

Supervised Learning

# Classification of Bitcoin Price Development

Lukas Hermans

Università degli Studi di Milano  
lukas.hermans@studenti.unimi.it

June 16, 2021

## Abstract

- rising importance of Bitcoin (market cap comparable to large multinational companies such as Facebook and Tesla) - volatility higher than stockmarket, different asset - Bitcoin price prediction offers trader advantage over non-rational traders - here: focus on classification of Bitcoin price (up or down) - techniques:

## Contents

<b>1</b>	<b>Introduction</b>	<b>2</b>
<b>2</b>	<b>Dataset &amp; Definitions</b>	<b>2</b>
<b>3</b>	<b>Theory</b>	<b>2</b>
<b>4</b>	<b>Implementation &amp; Software</b>	<b>2</b>
<b>5</b>	<b>Results</b>	<b>2</b>
<b>6</b>	<b>Discussion</b>	<b>2</b>
<b>7</b>	<b>Conclusion &amp; Outlook</b>	<b>2</b>
	<b>References</b>	<b>3</b>

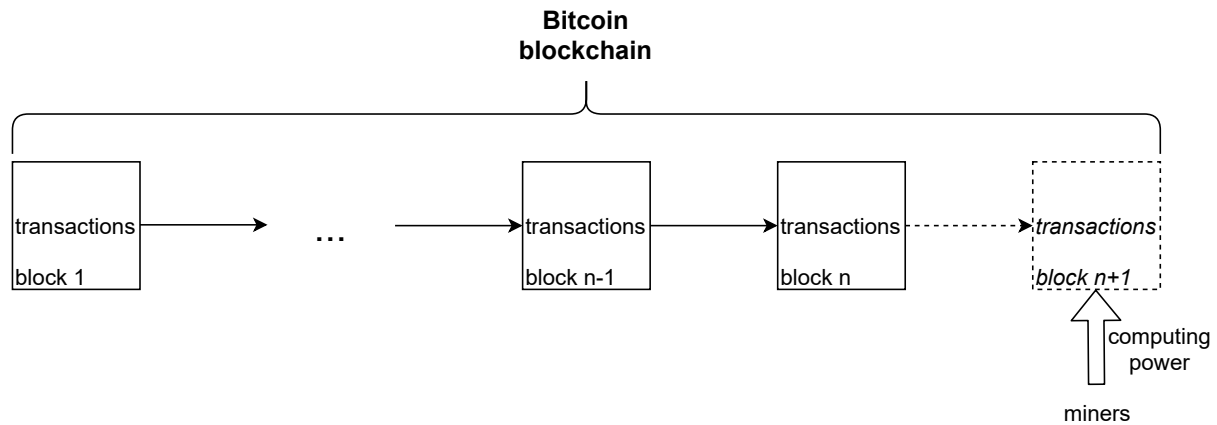


Figure 1: This is a simplified visualization of the Bitcoin blockchain.

## 1 Introduction

- cryptocurrency from 2009 developed by an unknown individual or group under pseudonym Satoshi Nakamoto [1] - currently cryptocurrency with largest market cap of 750 billion, comparable to market cap of companies like Facebook or Tesla [2] [3] - one hand: classical asset with price driven by demand and supply, can be traded on exchanges (like stock exchanges) - other hand: where do they come from? -> blockchain, can be mined using computational resources via process called hashing, block size  
 - so far: classification accuracies of 51-55 percent - here: comparison of

## 2 Dataset & Definitions

- data taken from Blockchain.com API [4]

## 3 Theory

## 4 Implementation & Software

## 5 Results

## 6 Discussion

## 7 Conclusion & Outlook

Outlook: - Google searches [5], Twitter [6] - consider individual transactions [7] - predict major crashes [8] [9] [10]

## References

- [1] Satoshi Nakamoto. “Bitcoin: A Peer-to-Peer Electronic Cash System.” In: *Cryptography Mailing list at <https://metzdowd.com>* (Mar. 2009).
- [2] Statista. *The 100 largest companies in the world by market capitalization in 2021*. 2021. URL: <https://www.statista.com/statistics/263264/top-companies-in-the-world-by-market-capitalization/> (visited on 06/14/2021).
- [3] CoinMarketCap. *Today’s Cryptocurrency Prices by Market Cap*. 2021. URL: <https://coinmarketcap.com/> (visited on 06/14/2021).
- [4] Blockchain.com. *Blockchain Charts & Statistics API*. 2021. URL: [https://www.blockchain.com/api/charts\\_api](https://www.blockchain.com/api/charts_api) (visited on 06/16/2021).
- [5] Martina Matta, Maria Ilaria Lunesu, and Michele Marchesi. “Bitcoin Spread Prediction Using Social And Web Search Media.” In: June 2015.
- [6] Germán Cheuque and Juan Reutter. “Bitcoin Price Prediction Through Opinion Mining.” In: May 2019, pp. 755–762. ISBN: 978-1-4503-6675-5. DOI: 10.1145/3308560.3316454.
- [7] A. Greaves and Benjamin Au. “Using the Bitcoin Transaction Graph to Predict the Price of Bitcoin.” In: 2015.
- [8] Elon Musk. *Tweet*. 2021. URL: <https://twitter.com/elonmusk/status/1392602041025843203> (visited on 06/15/2021).
- [9] CNBC. *Bitcoin price falls after China calls for crackdown on bitcoin mining and trading behavior*. 2021. URL: <https://www.cnbc.com/2021/05/21/bitcoin-falls-after-china-calls-for-crackdown-on-bitcoin-mining-and-trading-behavior.html> (visited on 06/15/2021).
- [10] Bloomberg. *Binance Faces Probe by U.S. Money-Laundering and Tax Sleuths*. 2021. URL: <https://www.bloomberg.com/news/articles/2021-05-13/binance-probed-by-u-s-as-money-laundering-tax-sleuths-bore-in> (visited on 06/15/2021).