

Improved AdaboostM1 for Stock Price Prediction Using Multi-layer Perceptron to Integrate Weak Learners

Rebwar M. Nabi¹, Soran AB.M. Saeed¹, and Rania Azad M. San Ahmed¹

¹Sulaimani Polytechnic University

August 4, 2021

Abstract

Investment in the stock market is currently very popular due to its economic gain. Therefore, numerous researchers and academicians work is focused on financial time series prediction due to its data availability and profitability. Based on the literature it can be seen that various versions of the AdaboostM1 algorithm have been applied in the stock market either by tuning the algorithm parameters or attempting various base learners but the accuracy has not yet reached to favorable and reliable level. Therefore, this study proposes an improved version of AdaboostM1(ADA), which is implemented in the Waikato Environment for Knowledge Analysis(WEKA) to predict stock market prices based on historical data. The improved AdaBoostM1 integrates the set of Multilayer Perceptron (MLP) predictors instead of using DecisionStumps, which is normally being applied. The enhanced AdaBoostM1 is named Adaboost with Multilayer Perceptron (ADA-MLP). As the result, the ADA-MLP was found to be outperforming the original ADA by 1.52%, in which the ADA-MLP achieved the CA of 100% on average while the ADA achieved 98.48%. Furthermore, the ADA-MLP was al

Hosted file

manuscript.pdf available at <https://authorea.com/users/261013/articles/532838-improved-adaboostm1-for-stock-price-prediction-using-multi-layer-perceptron-to-integrate-weak-learners>