

Artificial neural network forecasting performance with missing value imputations

ABSTRACT

This paper presents time series forecasting method in order to achieve high accuracy performance. In this study, the modern time series approach with the presence of missing values problem is developed. The artificial neural networks (ANNs) is used to forecast the future values with the missing value imputations methods used known as average, normal ratio and also the modified method. The results are validated by using mean absolute error (MAE) and root mean square error (RMSE). The result shown that by considering the right method in missing values problems can improved artificial neural network forecast accuracy. It is proven in both MAE and RMSE measurements as forecast improved from 8.75 to 4.56 and from 10.57 to 5.85 respectively. Thus, this study suggests by understanding the problem in time series data can produce accurate forecast and the correct decision making can be produced.

Keyword: Air pollutant index; Error measurements; Artificial neural network; Imputations; Forecasting