

CNN Based Stock Market Prediction

A project showcasing interesting use case of CNN

Main Paper

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CNNpred: CNN-based stock market prediction using a diverse set of variables

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ABSTRACT

Feature extraction from financial data is one of the most important problems in market prediction domain for which many approaches have been suggested. Among other modern tools, convolutional neural networks (CNN) have recently been applied for automatic feature selection and market prediction. However, in experiments reported so far, less attention has been paid to the correlation among different markets as a possible source of information for extracting features. In this paper, we suggest a CNN-based framework, that can be applied on a collection of data from a variety of sources, including different markets, in order to extract features for predicting the future of those markets. The suggested framework has been applied for predicting the next day's direction of movement for the indices of S&P 500, NASDAQ, DJI, NYSE, and RUSSELL based on various sets of initial variables. The evaluations show a significant improvement in prediction's performance compared to the state of the art baseline algorithms.

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General Timeline

Project Starts: 25 April

Checkpoint 1: 25 May

Checkpoint 2: 18 June

Final Submission: 18 July

Week-Wise Timeline

Week 1: Intro to Time Series Data & Problems

Week 2: Basic Modeling & Forecasting Methods

Week 3: Basic Machine Learning & Deep Learning

Week 4: Building Neural Networks in Google Colab

Week 5: Understanding and Implementing CNNs

Week 6: Reading and Understanding the Paper

Week 7: Understanding & Working with the Data

Week 8: Model Building and Evaluation

Week 9: Optimisation and Improvements

Week 10: Document & Prepare Presentation

These are the common necessary things; extra work and its pace would vary as per interest and experience

Some Important Things

- I will be posting resources by every Sunday EOD or Monday noon.

Google Doc Link:

https://docs.google.com/document/d/1ENA4HcarwdeQZqLDJk_3ge_chSnXY7Tj46v_GmbO1jM/edit?usp=sharing

- We will be having an online meet every Sunday at 3 PM to review work.

You can share your screen and explain your work and learnings.

- You have to update your project status by every Sat EOD or Sun noon.

Google Sheet Link: (Just write 'Done' when you have completed the tasks)

https://docs.google.com/spreadsheets/d/1loRVOVxXcQe3KyuJAX1WraaD7vS_9PfSSE137cVZKJY/edit#gid=0