Abstract

This final task of implementing self-organizing maps (SOM), learning vector quantization (LVQ), and genetic algorithm (GA) in predicting the weather based on precipitation, maximum temperature, minimum temperature, and humidity.

To get the best accuracy should be selected some of the parameters of each method used. For example for the SOM. required at least 12 combinations to find the best accuracy. The combination of 12 consists of a combination of topology, gridtop and hextop, a combination of distance calculations, dist, linkdist, and boxdist, and the combination of the number of clusters, 3 and 6. In addition to SOM parameters, there are other parameters in the GA, there are population size and crossover probability. There are at least 486 combinations to find the best combination of the whole system is built.

GA is used to find the value of the optimum parameters of LVQ as the number of hidden layer neurons (3-100), the weight between input layer and hidden layer or the weight W, and the weights between hidden layer and output or weight leyer V (0 or 1).

Test results for weather forecasting by implementing SOM, LVQ, and GA get 68-98% accuracy. It means that the technology approach makes easier to predict the weather, and forget the conventional methods such as manual calculation by humans or simple calculating machines.

Kata kunci : Self Organizing Maps, Learning Vector Quantizations, Genetic Algorithm, Supervised Learning, Unsupervised Learning, Cluster