

ABSTRACT

Alzheimer's dementia (AD) is the most common type of dementia, usually characterized by memory loss followed by progressive cognitive decline and functional impairment. AD is one of the leading causes of death and cannot be cured, but proper medical treatment can delay the severity of the disease. Early detection of AD can detect early and prevent the disease from getting worse.

At this time to detect AD, medical professionals use images of brain structures known as Magnetic Resonance Imaging (MRI). However, MRI still has the drawback that it does not explain the classification of AD disease. In this final project using the Convolutional Neural Network (CNN) method which will clarify the analysis of medical professionals to classify AD disease. This classification is carried out into 4 classes, namely no dementia, very mild dementia, mild dementia, and moderate dementia. The MRI dataset used in this disease is a public dataset. MRI of AD as many as 6.400 images and images in JPG format.

The results of this classification use 2 architectures, namely VGG-16 and VGG-19 using the ADAM optimizer. The comparison of the 2 architectures for VGG-16 has the highest accuracy value with a value of 97.33% with a testing process time of 2 minutes while for VGG-19 the highest accuracy value is 98.28% with a testing process time of 11 seconds so that from the two architectures it can be concluded that compared, namely the VGG-19 architecture is better than the VGG-16 architecture because the process is different. This study can assist clinical diagnosis in assessing the severity of AD.

Keywords: *alzheimer dementia, MRI, convolutional neural network (CNN)*