape of the northern Jiangsu dwellings are basically closed and introverted courtyards with the concept of a central axis [2]. From the perspective of space permeability, due to the cold winter and the need to keep warm, and because of the introverted national cultural character, generally only the ridge of the house will adopt the image of the dragon and phoenix totem that is more majestic in visual effect, while the other ridges are relatively simple. The selection of roof ridge materials and the fineness of decorative art all reflect the difference between the noble and the lowly, and the order from top to bottom. Brick carving is a process technology of carving and processing on specially made blue bricks.

Bricks are harder than wood, not afraid of rain, and can be used outdoors, and bricks are easier to process than stone. Another feature of brick carving is the sense of unity with the building. The pattern head ridge uses the pattern of the back pattern and the random pattern as the engraving pattern, which is composed of simple lines of either garden or square, and looks like a cloud of auspicious clouds, and these two patterns are evolved from the cloud and thunder pattern. The natural and cultural environments of the regions are different, showing a variety of appearances. These individual characteristics and regional differences make the roofs of the northern Jiangsu dwellings overflow with different meanings. A variety of looks. These individual characteristics and regional differences make the roofs of northern Jiangsu dwellings overflow with different meanings. The circular line is the cloud pattern, the square is the Raven, and the combination of the two is the cloud and thunder pattern.

From the above two pictures, we can also roughly feel this point, which is especially reflected in the shape design of both ends of the roof ridge. The roof ridge design in Figure 1 is a totem image of a leading head. From the perspective of shape design, the image is as realistic as Yangzhou Heyuan. The "Wind Blowing Peony" on the east wall of the Peony Hall Brick carving shape 1f: the wings of the phoenix superimposed in perspective are flattened in the middle of the triangle, and the long tail of the phoenix isstretched to the left and right ends of the triangle respectively. Sugarcane Ridge Two The end is a back-shaped pattern, the tiles are erected and arranged on the roof in the middle, and the top is brushed with hood ash, which looks like sugar cane. Not only is the appearance simple and beautiful, the sugar cane ridge also has the function of preventing rainwater from entering the wall. Residential houses are not just buildings for people to live in in a simple sense, every detail in them reflects the concepts and ideas of human groups in a specific time and space, and the decorative design of the roof is no exception.

2.3 The Computer Aided Dynamic Evolution Analysis of the Decorative Art of the Roof Ridges in Northern Jiangsu

Stone carvings are often used in the bases of dwellings, such as pillar foundations, railings, railings, door pillows, drum-holding stones, etc. The stone carvings in the traditional houses in northern Jiangsu are only shown in a few parts such as the drum holding stone of the big fj. In Chinese myths and legends, the dragon has countless magical powers and has given people various favors. Since Liu Bang, the founding emperor of the Han Dynasty, the dragon has become a symbol of the royal family, so the dragon's kiss ridge is the highest level of the roof.

This paper believes that there are three main reasons for the overall upward trend in the number of published papers in this research field in the past two decades: (1) After the 1950s, information technology has developed rapidly, and electronic computers have begun to popularize. Scores were highly correlated with scores on computer-assisted tasks, but scores on computer-assisted tasks were significantly lower because participants felt uncomfortable sitting in front of the computer. Keywords are the core and essence of an article, which can reflect the theme of the article [3], so we can see the hotspots in the whole computer-aided language testing research field through the extraction of keywords. The objective evaluation of the fused image is to give the

numerical evaluation of image features from the point of view of mathematical statistics.

The conventional local variance fusion strategy fuses high-frequency sub-images from three directions, retaining the details of the image, but not considering the overall visual effect. The fusion strategy proposed in this paper considers different levels, otherwise, in the process of wavelet decomposition, the signal is continuously decomposed, and more and more approximation information and detailed information are obtained at each decomposition level. It carries the specific ideological traditions and ways of thinking of people in specific regions, and has its unique and richer value pursuit and value connotation. We have realized this by exploring the decorative art features of the roofs of residential buildings in Nantong.

3. CONCLUSION

The research in the field of remote sensing image fusion shows that the wavelet packet frequency shifting algorithm can comprehensively improve the fusion quality Images were analyzed and compared. The architectural decoration art of traditional residential buildings in northern Jiangsu integrates the spirit of traditional Chinese culture, combines the characteristics of northern and southern architectural art, and combines the regional characteristics of northern Jiangsu. a state of harmony.

4. ACKNOWLEDGEMENT

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