

基于粗糙集理论和贝叶斯决策的 WSN节点的故障诊断

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摘要:

提出了一种无线传感器网络(WSN)节点故障诊断的新方法,首先基于rough set理论的区分矩阵和区分函数得到故障诊断决策的属性简约;然后通过贝叶斯决策理论对WSN各个节点的功能模块进行故障定位以及维修决策。仿真实验表明,该方法在WSN节点故障诊断时通信代价小,能量消耗低,诊断正确率高,因而在能量有限的WSN节点中应用的可能性。

关键词: 故障诊断, 无线传感器网络, 粗糙集理论, 区分矩阵, 贝叶斯决策

Node Fault Diagnosis in WSN Based on the Rough Set and Bayas Decision-making

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Abstract:

A new method for node fault diagnosis in WSN is proposed. The attribution reduction for decision-making of fault diagnosis is based on the discriminate matrix and discriminate function in rough set theory. Then the failure is oriented and repair method is solved for function module of every WSN point by Bayas decision-making theory. Simulations show that the proposed method yields high diagnosis accuracy with low communication cost and energy consumption. It is suitable for wireless sensor networks with stringing energy limits.

Keywords: fault diagnosis wireless sensor network rough set theory discriminate matrix Bayas decision-making

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