A Novel Approach to Analyzing Alzheimer's Disease in MRI Scans Using a Convolutional Neural Network

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With over 11 percent of people over the age of 65 developing this detrimental disease and being in the top 10 most common chronic conditions for adults over 65, Alzheimer's disease is a detrimental disease worldwide. To make matters worse, clinicians are only about 80% accurate in determining whether someone has Alzheimer's when examining MRI scans of the brain. That amounts to more than 1 million cases of Alzheimer's per year according to current statistics that are either false positives or negatives. It is clear that a system that is able to detect Alzheimer's disease with much greater accuracy can be of great benefit so that treatment can be started earlier and more accurately. The researcher's primary goals of the project were to create an artificial intelligence model which can predict varying progression levels of Alzheimer's disease in MRI scans of the brain with over 95% accuracy and incorporate an API with user interaction allowing MRI scans of the brain may be uploaded and analyzed through the model to determine their results. The researcher was successful in creating a fully functioning AI model that is able to predict Alzheimer’s disease with an accuracy of 99.52% in an MRI scan of the brain. An operational API was also developed that allows users to interact with the system, allowing MRI images of the brain to be uploaded and processed through the AI model to determine the findings. with an average time of 2.2 seconds per MRI scan.

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