Abstract

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An AI Lens on Historic Cairo: A Deep Learning Application for Minarets Classification

Reports show that numerous heritage sites are in danger due to conflicts and heritage mismanagement in many parts of the world. Experts resorted to digital tools to attempt to conserve and preserve endangered and damaged sites. To that end, this applied research aims to develop a deep learning framework applied to the decaying tangible heritage of Historic Cairo, known as “the city of a thousand minarets.” The framework targets Cairo’s historic minaret styles as a test case study for the broader application of machine learning in digital heritage. It comprises a recognition and classification task, which uses a deep learning segmentation model trained on two data sets representing the two most dominant minaret styles in the city, namely Mamluk and Ottoman minarets. The proposed approach can potentially aid in creating a multi-dimensional model from just a photograph of a historic building, which can help in quickly cataloging and documenting a historic building element. The study also sheds light on the obstacles preventing the exploration and implementation of deep learning techniques in digital heritage.