Abstract

Quantitative trading has used machine learning and signal processing based approaches to drive returns while minimizing risk. While often effective, these strategies have not been widely examined on the scale of high frequency data, where data points are taken down to the level of one minute. Recurrent neural networks, specifically those utilizing long-short term memory (LSTM) layers, have been shown to be useful when making trading decisions because of their ability to process long duration data sequences and retain memory [1, 2]. A high frequency trading model that utilizes stacked LSTM layers is shown to produce effective returns when compared to benchmark strategies. Several variations on the model are considered, and the best performance is achieved with the model that employs a 120 minute lookback window. Models are also shown to operate best on the tickers for which they were trained, negating the possibility of a generalized prediction engine.