

基于全局最优的被动多传感器多目标轨迹关联算法

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A Passive Multisensor Multitarget Track Association Algorithm Based on Global Optimization

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摘要

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摘要 多目标轨迹关联问题是天基光学跟踪系统的核心和难点之一。传统的分布式轨迹关联方法基于目标的3维轨迹信息, 不适用于被动传感器的2维轨迹关联问题。为此, 该文以倾角差为统计检验量, 建立轨迹统计检验模型, 提出基于全局最优思想的轨迹关联算法, 并用密集多目标场景进行算法的蒙特卡罗仿真。结果表明, 该轨迹关联算法性能优良, 可以有效完成密集目标环境下的被动多传感器多目标轨迹关联任务。

关键词: 多传感器多目标 轨迹关联 倾角差统计量 全局最优

Abstract: Track association of multitarget is one of the key and difficult issue in the space-based optical tracking system. Traditional distributed track association methods rely on three dimension information of the tracks, are no longer applicable to the two dimensional track association issue. Therefore, the hinge angle difference is treated as statistic, a track statistical testing model is constructed, and a global optimization track association algorithm is proposed. Finally, a Monte Carlo simulation of dense targets is done, results show that the proposed algorithm has favorable performance, and can accomplish the passive multisensor multitarget track association task efficiently in dense targets scenario.

Keywords: Multisensor multitarget Track association Hinge angle difference statistic Global optimization

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