中国机械工程 2012, 23(2) 204-207 DOI: ISSN: 1004-132X CN: 42-1294/TH

本期目录 | 下期目录 | 过刊浏览 | 高级检索

[打印本页] [关闭]

科学基金

基于改进BP神经网络的连铸漏钢预报

张本国1;李强1,2;王葛1;张水仙1

- 1. 燕山大学,秦皇岛,066004
- 2.河北科技大学,石家庄,050018

摘要:

针对传统BP神经网络在训练过程中存在收敛速度慢的缺陷,将LM(levenberg marquardt)算法引入到BP神经网络的训练过程,建立了LM-BP神经网络模型,并将其应用于连铸过程中的漏钢预报系统。结合某钢厂连铸现场历史数据对系统进行了测试,测试结果以96.15%的预报率及100%的报出率,验证了基于LM算法的BP神经网络连铸漏钢预报方案的可行性和有效性。

关键词:

连铸:漏钢预报:LM算法:BP神经网络

Breakout Prediction Based on Improved BP Neural Network in Continuous Casting Process

Zhang Benguo1;Li Qiang1,2;Wang Ge1;Zhang Shuixian1

- 1. Yanshan University, Qinhuangdao, Hebei, 066004
- 2. Hebei University of Science and Technology, Shijiazhuang, 050018

Abstract:

LM algorithm was introduced to the training process of

a BP neural network and a LM-BP neural network model was established aiming at the defects of slow convergence in the training process of the traditional BP neural network. The LM-BP neural network model was applied to the breakout prediction in the continuous casting processes, and it was tested with the historical data collected from a steel mill. The feasibility and the validity of the model are verified by the results with the accuracy rate of 96.15% and the prediction rate of 100%.

Keywords:

continuous casting; breakout prediction; LM(Levenberg Marquardt) algorithm; BP neural network

收稿日期 修回日期 网络版发布日期

DOI:

基金项目:

通讯作者:

作者简介:

作者Email:

参考文献:

本刊中的类似文章

Copyright by 中国机械工程

扩展功能

本文信息

- ▶ Supporting info
- ▶ PDF(475KB)
- ▶ [HTML全文]
- ▶参考文献PDF
- ▶ 参考文献

服务与反馈

- ▶ 把本文推荐给朋友
- ▶加入我的书架
- ▶加入引用管理器
- ▶ 引用本文
- ▶ Email Alert
- ▶ 文章反馈
- ▶浏览反馈信息

本文关键词相关文章

连铸;漏钢预报;LM算法;BP神 经网络

本文作者相关文章

- ▶张本国1
- ▶ 李强1
- 12
- ▶ 王葛1
- ▶张水仙1

PubMed

- Article by Zhang, B. G. 1
- Article by Li, J. 1
- Article by 2
- Article by Wang, G. 1
- Article by Zhang, S. X. 1