

Detection of Brain tumor using Deep Neural Networks and Machine learning

Brain tumors can be classified into two types: benign (noncancerous) and malignant (cancerous). The malignant tumors can quickly spread to other tissues in the brain and lead to worsening the patient's condition. When most of the cells are old or damaged, they are destroyed and replaced by new cells. If damaged and old cells are not eliminated with generating the new cells, it can cause problems. The production of additional cells often results in the formation of a mass of tissue, which refers to the growth or tumor.

Brain tumor detection is very complicated and difficult due to the size, shape, location and type of tumor in the brain. Diagnosis of brain tumors in the early stages of the tumor's start is difficult because it cannot accurately measure the size and resolution of the tumor. However, if the tumor is diagnosed and treated early in the tumor formation process, the chance of patient's treatment is very high. Therefore, the treatment of tumor depends on the timely diagnosis of the tumor. The diagnosis is usually done by a medical examination, with computer tomography or magnetic imaging. MRI imaging is a method that provides accurate images of the brain and is one of the most common and important methods for diagnosing and evaluating the patient's brain.

In the field of Medical Detection Systems (MDS), MRI images provide better results than other imaging techniques such as Computed Tomography (CT), due to their higher contrast in soft tissue in humans. The Convolutional Neural Networks is used to identify and categorize the tumor from brain images of the brain. The main difference between the main channel of the neural network with the normal neural network is that it is able to automatically and locally extract the feature from each image. These types of networks consist of neurons with weights and biases that can be learned. Due to the results of CNN on the dataset, in order to improve the proposed method. Machine learning algorithm is used to feature extraction. The algorithm used was the clustering algorithm applied on data set, and then the images are applied to the CNN. The results

showed that the proposed method has been successful. The purpose of extracting the property before applying to the CNN is that in some images fatty masses are considered as tumors, or in some images the tumor is mistakenly considered to be fat and should have increased medical error. Extracting the attribute initially and before applying the CNN leads to improved network accuracy and increased accuracy.