

Abstract

The main goal of this final project is to implement and analyze how Evolutionary Programming is applicable to optimize the weight of artificial neural network and Analyze the influence of the election of Evolutionary Programming parameters such as number of generation, number of population and mutation operator to the result of artificial neural network output. implementation of optimize artificial neural network by Evolutionary Programming applied at share price forecasting system. Artificial neural network architecture that build is feed forward neural network (FFNN) with 5 neuron at input layer, 3 neuron at hidden layer and 1 neuron at output layer. The input for this system is share price historical data which is usually used for technical analyze that is closing price (close), highest price (high), lowest price (low), volume of transaction and index of IHSG, while the system output is the prediction of closing price (close) one day forwards. At this final project research, got a conclusion that share price forecasting system that build with the artificial neural network using evolutionary programming as a training method with network architecture is [5 3 1], activation function is logsig and purelin, weight range is [-1.5 1.5], mutation step range is [0.01 0.1], the Gaussian mutation operator is 0.15 and 0.10, normalization by 2 standard deviation and sequence data, population 50, generation 1000, and number of the opponent q is 10% of size population, able to give the best weight solution where the prediction result error is smallest for data training and data testing in Mean Absolute Percentage Error (MAPE) that is 1.79 % and 2.38%.

Keyword: *Evolutionary Programming, artificial neural network, mutation, standard deviation, mean absolute percentage error, share price technical analyze*