Predicting Stock Market Prices using Machine Learning algorithms and comparing them

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Baseline Paper Details

Title: A Survey of Forex and Stock Price Prediction Using Deep Learning, 2021

Stock market prediction aims to determine the future movement of the stock value of a financial exchange. The accurate prediction of share price movement will lead to more profit investors can make. It can also help expose volatility in the markets and can save retail investors money amidst the giant institutional investors.

The paper compares different research papers based on their implementations of different deep learning methods (LSTM, CNN, RNN) and compares them using various criteria. The dataset includes different papers (around 85) and their results. It is available here: https://www.mdpi.com/2571-5577/4/1/9 (Published by MDPI)

We plan on implementing some of the deep learning algorithms mentioned in the baseline paper and comparing their results using different metrics. The dataset that we will use is available on the link: https://www.kaggle.com/datasets/borismarjanovic/price-volume-data-for-all-us-stocks-etfs

The data is presented as follows: Date, Open, High, Low, Close, Volume, OpenInt.

Open: Opening price of the share. High: Highest recorded price on the day.

Low: Lowest recorded price on the day. Close: Closing price of the share.

Volume: Number of shares traded in the stock.

OpenInt: Total no. Of bought or sold contracts, not the total of both added together.

Example:

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Date,Open,High,Low,Close,Volume,OpenInt

2010-07-
21,24.333,24.333,23.946,23.946,43321,0
2010-07-
22,24.644,24.644,24.362,24.487,18031,0
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3.4 We will be doing our work in Python which has a support of many useful libraries and frameworks including TensorFlow, Py Torch, CNTK, H2O, etc. The research paper proposes that a mix of deep learning algorithms or some hybrid algorithms offer a promising prospective for future.

3.5 Our Principal paper does not directly show any improvements on any particular SOTA papers but actually proposed the use of the data collected from different global financial markets with machine learning algorithms in order to predict the stock index movements with the help of reference from multiple papers mainly

[1] Zhen Hu, Jibe Zhu, and Ken Tse “Stocks Market Prediction Using Support Vector Machine”,

[2] Wei Huang, Yoshiteru Nakamori, Shou-Yang Wang, “Forecasting stock market movement direction with support vector machines”