

Universiti Teknologi MARA

**Stage Detection of Alzheimer Disease
Using Adaptive Neuro Fuzzy Inference
System (ANFIS)**

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ABSTRACT

WHO reported that Alzheimer Disease is the fourth common disease suffered by people around the world. Similar to any disease, acknowledgement of the disease stage suffered by the patient is important so that the patients can get the right medical treatment. Current diagnosis used is by using clinical tests which are Mini-Mental State Examination (MMSE) and Clinical Dementia Rating (CDR). These clinical tests may lead to human error since the patients need to do the test by themselves. The other diagnosis is by assessing neuroimaging where the brain Magnetic Resonance Imaging (MRI) is checked by the doctors to conclude which stage is suffered by the patient. This type of diagnosis takes time and hard since they will have to deal with large data sets. The main objective of this project is to develop the system that helps classifying the stages of Alzheimer disease using Adaptive Neuro Fuzzy Inference System (ANFIS). Then, the output from this system is the stage of AD and the right medical treatment to the patient. ANFIS is the hybrid algorithm that combined Artificial Neural Network (ANN) and Fuzzy Inference System (FIS). It acts as an engine to classify AD stages in this system. The data divided into two parts which are testing part and training part. The result of the system has been checked by using accuracy test that shows the percentage of the ANFIS classifier. As for training part, it shows 72% rate and as for testing part, it shows 60% rate of accuracy test. Future work of this project is to improve the result by applying ANFIS in other areas.

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