

Abstract

Artificial Neural Network (ANN) is one good method for *Patern Recognition*, based on a *Multi-Layer Perceptron* architecture (MLP) is an ANN which has a *hidden layer*. While the *Firefly Algorithm* (FA) is one of optimization algorithms inspired by the behavior of fireflies in nature, the FA implementation capable of searching the solution space effectively.

In this thesis the FA used for MLP *learning* algorithm in *Patern Recognition*. There are three scenarios that will test in *Patern Recognition* problems namely scenario 1 (60% *training data*, 20% *validation data*, and 20% *testing data*), scenario 2 (33.34% *training data*, 33.34% *validation data*, and 33, 34% *testing data*), and scenario 3 (30% *training data*, 30% *validation data*, and 40% *testing data*).

Test results showed the FA could be a good *learning* algorithm for MLP, of the three test scenarios in the can that the average accuracy of the results obtained above 90%.

Keywords: *Multi-layer perceptron* (MLP), *Firefly Algorithm* (FA), *Learning*, *Patern Recognition*