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Artificial Neural Networks in Time Series Forecasting: A Comparative Analysis.

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Abstract: Artificial neural networks (ANN) have received a great deal of attention in many fields of engineering and science. Inspired by the study of brain architecture, ANN represent a class of non-linear models capable of learning from data. ANN have been applied in many areas where statistical methods are traditionally employed. They have been used in pattern recognition, classification, prediction and process control. The purpose of this paper is to discuss ANN and compare them to non-linear time series models. We begin exploring recent developments in time series forecasting with particular emphasis on the use of non-linear models. Thereafter we include a review of recent results on the topic of ANN. The relevance of ANN models for the statistical methods is considered using time series prediction problems. Finally we construct asymptotic prediction intervals for ANN and show how to use prediction intervals to choose the number of nodes in the ANN.

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