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Seagull optimization-based near-duplicate image detection in large image databases

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ABSTRACT

Many of the near-duplicate (ND) image detection methods involve a greater number of interest points (IPs) and large dimensions of the feature descriptors requiring huge computations and are unsuitable for large image databases. They may fail to detect NDs if the query and images in the database contain sparse IPs due to low entropy. Besides, the k-means algorithm used for the quantization of visual words may land at a sub-optimal minimum for descriptors because of their distance distribution in feature space. This article presents a new ND image detection method, which uniformly distributes the IPs over low and high entropy regions, reduces the dimension of feature descriptors

(SOA) for optimally forming the visual words. It examines proposed method performs on image databases of various sizes and shows that the developed method is more reliable and computationally efficient than the alternatives.

KEYWORDS: Near-duplicate images seagull optimization K-means clustering scale invariant features transform bag of visual words discrete wavelet transform visual words computationally efficient

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Data availability statement

Data sharing does not apply to this article as no new data has been created or analysed in this study.

Additional information

Notes on contributors

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