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

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Potential competing interests: No potential competing interests to declare.

The authors present a bibliometric analysis of the burgeoning field of emotion classification leveraging EEG data and deep learning techniques.

This comprehensive study provides valuable insights into the growth of the field, key contributors, methodological approaches, and emerging trends.

Strengths:

1. The study's extensive review of 440 articles offers a solid foundation for understanding the field's development and current status.
2. Employing advanced bibliometric measures enriches the analysis, providing a macroscopic view of the field's intellectual structure and evolution.
3. The focus on deep learning techniques for EEG-based emotion classification is timely and relevant, given the significant advancements in this area.

Limitations and Shortcomings:

1. The exclusive use of the Scopus database might omit relevant studies from other databases. Incorporating additional databases (e.g., PubMed, IEEE Xplore) could provide a more comprehensive overview of the field.
2. The paper highlights a subset of studies for comparative analysis, which might not fully represent the diversity of approaches within the field. Expanding the selection criteria to include a broader range of studies could enrich the comparative analysis.
3. While the paper discusses various deep learning models, it falls short in critically evaluating their limitations, applicability, and performance nuances across different emotional classification tasks.
4. The discussion on future research directions is somewhat general. Providing more specific guidance on promising research avenues, potential interdisciplinary collaborations, and integration with other biometric signals could stimulate innovative research.

Recommendations for Improvement:

1. Future revisions should include multiple databases to capture a wider spectrum of research in the field.
2. A more detailed comparison, including the performance metrics of various models across standardized datasets, would offer valuable insights into the state-of-the-art in emotion classification.
3. Incorporate a section critically evaluating the strengths and weaknesses of different deep learning models, considering aspects such as computational efficiency, generalizability, and data requirements.
4. Provide a more detailed exploration of emerging trends, such as the integration of EEG data with other physiological signals (e.g., ECG, GSR) for multimodal emotion recognition, and the application of transfer learning and domain adaptation techniques.
5. Address the need for standardization in dataset creation, preprocessing techniques, and evaluation metrics to enhance the reproducibility of results and facilitate comparative studies.

In conclusion, while this paper significantly contributes to our understanding of EEG-based emotion classification using deep learning, addressing these limitations and incorporating the suggested recommendations could further enhance its value to the research community.