Abstract

In general, artificial neural network can be applied to solve classification problem, including image recognition. Finding an optimal network structure and weights is one of the most important factors determining the success of neural network in classifying pattern.

Recurrent Neural Network has a unique characteristic. Its neurons can be connected to any other neurons, including to themselves. The variations of Recurrent Neural Network can be so many, and it makes the solution scope huge. However, Genetics Algorithm offers a solution to solve this problem

With its generality, Genetics Algorithm can solve any problems as long as the solutions can be encoded into chromosomes. And Genetics Algorithm is not too complex to be implemented in a problem solving process.

In this bachelor thesis, Recurrent Neural Network optimized by Genetics Algorithm, and then trained with Back Propagation Through Time combining with adaptive learning rate from Differential Adaptive Learning Rate Method, gives a good accuracy in recognizing Javanese Script. The accuracy reaches 99.2857%

***Key Words**: Artificial Neural Network, ANN, Recurrent Neural Network, RNN, Genetics Algorithm, Javanese Script, Back Propagation Through Time, BPTT, adaptive learning rate, Differential Adaptive Learning rate Method, DALRM.*