算法研究

机动弱小目标动态规划检测前跟踪方法

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摘要：

针对基于动态规划的检测前跟踪方法难以有效检测和跟踪机动弱小目标的问题，本文提出了一种基于目标状态加权的动态规划检测前跟踪改进方法。该方法利用目标运动状态帧间的相关性特点，对状态转移集进行扩展，并根据当前状态与前一时刻各状态相关性的大小，对状态的能量积累值进行加权，使能量更好的沿航迹方向进行积累。理论分析和仿真结果表明，与传统的动态规划检测前跟踪方法相比，新方法提高了机动弱小目标的检测和跟踪性能

关键词： 检测前跟踪；动态规划；状态加权

Dynamic Programming Track Before Detect for Maneuvering Dim Targets

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Abstract:

Aim at the issue of track before detect based on dynamic programming (DP-TBD) has low detection and tracking maneuvering targets in low signal-to-noise ratio(SNR), this paper proposes a track before detect based on state-weighted dynamic programming. The algorithm extends states transfer set utilizing the characteristic of target motion correlation between the frames, and then the power accumulation value is weighted according to the different possibilities that the current state comes from the previous states, making the power accumulated along the target trajectory. Theoretical analysis and simulation results show that this approach has been an improvement in the performance of detection and tracking maneuvering targets, comparing with the traditional DP-TBD under lower SNR

Keywords: track before detect   dynamic programming   state-weighted

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