

工程与应用

多Agent信息融合的故障诊断技术

刘明, 李伟华, 严建峰

西北工业大学 计算机学院, 西安 710072

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摘要 在故障诊断中引入多Agent并行推理、独立求解的机制能够提高诊断准确率。通过特征提取降低特征维数, 形成子任务, 并分配给具有专家能力的Agent处理。然而多数情况下不同Agent的诊断结论会存在差异, 为解决该问题, 引入D-S证据理论将各Agent的结论作为多源证据进行融合。在融合中引入可信度分配矩阵表征Agent能力。最后通过一个诊断实例说明了此方法, 通过仿真对比实验验证了此方法的有效性。

关键词 [多Agent](#) [特征降维](#) [D-S证据理论](#) [可信度分配矩阵](#)

分类号

Fault diagnosis technology based on multiagent classifier combination

LIU Ming, LI Wei-hua, YAN Jian-feng

School of Computer Science, Northwestern Polytechnical University, Xi'an 710072, China

Abstract

Introduction of Multi-Agent parallel reasoning and independent solving mechanism can improve the accurate rate of fault diagnosis system. Feature extraction is used to reduce dimension and generate sub-tasks for Agents with corresponding abilities. However, in most cases the conclusions given by different diagnosis Agents will be different. In order to solve the problem, D-S evidence theory is applied to integrate conclusions given by multiple agents as multi-source evidence. Information credibility distribution matrix is introduced to denote Agent capacity in integration process. Finally, a diagnosis of examples is given to validate the method and simulation experiments verify the effectiveness of this method.

Key words [multiagent](#) [feature dimension reduction](#) [D-S evidence theory](#) [credibility distribution matrix](#)

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通讯作者 刘明 xiangirl2005@gmail.com

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