

MODIFIED EXTREME LEARNING MACHINE ALGORITHM WITH DETERMINISTIC WEIGHT MODIFICATION FOR INVESTMENT DECISIONS BASED ON SENTIMENT ANALYSIS

Abstract: The trading of stocks contributes to the growth of the commodity economy by driving a significant quantity of capital into the stock market, which improves the organic configuration of corporate capital through capital concentration. Consequently, the stock market is seen as a measure of the financial activity of a nation or area. Specifically, since it can precisely depict the supply dynamics of the stock market, the trading price of the stock frequently acts as a measure of the price and quantity of the stock. Timely and precise stock price prediction and analysis are essential for both investor decision-making and the constancy of the national economy by increasing returns and decreasing risks. Consequently, researching stock projections can help depositors make wise decisions that will advance society and yield rewards for themselves.

The intricacy of financial time series presents challenges that ML can handle with its strong data processing skills. Consequently, there are a lot of opportunities for ML and finance together, but there hasn't been enough research done in this field. Furthermore, the stock market is not entirely objective and does not always follow scientific principles due to humans' emotional, psychological, and behavioral traits. Recent studies have also demonstrated that investor sentiment may play a significant influence in stock market investing.

The present study proposed a modified extreme learning machine (ELM) algorithm with deterministic weight adjustment to increase the precision and dependability of sentiment analysis-based investment decision-making. To capture investor mood, the approach incorporates financial sentiment research from news articles, social media, and market patterns. With deterministic weight initialization (DWM), the ELM algorithm achieves more consistent model performance than standard ELM techniques that use random weight initialization. The suggested model is a potent tool for sentiment-driven investing strategies since it shows improved prediction accuracy, quicker learning, and robustness in financial forecasting.