

# An AI-Driven, Multi-Layered Approach to Trading

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## **Abstract**

This handout presents a transformative concept that fuses Natural Language Processing and visual analytics with trading strategies. This idea aims to build a resilient and agile trading system that adapts to real-time shifts in market sentiment.

## **1 Introduction**

Welcome to an exciting frontier where finance meets cutting-edge technology. Traditional trading strategies are often inadequate when responding to the highly dynamic social media landscape. To address this, we introduce a new trading strategy that harnesses the power of Artificial Intelligence to adapt to market sentiments in real-time.

## **2 The Problem Space**

### **2.1 News Sensitivity**

Trading strategies are often sensitive to impactful news events, leading to significant losses when large news items hit. Optiver's guidelines underline the need for agile strategies that can adapt to such changes.

## 2.2 Lack of Emotional Intelligence

Traditional trading algorithms are good at numbers but poor at understanding the emotions and sentiments that often drive market behavior.

## 3 The Proposed Solution

### 3.1 Layer 1: Textual Analysis

Using Natural Language Processing algorithms, we analyze social media and news in real-time. Sentiments expressed in these platforms can significantly influence market behavior.

- **Shorting on Negative Sentiment:** If a surge in negative sentiments around a tech stock is detected, the algorithm will short that stock.
- **Buying on Positive Sentiment:** Conversely, positive sentiments will trigger a buy order.

### 3.2 Layer 2: Visual Analysis

To build a more robust strategy, we add a second layer that analyzes visual cues.

- **Image Analysis:** AI algorithms scan market-related images and infographics.
- **Video Analysis:** Algorithms interpret videos, such as earning calls and interviews, to gauge market sentiment.

## 4 Compliance with Optiver Guidelines

### 4.1 Agility

The proposed strategy is agile and can quickly adapt to market changes, thereby addressing the problem of news sensitivity outlined in Optiver's guidelines.

## **4.2 Risk Mitigation**

By reacting to real-time shifts in sentiment, the strategy aims to minimize bad trades while maximizing good ones.

## **5 Conclusion**

This multi-layered, AI-driven approach aims to create a trading algorithm that not only excels in market fundamentals but also understands the emotional nuances that drive market behaviors. The blend of textual and visual analysis offers a holistic view, making the strategy more resilient and adaptive.