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Predicting Ethereum Price Fluctuations Using Sentiment Analysis and Machine Learning

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Abstract

This study examines the ability to anticipate the fluctuations of Ethereum prices using sentiment analysis and machine learning advanced techniques. Ethereum blockchain data: Being the second largest cryptocurrency globally, ranked by market capitalization, analyzing Ethereum's blockchain data can prove useful for predicting price movements. We will try to take advantage of social media sentiment, specifically Twitter, and use machine learning methods including linear regression, logistic regression, and support vector machines. Combining sentiment data, the goal is to enhance the models designed for sentiment analysis with quantitative financial data and to increase the accuracy of our predictions.

1. INTRODUCTION

Cryptocurrencies and their underlying technologies, such as Blockchain in the case of Bitcoin and Smart Contracts in the case of Ethereum, are examined to the early Internet, where predicting which coins would succeed appears to be extremely difficult. The influence of news data on the profitability of trading techniques that predict short-term cryptocurrency price changes is one of the key focuses of this research paper. Another interesting aspect of the crypto industry is the massive quantity of publicly available sentiment data, especially from

social media. As seen by recent attempts to spot price volatility in the crypto market using sentiment analysis, this data may potentially be used to predict future social actions, and hence might be used to construct profitable trading methods. The task's difficulty is due to the numerous aspects and uncertainties that interact in the markets, such as economic and political situations, as well as human behavior. It's difficult, but not impossible, to predict market price fluctuations on a constant basis. Market price changes, according to studies, are not random, but rather extremely non-linear and volatile. Previous research has also demonstrated that in order to profit from financial forecasts, it is not required to be able to estimate the precise value of the future price. In truth, correctly identifying the market's direction along with its value can lead to higher profits.

2. DATASET

Several different data sources are analyzed as possible inputs to the model in order to anticipate Ethereum price movements. The first input is a sentiment analysis of collected Ethereum tweets. The data from Google Trends and Kaggle is the second, and the volume of tweets is the third. The methodology explains how each one of the data will be gathered.

2.1. Twitter Analysis

The Tweet volume may be acquired from bitinfocharts , which shows the number of Tweets by day regarding Ethereum, and the Python module Tweepy can be used to find the count of Tweets.

2.2. Google Trends

Google Trends is a Google website that measures the popularity of top Google Search queries in different countries and languages. The website makes use of graphs to compare the amount of searches for various questions across time. The user may also examine the relative search volume of two or more topics using Google Trends. Through Google Trend we will try to gather information regarding the Ethereum and collect information according to days, months and years

3. PRICE FORECASTING METHODS

3.1. Sentiment analysis

Sentiment Analysis, widely known as opinion mining, is a kind of Natural Language Processing that allows us to determine if a piece of data has a positive, negative, or neutral tone. Machine learning or lexicon-based techniques can be used to do this. Sentiment analysis has a wide range of applications, from emotion identification to text categorization. Different social media sites utilize it to assess the sentiment of postings, and if the emotion is too strong or violent, or falls below their level, they remove or hide the post. To forecast crypto values, Twitter sentiment is studied. The information was examined to see if it would be useful in the final model. Because neutral sentiment does not normally indicate a pattern for buying or selling, Sentiment analysis concluded that tweets are more neutral, which would make the outcomes less efficient if the public sentiment is neutral. Price was strongly associated with both Google Trends and tweet volume. To forecast Ethereum's daily closing price, a linear regression model was applied. Regardless of future price fluctuations, though, Twitter attitude about cryptocurrency is mostly positive.

3.2. Machine Learning Algorithms

// Comment : We are using linear regression, logical regression and support vector machine for predicting the price of Ethereum and we are working on the code and we going to fixing the bugs as soon as possible.

4. CONCLUSION

This study of the literature looked at how sentiment analysis may be used to anticipate Ethereum values using several social media sources, such as Twitter. Many studies show that using machine learning techniques in combination with sentiment analysis provides much greater efficiency than using solely machine learning methods. Therefore, some academics utilize social media to anticipate cryptocurrency values. Using social media data, we discussed the strategy That will use to anticipate coin price fluctuations based on public mood in this literature study.

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