

论文

缓动弱小目标分层多阶假设检验

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摘要:

针对低信噪比红外图像序列中的缓动弱小目标检测, 本文提出了一种改进的分层多阶假设检验方法。根据最小累积帧数划分目标的运动参数空间, 利用多阶假设检验方法实现对目标轨迹的初检测; 基于初检测的结果, 通过迭代寻优实现对目标轨迹运动参数的精确估计。通过对平稳高斯噪声及杂波干扰场景进行的仿真实验分析表明, 改进的分层多阶假设检验算法有效的实现了缓动弱小目标的检测, 提高了轨迹参数的估计精度, 极大地减少了计算量和存储量。

关键词: 检测前跟踪 多阶假设检验 似然比

Detecting Small and Slow Moving Dim Targets Using Layered Multistage Hypothesis Testing

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Abstract:

An improved algorithm using layered multistage hypothesis testing (LMHT) was proposed, aiming at detecting small and slow moving targets in the low SNR infrared image sequences. The targets' moving parameters space is separated as to the minimum cumulative frames and their trajectories are detected based on the MHT. The precise moving parameters of the targets' trajectories are achieved using iteratively searching. We make simulation with the scenes disturbed by gauss white noise and clutter. The results show that the improved algorithm effectively captures the dim targets and improves the precision of the parameters estimating, especially reducing the computation and storage remarkably

Keywords: Track before detect(TBD) Multistage hypothesis test(MHT) Likelihood

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