

## **A Multi-Dimensional Neural Network Using the Fisher Transform to Predict the Price Evolution for Algorithmic Trading in Financial Markets**

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**Abstract :** Trading the financial markets is a widespread activity today. A large number of investors, companies, public or private funds are buying and selling every day in order to make profit. Algorithmic trading is the prevalent method to make the trade decisions after the electronic trading release. The orders are sent almost instantly by computers using mathematical models. This paper will present a price prediction methodology based on a multi-dimensional neural network. Using the Fisher transform, the neural network will be instructed for a low-latency auto-adaptive process in order to predict the price evolution for the next period of time. The model is designed especially for algorithmic trading and uses the real-time price series. It was found that the characteristics of the Fisher function applied at the nodes scale level can generate reliable trading signals using the neural network methodology. After real time tests it was found that this method can be applied in any timeframe to trade the financial markets. The paper will also include the steps to implement the presented methodology into an automated trading system. Real trading results will be displayed and analyzed in order to qualify the model. As conclusion, the compared results will reveal that the neural network methodology applied together with the Fisher transform at the nodes level can generate a good price prediction and can build reliable trading signals for algorithmic trading.

**Keywords :** algorithmic trading, automated trading systems, financial markets, high-frequency trading, neural network

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