Time Series Prediction Using Regularized Orthogonal Least Squares and Micro-Genetic Algorithm

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ABSTRACT

The analysis of Time Series Data is a widely researched topic with no definitive solution that will be effective for all problems; this paper describes an investigation into the ability of a neural network to make predictions about the future of a complex time series. To accomplish the modeling an artificial neural network based on a feed forward radial basis function (RBF) neural network, the RBF was formed using a regularized orthogonal least squares (ROLS) algorithm with automatic center selection. To further improve the performance of the network a genetic algorithm was used to optimize input variables, this was based on a micro genetic algorithm (μGA) method. Results were promising and showed that the methods used were capable of making close predictions about the future of the time series.

Figure 1. Graph of Predicted Time Series and Actual Data