

HYBRID K-MEANS CLUSTERING FOR COLOR IMAGE SEGMENTATION

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ABSTRACT

Colour image segmentation is an important problem in computer vision and image processing. Variant application such as image processing, computer vision, pattern recognition and machine learning widely used classical clustering method which is considered traditional k-means algorithm. K-means algorithm is famous clustering algorithm; it divided data into k clusters.

The initial centroids are random selected, so the algorithm could not lead to the unique result. In this paper, we proposed a new algorithm for colour image segmentation using hybrid k-means clustering method which combine between two methods, geometric and block method.

Hybrid method is to compute initial centers for k-means clustering. Geometric method depends on equal areas of distribution. Block method segments the image into uniform areas. The proposed method can overcome the drawbacks of both method (geometric and block).

Furthermore, we have presented a simple validity measure based on the *intra-cluster* and *inter-cluster* distance measures which allows determining the number of clusters. The proposed method looks for the first local maximum in the validity measure. The experimental results appeared quite satisfactory.

KEYWORDS: Clustering, K-Means Algorithm, Image Segmentation