

Proposal

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Predicting Bitcoin Prices with Sentiment Analysis on News and Social Media

In recent years, Bitcoin has gained enormous popularity. After receiving many media coverages in 2017, the price went up drastically from 1,000 to 20,000 USD, from which it has since gone down. In fact, this sudden increase in price is not surprising since behavioral economics states that there are correlations between the public sentiment and the market, in addition to news information. Fortunately, with the advent of social media, the information about public feelings has become abundant, where Twitter has received a lot of attention from researchers. Thus, the plan of the project is as follows: we will conduct sentiment analysis on both news and tweets from Twitter to predict the movement of Bitcoin prices.

Public Sentiment

- word2vec representation for tweets
- to determine the sentiment of a tweet, list out positive and negative keywords and see if the tweet contains those keywords.
- LDA for finding topics in news articles
- If the main topic of a news article is cryptocurrency/Bitcoin, include it into our corpus
- for each news article, determine the sentiment by using the positive and negative keywords approach

Predicting Bitcoin Price Movement

1. Choose a time frame (minutes, hours, days, etc)
2. For each time frame, determine the public sentiment.

3. To do this, take all the tweets and articles within that time frame, and the public sentiment will be the majority of sentiments.
4. See if the Bitcoin price increased or decreased within that time frame
5. Use (time, sentiment, price movement) as input for different models (SVM, neural networks, etc) to predict the rise and fall of the price.
6. Compare outcomes of the different models