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Vindya Kumari Pathirana* (vindya.pathirana@uconn.edu), Waterbury, CT. *Dynamically Adoptive Mahalanobis Based k-Nearest Neighbor Forecasting in Time Series Data*. Preliminary report.

Nearest Neighbor Algorithms which are among the most popular non-linear pattern recognition methods outperform the available linear forecasting methods when consider the high frequency foreign exchange data. In our previous work, we provided evidence that Mahalanobis distance- based k-nearest neighbor procedure outperforms the traditional Euclidean distance-based algorithm by comparing both the forecasting accuracy and trading performances. In this work, we identify couple of important facts, which can improve the k-NN algorithm even further. For highly volatile time instances, uniformly selected neighbors might not be that accurate. Instead of choosing a fixed number of neighbors at each time instance, we employed dynamically adoptive number of neighbors for the nearest neighbor forecasting algorithm. The performances were compared in two ways: (i) forecast accuracy and (ii) transforming their forecasts into a more effective technical trading rule. (Received September 17, 2019)