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Fuzzy Sets and Systems

Volume 108, Issue 2, 1 December 1999, Pages 123-143

Fuzzy neural networks with application to sales forecasting

R.J. Kuo ^a ... K.C. Xue ^b

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Abstract

Sales forecasting plays a very prominent role in business strategy. Numerous investigations addressing this problem have generally employed statistical methods, such as regression or autoregressive and moving average (ARMA). Sales forecasting is very complicated owing to influence by internal and external environments. Artificial neural networks (ANNs) have also been recently applied to learn the time series data since their promising performances in the areas of control and pattern recognition. However, further improvement is still necessary since unique circumstances, e.g. promotion, cause a sudden change in the sales pattern. Thus, this study utilizes fuzzy logic which is capable of learning (fuzzy neural network, FNN) for in order to grasp the experts'™ knowledge. The proposed forecasting system consists of four parts: (1) data collection, (2) general pattern model (ANN), (3) unique pattern model (FNN), and (4) decision integration (ANN). Model evaluation results indicate that the proposed system can more accurately perform, than the conventional statistical method and single



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Keywords

Fuzzy neural networks; Sales forecasting; Artificial neural networks

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