Author’s response to reviews

Title: Temporally constrained ICA with Threshold and its application to fMRI data

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Author’s response to reviews:

Dear editor,

Enclosed is our latest revision of our manuscript, BMIM-D-17-00220R1, entitled ‘Temporally constrained ICA with Threshold and its application to fMRI data’. We appreciate very much the opportunity granted to us to resubmit our revised paper. And we are grateful to the two reviewers for their careful review. We corrected the problems that was pointed out by the first review. We hope that you and the reviewers are satisfied with our revision.

Review 1

Comment 1

In this revision, the authors have addressed most of the comments from the original submission. However, Fig. 7 seems to be missing from the submission, so review of the revision cannot be completed.

Our response

Thanks for your careful review. We are very sorry for forgetting to submit Fig. 7. We will load Fig. 7 in this revision.
Comment 2
L268 - What exactly is the two-step PCA? This is never explained.

Our response
Thanks for your comment. We added how to perform the two-step PCA in the revision (see line 277-280, page 13).

“The number of ICA components was set to 26 according to the minimum description length (MDL) criteria. Each subject’s data was reduced to 26 time points using PCA, and the reduced data of all subjects were concatenated together in the temporal space. The aggregate data set was further reduced to the dimension of 26 using PCA”.

Comment 3
Figure 2C - What is the unit of time? seconds?

Our response
Yes, the unit of time in Figure 2C is second. We added the unit to Figure 2C in the new manuscript (see Figure 2C).

Comment 4
The ordering of Sections 4.1.3 and 4.1.2 should be swapped

Our response
Thanks for your comment. Based on your suggestion, we swapped section 4.1.3 and 4.1.2. Because the two result sections were swapped, we also swapped the corresponding method section 3.1.4 and 3.1.5 (see line213-228, page 10-11; line 363-377, page 17).

Comment 5
Fig 3A - why not just plot Mean ROC Area (IC1) vs. CC(with IC1) instead of Mean ROC Area (IC1) vs. CC(with IC2)?

Our response
Thanks for your good suggestion. In the revision, we plotted Mean ROC Area (IC1) vs. CC(with IC1) in Figure 3A according to your suggestion (see Figure 3A).

Comment 6

L229 - What time course was used in the GLM? The CC=0.85 from TRef time-course? Because L224 implies only TCICA-Thres and TCICA used the reference.

Our response

Yes, The CC=0.85 from TRef time-course was used in GLM. We added the time course information in the revision (see line 237-238, page11).

“GLM analysis in SPM8 was applied to the dataset by using the temporal reference with CC=0.85 from TRef as the regressor.”

Comment 7

In the simulated multi-subject analysis (Fig 5), why did you choose to label IC1 corresponding to ROI2, and IC2 corresponding to ROI1?

Our response

We are very sorry for our carelessness. We gave a wrong label. In the revision, we corrected the Fig.5 (see Fig. 5).

Comment 8

Fig. 6F - It looks like IC2 for FastICA only picks up the supplementary motor area. This should be more explicitly mentioned in the results.

Our response

Thanks for your comment. We revised the corresponding description in the revision(see line 409-411, page 19).

“For IC2, TCICA-Thres detected activation in the primary motor cortex, the premotor cortex, the supplementary motor cortex while FastICA only detected activation in the supplementary motor cortex.”
Comment 9

L228 - score —> scores

L233 - "the temporal concatenation" —> "temporal concatenation"

Our response

Thanks for your careful review. We corrected the errors in the revision (see line 236, page 11; line 242, page 12).

Reviewer 2

Authors have made adequate amount of amendments to the manuscript in response to my previous comments. Only last thing I'd like ask from the authors, to increase quality of their figures, otherwise they are not easily readable.

Our response

Thanks for your comment. The figures in the generated PDF is low resolution and are not easily readable. However, the figures we submitted to the website of the journal is high resolution. So the original figures have good quality.

Finally, thank you for your great patience and wisdom throughout this process.

Yours Truly,

Zhiying Long