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Research Article



Prediction of Alzheimer's disease Using Deep Learning

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ABSTRACT

This research explores the application of deep learning techniques, specifically

Convolution Neural Networks (CNNs), for predicting Alzheimer's disease stages based on MRI scan images. By leveraging a pre-trained VGG16 CNN model, this study develops a novel web-based application that combines deep learning with a Flask backend to provide real-time predictions. The system classifies MRI images into categories reflecting disease progression, offering a non-invasive diagnostic aid. The study uses a dataset of over 1,000 MRI scans collected from publicly available medical imaging repositories, including OASIS, Kaggle, and other platforms, providing context to the model's performance. Preliminary results suggest the model's effectiveness in distinguishing between different stages of Alzheimer's with promising accuracy, particularly in identifying the differences between Mild and Very Mild stages. Future work includes refining the model, expanding dataset diversity, and integrating multimodal data for enhanced prediction robustness.

Keywords: Alzheimer's disease, deep learning, MRI, VGG16 CNN, EfficientNetB0, DenseNet, early detection, real-time prediction, healthcare.

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