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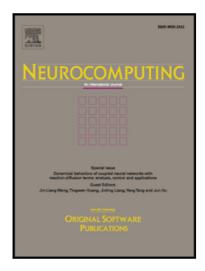
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Structure Preserving Unsupervised Feature Selection

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Abstract

Spectral analysis was usually used to guide unsupervised feature selection. However, the performances of these methods are not always satisfactory due to that they may generate continuous pseudo labels to approximate the discrete real labels. In this paper, a novel unsupervised feature selection method is proposed based on self-expression model. Unlike existing spectral analysis based methods, we utilize self-expression model to capture the relationships between the features without learning the cluster labels. Specifically, each feature can be reconstructed by using a linear combination of all the features in the original feature space, and a representative feature should give a large weight to reconstruct other features. Besides, a structure preserved constraint is incorporated into our model for keeping the local manifold structure of the data. Then an efficient alternative iterative algorithm is utilized to solve our proposed model with the theoretical analysis on its convergence. The experimental results on different datasets show the effectiveness of our

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