



计算机集成制造系统 » 2015, Vol. 21 » Issue (第4期): 1046-1050 DOI: 10.13196/j.cims.2015.04.020

产品创新开发技术

本期目录 | 过刊浏览 | 高级检索

◀ 前一篇 | 后一篇 ▶

基于模糊C-均值聚类的轴承性能衰退评估方法

吴军, 郝刚, 邓超, 赵明

1. 华中科技大学船舶与海洋工程学院
2. 华中科技大学数字制造与装备国家重点实验室
3. 武汉重型机床集团有限公司

Novel bearing performance degradation evaluation method based on fuzzy C-means clustering algorithm

摘要 图/表 参考文献 相关文章 (15)

全文: [HTML](#) (1 KB)

输出: [BibTeX](#) | [EndNote](#) (RIS)

摘要 针对轴承性能衰退评估中遇到的性能衰退时间和过程难以确定等问题,提出一种基于模糊C-均值聚类的轴承性能衰退分析与评估方法。研究了数据驱动的性能衰退分析过程。综合应用模糊集理论和聚类分析法,开发了基于模糊C-均值聚类算法的轴承性能衰退评估算法,并给出了相应的轴承性能衰退评估流程。以某型滚动轴承为例分析与评估了其性能衰退过程。结果显示,所提方法能够较好地识别轴承性能衰退发生时间和评定轴承性能衰退程度。

关键词 : 聚类算法, 性能衰退评估, 数据驱动方法, 轴承

Abstract : Aiming at the problems that the occurrence time and evolution process of bearing performance degradation were difficult to be identified, a novel performance degradation analysis and assessment method was proposed based on fuzzy C-means clustering algorithm. A data-driven approach was presented to analyze bearing performance degradation process. A fuzzy C-means clustering algorithm was developed to assess the bearing performance degradation. And the process of bearing performance degradation assessment was given. A case study about a rolling bearing was implemented, and the conclusion was showed that the proposed method could better identify the occurrence time of performance degradation and assess the level of performance degradation.

Key words : clustering algorithms performance degradation evaluation data driven approach bearing

ZTFLH: TH17

基金资助: 国家自然科学基金资助项目(51105156); 中央高校基本科研业务费专项资金资助项目(2013QN108)。

引用本文:

吴军¹, 郝刚¹, 邓超²⁺, 赵明³

. 基于模糊C-均值聚类的轴承性能衰退评估方法[J]. 计算机集成制造系统, 2015, 21(第4期): 1046-1050.

链接本文:

<http://www.cims-journal.cn/CN/10.13196/j.cims.2015.04.020> 或 <http://www.cims-journal.cn/CN/Y2015/V21/I第4期/1046>

服务

- ▶ 把本文推荐给朋友
- ▶ 加入我的书架
- ▶ 加入引用管理器
- ▶ E-mail Alert
- ▶ RSS

作者相关文章

- ▶ 吴军
- ▶ 郝刚
- ▶ 邓超
- ▶ 赵明

Copyright © CIMS编辑部 版权所有 京ICP备12012770号

地址: 北京市海淀区车道沟10号北方科技1号楼1404室