

NONLINEAR FUSION OF MULTIPLE EFFICIENT MANIFOLD RANKINGS IN CONTENT-BASED MEDICAL IMAGE RETRIEVAL

Tuesday, March 26, 2024 3:00 PM (30 minutes)

ABSTRACT:

The efficient manifold ranking (EMR) algorithm has been widely applied in content-based image retrieval (CBIR). For this algorithm, each image is represented by low-level features, describing color, texture, and shape. The characteristics of low-level features include the ability to quickly detect differences in color, texture, and shape, and the invariance to rotations and translations without the need for learning. However, low-level features are limited in describing the meaning of the image. To enhance the performance of EMR in CBIR, in this research, we propose utilizing the fusion methods that combines the multi-rankings on low-level features with embedded vectors from a Deep Metric Learning (DML) model to enhance the discriminative power of a query image compared to images in the dataset. Experiments were conducted to demonstrate the effectiveness of the proposed methods in improving the quality of EMR.

Key words: Content-based medical image retrieval, Efficient manifold ranking, Deep Metric Learning, Contrastive loss, Triplet loss.

1. List item

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Session Classification: Artificial Intelligence (AI)

Track Classification: Track 10: Artificial Intelligence (AI)