Accepted Manuscript

Adaptive Weighted Nonnegative Low-Rank Representation

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PII: S0031-3203(18)30136-5
DOI: 10.1016/j.patcog.2018.04.004
Reference: PR 6518

To appear in: *Pattern Recognition*

Received date: 26 May 2017
Revised date: 12 December 2017
Accepted date: 4 April 2018

Please cite this article as: Jie W en , Bob Zhang , Yong Xu , Jian Yang , Na Han , Adaptive Weighted Nonnegative Low-Rank Representation, *Pattern Recognition* (2018), doi: 10.1016/j.patcog.2018.04.004

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Highlights

- Conventional graph based clustering methods treat all features equally even if they are redundant features or noise in the stage of graph learning, which is obviously unreasonable. In this paper, we propose a novel graph learning method to solve this problem and learn a more reasonable, interpretable, and robust graph for data clustering.
- By integrating the local distance regularization term into LRR, the proposed method can simultaneously exploit both global and local structures of data, which ensures to learn a more reasonable graph.
- The nonnegative constraint not only greatly improves the interpretability of the graph, but also guarantees each sample to be in the convex hull of its nearest neighbors.
- By introducing an adaptive weighted matrix to regularize the data reconstruction errors, the representation contribution of the most important features will be improved while those of the redundant features will be reduced in the self-representation so that a more robust graph will be achieved.

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