The Sequentially-Learning-Based Algorithm with Multiple Output Nodes in Futures Forecast

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Abstract

Investment is a way to increase assets. The types of investment are very diverse, including stocks, futures, funds and so on. Regardless of the form of investment, the consistent purpose of investors is to make a profit. Inevitably, these investment commodities are accompanied by risks, but different investment products have different risks and profitability. In the past, technical analysis usually used statistical methods to analyze the market. Although the results have reference value, the effect is limited. The reason is that whether it is stocks or futures, the trend of the two is highly nonlinear. AI has different characteristics that can break through the limitations of traditional analysis because it involves multidimensional explanatory variables and uses a large number of continuous long-term records to achieve more accurate prediction requirements and reasonable business insight. This study addresses this challenge through deriving a sequentially-learning-based algorithm for the single-hidden layer feed-forward neural networks (SLFN) with the binary input/output and making the technical justification. Within the training process, the amount of adopted hidden nodes is variable, and thus the SLFN becomes an adaptive single-hidden layer feed-forward neural networks (ASLFN).

Keywords: ASLFN, Cramming, Softening, Future forecast

單層學習神經網路配合多輸出節點應用於期貨預測

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摘要

　　投資類型非常多樣化不同的投資產品具有不同的風險和盈利能力。過去，技術分析通常使用統計方法來分析市場。雖然結果具有參考價值，但效果有限。原因在於無論是股票還是期貨，兩者的走勢都是高度非線性。AI 具有不同的特徵，可以突破傳統分析的局限性，因為它涉及多維解釋變量，並使用大量連續的長期記錄來實現更準確的預測要求和合理的業務洞察力。本研究通過利用二進制輸入/輸出為單隱藏層前饋神經網絡，在訓練過程中，模擬人腦的學習方式，採用的隱藏節點數量是可變的，因此 SLFN 成為自適應單層前饋式神經網絡。