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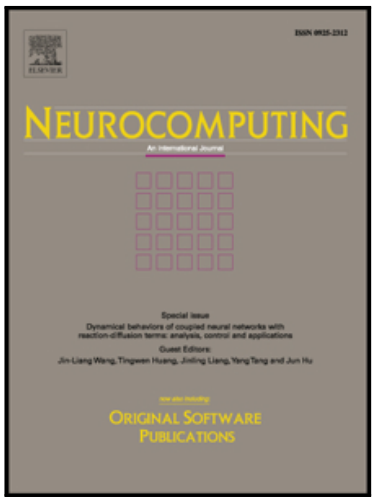

Scalable Graph Based Non-negative Multi-view Embedding for Image Ranking

Shuhan Qi, Xuan Wang, Xi Zhang, Xuemeng Song, Zoe L. Jiang

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Scalable Graph Based Non-negative Multi-view Embedding for Image Ranking

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Abstract Due to the well-known semantic gap, content based image retrieval task is still a challenge problem. The performance of image ranking highly depends on feature representation. In this paper, trying to make a more discriminative feature, we propose a multi-graph based non-negative feature embedding framework for image ranking. In this framework, various image features are embedded into a unified latent space by a learned graph based non-negative multi-view embedding model. In this model, a multi-graph based regularization term, which discovers the intrinsic geometrical and the discriminating structure of the data space, is imposed into the non-negative matrix factorization. The framework learns to find an optimized combination of different Laplacian matrices to approximate the intrinsic manifold automatically. Meanwhile, multiple anchor graphs are utilized to reduce the complexity of computational. Finally, ranking is conducted according to the relevance score inferred by a Markov random field. Extensive experiments prove the effectiveness of proposed method.

Keywords Image retrieval · Ranking · Multiview embedding

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