



An Online Learning Algorithm with Adaptive Forgetting Factors for Feedforward Neural Networks in Financial Time Series Forecasting

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Abstract: In this study, an online learning algorithm for feedforward neural networks (FNN) based on the optimized learning rate and adaptive forgetting factor is proposed for online financial time series prediction. The new learning algorithm is developed for online predictions in terms of the gradient descent technique, and can speed up the FNN learning process substantially relative to the standard FNN algorithm, with simultaneous preservation of stability of the learning process. In order to verify the effectiveness and efficiency of the proposed online learning algorithm, two typical financial time series are chosen as testing targets for illustration purposes.

Keywords: *Online learning algorithm; adaptive forgetting factor; optimal learning rate; feedforward neural network; financial time series forecasting.*

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