Abstract

Car is a vehicle that is widely used by the world community because of its convenience in use. Each brand has different cars in fuel consumption, it is influenced by several aspects such as cylinder, displacement, weight, acceleration, etc. Thus it is necessary for the prediction of fuel consumption, because in addition to saving fuel consumption, in the real world of business, such as the transportation business, it can also save money if the use of fuel carried in an appropriate manner

This final project used the algorithm of Augmenting Topologies NeuroEvolution (NEAT) in dealing with non-time series prediction to optimize the weight and structure of the Artificial Neural Network (ANN) to predict the fuel consumption in cars Miles per Gallon in units (MPG). Tests conducted using 12 parameters contained in the NEAT, namely *Number Generation stagnation*, *Stagnation Threshold*, *Refocus Number Generation*, *refocus Threshold*, probabilty Mutation Add Connection and others.

The algorithm used shows good accuracy performance value, and the topology of the *number* of connections and nodes are minimal

Keyword: Car, Miles per Gallon (MPG), Artificial Neural Network, *Artificial Neural Network (ANN), non time series predicition*