

I.E. Livieris, N.Kiriakidou, A. Kanavos, G. Vonitsanos and V. Tampakas. [Employing Constrained Neural Networks for Forecasting new Products Sales Increase](#)
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Abstract - An intelligent sales forecasting system is considered a rather significant objective in the food industry, since a reasonably accurate prediction has the possibility of gaining significant profits and better stock management. Many food companies and restaurants strongly rely on their previous data history for predicting future trends in their business operations and strategies. Undoubtedly, the area of retail food analysis has been dramatically changed from a rather qualitative science based on subjective or judgemental assessments to a more quantitative science which is also based on knowledge extraction from databases. In this work, we evaluate the performance of weight-constrained neural networks for forecasting new product's sales increase. These new prediction models are characterized by the application of conditions on the weights of the network in the form of box-constraints, during the training process. The preliminary numerical experiments demonstrate the classification efficiency of weight-constrained neural networks in terms of accuracy, compared to state-of-the-art machine learning prediction models.