Review of: "A Simple Preprocessing Method Enhances Machine Learning Application to EEG Data for Differential Diagnosis of Autism"

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Potential competing interests: No potential competing interests to declare.

The manuscript aims to introduce a novel preprocessing approach for EEG data analysis. Scientific inquiry is inherently designed to address questions and resolve problems or gaps, necessitating reproducibility for validation by fellow scientists. However, the current manuscript reveals persistent gaps and recurring pitfalls.

The abstract lacks focus and contains an excess of unnecessary information. Key terms such as "EEG" and "ASD" remain insufficiently explained, impeding reader comprehension. The significance of the research is unclear, and it fails to articulate any gaps in the existing literature that the authors seek to address.

The introduction lacks structure and focus, inundating the reader with extraneous information. The application field and the impact of the disease on public health are not clearly articulated. A comprehensive rewrite of the introduction is suggested, ensuring clarity in conveying the research's context and importance.

In the Patient section, the inclusion of the Institutional Review Board (IRB) number is recommended for ethical transparency. Additionally, presenting population details, including mean and standard deviation, would enhance the section's clarity. Critical information, such as inclusion and exclusion criteria, is notably absent, and the data collection procedure and location remain unspecified.

The Preprocessing section is deficient in information crucial for reproducibility. A thorough revision of the methods section is recommended, addressing the lack of clarity and missing details. The purpose of Figures 1, 2, 3, and 4 is unclear, requiring explicit explanations for improved reader understanding.

The term "ANN" is introduced without explanation, leaving the reader puzzled. The Machine Learning segment lacks essential information on training, testing, feature organization, and hyperparameters, rendering the research non-reproducible in its current state.

While a full rejection is suggested, there is encouragement for the authors to meticulously rework the manuscript. Addressing the deficiencies in each section, enhancing clarity, and adopting a more precise and academically rigorous writing style can contribute significantly to the scientific community's understanding of the topic.