

## **Grey Support Vector Regression Model with Applications to China Tourists Forecasting in Taiwan**

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### **Abstract**

Support vector regression (SVR) has been successful in function approximation for forecasting analysis based on the idea of structural risk minimization. SVR has perfect forecasting performance by employing in large sample size for training and solving its parameters. On the other hand, the SVR is difficult to be applied in limited time series data with some fluctuated points, but grey model has better forecasting performance in limited time series data. In order to cope with this problem, we use both of the advantages of support vector regression model and grey theory to construct a new grey support vector regression (GSVR) model for solving limited data with some fluctuations. Finally, we demonstrate an application for planning China tourism demand for improving the tourism infrastructure in Taiwan with a better forecasting performance.

*Keywords:* support vector regression, grey theory, tourism demand forecasting, grey support vector regression