

## 基于两级神经网络的传感器在线故障诊断技术研究

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摘要:

本文针对水下航行器控制系统的故障状态, 采用BP神经网络设计了一种由主网络和局部网络构成的两级神经网络故障诊断算法, 其中主网络用于水下航行器控制系统的故障检测, 一旦发现有故障发生, 则局部网络完成对故障的识别。通过仿真研究表明该方法可及时完成传感器故障的分离与定位。

关键词: 神经网络; 传感器; 故障诊断

## A Two Level Neural Network Approach to On-line Failure Diagnosis for Sensors

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**Abstract:**

Based on the analysis of fault condition for the AUV control system, the paper presents the fault detection and isolation method using two level BP neural network algorithm, which is composed of main network and local network. With the use of main network, the fault of AUV control system can be detected. Once the fault is detected, the local network can isolate the fault. A simulation example of an AUV control system is given for illustration.

**Keywords:** neural network; sensor; fault diagnosis

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