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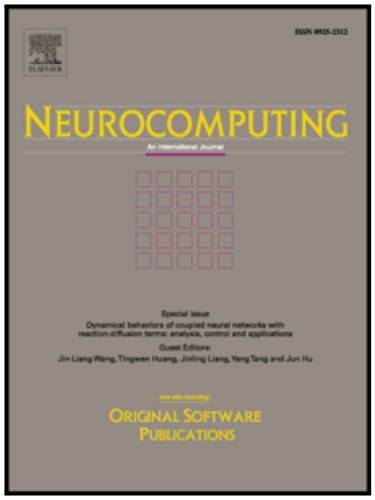

Partial Multi-View Spectral Clustering

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Partial Multi-View Spectral Clustering

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Abstract

The partial multi-view clustering is an emerging hot research area. For example, in web page clustering, the web page content or its linkage information may suffer from the missing of some data. Traditional multi-view clustering methods deal with this kind of problem by completing and clustering separately and thus degrade the clustering performance. In this paper, we propose a new method, named as partial multi-view spectral clustering (PVSC), to cluster partial multi-view data directly. We propose a unified objective function to optimize clustering results of both individual part on each view and shared part among different views, without requiring the full representations of all views. Based on the assumption that an example in multiple views would be assigned to the same cluster with high probability, these shared parts whose examples appear in multiple views have coherent clustering relationships. Meanwhile, the nonnegative and orthogonal constraints are also added to enhance the robustness and efficiency of our methods. Besides, we provide an iterative algorithm for solving our formulated objective. The experimental results on partial multi-view datasets validate the effectiveness of our proposed method.

Keywords: partial multi-view data, spectral clustering, multi-view clustering

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