

过程系统工程

基于最小二乘支持向量机的天然气负荷预测

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摘要

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分类号

NATURAL GAS LOAD FORECASTING BASED ON LEAST SQUARES SUPPORT VECTOR MACHINE

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Abstract

Machine learning techniques are finding more and more applications in the field of load forecasting. A novel regression technique, called support vector machine (SVM), based on the statistical learning theory is applied in this paper for the prediction of natural gas demands. Least squares support vector machine (LS-SVM) is a kind of SVM that has different cost function with respect to SVM. SVM is based on the principle of structure risk minimization as opposed to the principle of empirical risk minimization supported by conventional regression techniques. The prediction result shows that the prediction accuracy of SVM is better than that of neural network. Thus, SVM appears to be a very promising prediction tool. The software package NGPSLF based on SVM prediction has been put into practical business application.

Key words [structure risk minimization](#) [support vector machine](#) [least squares support vector machine](#) [support vector regression](#) [load forecasting](#)

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