Review of: "EEG-based Emotion Classification using Deep Learning: Approaches, Trends and Bibliometrics"

David White[1]

1 Auckland University of Technology

Potential competing interests: No potential competing interests to declare.

Review: QJCOZ5

EEG-based Emotion Classification using Deep Learning: Approaches, Trends and Bibliometrics

General Comments

This submission is based on the premise that relevance and quality are directly correlated to the number of papers published. Might be worth reading the following article which justifies a different view: Quality versus quantity in scientific impact. https://doi.org/10.1016/j.joi.2015.07.008

Specific Comments

Page 1: Use of overly generous superlatives such as 'meticulously collected' and 'meticulously analysed' to describe the submission is inappropriate.

Page 16 – Again, the unnecessary use of superlatives degrades the quality of this submission. 'Meticulously examining', 'the most profound and impactful topics', 'invaluable insights', 'illuminated the ever-evolving landscape', 'a panoramic view', 'laser-focused areas of exploration', 'vividly materialised, painted a comprehensive tapestry of comprehension and understanding.' Best to use quantifiable terms rather than emotion descriptors.

Page 1 - 'The aim of the paper is to widen our knowledge of emotions so that it can eventually result in policies being formed to improve our overall health.' Why is this submission making this ambitious claim when it is undertaking a bibliometric analysis/review? This same sort of global statement is unnecessarily repeated throughout the text.

Page 2, Para 3. – Need to justify the following statement as I do not think anyone with EEG experience would describe it as a non-intrusive tool. 'Electroencephalography (EEG) data stands out as a useful and non-intrusive tool for recording brain activity patterns among the several data sources utilised for emotion categorization. EEG data.' What about non-contact means such as visual, voice, and other wearable sensors being far more 'non-intrusive'?

Page 2, Para 3. – Same point as made for the Abstract; how can you justify the following statement? 'Our ultimate objective is to support the development of innovative applications in domains like healthcare, psychology, marketing, and human-computer interaction.' Why over-sell the objectives of this submission given it reviews the EEG emotion classification landscape by addressing the following questions:

1.   What are the prominent trends in this field?

2.   Who are the key contributors?

3.   How has research evolved over time?

Page 3, para 2 – Good to see limitations of review described; however, how can this submission claim to 'provide a

comprehensive synthesis of EEG-based emotion classification research' when only the data from one publishing house (Elsevier) has been accessed using Scopus? For example, the following publication would have been worthy of addition to this submission; however, it fell outside your search zone. Cai Y, Li X, Li J. Emotion Recognition Using Different Sensors, Emotion Models, Methods and Datasets: A Comprehensive Review. Sensors. 2023; 23(5):2455. https://doi.org/10.3390/s23052455.

Page 3, para 2 – What is the purpose of this sentence? 'As we embark on this journey, the thesis statement emerges: a nuanced understanding of the intellectual landscape and methodological nuances that define EEG-based emotion classification.' How can this be justified based on the content of this submission?

Page 6, 3.1 – Same comment as above, why limit your search to one publishing house - Scopus?

Page 3, para 2, 3 & 4. – There seems to be some cluster of repetitive statements attempting to justify the use of a singular source of data. – Examples:

1. 'For the bibliometric analysis presented in this paper, the data was sourced from the Scopus research database. Scopus is a renowned database known for its comprehensive coverage of academic literature. Scopus served as the primary data source, facilitating a deep exploration and analysis of the existing corpus of research on emotion classification.'

2. The study's data was sourced from Scopus, a vast database that indexes academic literature on a wide range of topics. Scopus includes journals, conference papers, books chapters, etc., making it an ideal source for bibliometric analysis.

Page 9 – Figure 1 presents a dramatic decline in article numbers occurring between 2022 and 2023, which goes unexplained in this submission.

Page 10, Figure 2. Interesting that the top 6 most cited authors found by this review share only one joint publication citation in this review. '42 Teixeira, Felipe Lage, Miguel Rocha E. Costa, José Pio Abreu, Manuel Cabral, Salviano Pinto Soares, and João Paulo Teixeira. "A Narrative Review of Speech and EEG Features for Schizophrenia Detection: Progress and Challenges." Bioengineering 10, no. 4 (2023): 493.' This reinforces my concerns raised earlier that many other worthy works have been omitted by this review that is limited to one publishing house.

Page 10 – This statement requires a reference. 'Both have gained great acclaim for their contributions to the discipline of emotion classification.'

Figures 3, 4, 5, 6, 7, & 8 all purport to present 'Most relevant (productive) authors/countries/journals in the field', however, this assumes relevance is correlated to the number of publications (production). I again urge you to read publications debating the correlations between journal quantity and quality which suggest an opposing view where there is a negative relationship between quantity and impact. https://doi.org/10.1016/j.joi.2024.101495

Page 16 – Again, unnecessary, and overly generous superlatives used that are inappropriate to the review undertaken and presented. 'In this elaborate and exhaustive analysis'.

Page 16 – Why is the discussion section so small when you have just described this review as an 'elaborate and exhaustive analysis'? I cannot see where you have analysed the data presented. Specifically, using your sentences in the Discussion section, can you please justify:

1. Where did your investigation 'unveil a prevailing movement towards embracing cutting-edge deep learning

methodologies and the fusion of multimodal data techniques'?

2. Where did your analysis 'zoom in on specific domains where emotion classification is making waves, particularly in the realms of healthcare and human-computer interaction'?

3. Where did you 'identify the remarkable significance and incredible impact of emotion classification emerges from these distinct and unwavering patterns'?

4. Where specifically did your 'findings seamlessly coincide with prevailing research themes, affirming the vibrant and rapid evolution that defines this captivating field.'?

5. What are 'The practical implications and far-reaching potential it holds are impossible to ignore.'?

While the issues requiring action are extensive, these amendments will greatly improve the quality of this submission.