

Review of: "Artifact Subspace Reconstruction (ASR) for electroencephalography artifact removal must be optimized for each unique dataset"

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Potential competing interests: The author(s) declared that no potential competing interests exist.

Revision: # R1

Manuscript with ID: **SME_22_350**: "Artifact Subspace Reconstruction (ASR) for electroencephalography artifact removal must be optimized for each unique dataset Multipliers"

I. WRITTEN FORMAT COMMENTS: (W_K) – K in $\{1, 2, \dots, 14\}$

W_1) PG.3 - ABSTRACT:

- **a.** Generally, one extensive list of international periodicals, impose that all Authors must to "follow rigorously" the "template" that is suggested by its corresponding Editorial Board of this international periodic.
 - **a₁.** I do not recommend "to insert any" "synthesized term" in the title of the Abstract of the manuscript !
 - **a₂.** Only the "full text" must be included at this Abstract, without "any" "synthesized term".
 - **a₃.** In the "1th citation" in the text of the manuscript, the Author can insert both the "full text", and in the sequence the corresponding "synthesized term".
 - **a₄.** After this citation, must be used only the "synthesized term", through the "entire manuscript".
 - **a₅.** Therefore, some terms like: "ASR", "EEG", "rPDC", "ICLabel", etc.., "must be extracted" from the Abstract, and each one of them must be inserted in "correct place" at the text of the manuscript.

W_2) PG.3 - KEYWORDS:

- **a.** With respect to this set of "synthesized terms", perhaps we're needing too to make some additional review, as for examples:
 - **a₁.** We are needing to check with the "template" of this international periodical, if there exists some normalized way for presenting each one of the "Keywords", with regard of their "descriptions". As for examples, we must to insert the description: "Artifact Removal", or the alternative one: "artifact removal"?
 - **a₂.** In the "1th description", all the words are described with the "Initial Capital" "Writing Letter", while in the "1th one" only one letter is typed in the "Capital format"?

- **a₃**. Furthermore, “never” we can insert one “Keyword” that has its description in the “incomplete form”, like as for example: **a)** “ASR”, **b)** “EEG”, **c)** “rPDC”.
- **a₄**. As a direct consequence, we must of proceeding an “accurate review” over this “set” of “Keywords”.

W₃) GENERAL COMMENT - ABOUT THE GLOBAL DIAGRAMMING OF THE MANUSCRIPT:

- **a)** I would like of “suggesting” one “Introduction Section” with respect to one “new presentation” and the corresponding “written format” of this manuscript.
- **b)** At firstly, in general it is strongly recommended to all Authors, of presenting the text of the “entire manuscript”, by using the “justified” “written format”, and not one that is being presented in this manuscript, where is being adopted the “left” “written format”. In this document, we are adopting the “justified” “written format”.
- **c)** This “Introduction Section”, that is being described after the “set” of “Keywords”, perhaps “can be numbered too”, as for example with the “notation”: “I. ”.
- **d)** With respect to the others “Subsections”, they “can receive too” one “similar numbering”, as for example with the “notation”: **a)** “A. ”, **b)** “B. ”, **c)** “C. ”.
- **e)** Revise this “global” and “medium error”, throughout the “entire manuscript”.

1TH STP ⇒ SCT.1 , PG.3 ⇒ 25/6

W₄) GENERAL COMMENT - ABOUT THE GLOBAL DIAGRAMMING OF THE MANUSCRIPT:

- **a)** All comments that are being described in the “item W₄₃)”, can be applied to the “2nd Section”, with respect to one “new presentation” and the corresponding “written format” of this manuscript.
- **b)** In this case, the “Section” “can be numbered too”, by using the previous suggestions, with its “numbering” in the form: “II. ”, “Title: Method”, and is being exhibited at the “Pg.4”.
- **c)** By following each one of the others suggestions; all furthers “Subsections” following, “can receive too” one “similar numbering”, with theirs “notations” in the “written format”: **a)** “A. ” - “Data Sourcing and Computational Design”, **b)** “B. ” - “Participants”, **c)** “C. ” - “Electroencephalography Methods”, **d)** “D. ” - “Artifact Subspace Reconstruction (ASR)”, **e)** “E. ” - “Independent Component Analysis and ICLabel”, **f)** “F. ” - “Multivariate Autoregressive (MVAR) Model Fitting”, **g)** “G. ” - “Data Sourcing and Computational Design”, **h)** “H. ” - “Participants”, **i)** “I. ” - “Electroencephalography Methods”, etc.. .
- **d)** We remember that, “never” we can of including in the “title” of one “Subsection” “any” “synthesized term”. Therefore, some ones like those that are being extracted in the “item d)”, that have theirs “written format” as: **a)** “(ASR)”, **b)** “(MVAR)”, etc.. , must be included “only” in its “1th citation” in the “text” of the “manuscript”. After that, I would say that it is enough of to use “only” the “synthesized” “written format”.
- **e)** As a direct consequence, we must of performed one “global review”, with respect to these “medium errors”, throughout the “entire manuscript”.

2NDRVW ⇒ ITMS. [W₁-W₄] ⇒ 1/7

W₅) PG.2 - SECTION 1 - INSERTION OF REFERENCES:

- **a)** I'm not convinced that the “*description*” that is being used in this manuscript, with respect of the “*citation*” of “*each reference*” is “*totally correct*”. “”
 - **a₁)** At firstly, it is “*strongly recommended*” in “*many*” “*international periodic*” that the “*citation*” of “*each reference*”, must be included at the “*end*” of “*each paragraph*”, and not at the “*middle part*” of it.
 - **a₂)** For the case that, the template of this international periodical, can permit that “*each paragraph*” can be inserted at the “*middle part*” of the manuscript, in the sequence I'm adding some additional comments with respect to this subject:
 - **a₁₁)** Let us consider the phrase that appears in the “*2th paragraph*” of “*Pg.2*”, i.e.: “*EEG also has promising ..., personalized medicine (Keizer, 2021) (Keizer, 2021) anesthesia administration (Sun et al., 2020) (Sun et al., 2020), and diagnostic procedures (Adamou et al., 2020) (Adamou et al., 2020)*”.
 - **a₂)** In order to reduce this “*too extensive*” “*Introduction Section*”, “*some references*”, and present the same “*theoretical/numerical/experimental*” approaches can “*be agglutinated*” in a “*single paragraph*”, which could result in an alternative way to include these bibliographic citations, i.e.: (Keizer, 2021), (Sun et al., Adamou et al., 2020), etc..
 - **a₃)** Therefore, for the case that this “*new reorganization*” can be accepted by the Editorial Board of the Qeios Journal, must be corrected “*each one*” of these “*citations*” of the “*references*”, which are being described throughout the “*entire manuscript*”.

1TH RVW ⇒ 2ND STOP ⇒ SCT.2 , PG.5 ⇒ 27/6

W₆) PG.7 - SECTION 3:

- **a)** With respect to all comments that are being presented in the “*item W4*”, must be inserted one “*numbering*” in this Section named as: “*Result*”, shown in this page.
 - **a₁)** Additionally, we can reorganize in the “*crescent and numerical order*” “*each one*” of the next “*Subsections*”, that have theirs “*notations*” in the “*written format*”: **a)** “*A.*” - “*Experiment 1. Trails modified across ASR parameter choices [Pg.7]*”, **b)** “*B.*” - “*Experiment 2: Session ?, Correct Rejection condition [Pg.8]*”, **c)** “*C.*” - “*Experiment 3: Session ?, Correct Rejection condition [Pg.11]*”, **d)** “*D.*” - “*Experiment 4: Session ?, Hit condition [Pg.13]*”.
 - **a₂)** Must be made one “*new reordering*”, with respect to those item that are named as: “*Experiment 1*”, “*Experiment 2*”, “*Experiment 3*” and “*Experiment 4*”, in the “*crescent order*”.

- **a₃**) Additionally, “each one” of the corresponding “Section”, which are being highlighted in the “item a1”) in the form: “Session ?”, must be completed as a function of the “new reordering” that is being made in the manuscript, with respect to their “Sections”.

W₇) [PG.9 - PG.17] - SECTION 3 - [FIG.1 - FIG.4]:

- **a)** We're needing of to perform “some changes”, with respect to “each one” of these “Figures”. The additional comments are:
 - **a₁**) By considering that, with regard to the “number of trials”, we're having the “graphical distribution” “only over” the interval: “ $I = [50, 51, \dots, 150] \subset N$, where: $N = \{1, 2, \dots\}$ is the “Set” of the “Positive Integer Numbers”, I'm suggesting of plotting “each one” of these “graphics” “only over” this domain “I”.
 - **a₂**) If it is “extremely necessary”, can be added one “complementary comment”, with respect to the interval: “ $J = [0, 1, \dots, 50] \subset N$ ” in the “text” of the manuscript.
 - **a₃**) In the sequence, in order of getting one “complementary analysis” over the interval “ $I \subset N$ ”, so that we can obtain a more complete “graphic display” of the possible “amplitude fluctuations”, with respect to those parameters that are being analyzed, such as: **a)** “ASR20”, **b)** “ASR40”, ... , **f)** “ASR120”, **g)** “Rand Hej”, we “can partition” “I”, into two others “small domains”. “”
 - **a₃₁**) The first “small domain” corresponding to the range: “ $I_1 = [50, 60, 70, 80, 90, 100]$ ”, i.e. with the inclusion of “six points”, where we're preserving a spacing with a value equal to: “10”. If necessary, we can subdivide this interval by preserving a spacing with a value equal to “5”, which would result in the inclusion of other “six additional points”.
 - **a₃₂**) With the “same procedure”, we can make the subdivision of the second “small domain”, which it is corresponding to the range: “ $I_2 = [100, 110, 120, 130, 140, 150]$ ”. “”
 - **a₃₃**) In this way, the original domain “I” can be obtained as the union of those “small domains” that are being defined previously, that is: “ $I =$ ”, which it is corresponding to the “global domain”: “ $I = [50, 60, \dots, 100, 110, \dots, 150]$ ”, which will include at maximum “eleven points” [or “twenty one points”].
 - **a₄**) With this procedure, we can present the “graphical exposition” that is being restricted only to the global and original domain “I”.

W₈) GENERAL COMMENT - NUMERICAL DATA INSIDE THE TABLES:

- **a)** All modifications that are being presented in the previous “item W₆)”, are imposing that we're needing of to make all numerical simulations, with respect to the “new distribution” of points in the “domain of trials” “I”.
 - **a₁**) In this way, each of the “Tables” are being generated, which are corresponding to each of the “Figures”, starting on the “Fig.1” until the “Fig.4”.
 - **a₂**) If in the process of partitioning the “domain of trials” “I”, it was made the option to include “twenty one points”, it is up to the Authors, which points will be highlighted in the “new graphics” that will be presented. However, it is “not necessary” to include all these points.

1TH RVW ⇒ 3ND STOP ⇒ SCT.3 ⇒ 29/6

W₉) PG.26 - SECTION 4:

- a) All modifications that are being presented in the previous “item W₆”, can be applied too with respect to this “set” of “Figures”.
 - a₁) In this case, the process of partitioning in the “domain of trials” “I”, with respect to the “Fig.5” until the “Fig.8”, can be located in the interval: “I = [5,5, 7,5]”.
 - a₂) With respect to the “Fig.9”, the process of partitioning in the “domain of trials” “I”, will be placed in the interval: “I = [4,5, 11,5]”.
 - a₃) Similar arguments, can be used with respect to those intervals that must be extracted in this process of partitioning of the “domain of trials” “I”.
 - a₃₁) In the 1th case, we must of extracting the interval: “J₁ = [0, 5,5]” and “J₂ = [7, 8]”, while in the 2nd case, we can extract the intervals: “J₁ = [0, 4]” and “J₂ = [11, 15]”.

2ND RVW ⇒ ITMS. [W₆ - W₁₀] ⇒ 1/7

W₁₀) GENERAL COMMENT - NUMERICAL DATA INSIDE THE TABLES:

- a) All modifications that are being presented in the “item W₁₀”, can be applied too with respect to those “numerical data” that are related with the corresponding “Tables”.

W₁₁) PG.26 - NEW SECTION:

- a) Starting on the “Subsection” that has its “title” described in the “written format”: “Experiment 3”, I would say that we can introduce one “new Section”, that will receive its “numbering” as: “Section 4”.
 - a₁) In the sequence, all “Figures” and “Tables” must be organized in consonance with the “item W₆” and the “item W₇”.
 - a₂) Furthermore, also all “Subsections” must be reorganized in accordance with these “same items”.
 - a₃) Additionally, must be reviewed again the real need the need of to introduce “Tables”, which have their titles as: a) “Appendix A”, or b) “Apendice B”. In my opinion, must be preserved the descriptions that were used with respect to the previous “Tables”, were the last number was titled as: “Table 6”.

1TH RVW ⇒ 4TH STOP ⇒ 20/6

W₁₂) PG.28 - CONCLUSIONS ' SECTION:

- **a)** Must be checked with the template of the Journal "Qeios", if it is possible of inserting one this "Conclusions ' Section" in this part of the manuscript.
 - **a₁)** In this Section, it is possible of presenting "*relevant comments*" about the "*new advancements*" that can be performed in this same "*thematic of research*".
 - **a₂)** All comments that are being described in the "*item W₁*" can be "*followed rigorously*", in order of presenting a "Section" that cannot contains "*any*" "*synthesized term*", "*references*", etc ..

W₁₃) PG.28 - FOOTNOTES:

- **a)** Must be checked with the template of the Journal "Qeios", if it is possible of to transport this "set" of "Footnotes" for another position. Additional comments are:
 - **a₁)** I would say that, at the "*same page*" where is been referred one "Footnote", we can signalized it at the "end" of the "*specific paragraph*", regard to his respective "Section", by including one "*numbering*", with one "*hyper indexation*" position.
 - **a₂)** The same procedures can be performed with regard to "*each one*" of the others "Footnotes" that are being cited in this part of the manuscript.
 - **a₃)** As a direct consequence, we "*can extract*" this "set" of "Footnotes" from this current position.

W₁₄) PGS.[29-32] - CITATION OF REFERENCES:

- **a)** Currently, the "*doi number*" have been suggested to be included for all references. Therefore, check if this Number is available for the References related with: **i)** "*Books*" [or "*Chapters*"; **ii)** "*International Journals*"; **iii)** "*International Congresses*" [Thomson Reuters Publishers].
 - **a₁)** "*Must be checked*", with the template of the Journal "Qeios", the correct place of introducing this number, with regard to "each citation" of these references.
 - **a₂)** "*Similarly*", must be "*checked too*", what "*part*" of "*each reference*" must be written with the "*justified*" or "*italic*" "*writing format*".
 - **a₃)** Must be "*checked too*", what is the "*correct insertion*" with regard to "*each reference*", with respect to the "*size*" of the "*letter*", in their "*written format*". As must be adopted in the text of the "*Abstract*", also in this case we must of adopting "*each text*", that has its "*size*" "*one point*" "*smaller than*" of that one, which is being used in the entire manuscript.
 - **a₄)** Furthermore, in the periodic JCSC, "*each one*" of the citations of references that are being described in the manuscript, must be included with one "*small*" and as one "*hyper index*" citation, like for example: **i)** "*Fourier*ⁿ", **ii)** "*Hahn Banach et al*^m", **iii)** "Pitágoras^{p-q}", etc.., with $\{m, n, p, q\} \subset N$, N : Set of the "*positive*" and "*integer numbers*".

2ND RVW \Rightarrow ITMS. $[W_{11} - W_{14}] \Rightarrow 1/7$

II. TECHNICAL COMMENTS: $(T_K) - K = 1, 2 T_1$) NEW ADVANCEMENTS IN THIS LINE OF RESEARCH:

- **a)** Normally, in any direction of research that we are working, when a project is concluded, which involves one new “*new theoretical approach*”, some “*numerical results*” and for sometimes also one set of “*experimental analysis*”, we are intrinsically involved with this fundamental question related with of the “*new advancements*” of “*our studies*”. Over this “*future perspectives*”, we must to consider some fundamental questions, like for example:
 - **a₁)** In many applications for the wide area of the engineering, that involve research related with “*Radio Frequency Architectures*”, we must to be involved with “*distinct modeling*”, which are related with the “*main ideas*”, which are exposed in the previous item.
 - **a₂)** Let us only to expose one of the recent industrial applications, with respect of the implementation of *new electronic architectures*”, which can be summarized in one “*short set*” of “*comments*”, which they are:
 - **a₂₁)** In the international literature, there exist “*two distinct*” “*theoretical*”, as well as some “*very efficient*” “*numerical*” “*approaches*” with respect of the implementation of the “*modulating stage*” of the modern “*HDTV*” “*transmission architectures*”; which they are: i) “*Weaver Method*”, and ii) “*Radio Frequency Method*”.
 - **a₂₂)** Both “*theoretical*” and “*numerical*” “*approaches*” constitute the “*main foundations*” of the industrial implementation of the “*modulator equipment*”, which certainly it is one of the “*principal architecture*” of each one of these modern “*HDTV*” “*Transmission Systems*”.
 - **a₂₃)** Therefore, we are in front of some “*simple questions*”; which can be synthesized in the “*written format*”; that are:
 - **b)** By considering that this manuscript is in accordance with all “*thematics*” that were being exposed in the “*item a)*”, the Authors can visualize immediately “*one*” [or more] directions of research, which can permit to use these studies for the production of a remedy that can be produced on “*industrial scales*”?
 - **c)** In this way, we will have an “*immediate application*” of these studies, that “*could benefit*” a “*large number*” of “*medical patients*”!
 - **d)** Under a “*partial acceptance*” of the Authors, with regard of these “*important applications*”, which can make possible consolidate the knowledge acquired in these studies in the “*industrial area*”, could be convenient include “*some comments*”, perhaps in any of the “*final sections*” of this manuscript, as for example at the “*Conclusions Section*”!

T2) GENERAL COMMENT - ABSENCE OR PRESENCE OF BLANK SPACES:

- **a)** We can see an un-standardized form regarding “*blank spaces*” throughout the manuscript.
 - **a₁)** In “*many cases*”, we can even see that this spacing “*must be decreased*”.
 - **a₂)** Let's just mention only some “*few cases*”, that are:

- **a₂₁)** Those “blank spaces” that are being used “before” and “after” the “set” of the “Keywords”. Both of them “must be reviewed”. With respect to all “similar occurrences”, “must be reviewed rigorously” the entire manuscript.
- **a₂₂)** The “blank space” that are being presented at the “beginning” of the initial “Introduction”, and after the “set” of the “Keywords”, that is “too big” and it is shown at the “Pg.1”. With regard to this “small error”, “must be reviewed rigorously” the entire manuscript.
- **a₂₃)** Those “blank spaces” that are being used “before” and “after” the “title” of the “Section 2” - “Method” at the “Pg.4”. Also with respect to each one of the others “Subsections” that are being referred in the “item W_4 ”, must be proceeded one “rigorous review” with regard to these “blank spaces” !.
- **a₂₄)** Those “blank spaces” that are being used “before” and “after” the “steps” of the “numerical routine” that are being presented at “end” of the “Pg.6”. Also with respect to each one of the others “similar occurrences”, must be proceeded one “rigorous review” in the entire manuscript.
- **a₂₅)** The “blank spaces” that are being presented “before” and “after” “each Figure”. Some examples are: **i)** “Pg.9” [starting at the “end” of this page until “after” the “Captions” of the “Fig.1”]. With respect to each one of the others “similar occurrences”, must be proceeded one “rigorous review” in the entire manuscript.
- **a₂₆)** The “blank spaces” that are being presented “in between” of the “Captions” of the “Fig.1” and the the “Title” of the “Table.1”. With respect to each one of the others “similar occurrences”, must be proceeded one “rigorous review” in the entire manuscript.
- **a₂₇)** With respect to the previous item, observe that the “blank space” that we are having “after” the “Captions” of the “Table.1”. What kind of an “absurd discrepancy” it is possible to detect in this part of the manuscript ! The Authors “must be informed” that, only these “enormous errors” constitutes one “justified motif” for the “rejection” of this manuscript.
- **a₃)** Generally, is strongly recommended by the Editorial Board of any international periodic with “high impact factor” that, for any submitted manuscript “must be normalized” these “blank spaces”.
- **a₃)** Certainly, with this “new reordering”, we can get one “expressive reduction”, with respect to the “total number” of “pages” of this manuscript.
- **a₄)** Therefore, these “critical errors” “must be corrected” in the “entire manuscript”.

III. FINAL COMMENTS: $(F_K) - K = 1, \dots, 4$

- **F₁)** GLOBAL COMMENT - ENTIRE MANUSCRIPT:
 - **a)** All comments that were made above in all the items from “item W_1 ” until “item W_{14} ”, will demand one “global alteration” over the “entire manuscript”, before its “new resubmission”.
- **F₂)** As a direct consequence, in each one of these comments, with regard of the essential purpose, must be to emphasized that we are trying to acquire one new “complete reorganization” in the “written format” of this manuscript.
- **F₃)** In a such way, we can have one real possibility that this article can be considered for publication after some next reviews, but with an imposition of one “rigorous control” over all the norms that are imposed by the template of the

periodic JCSC.

- **F₄)** After an “*accurate review*” of each one of the items that are being mentioned above, this manuscript “*could be resubmitted*” at the website of the “*Qeios*” Journal for one “*new analysis*”.

***** - **END - REVIEW R1** - *****