

# Review of: "Application of Ensemble Learning in CXR Classification for Improving COVID-19 Diagnosis"

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**Potential competing interests:** No potential competing interests to declare.

The paper provides a comprehensive study on classifying chest X-ray (CXR) images, specifically focusing on identifying COVID-19 cases using advanced machine learning and computer vision techniques. The main contributions of this research are the development and evaluation of a novel ensemble learning classifier, which combines multiple individual classifiers to enhance the accuracy of COVID-19 detection from CXR images.

The following points are weaknesses of the manuscript:

**Dataset Limitation:** The paper does not provide detailed information about the dataset used, such as its size, diversity, and source. The effectiveness of the proposed method might be influenced by these factors, and a more extensive dataset would help validate the results.

**Comparative Analysis:** While the paper reviews related works, a more in-depth comparative analysis with existing methods in the results section would strengthen the paper. This comparison would highlight the specific advantages and limitations of the proposed method against state-of-the-art techniques.

**Real-world Application:** The paper could benefit from a discussion on the practical implementation and real-world applicability of the proposed method. This includes considerations such as computational requirements, integration into clinical workflows, and potential challenges in deployment.

**Ensemble Learning Details:** The paper mentions the use of majority voting for the ensemble method but does not provide detailed insights into how the ensemble method was fine-tuned or the impact of different ensemble strategies. A more detailed analysis of the ensemble learning process would add depth to the study.

## Comments and Suggestions:

**Dataset Information:** Provide more detailed information about the dataset, including the number of images, the distribution of positive and negative cases, and the source of the data. This will help in understanding the generalizability of the results.

**Comparative Results:** Include a more detailed comparative analysis with existing methods, highlighting the specific improvements and any potential trade-offs.

**Practical Implementation:** Discuss the practical aspects of implementing the proposed method in clinical settings,

including any computational challenges and how these might be addressed.

**Ensemble Method Analysis:** Expand on the details of the ensemble learning process, including any experiments conducted to determine the best ensemble strategy and the impact of different voting mechanisms.

Overall, this paper presents a valuable contribution to the field of COVID-19 detection from chest X-ray images, with a well-thought-out methodology and promising results. Addressing the mentioned weaknesses and incorporating the suggestions would further strengthen the study and its impact.