

# COMBINATION OF LOW LEVEL AND HIGH LEVEL FEATURES TO IMPROVE THE EFFICIENCY OF CONTENT BASED IMAGE RETRIEVAL BASED ON THE EMR MANIFOLD RANKING ALGORITHM

## **ABSTRACT**

Effective Manifold Ranking (EMR) is a technique used widely in Content-based Image Retrieval (CBIR) to rank the images in a database via measuring and ranking the similarity between each image with a given query image where the images are represented by different features.

In this paper, a combined of low level and Deep features is proposed to create an EMR graph is proposed. In the details, Deep features are extracted by using pre-train CNNs which these networks have shown strong performance in the aspect of image discrimination.

Experimental results show that the combination method of low-level and high-level features significantly increased the accuracy of the EMR manifold ranking algorithm.

**Keywords:** CBIR, Effective Manifold Ranking, Convolution Neural Networks , Fuzzy C-means, Low level features, High level features.

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