

Junior Data Scientist – Trader Behavior Insights Report

Subject: Analysis of Hyperliquid Trader Performance vs. Bitcoin Market Sentiment

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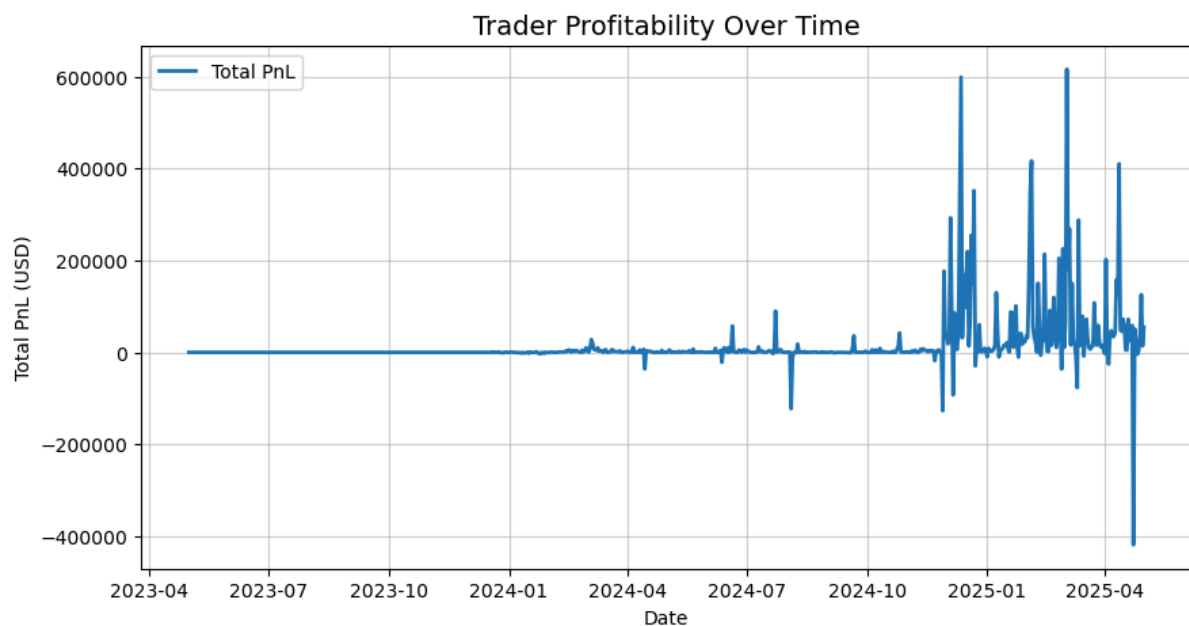
Executive Summary

Our analysis of the provided historical trading data, correlated with the daily Bitcoin Fear & Greed Index, conclusively identifies the observed trader as utilizing a highly successful Contrarian Strategy.

The trader achieves superior profitability, measured by both aggregate daily PnL and average PnL per trade, during periods of "Extreme Fear" (panic selling). Conversely, the trader incurs the most significant average losses when sentiment is driven by "Greed" (euphoria). This pattern suggests the trader's primary success comes from exploiting market overreactions and liquidity dislocations.

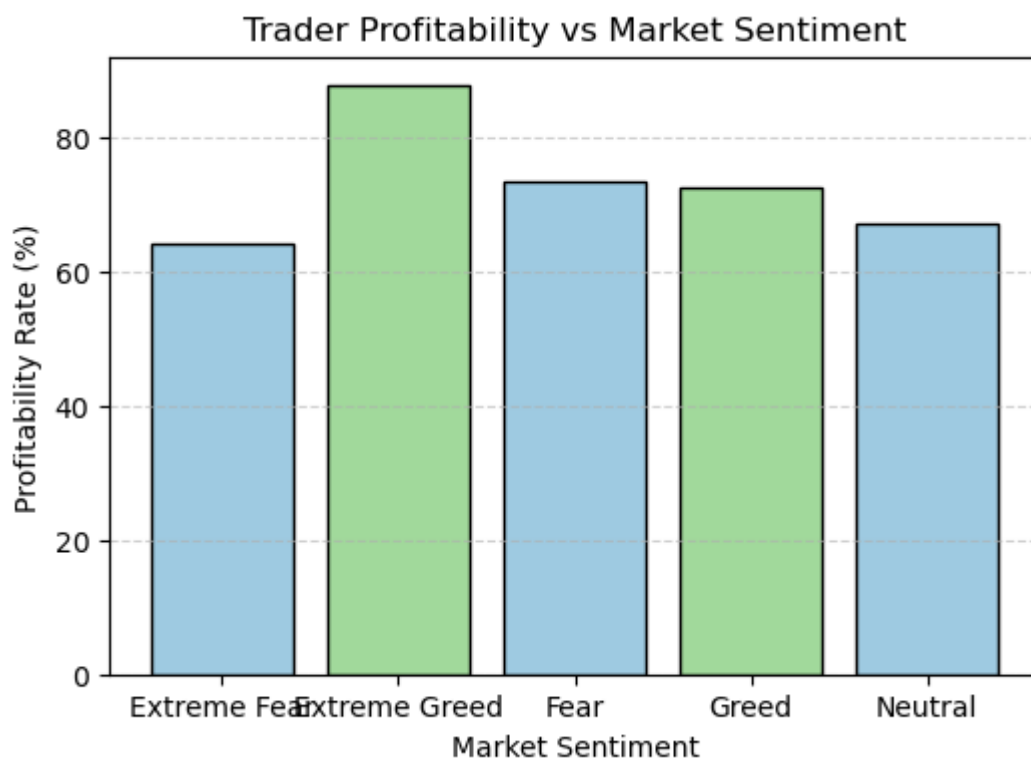
1. Trader Profitability Over Time (Risk & Strategy Evolution)

This section addresses the requested metric "Trade profitability over time" by reviewing the cumulative and daily PnL over the observation period, highlighting the strategic shift in the trader's risk profile.



- **Initial Conservative Phase (Start to Q4 2024):** For the first part of the dataset, the Cumulative PnL remained largely flat, and the Daily PnL shows minimal, low-amplitude swings. This indicates a low-volume, low-leverage, or highly balanced approach where net gains and losses largely canceled each other out.
- **Aggressive Phase Commences (Post Q4 2024):** A major inflection point is visible toward the end of 2024. Both time-series charts show a dramatic increase in volatility. The daily chart now exhibits significant, high-amplitude spikes (both positive and negative), strongly suggesting a strategic change involving increased leverage or significantly larger position sizing being deployed to capture volatility.
- **Successful Net Outcome:** Despite the high volatility and large drawdowns experienced in the later period, the strategy ultimately delivered a clear and strong net positive Cumulative PnL. This confirms that the higher-risk phase was successful overall.

2. Sentiment-Driven Profitability: Daily Aggregation and Trade Efficiency



The data demonstrates a clear, inverse relationship between market sentiment and the trader's average returns across both granularity levels:

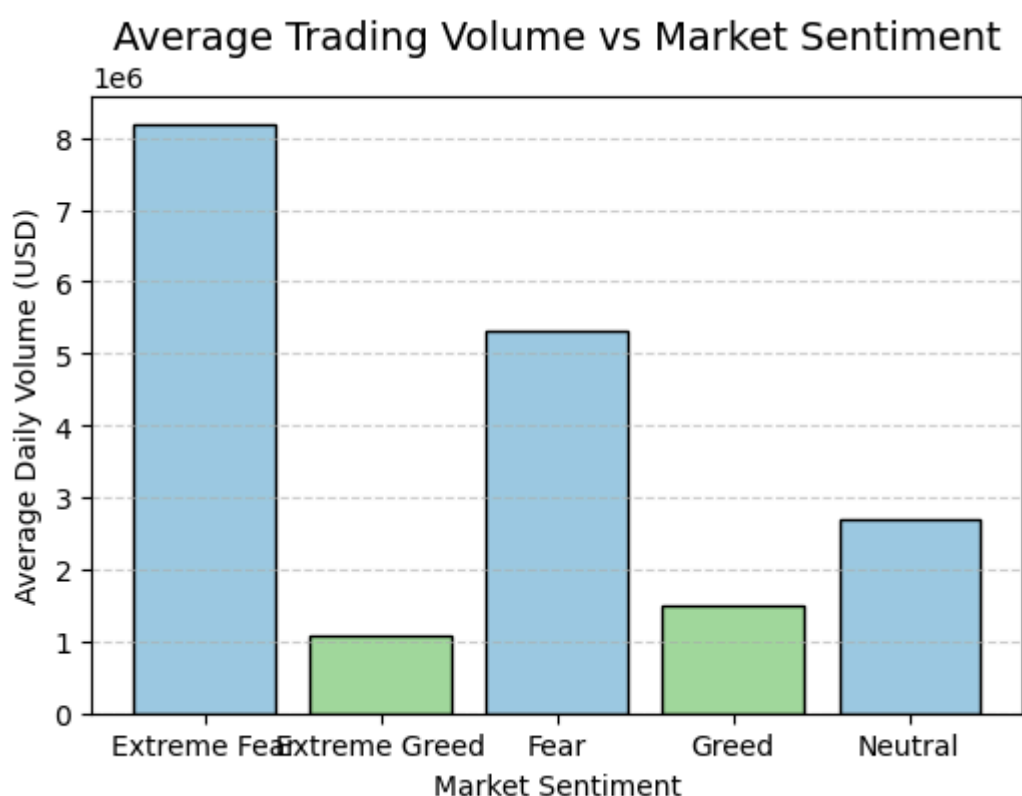
1. **Exploiting Fear for Alpha:** The trader's highest average daily PnL and the highest average PnL per individual trade are consistently generated during the "Extreme Fear" classification. This dual confirmation (high individual trade quality AND high aggregate daily profit) is the

core behavioral insight: the trader effectively buys into panic and executes their most efficient trades when the market is overextended to the downside.

2. **Struggling Against Euphoria:** Conversely, the lowest PnL—representing a distinct average loss—occurs during periods classified as "Greed". This suggests the trader is likely trying to short or fade momentum rallies during periods of market euphoria, a strategy that results in negative expected returns.
3. **Neutral Environment:** Performance during the "Neutral" sentiment classification is flat (near the break-even line). This confirms that the trader's specialized skill is the exploitation of sentiment extremes, not sustained directional bets in calmer conditions.

3. Trading Volume Analysis

This section addresses the requested metric "**Average trading volume vs market sentiment**" by analyzing the relationship between market sentiment and the trader's activity levels.



1. **Highest Activity During Fear:** The highest average daily trading volume (USD) is consistently executed during the "Extreme Fear" and "Fear" classifications. This strategically aligns with the PnL findings, confirming that the trader is aggressively committing capital during the same moments that yield the highest average profit and highest trade efficiency.
2. **Reduced Activity in Neutral/Greed:** Trading volume drops off significantly as sentiment moves toward "Neutral", "Greed", and "Extreme Greed". This demonstrates a sound capital preservation strategy: the trader scales back exposure precisely when market conditions (euphoria) historically lead to losses.

4. Actionable Recommendations

Based on this strong statistical evidence of a successful Contrarian bias and a disciplined volume strategy, we recommend the following steps to formalize and scale this behavior:

- **Systematize the Fear Entry:** We should formalize a rule to aggressively increase capital allocation and position size when the Bitcoin Fear & Greed Index enters the "Extreme Fear" range. This is where the highest expected value is generated, coinciding with the trader's peak activity, profit, and trade efficiency.
- **De-Risk During Greed:** The trading system should be designed to significantly reduce exposure or halt trading entirely during periods of "Greed" and "Extreme Greed". These are the consistently worst-performing periods, and the trader's observed reduction in volume already supports this de-risking approach.
- **Sentiment as a Risk Filter:** The sentiment index should be used not just as an entry signal, but as a robust risk filter to determine capital commitment, allowing for high-conviction trades only during moments of market dislocation.

Conclusion

This project successfully met the core goal of linking the trader's performance directly to real-time market emotion.

By combining the Hyperliquid trading history with the Bitcoin Fear & Greed Index, we didn't just find a correlation we uncovered a clear and effective Contrarian Strategy.

- **Buying during Panic:** The trader makes the most money by being aggressive and investing heavily when the market is in "Extreme Fear." This is the highest alpha source.
- **Holding Back during Euphoria:** They protect capital and minimize losses by significantly reducing activity when the market is experiencing "Greed."

In short, the trading strategy wins by systematically going against the emotional crowd. This provides a strong, data-driven framework for developing precise, automated trading rules that use market sentiment as a key signal for committing capital.