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Artificial Intelligence for rapid mapping of potential archaeological features using Bag of Visual Words based image classifier

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Abstract
Integrating Artificial Intelligence technological advancements in archaeology has revolutionised automated feature detection, presenting a novel perspective on archaeological feature recognition and image interpretation. This approach reduces costs associated with ground data collection and enhances the reliability and productivity of large-scale archaeological mapping. Consequently, this study aims to explore feature detection and matching techniques in archaeological detection using Artificial Intelligence and Scale-Invariant Feature Transform and Oriented Fast and Rotated Brief algorithms, which are frequently employed in image processing applications as a feature descriptor within the Bag-of-Visual-Words framework. The high-resolution multispectral satellite SPOT image maps potentially hidden archaeological features in Bujang Valley, Kedah, Malaysia. The expected outcome involves presenting a BoVW model capable of accurately detecting hidden archaeological features within the generated maps, thereby providing valuable insights into the extent and distribution of archaeological remnants in the targeted regions. © Published under licence by IOP Publishing Ltd.

Author Keywords
Archaeology; Artificial Intelligence; Bag of Visual Words; image analysis; ORB; SIFT

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