# Literature Survey

# Team ID : PNT2022TMID38415

# College Name : Vi Institute of Technology

# Team Leader : S. Mariyarebakka

**Team Member :** A. Yuvashri

**Team Member :** R. Padmini

**Team Member :** M. Preetha

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| **1** | **Paper title** | Crude Oil Price Prediction Using Deep Learning | |
| **Problem**  **definition** | Predict the crude oil prices | and evaluate the model |
| **Methodology/**  **Algorithm** | Using LSTM(Long Short  based on deep learning | Term Memory) ,RNN(Recurrent Neural Network) |
| **Advantages** | * The model is assessed by utilizing the valuable information in the WTI unrefined petroleum markets * The model achieves increments in the expected precision of results | |
| **Disadvantages** | The crude oil price depends on several external factors and high volatility | |

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| **2** | **Paper title** | Multi-step-ahead Crude Oil Price Forecasting Based on Autoregreesive Integrated Moving Average and Improved Optimization enhanced Gated Recurrent Unit |  |
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| **Problem**  **definition** | Crude oil price volatility has a strong influence on the stability of the global energy market. Therefore, both traders and policy makers have been interested in the accurate forecast of crude oil price so as to prevent large losses and to stabilize the market | |
| **Methodology/**  **Algorithm** | Using ARMA, IPSO, GRU | |
| **Advantages** | * To prevent large losses and to stabilize the market * Crude oil spot prices covering a period of 714 days * For twenty-step forecasting, the overall reduction of RMSE is as much as 53%, which significantly raises the prediction accuracy. | |
| **Disadvantages** | In the overall reduction of RMSE is not an 100%, only 53% prediction accuracy was raises for 20th step forecasting | |

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| **3** | **Paper title** | A Novel Hybrid Approach with A Decomposition Method and The RVFL  Model for Crude Oil Price Prediction |
| **Problem**  **definition** | Volatility of international crude oil prices is influenced by various external factors on different time scales. User search data (USD) which reflects investor attentions has been widely researched and proved to be associated with crude oil price change at different frequency bands. |
| **Methodology/**  **Algorithm** | Random vector functional link (RVFL) ,Bivariate empirical mode decomposition (BEMD) |
| **Advantages** | * Third, Brent crude oil spot price is used to test the proposed approach empirically * Forecasting results are analyzed with various evaluation criteria and verified robustness. |
| **Disadvantages** | The proposed approach statistically outperforms traditional forecasting machine learning techniques and similar counterparts (with USD or  EMD-based method) in terms of prediction accuracy. |

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| **4** | **Paper title** | Forecasting Crude Oil Price Using Event Extraction |
| **Problem**  **definition** | Econometric Variable Prediction Problem |
| **Methodology/**  **Algorithm** | Event Extraction Algorithm |
| **Advantages** | * It uses textual contents and relation between entities * High quality features |
| **Disadvantages** | Crude oil prices are largely influenced by various factors, such as economic development, financial markets, conflicts, wars, and political events. |

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| **5** | **Paper title** | Predictive Analytics for Crude Oil Price Using RNN-LSTM Neural Network |
| **Problem**  **definition** | This study aims to certify the capability of a prediction model built based on the RNN-LSTM network to predict the future price of crude oil. |
| **Methodology/**  **Algorithm** | Using Recurrent Neural Network and Long Short Term Network |
| **Advantages** | * The capability of the network to provide an improvement of the accuracy of crude oil price prediction * Millions of traders investing the crude oil prediction |
| **Disadvantages** | * It dynamic nature * It complex to predict the price of crude oil |