

Trader Behavior and Market Sentiment Analysis

Web3 Trading Team - Data Science Assignment

Candidate: Pabbathi Priyanka

Date: July 28, 2025

Objective

Analyze how Bitcoin market sentiment (Fear vs Greed) influences trading behavior (PnL, size, risk) on Hyperliquid. Reveal patterns that signal smarter strategy adaptations based on emotional market states.

Dataset and Methodology

- Merged Fear and Greed Index (2644 rows) and Hyperliquid trading data (211K+ entries) on date.
- Cleaned and converted fields: Closed PnL, Size USD, Fees.
- Performed EDA using Seaborn and Matplotlib.
- Focused on classification (sentiment), volume, returns, and fee-based behaviors.

Insights from EDA

1. Sentiment Distribution:
 - Dominated by 'Fear' and 'Extreme Fear' periods.
2. Closed PnL:
 - Profits rise in 'Greed' phases - confidence-driven actions perform better.
3. Trade Size:
 - Notably higher during Greed, signaling bullish risk appetite.
4. Fees:
 - Rise proportionally with size, indicating indirect sentiment impact.
5. Correlations:
 - High between 'Size USD' and 'Fee'; low between PnL and size.

Recommendations

- Apply real-time sentiment signals to auto-adjust trade sizing.
- Scale exposure cautiously during Greed (tight SLs recommended).
- Risk-off or contrarian entries on Fear days if volatility is high.
- Integrate this insight into a quantitative trading bot.

Summary of Deliverables

Trader Behavior and Market Sentiment Analysis

Web3 Trading Team - Data Science Assignment

- CSV File: /csv_files/merged_trader_sentiment.csv
- Visual Outputs: /outputs/*.png
- Notebook: notebook_1.ipynb
- This PDF: ds_report.pdf

Conclusion

Traders unconsciously react to market mood. This project shows clear links between public sentiment and trading risk behavior. Quantifying such signals helps in constructing robust, psychologically-aware strategies for better capital efficiency and timing.