Abstract

Efficient time series forecasting (TSF) is of utmost importance in order to make better decision under uncertainty. Over the past few years a large literature has evolved to forecast time series using different artificial neural network (ANN) models because of its several distinguishing characteristics. This paper evaluates the effectiveness of three methods to forecast time series, one carried out with ANN-GD using extended back propagation (EBP) algorithm, second one carried out with ANN-GA using genetic algorithm (GA) and the last one carried out with ANN-DE using differential evolution (DE). For comparative performance analysis between these methods two benchmark time series such as: wisconsin employment time series and monthly milk production time series are considered. Results show that both the ANN-GA and ANN-DE outperform ANN-GD considering forecast accuracy. It is also observed that the ANN-DE performs better than ANN-GA for both the time series considered.
- S. G. Makridakis, S. C. Wheelright, R. J. Hyndman, Forecasting: Methods and Applications.

**Index Terms**

Computer Science  
Artificial Intelligence

**Keywords**

Time Series Forecasting  
Artificial Neural Network  
Differential Evolution  
Genetic Algorithm

Extended Back Propagation Algorithm.