

Sample UCL-styled A0 scientific poster \LaTeX

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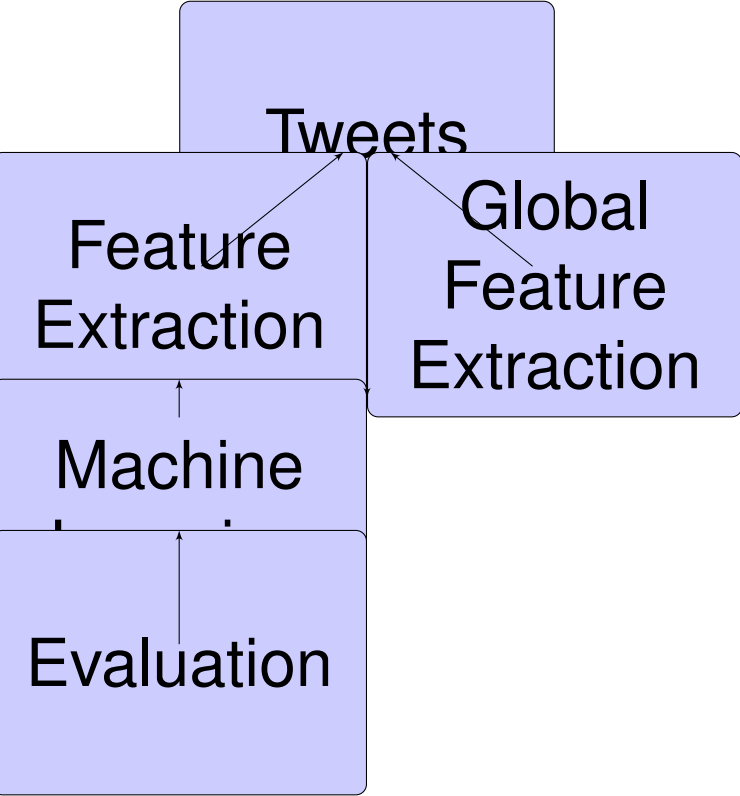


Introductory segment

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First Piece of Content

It is worth fiddling around a bit with positioning of the text blocks to get the spacing even. I like a vertical gap of about 0.4 “block units” between the horizontal bar at the end of one block and the beginning of the next. There are contruction lines at the end of the \TeX file to help with this.



Figures (and labels using the \LaTeX picture environment) work as you would expect.

Feature Extraction

The key objective of this project is to use information contained within Twitter posts to predict the mood of the markets towards certain stocks. Tweets contain a great deal of information, including the text itself, linking between users, linking to entities (either explicitly view a tag or plain text) and network effect via re-tweets.

In their raw form, Tweets are not convenient for inference. As such we will focus a great deal of our time distilling the information contained within the Tweets into a form that we can use easily, ensuring all important aspects of the Tweets are preserved. This approach gives a nice layer of abstraction between the Information Retrieval and the Machine Learning steps in the pipeline. We will be gathering these features using two independent MapReduce jobs.

Global Statistics

Firstly, we will run a global job to gather statistics that depend on the entire dataset (for example tf/idf). The statistics available and the mannerr in which they are gathered will be a significant area of experimentation.

Some statistics that we plan to start with are:

- user average sentiment - to help us determine if someone’s good opinion of an entity is only because they are generally positive. This could be global or regarding a specific company.
- inverse document frequency - to be used with term frequency within tweets to potentially highlight particularly significant phrases

Performance Evaluation

ML algorithm perfomance

To demonstrate the effectiveness of our learning algorithms we proceed by spiting the data into testing and training sets. Than we predict the future stock price using the training set and compute the mean squared error of the prediction using the test set.

By carrying out the above procedure with different sets of test and training data we will be able to establish the predictive power of our model as well as determine how far into the future we will be able to make effective predictions.

If the system will be used for training than the complex regression problem can be reduced to a simpler classification problem. Instead of predicting the exact price we will instead classify whether stock is going to go up or down after a specific amount of time. When evaluating this approach we intend to use the number of misclassification as a metric for determining the predictive power of our algorithm.

Back-testing

While mean square error in prediction is useful in evaluating algorithm effectiveness, low mean square error does not directly translate into trading performance.

The simple price model will need be further extended to incorporate stock liquidity and ensure that gains can be realised. Further optimisation is possible by incorporating trading fees as well as liquidity rebates to ensure that the system not only maximises prediction power but also profitability.

Discussion and Conclusions

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- First concluding point; we expected this to be so because of the contruction of the argument and blah.
- Second concluding point: this one is counterintuitive but we can justify it by reference to the extended discussion above.
- Third and **most important concluding point**: this is the one we’re excited about.