Research Symposium

Collection and Analysis of Architectural Features in Streetscapes in South Texas

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Background

The built environment of neighborhoods influences the health and well-being of residents. One approach to studying the impact of such a built environment on people's health is through the study of the memorability of the architectural features (AFs) in streetscapes. In this direction, we raise the question: what AFs are more memorable? Understanding how AFs impact cognition will allow us to propose neighborhood designs that consider this finding to foster people's health and well-being. However, AFs in streetscapes are not universal they need to be studied in specific historical, cultural, and geographical contexts. In order to analyze the memorability of the AFs in streetscapes in South Texas, we propose to create "The Collection of Architectural Features (CAFs)," which will hold annotated images of the architecture of South Texas".

Methods

The CAFs database is created with images that use a general schema of a set of AFs that is refined as images are added. These images are sourced from a combination of personal photography, and various reliable architectural image databases. This method is known as a design per prototype. CAFs holds annotated images of streetscapes in general and from the South of Texas. Each image will be selected by an expert, and classified by the architectural feature present in the image. Each image is subject to a detailed annotation process of the AFs present in the image, such as contrast colors, ornaments, vernacular material, rhythm, and others. In addition, each image will have a memorability score calculated through ResMem free software (Needell & Bainbridge, 2022). This annotated information serves as metadata for each image in the database, creating a comprehensive and searchable catalog of architectural elements. Frequency analyses, clustering, and principal component analysis (PCA) will be performed to classify and understand the understand the architectural features with higher memorability score.

Results

The CAF database is progressively growing with a diverse collection of annotated images from South Texas. The detailed annotations, which include elements such as contrast color, ornaments, vernacular material, rhythm, patterns, details, memorability index, symmetry, and others, provide a basis for comprehensive analyses.

Conclusions

We expect that the CAFs database will constitute a robust resource for studying the impact of Afs on cognition. The CAFs database will not only serve as a valuable tool for academic research but also to provide a solid foundation for policymakers, urban planners, and community leaders.