

Predicting Ethereum Price Change Using News Articles

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I. INTRODUCTION

THE cryptocurrency market have witnessed an explosion in the recent years with Bitcoin¹ hitting lots of new time high and many investors moving to this trading space [1]. With the internet constantly evolving, social networking sites such as Facebook, Twitter, Instagram and etc have become a means of communication between people. There have been researches in text sentiment analysis to predict price changes for Bitcoin [1][2] as Bitcoin is considered a dominant cryptocurrency. However many other cryptocurrency have been developed and have been in demand such as Ethereum². The project will be tackling Ethereum market price by estimating if the future price increases or decreases based on text processing sourced from the web such as social networking sites and forums. The problem is converted into a classification problem by comparing the future market price with current market price instead of a regression problem of estimating the future market price. Can news or posts of Ethereum articles really affect the market price?

The input to our algorithm is text sourced web scrapers on social networking sites. We then compare several machine learning methods such as k-Nearest Neighbours (kNN), logistic regression and Support Vector Machine (SVM) to output a predicted label, +1 if price increased or -1 if price decreased.

II. DATASET AND FEATURES

The dataset consists of input Ethereum related articles and class labels gathered from Twitter, Reddit and Binance³.

Binance provides a set of API⁴, WebSocket endpoints available to collect live data and old historical data⁵. Monthly trade data of ETHUSDT⁶ symbol is collected from August, 2017 to October, 2021 with a total of 657,446,190 data points. These data points are processed by calculating the average price by days and discretizing the continuous values into +1 and -1 class labels by comparing it with the previous day resulting into 1,537 data points.

¹ Bitcoin is the first well known cryptocurrency started in the late 2000s

² Ethereum is programmable blockchain and cryptocurrency described as Ether

³ Binance is one of the largest cryptocurrency exchange

⁴ <https://github.com/binance/binance-spot-api-docs/blob/master/web-socket-streams.md>

⁵ <https://github.com/binance/binance-public-data>

⁶ ETHUSDT is a symbol for Ethereum and USDT pair, 1 USDT is 1 USD.

III. METHODS

IV. EXPERIMENTS

V. RESULTS

VI. DISCUSSION

VII. SUMMARY

REFERENCES

- [1] Nguyen Huynh Huy, Bo Dao, Thanh-Tan Mai, Khuong Nguyen-An, et al. Predicting cryptocurrency price movements based on social media. In *2019 International Conference on Advanced Computing and Applications (ACOMP)*, pages 57–64. IEEE, 2019.
- [2] Otabek Sattarov, Heung Seok Jeon, Ryumduck Oh, and Jun Dong Lee. Forecasting bitcoin price fluctuation by twitter sentiment analysis. In *2020 International Conference on Information Science and Communications Technologies (ICISCT)*, pages 1–4. IEEE, 2020.

