

快报

BP-RBF神经网络在核电厂故障诊断中的应用

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摘要

本工作将BP (back propagation) 神经网络与RBF (radial basis function) 神经网络相混合, 并将其应用于核电厂的状态监测与故障诊断系统中, 通过对核电厂典型故障的特征分析, 建立相应的网络结构。为验证该混合网络的有效性, 在核动力装置模拟器上进行了仿真实验研究, 并用Visual Basic 6.0编写了网络程序。研究表明: 该混合网络具有良好的诊断准确性、实时性和可扩充性。

关键词 [BP神经网络](#) [RBF神经网络](#) [核电厂](#) [故障诊断](#)

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Application of BP-RBF Neural Network to Fault Diagnosis of Nuclear Power Plant

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Abstract

The paper introduces a mutual mixture of the back propagation (BP) neural network and the radial basis function (RBF) neural network, and applies it in the condition monitoring and fault diagnosis system of the nuclear power plant. By analyzing the typical fault characteristic of nuclear power plant, the corresponding network architecture was established. In order to confirm the validity of this mixture network, the simulation experiment was carried out on the nuclear power plant simulator and the codes of network program were written with Visual Basic 6.0. The experiment results show that this mixture network has the good diagnosis accuracy and the real-time extendibility.

Key words [BP neural network](#) [RBF neural network](#) [nuclear power plant](#) [fault diagnosis](#)

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