

## Abstract

Forecasting is an activity to estimate the value of one or more variable in the future by using its old value. In this final project, Artificial neural network backpropagation with *Conjugate Gradient Powell – Beale* algorithm is used in learning process to get optimal value in fast.

*Conjugate gradient* can minimize a function which its direction constructed by its conjugation and orthogonal values. Because of its orthogonal direction, *Conjugate Gradient* can be convergence fast.

Based on the research, the system is proved can find the optimum solution with less iteration than standard *backpropagation*

**Keywords:** forecasting, ANN, *Backpropagation*, *Conjugate Gradient Powell – Beale*, air temperature, air humidity