Manuscript Number: PR-D-19-00285

Manuscript Title: Low Rank Representation with Affinity Propagation and Its Application

Pattern Recognition

Dear Professor Yao Zhao,

We have had your manuscript 'Low Rank Representation with Affinity Propagation and Its Application' reviewed and I have some referee comments. We regret that your paper, in its present form, is not acceptable for publication in Pattern Recognition.

However, if you care to revise it, we will reconsider it for publication.

Your revised manuscript is due by Dec 08, 2019 Kindly advise if you decide not to resubmit your paper.

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Sincerely yours,

Edwin R. Hancock, Ph.D., D.Sc., FIEEE

Editor in Chief

Pattern Recognition

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**Reviewers' comments:**

EiC: While you are revising your paper, here is a list of points worth checking, which we find author's overlook. I will check that these are adhered to before your paper is approved for publication, assuming the revision satisfies the Associate Editor and Reviewers.

a) Make sure your title is succinct and grammatical. It should ideally not exceed 10-15 words.

b) Make sure your conclusions reflect on the strengths and weaknesses of your work, how others in the field can benefit from it and thoroughly discus future work. The conclusions should be different in content from the abstract, and be rather longer too.

c) Take a careful look at your bibliography and how you cite papers listed in it. Make sure it is current, and cites recent work. Please cite a variety of different sources of literature. Please do not make excessive citation to arXiv papers, or papers from a single conference series. Do not cite large groups of papers without individually commenting on them. So we discourage " In prior work [1,2,3,4,5,6] …". Your bibliography should only exceptionally exceed about 40 items.

d) You may have originally written your paper with a different audience in mind. Please make sure the revised version is relevant to the readership of Pattern Recognition. To this end please make sure you cite RECENT work from the field of pattern recognition that will be relevant to our readership.

e) Do not exceed the page limits or violate the format, i.e. double spaced SINGLE column with a maximum of 35 pages for a regular paper and 40 pages for a review.

Reviewer #1: -Please consider the more novel method for comparison the result of your method with it. For example, a hybrid k means method.

Line 316: "As can be seen, K-means is generally the worst method". This is obvious, and in many cases is like this.

-The captions of figures should be more informative.

-The pseudo algorithm is in the table! Please put the needed equations in it to make it more clear.

-More punctuation marks are needed.

-Line 118: more references for supporting the claim is needed.line

-Line 255: Which equation?

-Line 285: For each human => For each person

Reviewer #2:

There is nothing very new in this method. It is a slight modification of LRR and LRRADP. Just by illustrating on four datasets, one can not claim its better performance. Comparative performance has to be done large number of datasets since the paper is theoretically weak

Reviewer #3: There are some issues opened in the manuscript:

1) How the performance of the algorithm is affected by the initialization and by the parameter \lambda e \beta ?

2) At page 10 "Intuitively, a good penalty function should reveal the intrinsic dimensionality or complexity of the data..." the intrinsic dimensionality is well defined in literature (see Staiano's survey on Information Science, 2016). Do the authors refer to the same concept ? and in affermative case they must explain what they want to say at page 10.

3) The experimental validation should be notably strengthened. To this purpose, the authors should consider C-Cube (ccc.idiap.ch) used as benchmark in Fast Large-Scale Spectral Clustering via Explicit Feature Mapping, by He et al, IEEE-SMC-B, 49(3), March 2019, Pages 1058-1071.

4) In the paper there are some "can not" that should be replaced with "cannot".