

Model to Determine the Number of Factors for Neural Network Forecasting System

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Abstract

Neural network is a good forecasting technique for a complicated system. Nonetheless, the forecast accuracy of neural network is just like other forecasting techniques' to be seriously impacted by both completeness and details of sample. If the number of factors is too less and hard to represent the behavior of population, the results of forecast will be useless. On the other hand, although the big large number of factors can result to an accurate forecast, it will increase the difficulties of data collection and model execution. Therefore, how to define an adequate number of factors for neural network model is very critical. This work proposed a linear regression model to determine the number of factors for the neural network model to predict the product arrival in wafer fabrication. In this regression model, the coefficient of variance of equipments' historical product arrival and desired accuracy of forecast are regarded as the predictor variables. The number of factors is taken as response variable. Based on this regression model, the number of factors which is satisfied the desired accuracy can be determined.

Keyword : Neural network; Linear regression; Forecasting model; Number of factors