

防御电子技术

改进的辅助粒子滤波当前统计模型跟踪算法

刘亚雷, 顾晓辉

南京理工大学机械工程学院, 江苏 南京 210094

摘要:

提出了一种改进的辅助粒子滤波算法, 采用基本的常规波束形成法对声信号函数进行处理, 得到目标的方位谱估计, 推导了以目标方位谱函数作为重要采样密度函数的辅助粒子滤波算法。并将此改进的辅助粒子滤波算法同当前统计模型相结合, 提出一种基于目标方位谱的辅助粒子滤波当前统计模型自适应跟踪滤波(current statistical model improved auxiliary particle filter, CSM-IAPF)算法。最后通过仿真验证此方法能够减少跟踪误差, 具有较好的实时性和稳定性。

关键词: 纯方位目标跟踪 辅助粒子滤波 统计模型 常规波束形成法

Current statistical model tracking algorithm based on improved auxiliary particle filter

LIU Ya-lei, GU Xiao-hui

School of Mechanical Engineering, Nanjing Univ. of Science and Technology, Nanjing 210094, China

Abstract:

This paper proposes an improved auxiliary particle filter algorithm and utilizes the method of conventional beam forming (CBF) to deal with the signal function of acoustic sensors, then the spectrum bearings of the target can be estimated, which can be used as the importance sampling density function in auxiliary particle filter. So the improved current statistical model adaptive tracking algorithm is proposed based on the spectrum bearings of the target in auxiliary particle filter. Finally, it is showed through computer simulation that the algorithm has better efficiency in improving precision and real-time property.

Keywords: pure bearings target tracking auxiliary particle filter statistical model conventional beam forming (CBF)

收稿日期 修回日期 网络版发布日期

DOI: 10.3969/j.issn.1001-506X.2010.06.021

基金项目:

通讯作者:

作者简介:

作者Email:

参考文献:

本刊中的类似文章

Copyright by 系统工程与电子技术

扩展功能

本文信息

▶ Supporting info

▶ PDF **(OKB)**

▶ [HTML全文]

▶ 参考文献[PDF]

▶ 参考文献

服务与反馈

▶ 把本文推荐给朋友

▶ 加入我的书架

▶ 加入引用管理器

▶ 引用本文

▶ Email Alert

▶ 文章反馈

▶ 浏览反馈信息

本文关键词相关文章

▶ 纯方位目标跟踪

▶ 辅助粒子滤波

▶ 统计模型

▶ 常规波束形成法

本文作者相关文章

PubMed