Cryptocurrency Swing trading

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Motivation

Why cryptocurrency swing trading and ML?

In small time intervals, only technical analysis is important.

The Technical analysis follows patterns in the data, the task that neural networks have been proven good at.

Swing training makes numerous daily trades possible which reduces the risk of a statistical model.

Neural networks are not subjects to weariness or emotions resulting in full-time operation and finite mistakes.
Feature selection

- https://www.CryptoDataDownload.com
- It consists of the Bitcoin prices and volumes in USD
- The data includes open, close, low, high, volume in Bitcoin and USD
- To reduce the noise, we elongate the intervals as a hyperparameter
- To avoid redundancy, we pre-process the data and extract one open price per input, price changes in interval, and the volumes in USD.
Methodology

• The data is fed to a neural network.

• The hyperparameters are changed to achieve an optimal result.

• As the variation of output is small and centered at zero, the weights and biases are
  learnt to make the predictions zero.

• To avoid the problem, we changed the regression problem to a classification problem
  in which a profit more than a certain value (HP) is considered profitable trade. A
  sigmoid classifier is introduced to the network at this stage.
Comparison and results

• Two classifiers were mainly used:
  • MLP
  • XGBoost

• Grid Search was used to optimize the hyperparameters (ran for 200_000 iterations.)

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<tr>
<th></th>
<th>MLP</th>
<th>XGBoost</th>
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<tbody>
<tr>
<td><strong>Accuracy:</strong></td>
<td>0.4984014209591474</td>
<td>0.6360390763765542</td>
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<tr>
<td><strong>Profit:</strong></td>
<td>1787.300000000796 USD</td>
<td>22062.7200000002 USD</td>
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• Short Term Stock Price Prediction Using Deep Learning DOI: 10.1109/RTEICT.2017.8256643
• A novel stacked generalization ensemble-based hybrid LGBM-XGB-MLP model DOI: 10.1016/j.energy.2020.118874
Thank you