Decision Letter (TBME-00246-2020)

From:tbme-office@embs.org

To:akirafurui@hiroshima-u.ac.jp

CC:

Subject:TBME-00246-2020 - review complete

Body:ｓ

Dear Mr. Furui,

Your manuscript "Non-Gaussianity Detection of EEG Signals Based on a Multivariate Scale Mixture Model for Diagnosis of Epileptic Seizures" (TBME-00246-2020) has been reviewed by the Transactions on Biomedical Engineering (TBME) editorial review board. The reviewers raised a number of issues and concerns, making us unable to accept your current manuscript for publication. However, the reviewers also found merit in your study. If you can address the reviewer comments shown below after MAJOR REVISION, we will reconsider the decision.

Below are summary comments of the TBME editorial review board which indicate their concerns and the revisions they suggest to improve the scientific quality of your manuscript. If you so choose, please revise the manuscript based upon the complete comments listed in the decision letter in Manuscript Central. Please note that if major elements of the critiques are not satisfactorily addressed, the paper will be rejected without further revision.

When you revise, please be aware that TBME intends to follow the general practice of biomedical publications that arguments be well supported by cited archival literature including recent references in the field of biomedical engineering. Citations to conference proceedings papers should be minimized and only be used if absolutely necessary.

If you choose to revise, please upload the revised manuscript highlighting the changed texts (printing in color), and a detailed statement on how you have addressed each of review comments (as a supporting document).

\*\*\* Please read carefully the following format instructions \*\*\*

Please carefully consider if the title of your manuscript is appropriately worded so as to appeal to the broad BME readers with a concise and informed article title. A structured abstract (objective, methods, results, conclusion, significance) of no more than 250 words is \*required\*, to highlight problem being addressed, innovations, critical findings and its significance to biomedical research or clinical applications. A Conclusion section of no more than 300 words is \*required\*, to highlight the major findings and significance. Please reformat the reference list (list only the first author if there are 3 or more authors: A. Author et al, ....). Begining with the January 2018 issue, TBME will no longer include biographies or author photographs. You can see the new format requirements at the following: http://tbme.embs.org/for-authors/

You can use the following link to create your revision:

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https://mc.manuscriptcentral.com/tbme-embs?URL\_MASK=15ca1cfbba6442a89e75405ed459ac74

Please submit your revision within 60 days from today.

Also note that we only accept revisions through Manuscript Central (http://mc.manuscriptcentral.com/embs-ieee).

Thank you for your interest in the IEEE Transactions on Biomedical Engineering, and I look forward to receiving your revision.

Sincerely,

Xiaochuan Pan

Editor-in-Chief

IEEE Transactions on Biomedical Engineering

Associate Editor and Editorial Board comments

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Both expert reviewers found merit in the work. However, they also raised issues concerning meaningful comparison with some of the existing methods and results. The authors must design and perform a meaningful comparison study, as suggested by both reviewers. Inadequately addressing the issues could lead to the rejection of the manuscript.

Reviewer's Comments

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Reviewer: 1

Comments to the Author

This paper is an useful paper which presents detection of non-Gaussianity in EEG signals using multivariate scale mixture model for diagnosis of epilepsy. The paper develop a new method for automated detection of epileptic seizures. But, this paper requires some more work before it is suitable for publication in IEEE TBME journal.

1. The paper should compare the obtained classification results with other existing methods in the literature. The following studied can be used for comparision:

(1) Seizures classification based on higher order statistics and deep neural network, Biomedical Signal Processing and Control, 2020.

(2) EEG-rhythm specific Taylor-Fourier filter bank implemented with O-splines for the detection of epilepsy using EEG signals, IEEE Sensors Journal, 2020.

(3) Classification of epileptic electroencephalogram signals using tunable-Q wavelet transform based filter-bank, Journal of Ambient Intelligence and Humanized Computing, 2020.

(4) A novel approach for time-frequency localization of scaling functions and design of three-band biorthogonal linear phase wavelet filter banks, Digital Signal Processing, vol. 69, pp. 309-322, October 2017..

(5) Three channel wavelet filter banks with minimal time frequency spread for classification of seizure-free and seizure EEG signals, In: D.S. Sisodia, R.B. Pachori, and L. Garg (Eds.) Handbook

Authors are requested to go through the literature and include some more papers for the comparision purpose.

2. The paper needs to include justification for the selection of number of filters in filter bank.

3. Please explain computational complexity of the proposed method.

4. What are the advantages and limitations of the proposed seizure identification method?

5. Please include some future directions of the presented research work.

6. Motivation for the presented study is not clear. Please explain.

Reviewer: 2

Comments to the Author

The paper is interesting and well written. It addresses an important issue in the research area.

The following comments needs to be addressed before publishing.

1). It would be great if the authors compare with other existing techniques using their recorded EEG data, or test their methodology using a different set of EEG data.

2). The references are very old. The latest one is by 2016.

NOTE: Corresponding Author MUST check to see if additional comments were included as a downloadable file in the corresponding author's Author Center, by:

(a) clicking on Manuscripts with Decisions

(b) clicking on View Decision Letter at the bottom right

(c) looking at the bottom of the letter for a link to the review files

RESUBMISSION INSTRUCTIONS

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In order to properly resubmit your manuscript, please follow the following instructions. Please read them carefully. Not following these instructions will delay the review of you manuscript.

- go to http://mc.manuscriptcentral.com/embs-ieee and login with the account the manuscript was originally submitted with

- you will find your manuscript under the "Manuscripts with Decisions" section.

- follow the steps by clicking on 'create a revision'

Date Sent:

29-Mar-2020