

# Crypto Price Trend Prediction

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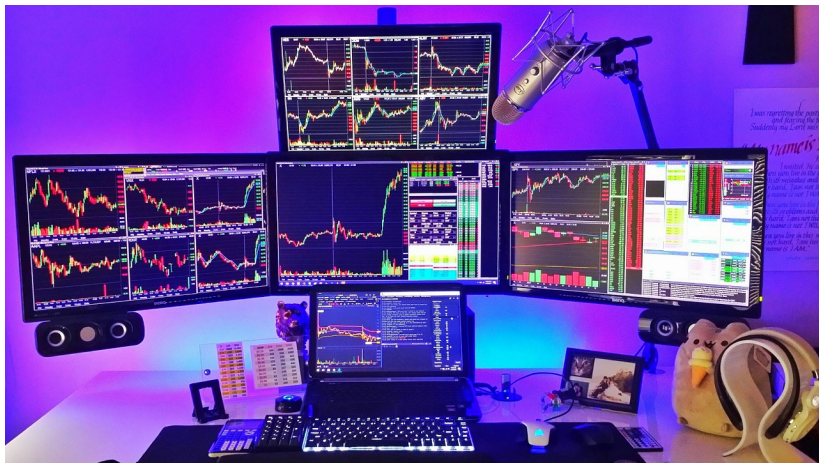
# Introduction

- ▶ We trade cryptocurrencies, but we are unsuccessful so far
- ▶ Can we create a deep learning model that can make decisions for us?

# Approach

- ▶ Most studies focus on a numeric approach
- ▶ We chose an alternative way for the prediction
- ▶ Traders usually make decisions by looking at graphs

# A trader



# Objectives

- ▶ Can a convolutional neural network predict a future price direction by reading charts?
- ▶ We decided to take two approaches to find the best way

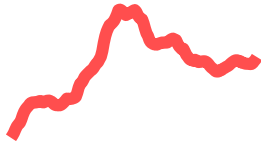
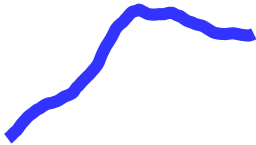
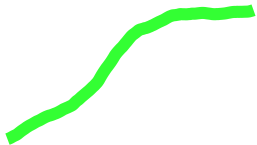
## Initial dataset

time	open	high	low	close	volume_usd
2014-12-01 06:00:00	300.00	300	300.00	300	6.00000
2014-12-01 07:00:00	370.00	370	370.00	370	13.52555
2014-12-02 06:00:00	377.00	377	377.00	377	3.77000
2014-12-02 11:00:00	377.75	378	377.75	378	1511.93750
2014-12-02 12:00:00	378.00	378	378.00	378	3817.80000
2014-12-02 19:00:00	378.00	378	378.00	378	337.78080

# Transformation

- ▶ We generated indicators such as moving average and oscillators
- ▶ We plotted these indicators

First approach





## Generated data

- ▶ 2800 images in this format were generated
- ▶ They were classified into three different folders
- ▶ First category: buy, if during the next 12 hours the price increase by more than 2%
- ▶ Second category: sell, if during the next 12 hours the price decrease by more than 2%
- ▶ Third category: hold, takes all the remaining images.

# Model 1

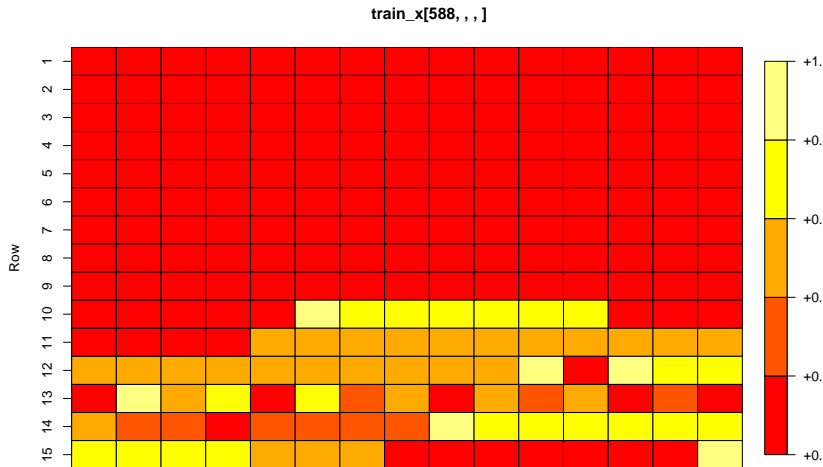
- ▶ Six convolutional layers and two dense layers
- ▶ Tuning parameters: dropout, number of filters, and regularisers (L1 and L2)
- ▶ Dynamic learning rate and early stopping

# Results

loss	accuracy
2.905171	0.6806741

## Second approach

- ▶ The second approach was inspired by existing papers, and we decided to plot a grid representing different prices and indicators information



## Model 2

- ▶ Two convolutional layers and two dense layers
- ▶ Tuning parameters: dropout, number of filters, and regularisers (L1 and L2)
- ▶ Dynamic learning rate and early stopping

# Results

loss	accuracy
1.415836	0.715035

# Conclusion

- ▶ Disappointing results, we will not become rich easily
- ▶ For the first model, we believe that image resolution was too low
- ▶ Wrong model construction
- ▶ Not enough free data