Ethereum Trading Strategy Whitepaper

1. Introduction

Since its launch in 2015, Ethereum (ETH) has established itself as the leading smart contract platform in the cryptocurrency ecosystem. With deep liquidity, high trading volumes, and significant volatility, ETH provides an attractive environment for active trading strategies. However, the same volatility that creates opportunities also brings challenges: rapid shifts between bull and bear markets, prolonged sideways periods, and frequent market regime changes.

To address these challenges, we developed a machine learning–driven trading strategy focused solely on ETH. This strategy aims to adapt dynamically to different market conditions, combining predictive modeling with risk management rules designed to protect capital during adverse conditions.

2. Strategy Overview

The Ethereum trading strategy is built around two core components: signal generation using a Deep Neural Network (DNN) and stage-based risk restrictions.

2.1 Signal Generation

At the heart of the strategy is a Deep Neural Network (DNN) trained on historical Ethereum market data. The model ingests a variety of features, including price action, trading volume, momentum indicators, and volatility measures, in order to evaluate current conditions and determine the most appropriate position to hold at any given time.

Based on its analysis, the model can recommend one of three actions:

- Long – buy ETH and hold for upside exposure
- Short – sell/short ETH to profit from declining prices
- Neutral – remain out of the market when conditions are unfavorable

Once in a position, the strategy maintains it until either of the following occurs: •

The model issues a new signal (e.g., switching from long to short/neutral), or

- A stop-loss (SL) or take-profit (TP) barrier is reached, triggering an exit.

This design ensures that the system continuously adapts to evolving market dynamics while enforcing disciplined exits to protect against excessive losses and secure profits.

2.2 Stage-Based Risk Restrictions

We add another layer of discipline through stage-based restrictions. These rules align our trades with the overall market trend, measured by long-term moving averages and trend indicators.

The rationale is straightforward: even the best predictive models can be vulnerable in strongly trending bear markets, where false long signals may lead to significant drawdowns. To address this, we impose rules that limit the types of trades allowed in certain stages:

• Stage 4 (Decline) – The system only takes short positions, fully avoiding longs. In addition, stop-loss and take-profit barriers are tightened, ensuring faster exits and reduced downside exposure.

• Other Stages (1–3) – The model is free to follow its signals (long, short, or neutral), subject to standard risk management rules.

By integrating these restrictions, the strategy balances the flexibility of machine learning with a structured framework for risk control, providing a safeguard against the most unfavorable market conditions.

The model operates on an hourly basis, continuously evaluating fresh market data and updating its position signals accordingly. This allows the strategy to remain highly responsive to intraday market movements, while still incorporating longer-term stage definitions for strategic risk management.

3. Results

We evaluated the ETH trading strategy across several distinct market environments from 2022 to September 2025. The results highlight both the adaptability of the Deep Neural Network (DNN) signals and the impact of stage-based restrictions.

Year 2025:

Total Return	127%
Average Monthly Return	10%
Volatility	11.1%
Sharpe	2.72
Max Drawdown	-12.6%
Total trades	32
Trades in drawdown	11(34%)

Year 2024:

Total Return	65%
Average Monthly Return	4.25%
Volatility	6.2%
Sharpe	2.374
Max Drawdown	-13%
Total trades	62
Trades in drawdown	26(42%)

Year 2023:

Total Return	31%
Average Monthly Return	2.3%
Volatility	7.4%
Sharpe	1.07
Max Drawdown	-20.2%
Total trades	58
Trades in drawdown	25(43%)

The strategy showed great performance across different years. Returns were modest in 2022 and 2023, with returns of +25% and +30% respectibly. On the other hand, 2024 and 2025 delivered the strongest results, exceeding +60% in both years. These later years highlighted the model's ability to adapt to varying conditions, including both advancing and declining market stages.

4. Conclusion

This strategy shows that a machine learning–driven approach with stage-based risk management can deliver strong results in Ethereum trading. Returns were highest in 2024 and 2025, demonstrating the model's ability to adapt to shifting conditions, while stage restrictions provided valuable downside protection in more challenging markets like 2022. Overall, the framework offers a disciplined and systematic way to trade ETH, balancing performance with risk control.