

## **VISUALIZING FINANCIAL TRENDS: A DEEP LEARNING APPROACH USING STOCK BAR CHART IMAGES FOR ALGORITHMIC TRADING**

### **❖ ABSTRACT:**

While artificial intelligence is frequently employed in financial trading, most models use time series data to anticipate prices and find buy-sell signals. In this study, we employed 2-D stock bar chart graphics without any additional time series for the underlying stock. Our proposed algorithmic trading system, CNN-BI (Convolutional Neural Network with Bar Images), makes use of a 2-D convolutional neural network. In order to achieve this, we convert the time series data of the stock prices into used 2-D images of sliding 30-day histograms to train a deep Convolutional Neural Network (CNN) model for algorithmic trading.

The strategy outperformed the Buy and Hold method, especially in trendless or downturn markets. This is a preliminary study, and one of the first to use an unconventional method, so there is space for improvement. Overall, the findings are encouraging, and the model might be incorporated into an ensemble trading model with many strategies.

**Keyword:** algorithmic trading, computer intelligence, convolutional neural networks, deep learning, and financial forecasting.