Slide 1: Intro

Our company is focused on researching and creating accurate trading algorithms for crypto currency using machine learning.

Jonathan

Slide 2: Team

Jonathan - worked on the lstm neural network model

Rodrigo- worked on the algorithmic trading and signals

Jasmine - backtesting the neural network for accuracy

Jonathan

Slide 3: Problems

Why did we create our product?

This is what we noticed in the market.

Investors are hesitant investing in crypto due to the following reasons:

- crypto is volatile and has multiple price fluctuations
- crypto is influenced by numerous factors that make traditional analysis difficult
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Why our product is valuable:

- crypto is rapidly developing and growing and there needs to be tools to deal with it
- there are few algorithmic trading models that address crypto volatility
- in the market there is multiple-input crypto currency deep learning models but few that address the metrics we use

Jasmine

Slide 4: Solution

-used svm and lstm model to train algorithm and included fear and index as measure volatility

- using hourly data from alternative me api (might change to min data for premium content)

- visualization of fear and greed index

Rodrigo

Slide 5: Our Product

MarketWhale specializes in providing users with algorithmic trading bots that make accurate predictions for current crypto currency prices.

We are using the LSTM model for crypto forecasting.

Unlike other market competitors, our model utilizes the greed and fear index as a measure of crypto currency volatility.

This will allow our model to take not only take financial indicators into account but also emotion/sentiment.

The product is open source and can be accessed free of charge online with limitations

There will be a subscription model that offers users more options.

Jasmine

Slide 6: Visualizations (most important portion)

1. Algorithmic trading- Rodrigo (data, indicators, and SVM model as comparison)

2. Describe why fear greed was used in model (accounting for volatility)

Emotions and sentiments from different sources and crunch them into one simple number: The Fear & Greed Index for Bitcoin and other large cryptocurrencies. Metrics below.

-**Volatility (25 %)**

-Market Momentum/Volume (25%)
-**Social Media (15%)**

Surveys (15%)

Dominance (10%)

Trends (10%)

3. Long Short-Term Memory (LSTM) – Jonathan (why we used this particular model)

- Recurrent Neural Network (RNN) - **information is retained from previous steps and used in future steps - good for analyzing sequence data**

4. Talk about cnn model as well (comparison, differences between each)

    - Convolutional neural networks (CNN) - **generally associated with image and video machine learning, can be used to model interactions between different steps in a time series**
    - Univariate (1-dimensional) CNN - **one-dimensional convolutions can model the behavior from previous and future time steps to capture complex relationships from the series**
    - Multivariate (2-dimensional) CNN - **can capture relationships between different times series**

5. Neural network next steps

    - Continue tuning - data prep and scaling can be challenging with multi-dimensional data with different features. Choosing correct windows and sets can make a big difference in addition to number of hidden layers. Number of LSTM Units, Number of LSTM Layers, CNN - number of filters, kernel_size, pool_size
    - Once LSTM and CNN models are tuned look into hybrid models to capture the best of both worlds.
    - Hybrid is CNN -> LSTM -> Dense. CNN for feature extraction, LSTM for features over time.

Slide 7: Next Steps

premium subscription

- 1 minute price data (webscrapping using coindesk API) for more flexible trading strategies

- create signal indicators specific to crypto

- more correlative crypto as comparison

Slide 8: Technology used

- list