Review of: "An Improved Hybrid Transfer Learning-Based Deep Learning Model for Alzheimer's Disease Detection Using CT and MRI Scans"

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Potential competing interests: No potential competing interests to declare.

This paper employs transfer learning with ResNet50, VGG16, and DenseNet121, alongside CNN networks, on a comprehensive dataset to classify AD patients into different stages: early mental retardation, mild mental impairment, late mild mental impairment, and the final Alzheimer's stage. The abstract currently repeats the types of neural network models, making it verbose; therefore, it needs to be streamlined for conciseness. Additionally, arrange the keywords alphabetically.

Contributions: The listed contributions highlight crucial steps in the preprocessing and dataset preparation phases, including dataset identification, conversion to the JPEG format, normalization, data augmentation, and ensemble techniques. However, the paper lacks detailed explanations regarding the architecture and working mechanism of the proposed method. It is essential to provide insights into how these contributions collectively contribute to the overall goal of Alzheimer's stage detection.

Architecture and Working Mechanism: The article lacks clarity in elucidating how the identified image dataset, normalization techniques, and data augmentation methods contribute to the Alzheimer's stage detection model. A detailed description of the architecture, including the integration of deep learning approaches, is necessary to understand the model's functionality. Readers would benefit from an in-depth explanation of how each contribution enhances the model's accuracy and robustness.

Ensembling Approach: While the contributions mention the ensemble of different deep learning approaches for Alzheimer's stage detection, the article falls short in explaining the specifics of this ensembling technique. Providing details on how the various deep learning models are integrated, their interactions, and the decision-making process would enhance the paper's comprehensibility and showcase the novelty of the proposed method.

Figure 2 and Figure 5 Alignment: Given the discrepancies noted earlier in Figure 2 regarding the number of classes and the misalignment between the title and content of Figure 5, it is crucial to address these issues. Ensure that the figures accurately represent the model and its outcomes as per the contributions mentioned.

Detailed Methodology Section: Integrate a more detailed methodology section that explains the step-by-step process of implementing the proposed contributions within the model. This will provide readers with a clearer understanding of the research methodology and contribute to the overall transparency of the study.

In summary, while the contributions are outlined, the article should provide a more comprehensive explanation of the architecture and working mechanism of the proposed method, ensuring alignment with the mentioned contributions. Additionally, addressing discrepancies in figures and providing a detailed methodology section will enhance the overall quality and clarity of the paper.