

多步滚动实时预报法在深基坑开挖监测中的应用研究

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摘要 对传统BP神经网络存在的不足进行改进, 并将其应用于深基坑开挖监测中, 建立深基坑变形的实时预报模型; 提出一种基于时间效应的多步滚动实时预报法, 并利用 Windows 系统平台, 在MATLAB7.0环境下, 采用可视化的面向对象编程技术, 编制深基坑变形实时预报的计算机程序。实例分析表明: 该方法收敛速度快, 预测精度高, 预报值与实测值吻合较好, 深基坑变形的实时预报具有一定的实用性。

关键词 [土力学](#); [深基坑](#); [神经网络](#); [多步滚动实时预报](#); [监测](#)

分类号

STUDY ON APPLICATION OF MULTI-STEP SCROLL REAL-TIME PREDICTION METHOD TO MONITORING OF DEEP FOUNDATION PIT EXCAVATION

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Abstract

Improved back-propagation(BP) neural network is used to predict the deformation of deep foundation pit. A real-time predication model is established for deformation of deep foundation pit; and an effective predicting method called multi-step scroll real-time prediction method based on time effect is put forward. Making use of the Windows system platform, under the environment of MATLAB 7.0, adopting visual object-oriented programming technique, the real-time prediction program of the deep foundation pit deformation is developed. The result indicates that the model proposed here has fast approximation and high precision; and the predicted values agree well with the measured ones. The proposed method is a useful tool for deformation prediction of deep foundation pit.

Key words [soil mechanics](#); [deep foundation pit](#); [neural network](#); [multi-step scroll real-time prediction](#); [monitoring](#)

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