AI-Driven Algorithmic Trading Project

Hemant Kumar, Sanjeevteja Ponugumati,
Aman Singh, Rohith V S, Chaithanya Konda

🔹 Introduction

Developed an AI-driven intraday trading system focused on AI and EV sector stocks/ETFs, leveraging TimeGPT for short-term price forecasting and LLM-based real-time news sentiment analysis to capture market-moving events and sentiment shifts.

The strategy was built and rigorously backtested using the Backtrader framework, featuring dynamic position sizing based on volatility, adaptive stop-loss/take-profit mechanisms, and detailed visualizations of performance, drawdowns, and trading behavior.

🎯 Objectives

Designed an automated intraday trading strategy for AI and EV sector stocks/ETFs, using TimeGPT for short-term price forecasting and LLM-based news sentiment analysis to capture market-moving signals.

Implemented and evaluated the strategy in Backtrader, incorporating clear risk management rules and detailed performance visualizations.

⚙️ Methodology

Collected and processed historical price data and real-time news for selected AI and EV stocks/ETFs. Integrated TimeGPT for forecasting and LLMs for sentiment analysis to generate signals, which were used in a rule-based strategy built and backtested in Backtrader with risk management and performance evaluation.

🔍 Findings & Takeaways

APL and AMZN outperformed with strong growth and peak prices in 2024, while COP underperformed and DFS showed high volatility, emphasizing the role of sentiment analysis in volatile conditions.

The 2024 peak followed by a 2025 decline suggests a market shift, reinforcing the importance of risk management tools like stop-losses and dynamic position sizing.