Research Paper

Urban living environment assessment index system based on psychological security

Huiyi Xia，Shanghai Tongji Urban Planning & Design Institute Co., LTD.，China

Nankai Xia，Shanghai Tongji Urban Planning & Design Institute Co., LTD.，China

Liu Liu，Shanghai Tongji Urban Planning & Design Institute Co., LTD.，China

Room 701，Tongji Planning Building，No.38 Guokang Road,

Yangpu District, Shanghai, China

Tel：0086 13916913606

Email:33255371@qq.com

Abstract

With the development of urbanization and the continuous development, construction and renewal of the city, the living environment of human beings has also undergone tremendous changes, such as residential community environment and service facilities, urban roads and street spaces, and urban public service formats. And the layout of the facilities, etc., and these are the real needs of people in urban life, but the characteristics of these needs or their problems will inevitably have a certain impact on the user's psychological feelings, thus affecting people's use needs. Then, studying the ways in which urban residents perceive changes in the living environment and how they perceive changes in psychology and emotions will have practical significance and can effectively assist urban management and builders to optimize the living environment of residents. This is also the long-term. One of the topics of greatest interest to urban researchers since then.

In the theory of demand hierarchy proposed by American psychologist Abraham Maslow, safety is the basic requirement second only to physiological needs. So safety, especially psychological security, has become one of the basic needs of people in the urban environment. People's perception of the psychological security of the urban environment is also one of the most important indicators in urban environmental assessment.

In the past, due to the influence of technical means, the study of urban environmental psychological security often relied on the limited investigation of a small number of respondents. Low-density data is difficult to measure the perceptual results of universality. With the leaping development of the mobile Internet, Internet image data has grown geometrically over time. And with the development of artificial intelligence technology in recent years, image recognition and perception analysis based on machine learning has become possible. The maturity of these technical conditions provides a basis for the study of the urban renewal index evaluation system based on psychological security.

In addition to the existing urban visual street furniture data obtained through urban big data collection combined with artificial intelligence image analysis, this paper also proposes a large number of urban living environment psychological assessment data collection strategies. These data are derived from crowdsourcing, and the collection method is limited by the development of cost and technology. At present,

the psychological security preference of a large number of users on urban street images is collected by forced selection method, and then obtained by statistical data fitting to obtain urban environmental psychology. Security sense training set. In the future, when the conditions are mature, the brainwave feedback data in the virtual reality scene can be used to carry out the machine learning of psychological security, so as to improve the accuracy of the psychological security data.

Keywords

urban environment, psychological feeling, artificial intelligence, method research

1. Problems arising under the policy of wall-up planning in China's demolition shop

Urban planning in China has always been based on government decision-making. Although some factors such as cultural economy and resources are also taken into account in the design process, social and psychological factors are often ignored, resulting in certain differences between government investment and the feelings of the masses after the implementation of the plan.

For example, in response to the new round of overall land planning and wall repair policies in Beijing and Shanghai, Beijing and Shanghai have concentrated on renovating residential shops along the street, Yongkang Road and Changshou Road in Shanghai, as well as various shops in the east-west urban areas of Beijing and Chaoyang in recent years, with the intention of restoring the style and appearance of streets and alleys. In 2017 alone, Beijing has demolished 1496 shops in Xicheng District, covering an area of 13297.4 square meters. As an open block model, Shanghai has also carried out block renovation work, Yuyuan Road, Fuxing Road, Yongkang Road and other commercial along the street have also been demolished. However, a series of social reactions have been praised and demoralized. It's different. Many people feel that the move has damaged the living environment and feelings of the local population, and lost the original vitality of the street.

2. The importance of psychological safety to the community

First, human is a socialized animal, and communication is one of the important links of social psychology. The communication provides the information resources necessary for the physical and mental development of the people, and the people exchange information and establish and maintain contact with each other. Communication is the way of self-concept formation, and is an important means to meet the demand and maintain the psychological balance. As the end user of the street space--in the case of the masses, our little street is not only a convenient means of living, but also a channel of more social interaction and emotional release.

There is a lack of communication between the modern community and the old neighborhood and the neighborhood. Along the street, it is different from the community greening and the community space, and people will consume a certain degree of time (such

as shopping, dining, etc.) along the street, and this kind of space provides some degree of space for the masses.

At the same time, the inconvenience and the change of the environment caused by the demolition and repair of the wall have not improved the public security of the audience in nature, and the lack of the lively neighbourhood commerce has reduced the public's natural supervision of the street to some extent. After the demolition, the traffic of the block is obviously reduced, especially at night, the open street is easy to cause a certain potential safety hazard, and the sense of feeling also makes the person feel insecure.

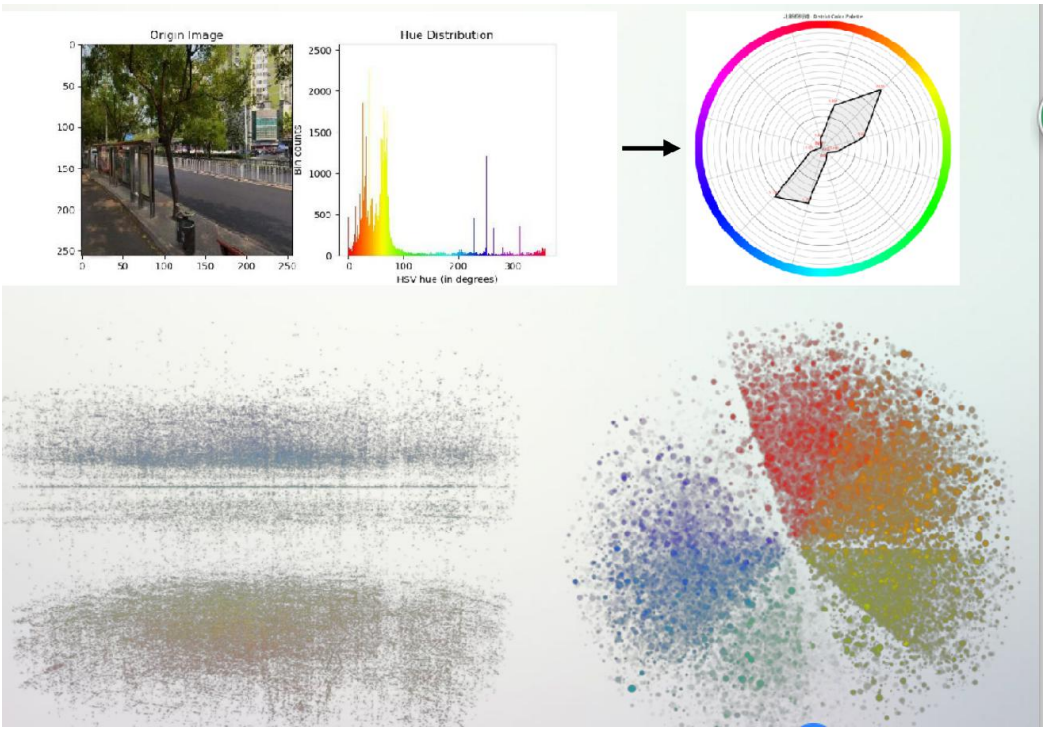
The "gas field" referred to in the traditional "Fengshui" of our country is either popular or the "energy field" is to some extent to describe the distance comfort between the human and the person in life. In the planning standard, the standard of the 5-minute life cycle and the 10-minute life cycle is also mentioned. However, after a large number of street shops have been removed, the existing environment does not provide the residents with the necessary public supporting commercial facilities. That's why a lot of people don't feel the smell of life and culture.

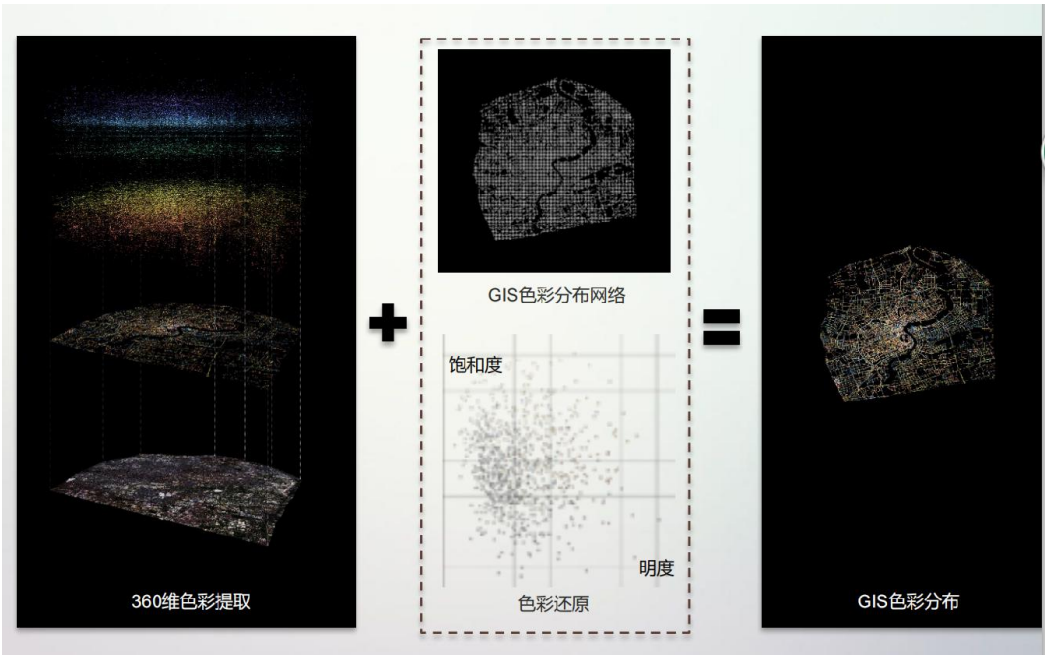
3. Selection criteria and methods of Urban Color in Psychological sense of security comfort in Planning

Our research found that. Urban color perception is one of the main ways for human beings to recognize their own urban environment. Environmental color also has a great impact on human behavior. For example, the choice of soft colors in the living area to give people a warm and safe feeling, for the business district, often with brighter colors to give people a vibrant feeling.

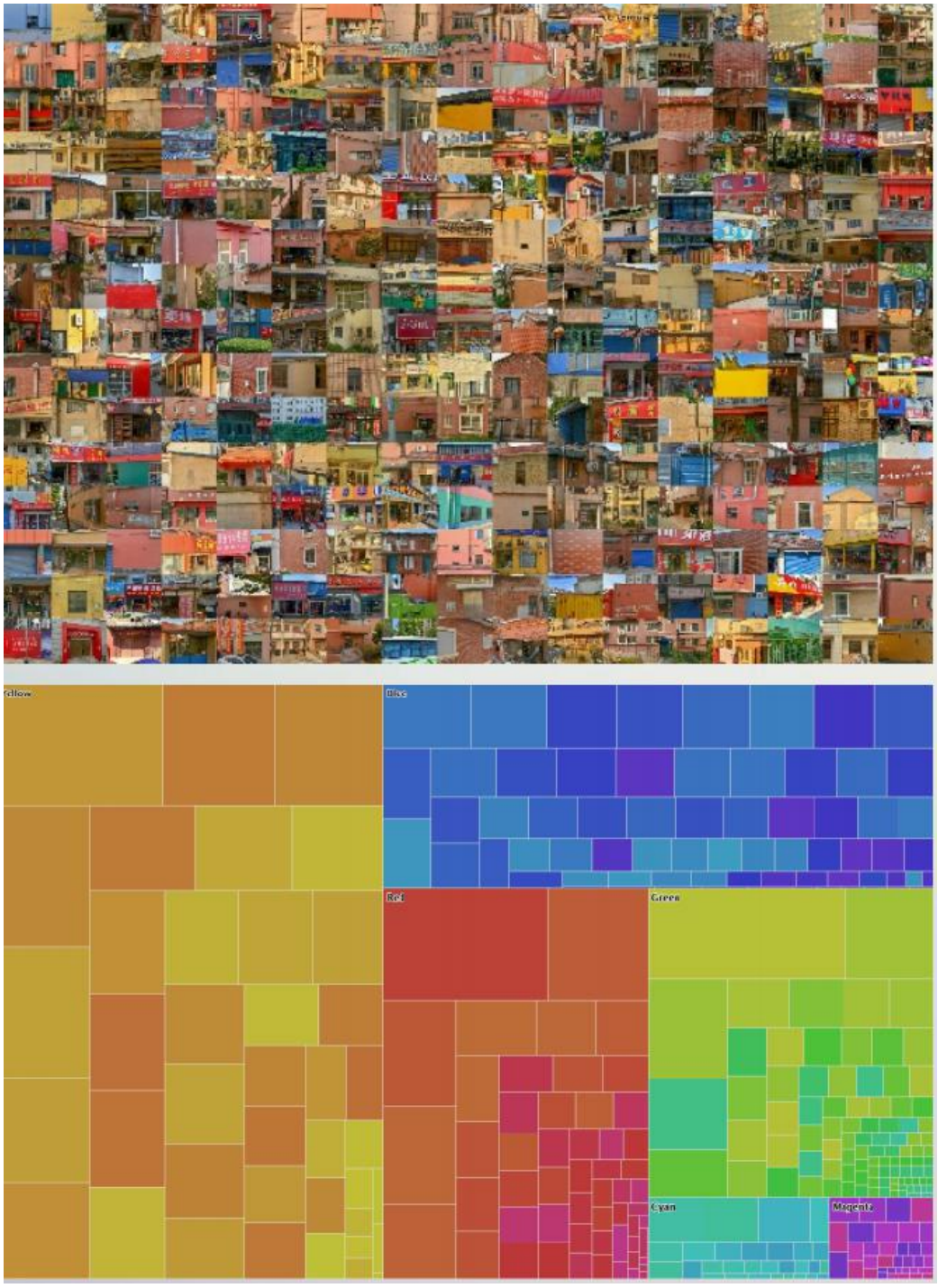
We extract the main architectural colors from the city-related photo data and define their architectural color genes, and use the color reduction principle (SHV) color space and AWB algorithm to process. A 360 degree high definition, 3 D data set was obtained. Analyze the color of the city. (see the extraction and comparison process below for details)

Step 1. get the color

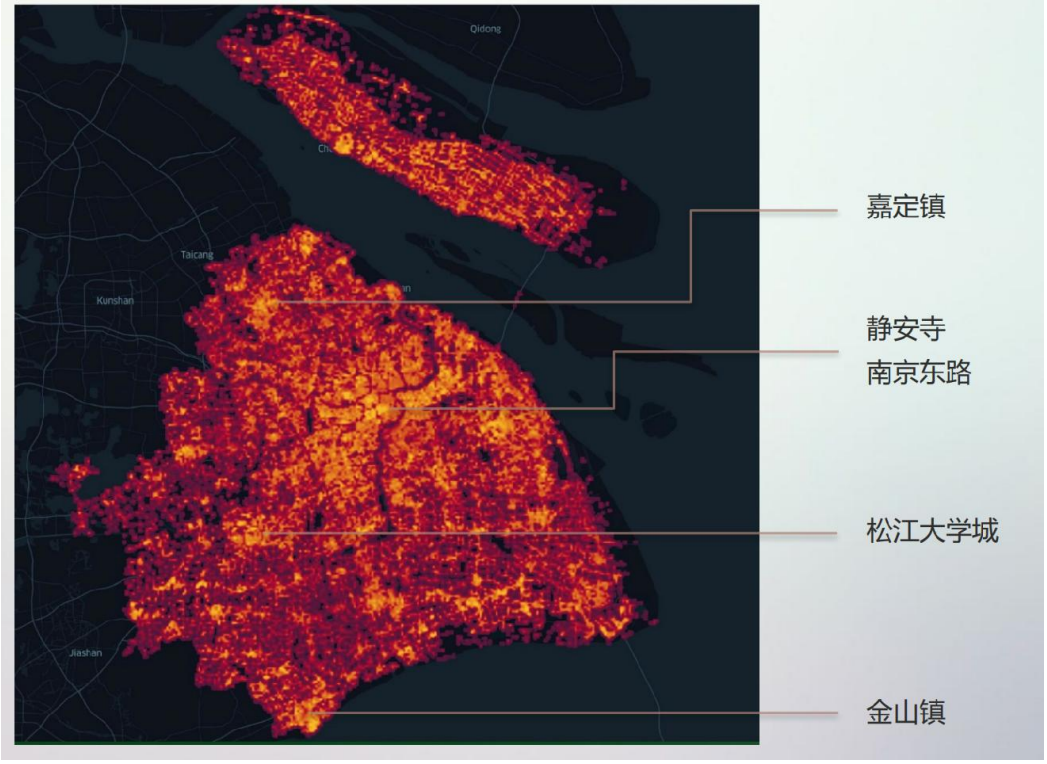




Step 2.compare the colour



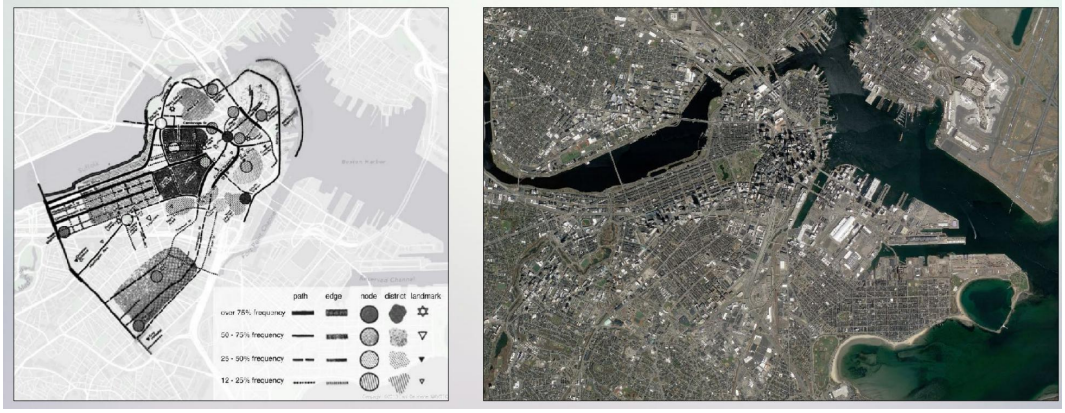
Step3. compare the area



We can see that the colors of the different regions of Shanghai are completely different, and the commercial area and the residential or university, the suburban area is obviously different. However, in other cities, the color change of cities is not obvious in many times in different functional areas.

When we extract these color analysis, the next step is to analyze the human perception of the environment, what is the most comfortable standard. We divide perception into three parts: urban intention, artificial intelligence and new city perception. The image of the city, first from the Massachusetts Institute of Technology in the United States. They put forward the appearance of the city, combined with the five elements of the city (roads, boundaries, areas, nodes, markers) to fully demonstrate the importance and variability of the city. The landscape of the city, in many roles of the city, is also a visible, memorable and gratifying source. Giving urban visual form is a special and quite new design question.

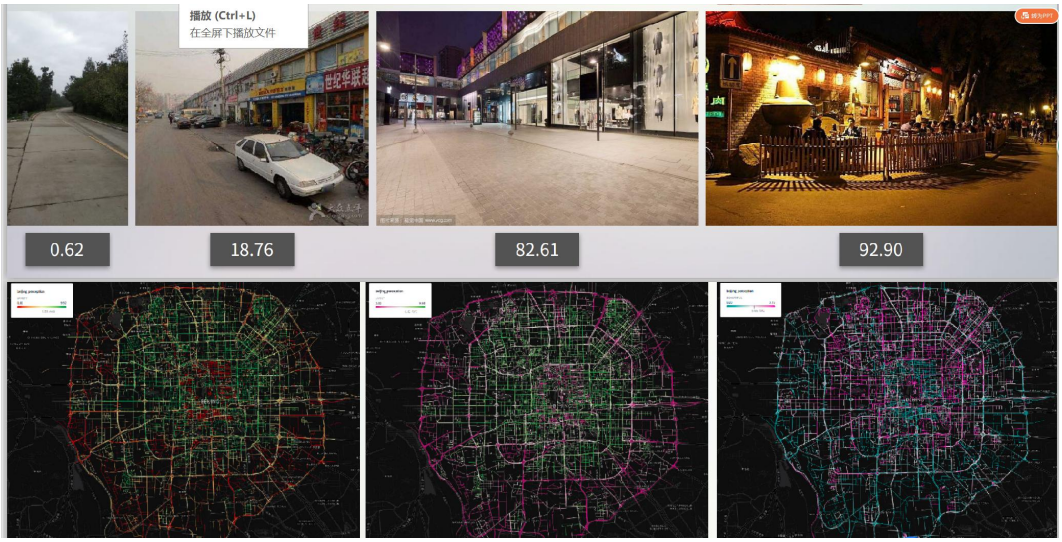
Title



Liu's C-image spatial research method uses GIS to obtain public uploaded photos with a large number of location information combined with artificial intelligence to obtain what is the best or worst public evaluation of the environment. Element extraction and recognition are carried out. Thus, after comparison.

Take greening as an example, although there are mandatory requirements for the proportion of greening in many parts of China, but in fact, after the implementation of the public perception is not good. The reason is that the public perception of the environment deviates from the cognition of the government or related departments. In the process of urban color analysis, we get a part of the perceived evaluation criteria for greening. (as shown in figure, 5 is the highest score for perception)

And for the street renovation perception mentioned at the beginning of the article, we also established a street public cognitive system, which is based on the same principle (see figure below: the street sense of security and comfort rating is the highest on the right).



The above conclusion is that not all policy making or expert assessment of the environment is the most beautiful and comfortable environment in the public perception. And the beautiful and comfortable environment is not the most sense of security environment. Through our only perceptual technology, we can avoid the discomfort of the end-user experience in our planning. It also increases the humanization and rationality of planning and design.

conclusion

Finally, for urban renewal and community transformation to improve their social satisfaction, the real intervention of public participation is also a means to improve satisfaction. In addition to actually obtaining the demands of the masses, it can enhance the individual sense of participation and belonging. Of course, it is also an effective means to guide the conformity psychology of the masses by combining the appropriate media publicity before the implementation.

In a word, in the process of urban transformation in China, the government has to take into account social and psychological factors, in addition to the need to consider the traditional development and positioning, and the function of the community is to provide the people with comfortable and reasonable living and working environment. The unharmonious social psychological contradiction can also bring negative potential influence to the stability and development of the whole society, and how to improve the satisfaction of the masses and to avoid a certain social psychological problem is the important basis of the "improve that level of people's living and the governance of new society" in the 19-big report of the Party.

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