Abstract

A hybrid deep learning model has been developed in this research which is the combination of a deep neural network and the fuzzy inference system. This model is termed in this paper as Hybrid Deep Neural Network (HDNN). In this model, we have integrated the Sugeno fuzzy inference system with the deep neural network. This model has been used in the task of stock market prediction. Through this model, the day’s closing price of a stock has been predicted on the basis of certain factors as parameters which affect the price of a stock. We have tested our model in the prediction of seven stocks and compared the result of prediction with popular similar models. It was found that the HDNN model has the best performance in this task. In This paper, we will present the comparison of HDNN model with five other machine learning models- Generalized Linear Model (GLM), Multilayer Perceptron (MLP), Gradient Boost Model (GBM), Random Forest Model (RF) and the Deep Neural Network (DNN).


**Index Terms**

Computer Science  
Artificial Intelligence
Keywords