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.

This study focuses on classifying chest X-ray (CXR) samples related to COVID-19 cases using clinical image analysis. It addresses the problem of accurate COVID-19 detection by employing machine learning classifiers, specifically investigating the effectiveness of Histogram of Oriented Gradients (HOG) feature extraction techniques with various classifiers. The research demonstrates a high accuracy rate, with ensemble learning emerging as the most effective approach, offering a solution for COVID-19 diagnosis and addressing diagnostic challenges posed by the pandemic. However, the current version of the paper requires improvement, some of which is discussed below:

1- The authors declare their use of COVID-19 X-ray images as a contribution at the end of the introduction section. However, aren't X-ray images part of illustrating the performance of the novel method developed?

2- The related work section appears to be a comprehensive review of COVID-19 research utilizing AI tools, such as machine learning or deep learning. However, since this is not a review paper, I suggest that the authors divide the related work section into different subsections, focusing on various aspects of their research. In each subsection, they could provide the most relevant works to theirs, clarify how their work differs from previous studies, and explain how it contributes to the existing literature.

3- The related work section solely focuses on COVID-19 cases, yet there is a considerable body of literature on disease classification using computer-aided design (CAD) techniques. Since this paper introduces a novel classifier using CAD, I suggest that the authors include other relevant works from the literature, not limited to COVID-19. For instance, they could include works on lung or breast cancer classification. Again, the authors should clarify how their work differs from previous studies and emphasize its contribution to the existing literature.

4- How many X-ray images were used in this study, and how many belonged to each class?

5- I suggest authors include a hyperparameters tuning table to make their work replicable.

6- To ensure replicability, please provide the code and dataset.

7- I recommend that authors include a separate discussion section, as there is currently no discussion in the paper.

8- For studies declaring a novel method as a contribution, it is highly recommended to include other baselines for comparison. This section should be included in the paper.