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分段学习的双隐层BPNN对交通流量预测的研究

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摘要 智能交通系统可有效解决城市道路的拥挤，交通流量的预测是智能交通系统的关键技术之一。在各种预测方法中，BP神经网络的应用最普遍，并取得了许多成果。为了进一步提高BP神经网络的预测精度，采用了基于分段学习的双隐层BP神经网络对济南市经十路的交通流量进行了预测，并与相同结构未使用分段学习方法的BP神经网络预测所得结果进行了比较。实验数据显示采用分段学习的方法比未采用该方法的所得结果平均相对误差减少了2.52%。因此分段学习的双隐层BP神经网络可应用于预测道路交通流量。

关键词 智能交通系统 双隐层BP神经网络 交通流量

分类号

Research on method of subsection learning of double-layers BP neural network in prediction of traffic volume

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Abstract

ITS is effective on solving the problem of traffic jam in cities.Prediction of traffic volume is the key technology in ITS．BP Neural Network is universally used in prediction of traffic volume.This study aim at advancing BP Neural Network’s precision in prediction of traffic flow.The method of prediction of traffic volume is based on the subsection learning of double—layers BP Neural Network.The study used the improved method to predict the traffic volume of Jingshi Road Jinan City，then compared the results maked by subsection-learning method and maked by common method.Using subsection-learning method，the average relative tolerance is decreased by 2.52%.The improved BP neural network can be used for prediction of traffic volume．

Key words ITS double—layers BP neural network traffic volume

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