Assignment 4 AI

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AI in Technical Analysis

Technical analysis (TA) is a way of predicting the direction of prices by examining historical market data, especially price and volume. The efficacy of both technical and fundamental analysis is disputed by the efficient-market hypothesis, which states that stock market prices are essentially unpredictable, this is the reason why TA is considered as pseudoscience.
The principles of TA are:

- Market Action Discounts every thing.
- Price Move in Trend.
- History tends to repeat itself.

The technical analysis of past is a **complex problem**. To predict the upcoming price and trade option is therefore a complex task **to solve** such tasks we can apply the **artificial intelligence** to be specific **Artificial Neural Network (ANNs)** They are used because they can learn to detect complex patterns in data. In mathematical terms, they are **universal function approximators**, meaning that given the right data and configured correctly, they can capture and model any input-output relationships. This not only removes the need for human interpretation of charts or the series of rules for generating entry/exit signals, but also **provides a bridge to fundamental analysis**, as the variables used in fundamental analysis can be used as input.
Thus, we can use AI in TA and also can predict the movement of price based on **market sentiments**. To prove technical analysis as science we need to prove TA's link with a proper scientific tool known as Fundamental Analysis. The **cross-correlation** of The functions of **technical analysis** $T(\theta)$ and **fundamental analysis** $F(\theta)$ can provide us the evidences to prove TA is a valid scientific tool which can be used in stock market analysis and prediction. To find this cross-correlation we can use AI models that can analyse the past data of both technical and fundamental and find the cross-correlation. We can then develop a ML model based on our correlation theory which incorporate our correlation theory and use this model to predict and trade shares in stock market.