BTC Future API Strategy

QF635 Market Microstructure and Algorithmic Trading

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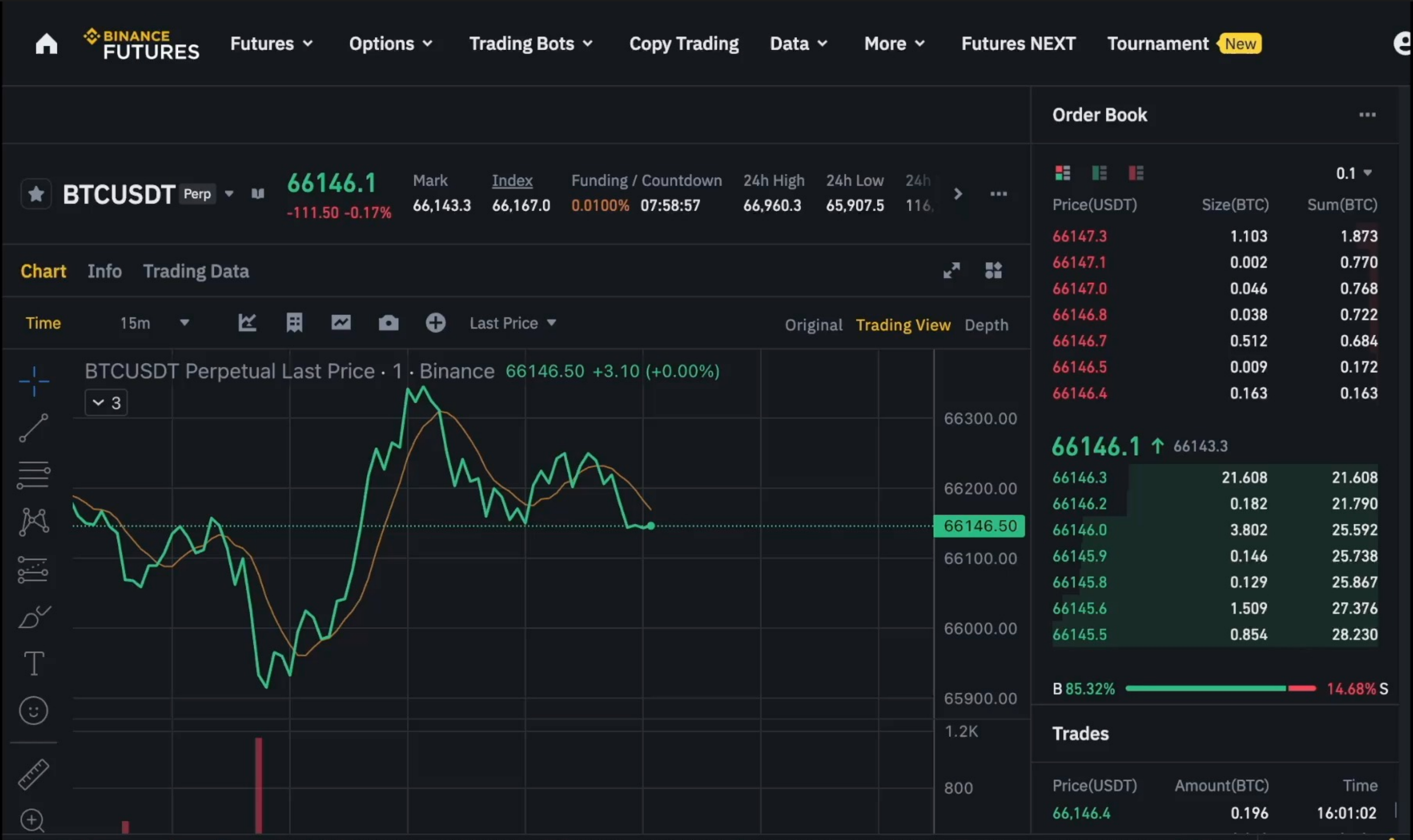

BINANCE FUTURES
Futures
Options
Trading Bots
Copy Trading
Data
More
Futures NEXT
Tournament New
BTCUSDT Perp
66146.1
-111.50 -0.17%
Mark 66,143.3
Index 66,167.0
Funding / Countdown 0.0100% 07:58:57
24h High 66,960.3
24h Low 65,907.5
Chart
Info
Trading Data
Time 15m
Last Price
Original
Trading View
Depth
BTCUSDT Perpetual Last Price · 1 · Binance 66146.50 +3.10 (+0.00%)
3
66300.00
66200.00
66146.50
66100.00
66000.00
65900.00
1.2K
800
Order Book
0.1
Price(USDT) Size(BTC) Sum(BTC)
66147.3 1.103 1.873
66147.1 0.002 0.770
66147.0 0.046 0.768
66146.8 0.038 0.722
66146.7 0.512 0.684
66146.5 0.009 0.172
66146.4 0.163 0.163
66146.1 66143.3
66146.3 21.608 21.608
66146.2 0.182 21.790
66146.0 3.802 25.592
66145.9 0.146 25.738
66145.8 0.129 25.867
66145.6 1.509 27.376
66145.5 0.854 28.230
B 85.32% 14.68% S
Trades
Price(USDT) Amount(BTC) Time
66,146.4 0.196 16:01:02

01 Limit order book

Mid price "True price"

spread 0.1-21.4

Price tiers 1s BTC perp STD: 8 USDT

02 Model Training

Target Mid price

Features Spread, LOB of 20 tiers

Regressors LR\ LASSO

Time difference/ML Model	Linear Regression	Lasso Regression
5 seconds	60.5%	72.3%
10 seconds	61.1%	63.9%
15 seconds	55.3%	62.0%

03

DATA COLLECTING

class Tier Price\ size \quote id

class orderbook Jason -orderbook

Collect 1s data 3600 x 6 entries

Model training models_list, MLdata_df, train_pct, period, threshold=0.6

Pnl simulate ML_model, data_1s, period=10, TH=6, size=0.01

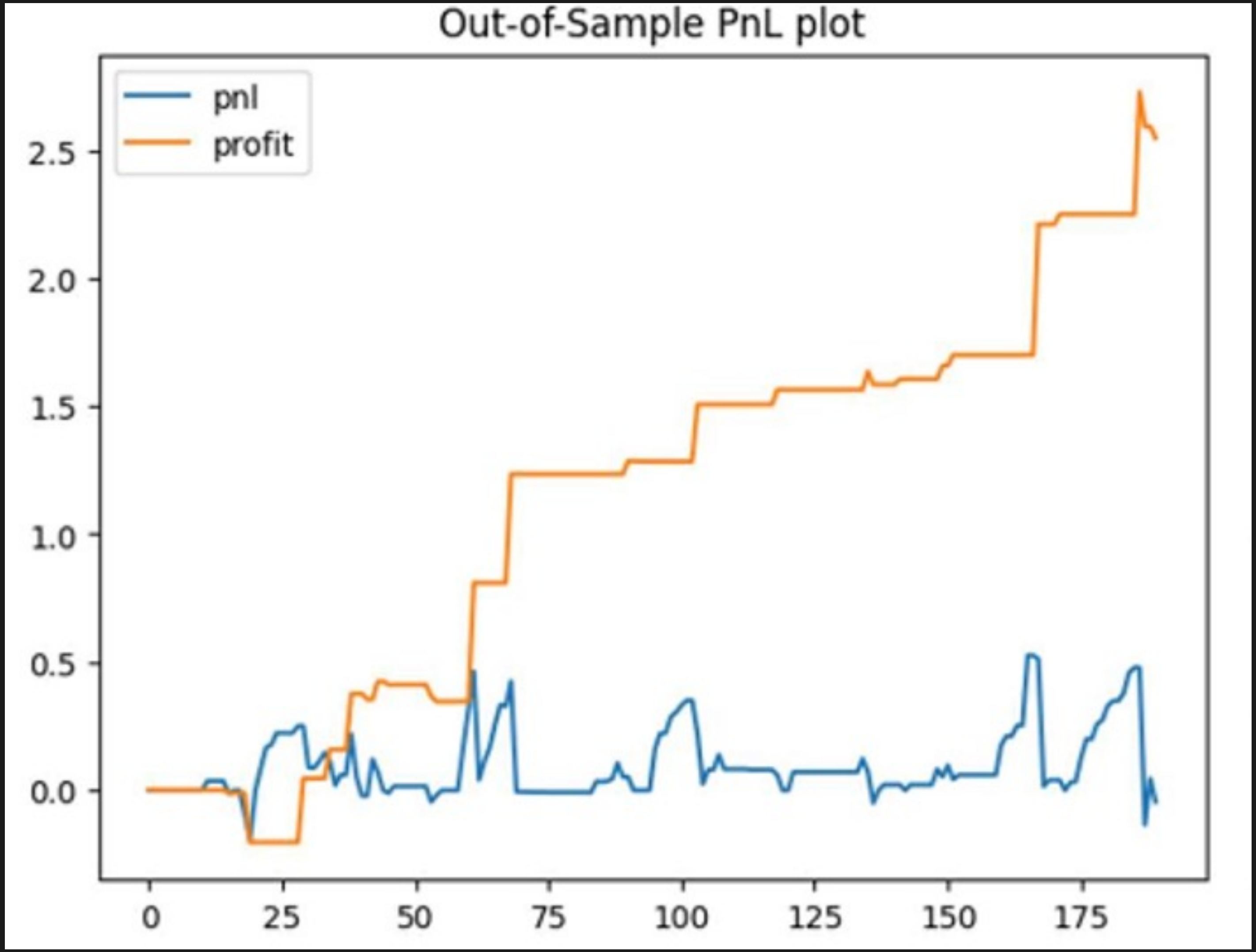
6 HOURS DATA

Training

Signal generator

04 ONLINE TEST

1 HOUR Testing


Out-of-Sample PnL plot
pnl
profit
2.5
2.0
1.5
1.0
0.5
0.0
0
25
50
75
100
125
150
175

05 API TRADING

LIVE!!!!!!

Win rate

Get_trade_history

PNL(realized)

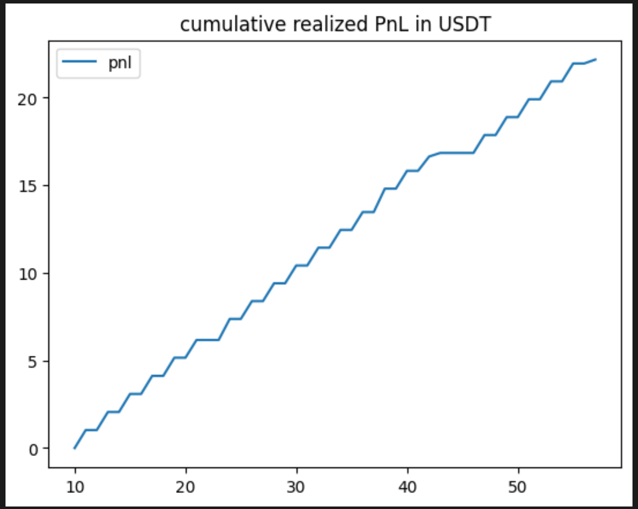
Trade history

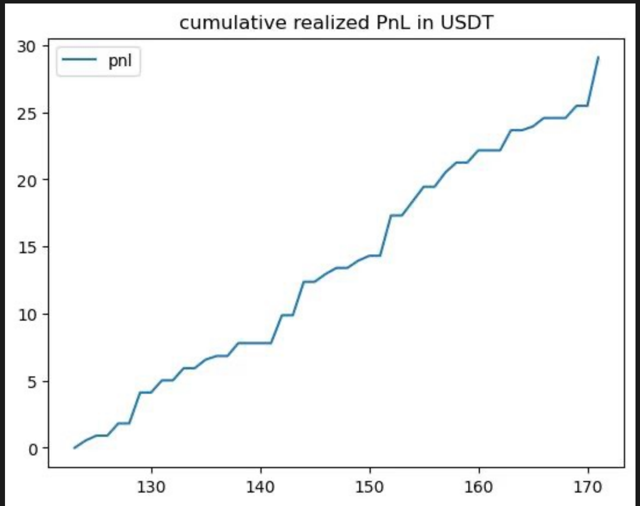
	time	pnl	win
10	23:31.7	0	0
11	10:38.6	1.029	1
12	16:25.0	0	0
13	28:37.8	1.03	1
14	47:40.8	0	0
15	45:24.6	1.03	1
16	56:29.2	0	0
17	30:06.0	1.031	1
18	30:33.0	0	0
19	30:35.5	1.036	1
20	14:23.8	0	0
21	21:11.3	1.012	1
22	21:32.4	0	0
23	21:32.4	0	0
24	27:54.3	1.203	1
25	31:17.7	0	0
26	40:23.9	1.015	1
27	43:16.4	0	0
28	59:17.2	1.017	1
29	00:13.3	0	0
30	25:35.1	1.016	1
31	26:24.5	0	0
32	25:59.3	1.016	1
33	26:16.6	0	0
34	30:31.8	1.016	1

Limitation

- Zero Market Impact
- Order filling logic in demo account
- Limited model training database
- Limited model fine-tuning
- Uncertainty in stop loss level during market crisis
- Time constraints in back-testing and deployment
- Connectivity stability
- Limited error handling

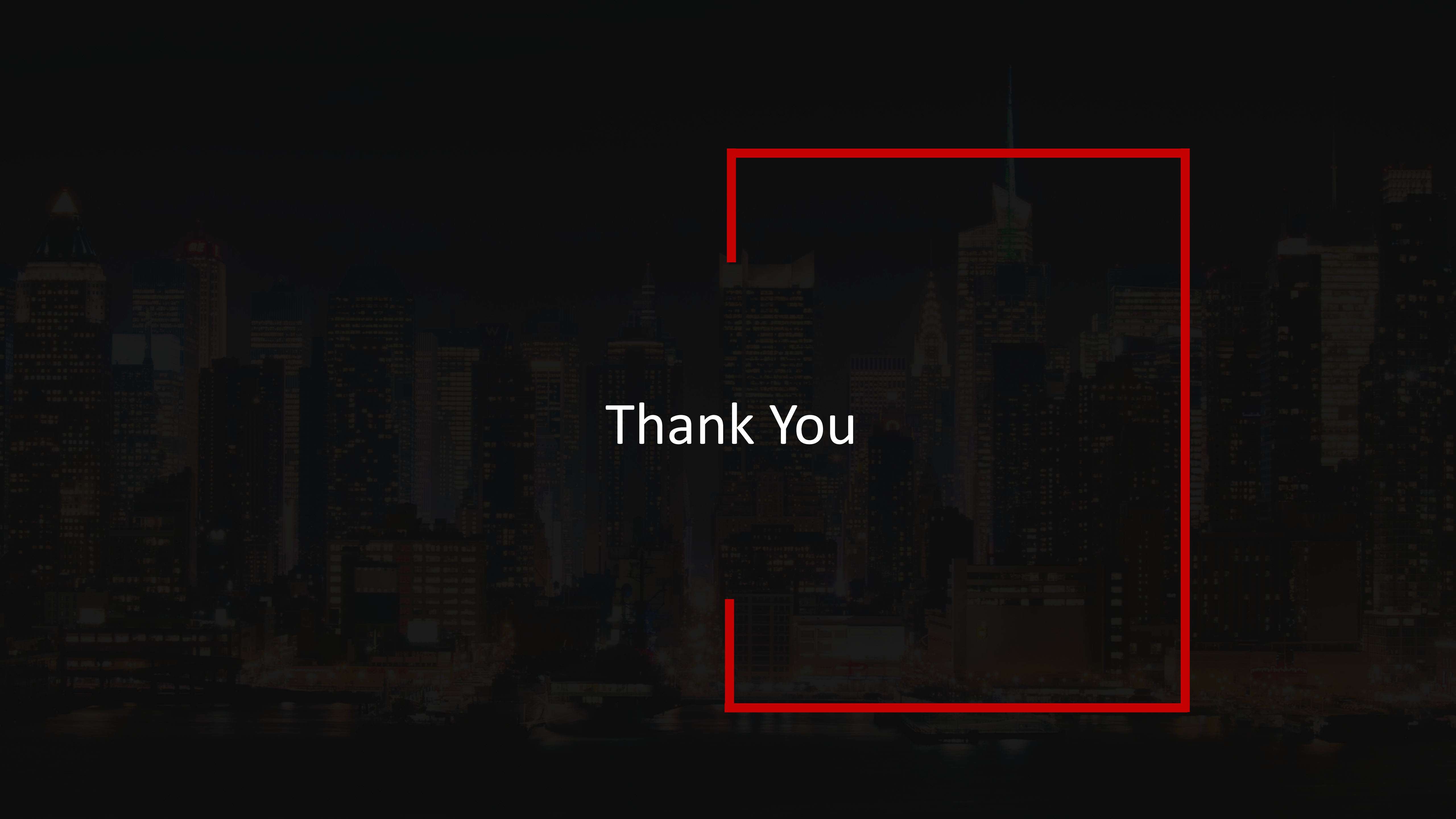
Live trading result on **2nd June, 2024**:





Conclusion

Our API trading strategy implemented a systematic approach, aims to exploit short-term market inefficiencies while employing risk management measures to mitigate potential losses. By leveraging machine learning models and real-time market data, the strategy seeks to optimize trading decisions and maximize profitability in dynamic market conditions.


Thank You