

# Peer Review Comments

**Article:** Rapid Extraction of Emotion Regularities from Complex Scenes in the Human Brain

**Article type:** Original Research Report

**Editor:** Sebastiaan Mathot

**Article submitted:** 09 January 2019

**Editor decision:** Accept submission

**Revision submitted:** 28 March 2019

**Article accepted:** 02 April 2019

**Article published:** 07 May 2019

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## Responses for Version 1

### Reviewer D

1) General comments and summary of recommendation

Describe your overall impressions and your recommendation, including changes or revisions. Please note that you should pay attention to scientific, methodological, and ethical soundness only, not novelty, topicality, or scope. A checklist of things to you may want to consider is below:

- Are the methodologies used appropriate?
- Are any methodological weaknesses addressed?
- Is all statistical analysis sound?
- Does the conclusion (if present) reflect the argument, is it supported by data/facts?
- Is the article logically structured, succinct, and does the argument flow coherently?
- Are the references adequate and appropriate? \*

I have no major concerns. My only minor recommendations is to cite somewhere prior work on the fast extraction of affective value from rapidly presented natural scenes (I am thinking of the work of Codispoti: <https://www.ncbi.nlm.nih.gov/pubmed/19386053>). This is important as the evidence would suggest that people are actually able to extract affective information even more rapidly than the lower limit being suggested in the present manuscript.

Also, please report the make and model of the CRT monitor.

2) Figures/tables/data availability:

Please comment on the author's use of tables, charts, figures, if relevant. Please acknowledge that adequate underlying data is available to ensure reproducibility (see open data policies per discipline of Collabra here). \*

This is fine

3) Ethical approval:

If humans or animals have been used as research subjects, and/or tissue or field sampling, are the necessary statements of ethical approval by a relevant authority present? Where humans have participated in research, informed consent should also be declared.

If not, please detail where you think a further ethics approval/statement/follow-up is required. \*

N/A

4) Language:

Is the text well written and jargon free? Please comment on the quality of English and any need for improvement beyond the scope of this process. \*

It is fine.

**Reviewer E**

1) General comments and summary of recommendation

Describe your overall impressions and your recommendation, including changes or revisions. Please note that you should pay attention to scientific, methodological, and ethical soundness only, not novelty, topicality, or scope. A checklist of things to you may want to consider is below:

- Are the methodologies used appropriate?
- Are any methodological weaknesses addressed?
- Is all statistical analysis sound?
- Does the conclusion (if present) reflect the argument, is it supported by data/facts?
- Is the article logically structured, succinct, and does the argument flow coherently?
- Are the references adequate and appropriate? \*

The authors present EEG data collected during an emotional viewing task. Of interest was modulation of the steady-state visual evoked potential by affective versus neutral images presented within a 6 Hz stimulus train. Unlike previous studies, the specific images did not repeat during a train, and the regularity of valence was manipulated across trials. For example, in the "regular pleasant" condition a novel pleasant image was presented every third stimulus, and the other stimuli in the train were unpredictable neutral and unpleasant images. This experimental design was used to test whether the affective content of images could be rapidly detected, independent of the broader properties of the trial as a whole. As predicted, modulated of the ssVEP at 2 Hz (the oscillating frequency of valenced images) was observed for regular images as compared to irregular images (random presentation order) and scrambled images. ssVEP amplitude was larger for regular pleasant versus neutral and unpleasant images, indicating a valence-specific effect for rapid emotional feature extraction.

This is a very strong manuscript overall. The research aims are clearly stated, and the experiment is elegantly designed in order to tease apart rapid emotional feature extraction within the stimuli trains. A strength of the experiment is the inclusion of irregular trains and scrambled images as control condi-

tions. The analyses are thorough, and the results are straightforward. I have only a few relatively minor suggestions for further improving the manuscript:

1. Intro, p. 5, lines 105-111: "If the visual system were able to detect and preferentially process..." I'm having trouble parsing this sentence and converting it to a specific hypothesis. More broadly, I suggest the authors state the hypotheses for the current study more concretely in this section. The hypotheses are implied but could be made more explicit.
2. Methods, p. 16: Please provide a power analysis to justify a sample of N=26. This appears reasonable for a within-subjects design, but a formal power analysis would indicate what size effects the authors are powered to detect in the current study.
3. Methods, p. 16: Please provide the race/ethnicity characteristics of the sample.
4. Methods, p. 17: Please clarify in the main text how each condition was organized. On my first read, I thought that the "regular" condition always repeated the images in a fixed order of valence: regular neutral, regular pleasant, and regular unpleasant (lines 382-383). It was only later on when reading the Discussion that I realized that the \*filler\* images within each regular train were random, and only the target images were predictable. This is a strength of the experimental design and should be more clearly stated.
5. Methods, p. 19: Please specify the number of trials averaged for each condition (M, SD).
6. Discussion: The valence-specific modulation of the ssVEP at 2 Hz appears to be broadly consistent with the finding in the ERP literature that the early posterior negativity is more strongly modulated by pleasant than by unpleasant images from approximately (e.g., Schupp et al., 2004, Psychophysiology). Notably, the time frame of the EPN is only slightly later than the ssVEP modulation observed here (200-300 ms). This connection between the ssVEP and ERP literatures could help bolster the implications of the current study.
7. Text throughout: Please don't use the word "reliable" to refer to a statistically significant result. Reliability implies something about the psychometric properties of the measure, which were not considered here. Please replace with "significant" or "robust" or something similar.

## 2) Figures/tables/data availability:

Please comment on the author's use of tables, charts, figures, if relevant. Please acknowledge that adequate underlying data is available to ensure reproducibility (see open data policies per discipline of Collabra here).\*

The use of tables and figures is appropriate. The inclusion of supplemental material is a strength of the manuscript.

## 3) Ethical approval:

If humans or animals have been used as research subjects, and/or tissue or field sampling, are the neces-

sary statements of ethical approval by a relevant authority present? Where humans have participated in research, informed consent should also be declared.

If not, please detail where you think a further ethics approval/statement/follow-up is required. \*

Ethical approval was granted for the study, and all participants gave their written informed consent. This is appropriate.

4) Language:

Is the text well written and jargon free? Please comment on the quality of English and any need for improvement beyond the scope of this process. \*

The text is well written.

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### Editor Decision for Version 1

**Editor:** Sebastiaan Mathot  
**Affiliation:** University of Groningen  
**Editor decision:** Revisions required  
**Decision date:** 20 March 2019

Dear Dr Antonio Schettino,

We have received two anonymous reviews, which you can find below. You will be pleased to read that both reviewers are positive about your work. I've read the manuscript myself as well, and I agree: It's well-written, easy to understand (also for someone, like me, who is not an expert in this field), and the methods seem solid. I see it as an incremental, but worthwhile, addition to the literature.

I invite you to respond to each of the reviewers comments in a rebuttal. Please also highlight all changes in the manuscript itself. I look forward to receiving the revision.

Finally, I would like to apologize again for taking so long to arrive at this decision. I will make sure that the rest of the review process will go faster.

To access your submission account, follow the below instructions:

- 1) login to the journal webpage with username and password
- 2) click on the submission title
- 3) click 'Review' menu option
- 4) download Reviewed file and make revisions based on review feedback
- 5) upload the edited file
- 6) Click the 'notify editor' icon and email the confirmation of re-submission and any relevant comments to the journal.

Please ensure that your revised files adhere to our author guidelines, and that the files are fully copyedited/proofed prior to upload. Please also ensure that all copyright permissions have been obtained. This is the last opportunity for major editing, therefore please fully check your file prior to re-submission.

If you have any questions or difficulties during this process, please do contact us.

Please could you have the revisions submitted by [GIVE 2 WEEK DEADLINE]. If you cannot make this deadline, please let us know as early as possible.

Kind regards,

Sebastiaan Mathot

University of Groningen

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## Author's Response to Review Comments for Version 1

**Author:** Antonio Schettino

**Affiliation:** Ghent University

**Revision submitted:** 28 March 2019

Dear Professor Mathôt,

We are pleased to hear your encouraging interim decision regarding our manuscript "Rapid extraction of emotion regularities from complex scenes in the human brain". Thank you for giving us the opportunity to reply to the clarifications requested by the Reviewers. Attached you will find a detailed response to their comments. Changes in the main text are highlighted in red and additionally reproduced below for the sake of clarity.

We hope that, with these modifications, you will find the revised manuscript suitable for publication in *Collabra: Psychology*.

Kind regards,

Antonio Schettino

(on behalf of all co-authors)

### Attached document:

<https://s3-eu-west-1.amazonaws.com/ubiquity-partner-network/ucp/journal/collabra/226-2996-1-SP.docx>

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## Editor Decision for Version 2

**Editor:** Sebastiaan Mathot  
**Affiliation:** University of Groningen  
**Editor decision:** Accept submission  
**Decision date:** 02 April 2019

Dear Dr Antonio Schettino,

I am happy to say that I've accepted your manuscript for publication, pending copy-editing and formatting. The manuscript was already very good in the first round, and I feel that your revision has adequately addressed all the reviewer comments. Thank you for submitting such excellent research to Collabra!

As there are no further reviewer revisions to make, you do not have to complete any tasks at this point. The accepted submission will now undergo final copyediting. You will be contacted once this is complete to answer any queries that may have arisen during copyediting and to allow a final chance to edit the files prior to typesetting. If you wish to view your submission during this time, you can log in via the journal website.

The review information should be included in this email.

Kind regards,

Sebastiaan Mathot  
University of Groningen  
s.mathot@cogsci.nl