

The background features several glowing, stylized cryptocurrency coins in shades of blue and gold. A large white circle is centered on the image, containing the title and project details. The coins have various designs, including geometric patterns and symbols like the Bitcoin 'B' and the Ethereum diamond.

Daily Direction Algorithm (DDA)

A Machine Learning Project to
Predict a Cryptocurrency's Positive/Negative
Movement

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What are we Doing and Why?

Hypothesis:

Can cryptocurrency on-chain data paired with technical indicators fit to a Machine Learning model be a reliable predictor of the next daily close? Is historical pricing the best indicator of a next day cryptocurrency price?

Motivation:

Create a tool that can be utilized to better invest in crypto according to our model's prediction

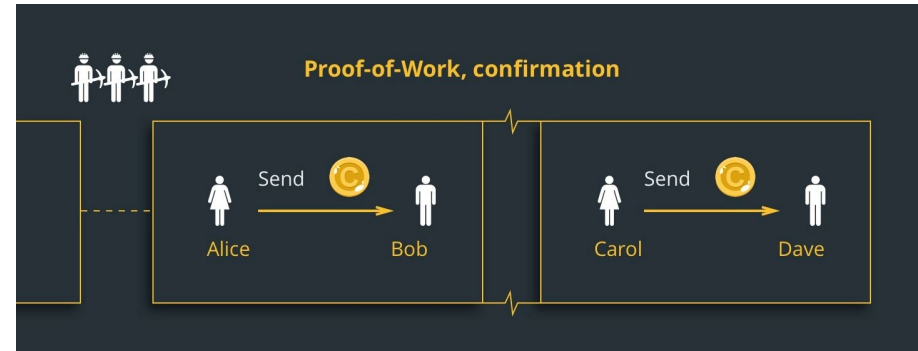


Model Summary



We selected three Proof of Work coins: **BTC**, **ETH**, and **DASH** and utilized:

- ❖ the **Random Forest Regressor** for modeling two years of features data, and
- ❖ the **LSTM Recurrent Neural Network** to model two years of historical pricing



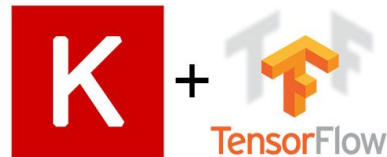
Data Collection

❖ Pulled data

- Kraken API - Price
- Google BigQuery - On-Chain
- Reddit - NLP



Google BigQuery



Features

❖ Price and Technical Indicators

- Closing Price
- Money Flow Index
- Exponential Moving Average
- Fear and Greed

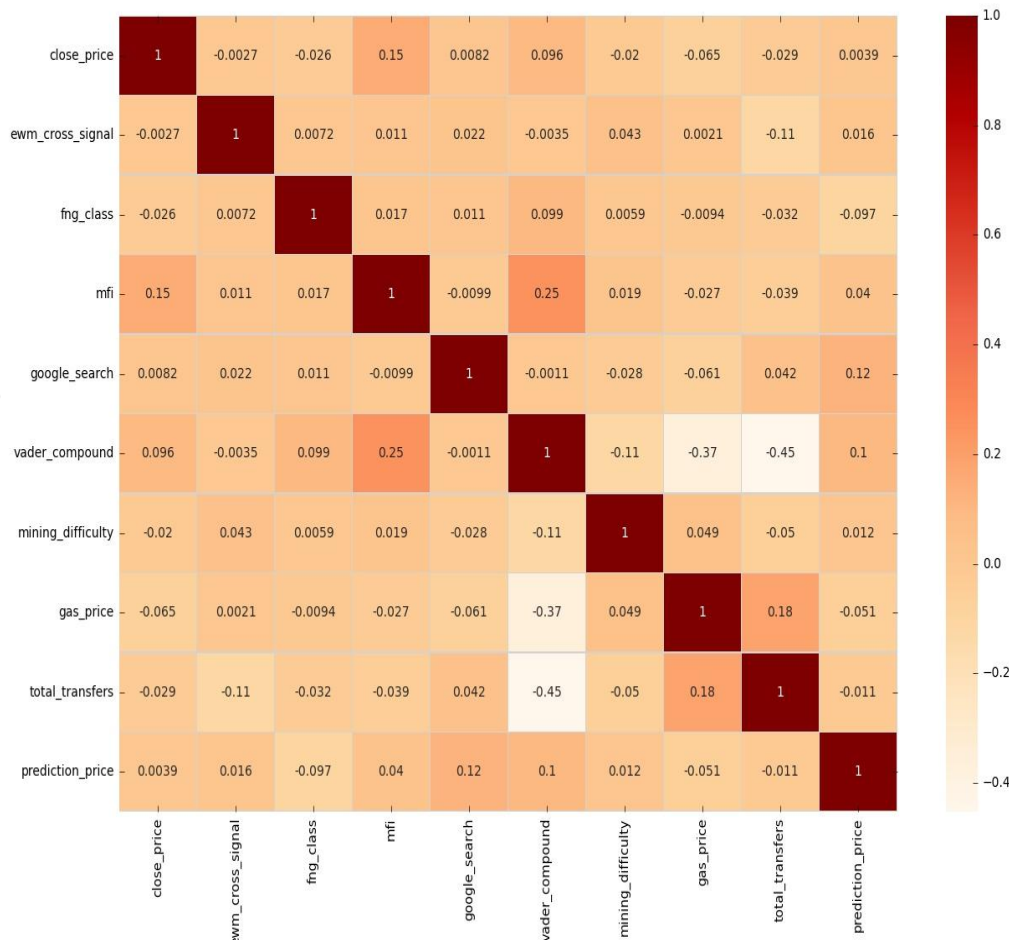
❖ NLP

- Vader Sentiment
- Google Search Metrics

❖ On-Chain

- Mining Difficulty
- Fees
- Value of Transfers

Ethereum Features Correlation Heatmap



Machine Learning

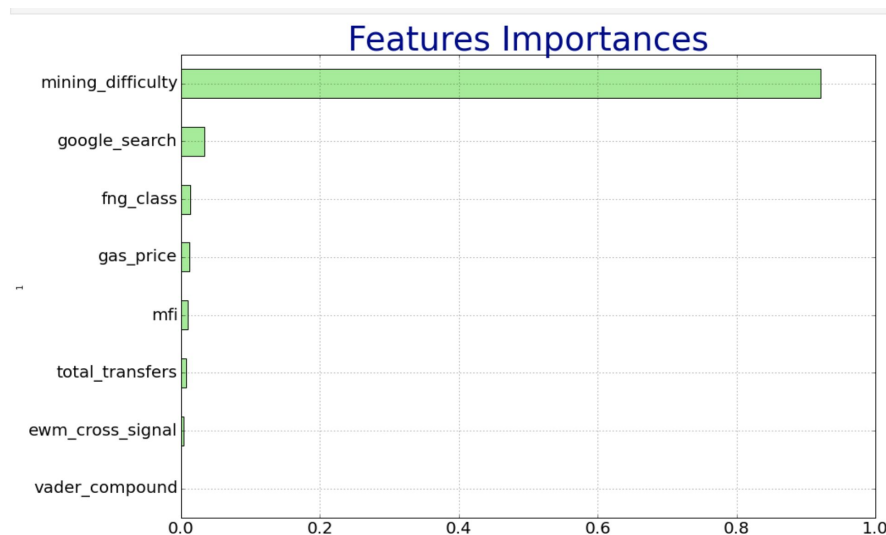
Utilized two different models for predictions:

- Random Forest Regressor
- LSTM RNN

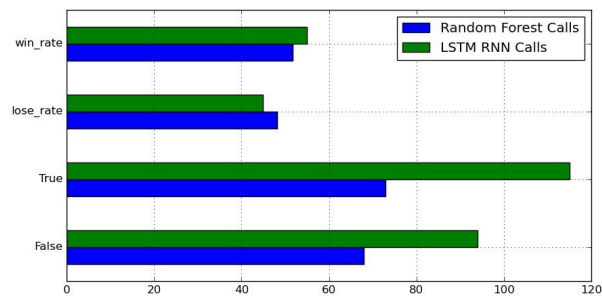
Training: Ran several scenarios for LSTM RNN and found the following best fit:

- 80/20 split
- 3 layers
- 30 window size
- 30 number of units
- 50 epochs
- 100 batch size

Compared accuracy rates between the two models

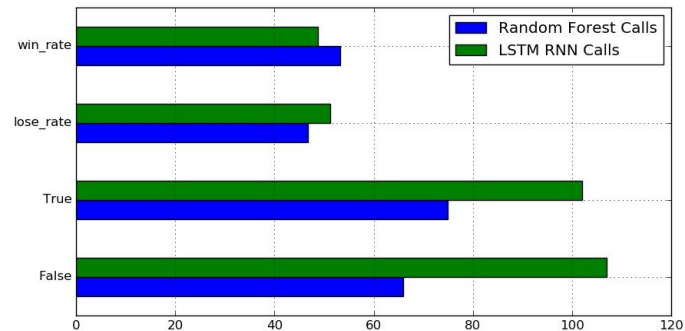
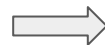


Discussion: Model Evaluation between Cryptocurrencies

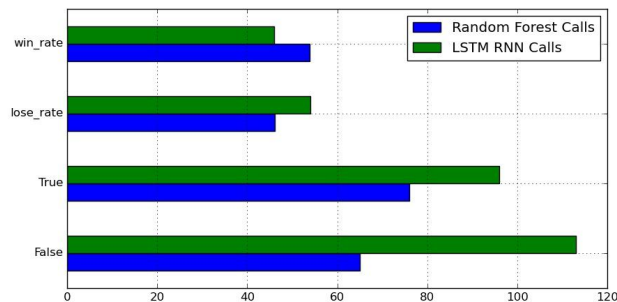


Bitcoin

Ethereum

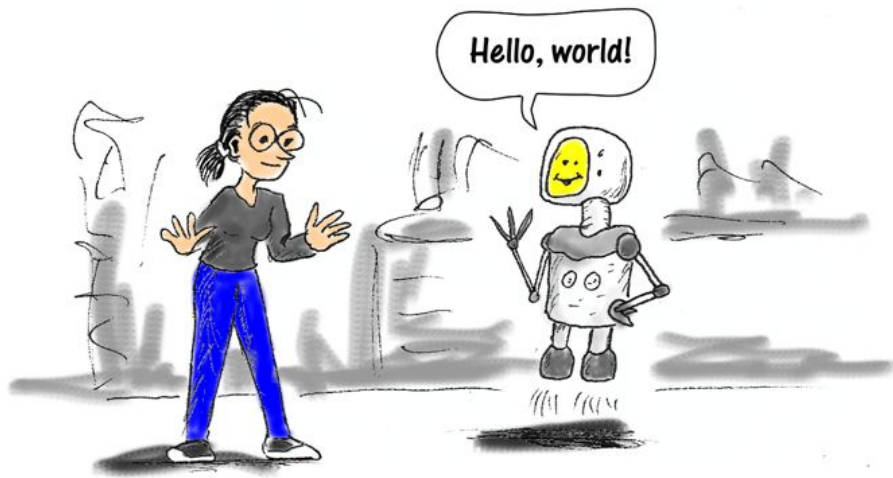


DASH



Postmortem

- Finding similar measure difficulty
- Converting hexadecimal into numbers on Google BigQuery
- Not cheating
 - We used the entire data frame for training
- Scale down the project:
 - Drop the bot
 - Drop Litecoin



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QUESTIONS?