Title: Feature Detection-Based Era Identification Using Deep Learning

Author names: Md. Samaun Hasan, A. K. M. Shahnawaz

Abstract: This study presents a hybrid deep learning framework that integrates sparse visual cues with advanced computer vision techniques to enable robust, real-time detection, recognition, and classification of historical monuments. By combining traditional feature extraction approaches such as canny, Hough line, contour, and Harris corner detection with a proprietary deep neural network embedded in a convolutional neural network (CNN) and enhanced by transformer-based architectures, the system accurately identifies key architectural elements such as vaults, minarets, towers, pillars, arches, façades, and so on. Focused on the Sultanate (1206–1526) and Mughal (1526–1540, 1555–1857) periods across the Indian subcontinent, it achieves 95.80% accuracy in both feature detection and construction era classification. This research demonstrates how artificial intelligence can move beyond static digital archiving to provide dynamic tools for the preservation, documentation, and interpretation of cultural heritage, aligning with the goals of the fourth industrial revolution.

Keywords: Deep Learning, Convolutional Neural Networks (CNN), Computational Archaeology, and Computer Vision.

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