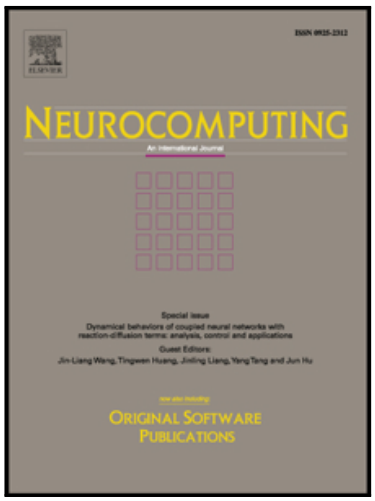

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A Novel Low-Rank Hypergraph Feature Selection for Multi-view Classification

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Abstract: In order to select informative features from a high-dimensional multi-view dataset, we have proposed a feature selection method that simultaneously embedding the low-rank constraint, sparse representation, global and local structure learning into a unified framework. Firstly, we utilize the conventional regression function (*i.e.* the least square loss function) to form a novel regression framework by introducing a low-rank constraint and a relaxation term. And then we employ an l_{21}-norm regularization term to filter out the redundant and irrelative features. Furthermore, we utilize a hypergraph based regularization term rather than the simple graph to construct a Laplacian matrix that will be used in enhancing the inherent association of data. Besides, we proposed a novel optimization algorithm to solve the objective function. Finally, we feed the reduced data got by the proposed feature selection method into Support Vector Machines (SVM) in term of classification accuracy. The experimental results showed that the proposed method achieved the best classification performance, compared with the state-of-the-art feature selection methods on real multi-view dataset.

Keywords: high-dimensional data; feature selection; low-rank constraint; sparse representation; hypergraph;

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