

## **Novel Adaptive Radial Basis Function Neural Networks Based Approach for Short-Term Load Forecasting of Jordanian Power Grid**

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**Abstract :** In this paper, a novel adaptive Radial Basis Function Neural Networks (RBFNN) algorithm is used to forecast the hour by hour electrical load demand in Jordan. A small and effective RBFNN model is used to forecast the hourly total load demand based on a small number of features. These features are; the load in the previous day, the load in the same day in the previous week, the temperature in the same hour, the hour number, the day number, and the day type. The proposed adaptive RBFNN model can enhance the reliability of the conventional RBFNN after embedding the network in the system. This is achieved by introducing an adaptive algorithm that allows the change of the weights of the RBFNN after the training process is completed, which will eliminates the need to retrain the RBFNN model again. The data used in this paper is real data measured by National Electrical Power co. (Jordan). The data for the period Jan./2012-April/2013 is used train the RBFNN models and the data for the period May/2013- Sep. /2013 is used to validate the models effectiveness.

**Keywords :** load forecasting, adaptive neural network, radial basis function, short-term, electricity consumption

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