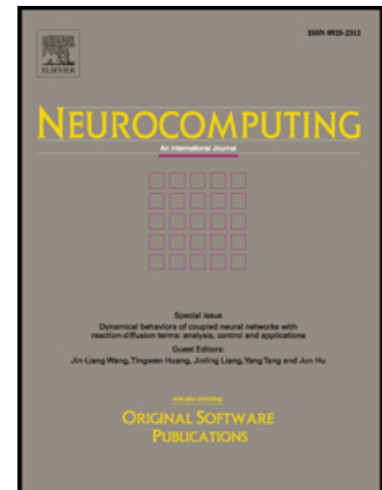


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# Common Latent Space Identification for Heterogeneous Co-transfer Clustering

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## Abstract

With the rapid development of collection techniques, it is easy to gather various data which come from different domains, such as images, videos, documents, and etc, how to group these heterogeneous data becomes a research issue. Traditional techniques handle these clustering tasks separately, that is one task for one domain, so that they ignore the interactions among domains. In this paper, we present a co-transfer clustering method to deal with these separate tasks together with the aid of co-occurrence data which contain some instances represented in different domains. The proposed method consists of two steps, one is to learn the subspace of different domains which uncovers the latent common topics and respects the intrinsic geometric structure, the next is to simultaneously cluster the instances in all domains via the symmetric nonnegative matrix factorization method. A series of experiments on real-world data sets have shown the performance of the proposed method is better than the state-of-the-art methods.

**Keywords:** heterogeneous feature spaces, co-transfer clustering, collective matrix factorization, symmetric nonnegative matrix factorization.

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