

CRUDE OIL PRICE PREDICTION USING MACHINE LEARNING

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LITERATURE REVIEW

Crude Oil Price Forecasting Using XGBoost:

Author: Mustafa S. Kiran et.al.,(2017)

This paper proposed a system gradient boosting has proven many times to be an effective prediction algorithm for both classification and regression tasks. By selecting the number of components included in the model, they can easily control the so-called bias variance trade-off in the estimation. In addition, component wise gradient boosting increases the attractiveness of boosting by adding automatic variable selection during the fitting process

Crude Oil Price Prediction Using LSTM Networks:

Author: Varun Gupta, Ankit Pandey (2018)

This paper has proposed an LSTM based network for better prediction of crude oil prices. The results obtained from the work are quite encouraging. The results indicate that large lookups do not necessarily improve the accuracy of the predictions of crude oil prices. It has been found that lookups up to the value of 10 are ideal for crude oil price prediction purposes.

A deep learning ensemble approach for crude oil price forecasting:

Author: Yang Zhao, Jianping Li, Lean Y (2017)

Despite the capability of the proposed deep learning ensemble approach, there is still room for improvement. It is well known that irregular factors such as extreme climate, politic risks, and psychological factor also have great impact on oil price volatility, yet it's rather challenging to quantify the effect of them. We believe that better predictive accuracy can be generated by quantifying these factors and utilize the information from them. We will look into this issue in the future research.

An Analysis of Crude Oil Price with Machine Learning:

Author: Indranil SenGupta et.al., (2021)

In this paper we implement machine learning algorithms to the empirical data in order to improve the mathematical model for commodity price dynamics. In a sequel of this work, we plan to implement this analysis for other financial time series. Also, we observe that the stochastic equation related to the volatility dynamics does not play a crucial role in the present analysis. The situation will be different and improved if it can be appropriately analyzed for an empirical data set.

Machine learning approach for crude oil price prediction with Artificial Neural Networks-Quantitative (ANN-Q) model:

Author: S. N. Abdullah et.al(2010)

The effectiveness and accurateness of data selection also helps to extensively deliberate the input variables combination for ANN-Q model. Data represented in Onestep Returns function had successfully proved to cleanse and uniform the data from errors and noises hence, the crisp prediction result. This research is now in its extension level to comprehend this quantitative part of prediction with the qualitative part mentioned in part IV. This work in progress is expected to trigger and show some interesting information and trend for this crude oil price and together will result to a better prospect for crude oil price prediction in the future.

A new approach for crude oil price prediction based on stream learning:

Author: Shuang Gao et.al(2017)

In this paper, Forecasting crude oil prices is a very challenging problem due to the high volatility of oil prices. In this paper, we developed a new oil price prediction approach using ideas and tools from stream learning, a machine learning paradigm for analysis and inference of continuous flow of non-stationary data. Our stream learning model will be updated whenever new oil price data are available, so the model continuously evolves over time, and can capture the changing pattern of oil prices.

COMPARATIVE ANALYSIS OF LITERATURE SURVEY:

S.No	Year	Researcher	Title	Algorithm	Remarks
1.	2017	Mustafa S. Kiran et.al.,	Crude Oil Price Forecasting Using XGBoost	xgboost	Highest accuracy of 99%
2.	2018	Varun Gupta, Ankit Pandey	Crude Oil Price Prediction Using LSTM Networks	deep learning, LSTM, recurrent neural networks.	The training score obtained was 224.19 RMSE and the testing score was 550.50 RMSE.
3.	2017	Yang Zhao, Jianping Li, Lean Y	A deep learning ensemble approach for crude oil price forecasting	SVR, SVR-B, FNN and FNN-B	The training samples consist of the first 80% observations of all series and the rest are remained as testing samples.
4.	2021	Indranil SenGupta et.al.,	An Analysis of Crude Oil Price with Machine Learning	Stochastic model · Lévy processes · Subordinator	the empirical data in order to improve the mathematical model for commodity price dynamics
5.	2010	S.N. Abdullah et.al	Machine learning approach for crude oil price prediction with Artificial Neural Networks-Quantitative (ANN-Q) model	HC,ANN-Q	The outperformed the other two models with 95.83% directional accuracy, followed by ANN-Q with 93.33%
6.	2017	Shuang Gao et.al	A new approach for crude oil price prediction based on stream learning	ANN	the MSPE of our stream learning model is 17.16, with an error reduction of 16.2% compared with the nochange model (20.48), an error reduction of 8.7% compared with the ANN model (18.79), and an error reduction of 8.0% compared with the forecast combination model