[打印本页]　[关闭]

航天电子技术

基于当前统计模型的机动目标自适应强跟踪算法

刘望生, 李亚安, 崔琳

西北工业大学航海学院, 陕西 西安 710072

摘要：

在当前统计模型卡尔曼滤波算法的基础上,结合升半正态形模糊分布函数特性,提出了一种加速度方差两段函数自适应调整方法,该方法能自适应逼近目标真实机动并进行准确跟踪。给出了最大加速度自调整方法,克服了模型对目标最大加速度的依赖。引入强跟踪滤波算法,增强了模型对突发机动自适应跟踪的能力。理论分析和仿真结果表明,该算法提高了机动模型和系统模式的匹配程度,增强了系统对强机动目标的跟踪能力,并保持对弱机动和非机动目标良好的跟踪性能,且具有运算量小、跟踪精度高、易于工程化实现等优点。

关键词： 当前统计模型　自适应滤波　强跟踪　机动目标

Adaptive strong tracking algorithm for maneuvering targets based on current statistical model

LIU Wang-sheng, LI Ya-an, CUI Lin

College of Marine, Northwestern Polytechnical University, Xi'an 710072, China

Abstract:

Combining the characteristic of the rise half normality fuzzy distribution function, an adaptive adjusting method of acceleration variance is presented based on Kalman filtering algorithm of current statistical model. It is composed of two sections of functions. The real maneuvering model is approached adaptively and the target is tracked accurately using this method. An adaptive adjustment means of maximum acceleration is given and the disadvantage of the model depending on maximum acceleration is overcomed. Tracking performance is enhanced for sudden maneuvering targets by introducing a strong track filter algorithm. The theoretical analysis and simulation results show that the match between maneuvering model and system mode is improved by using the algorithm. Performance for tracking strong maneuvering targets is enhanced and a good performance for tracking general motion is maintained. The algorithm is characterized by simple calculation, high tracking precision and easy realization.

Keywords: current statistical model　adaptive filtering　strong tracking　maneuvering target

通讯作者：

作者简介：

作者Email:

参考文献：

本刊中的类似文章

1. 任智源, 韩燕, 张海林, 郭凯.宽带OFDM系统中的简化滤波查表预失真算法[J]. 系统工程与电子技术, 2010,32(7): 1369-1372
2. 解春明，赵剡，邓俊云.一种改进的自适应平方根传递对准滤波算法[J]. 系统工程与电子技术, 2011,33(3): 622-626

扩展功能

本文信息

▶ Supporting info
▶ PDF(0KB)
▶ [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

▶ 当前统计模型
▶ 自适应滤波
▶ 强跟踪
▶ 机动目标

本文作者相关文章

PubMed