AI Hack 21

Kaiko Cryptocurrency Challenge

Challenge Description

Attempt to build profitable trading strategies in the cryptocurrency markets using order-book and derivatives data.

Using cryptocurrency market data, your ultimate challenge is to look for stylized facts or predictive models for cryptocurrency prices. Anything interesting you can find about the data is welcome and you can also mix it with other sources of data available (Mining hashrate, Google trends, Reddit, etc.) if you would like, though we recommend starting simple.

Data

The dataset contains one/two months of minute data from popular cryptocurrency pairs traded on major exchange places. Two types of financial instruments are present in the dataset:

[1]. Spot – they represent spot trading, for example for BTC/USD this represents traders exchanging bitcoin and dollars.

[2]. Derivatives – – two types of futures are given: perpetual futures [Ref 1] and traditional futures with a maturity, in order to understand the maturities, you will need to parse the instrument name to get the date. For example, "ethusd200925" is a futures contract on ETH/USD expiring on 2020-09-25. Typically, futures contracts are more liquid than spot markets and come with lower fees which is why they are interesting for trading.

For each instrument (a pair/contract + the exchange on which it is traded), various data types [Ref 2] can be found:

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- OHLCV: Open, High, Low, Close, Volume and trade counts. For more infor
  mation on how OHLCs are calculated, see https://en.wikipedia.org/wiki/Ca
  ndlestick_chart
- LOB: Limit Order Books, these contain snapshots of the limit order boo
  ks
- Aggregated Exchange Rates: calculated as volume-weighted averages of t
  he prices each minute across major exchanges.
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This is the price reference to use if you would like to build a trading strategy.

Extensive documentation can be found on our website at https://docs.kaiko.com/ (https://docs.kaiko.com/) and a summary of relevant links at https://www.kaiko.com/pages/getting-started-with-kaiko (https://www.kaiko.com/pages/getting-started-with-kaiko).

Sample Questions

• Using orderbook imbalances at various depths to predict price returns

• Analyzing statistical anomalies (e.g. abnormal returns on weekends, nights, etc.)

• Using Google Trends with specific key words to predict prices

• Explore arbitrage opportunities [Ref 3]

• Perform lead-lag analysis between futures and spot markets

Ultimately, you can try to build trading strategies using the anomalies / predictions you built although this is not a requirement. If you do so, try to think a little about what benchmark you use to evaluate your strategy (you can start with risk-adjusted returns, and compare to simply holding BTC as a start).

References

[Ref 1] For a description of perpetual futures, see https://www.bitmex.com/app/perpetualContractsGuide (https://www.bitmex.com/app/perpetualContractsGuide)

[Ref 2] For more information about our data types: https://www.kaiko.com/pages/cryptocurrency-data-types (https://www.kaiko.com/pages/cryptocurrency-data-types)

[Ref 3] https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3171204 (https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3171204)

Terms and Conditions

By downloading the data, you agree to only use the data for the scope of the February 2021 AI Hack 21 hosted by Imperial College Data Science Society (ICDSS) and abide by our terms and conditions available on Kaiko's website.

Contact

Contact　　　: Sacha (Kaiko, ICL '18, sacha@kaiko.com)
Discord　　**: https://discord.gg/ymk36q54**

Round 1 Submission

Code Submission

Deadline　　: Sunday, 21st Feb 2021 at **13:00** UTC/GMT+0
Submission　: **https://aihack-2021.devpost.com/**

Report Submission

Deadline　　: Sunday, 21st Feb 2021 at **13:00** UTC/GMT+0
Submission　: **https://aihack-2021.devpost.com/**
Criteria　　: markdown, pdf, html, or any file formats
　　　　　　　that do **not** require special/dedicated tools or software(s)
Tips　　　　: Consider these while writing the report.
  - What are the goals of your study and why is it important or useful?
  - Discuss previous or related work
  - Data engineering and processing
  - Methodology
  - Results: how the results corroborate the assertions in your study.
  - Conclusion and discussion, any positive and negative findings.

Presentation Video Submission

Deadline　　: Sunday, 21st Feb 2021 at **14:00** UTC/GMT+0
Submission　: **https://aihack-2021.devpost.com/**
Criteria　　: Maximum length of 3 minutes

Judging Criteria [Out of 100]

Creativity [15]

Originality of angle of exploration (Interesting questions answered, use of valid alternative dataset(s)

Data Exploration [15]

Quality of techniques used to pre-processed data and to give valuable insights about the dataset(s)

Insight Visualisation [15]

Quality, relevance and effectiveness of visualisations used for exploration and/or analysis

Analytical Techniques [25]

Sophistication and correctness of methods of analysis. Cannot score high if cannot justify method.

Model Validation [5]

Use of metrics in showing performance of analysis.

Interpreting the Result [25]

Ability to interpret the result of the analysis and take a step back to explain the bigger picture. Ability to make a data-driven "business" decision.