BDAD Paper Summary 2 – Cole Smith //

Oil price forecasting using gene expression programming and artificial neural networks

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Abstract:

This study aims to forecast oil prices using evolutionary techniques such as gene expression programming (GEP) and artificial neural network (NN) models to predict oil prices over the period from January 2, 1986 to June 12, 2012. Autoregressive integrated moving average (ARIMA) models are employed to benchmark evolutionary models. The results reveal that the GEP technique outperforms traditional statistical techniques in predicting oil prices. Further, the GEP model outperforms the NN and the ARIMA models in terms of the mean squared error, the root mean squared error and the mean absolute error. Finally, the GEP model also has the highest explanatory power as measured by the R-squared statistic. The results of this study have important implications for both theory and practice.

Summary:

This paper outlines the exact type of problem we wish to solve. However, this paper attempts to predict the price of oil in terms of economic signals. This is a natural approach, and one that the authors had success with. They express that the price of oil could be a successful indicator of GNP. The authors then predict daily oil prices using Gene Expression Programming and Neural Networks. Our approach would like to quantify this information at a local level. It is critical to note that this paper considers predicting oil prices on the national level – As in, the spot prices which are seen within markets.

Different areas of the United States demand energy differently. From our paper survey, this has appeared as an ongoing research problem, and one that is rather difficult to quantify. While our approaches will use different data, their modeling approach is intriguing, but not one that might work for our data, or may not be feasible to implement with our time constraints.