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| Invention Title | A MACHINE LEARNING METHOD FOR THE LARGE SCALE OF EVALUATION OF URBAN VISUAL ENVIRONMENT |
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Abstract:

The size of modern cities in the urbanizing age, it is beyond the perceptual capacity of most people to develop a good knowledge about the beauty and ugliness of th every street corner. Correspondingly, for planners, it is also difficult to accurately answer questions like 'where are the worst-looking places in the city that regenerati give first consideration', or 'in the fast urbanizing cities, how is the city appearance changing', etc. From the various factors that are at work, we choose two key featur quality of street façade and the continuity of street wall, as the starting point of this line of analysis. In order to test the validity of this method, we further compare th ratings with ratings collected on site from 752 passers-by on fifty-six locations. We show that the machine learning model can produce a good estimation of people's i experience, and it holds much potential for various tasks in terms of urban design evaluation, culture identification, etc.

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Description:FIELD OF INVENTION

As a city grows large, it becomes hardly possible for its dwellers, as well as planners, to gather a complete knowledge about how it looks, at every street corner and narrow alley. Theoretically, the human perception of urban environment is inherently incomplete, discontinuous and distorted, as depicted by research on cognitive mapping and the city's image, especially given the overwhelming size of modern cities. It makes questions hard to answer such as 'where are the worst-looking plac city that regeneration should give first consideration', or 'in fast urbanising cities, how is the city appearance changing', etc.

BACKGROUND OF INVENTION

Actually, there have long been attempts in measuring city's appearance in a consistent manner and in a larger scale. The dominant method is by sending human au the field to observe and record, but still, this method is quite limited in sample size since its manual nature makes it inherently expensive and derive few economy c Recently, the availability of online street view images, which has an unprecedentedly wide coverage on the built environment, provides a new methodological oppor into this topic. When combined with computer vision techniques, there is a possibility for the large-scale automatic evaluation of various high-level judgements on t urban built.

SUMMARY

Our goal in this work is thus to explore this possibility in terms of the urban visual experience. We refer to architectural and urban design theories and choose two \ features, the visual quality of architecture facade and the visual continuity of street wall, as a starting point in this study. These two features are influential to the url visual experience and reasonably explainable. We then use Beijing, a fast-growing city with quite diverse visual appearances, as the case of study. However, the use

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