



Destination Image Analysis with User-Generated Content: A Computer Vision and Machine Learning Approach

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Abstract

This study proposes an approach to identify the elements that shape the destination image in the minds of potential tourists who peruse social network posts, based on Instagram images of Foça, a touristic district of İzmir, Turkey, in summer 2019. The elements in shared images that contributed to the development of Foça's destination image were identified with computer vision, while word embedding and machine learning were used for element categorization and clustering, respectively. The study demonstrates the proportion of the elements in the photographs shared by Instagram users in 27 categories and subsequently, without any human intervention, constructs a representation of the elements the destination image was most dependent upon. Categorization showed that the categories that were the most representative of the destination image of Foça were sea and landforms, celestial, arts, events, urban, boating and water sports and constructional, respectively. The majority of destination image research with social network data sets relies on observation, interpretation or survey results. These studies are time-consuming and labour-intensive due to the large size of social network data. However, in this study, social network data can be analysed faster and efficiently with artificial intelligence and machine learning compared to conventional methods. Furthermore, the innovative methodology developed in the study contributes to the current tourism literature by proposing a decision support system for making computer-assisted tourism marketing decisions.

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