

应用

分布式传感器网络中一种新的模糊航迹关联算法

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摘要:

为了有效提高分布式传感器网络中航迹与航迹关联的计算速度, 本文提出了一种新的基于临时航迹和信源相对可信度的多源模糊航迹关联算法。该算法首先在全局融合中心利用来自同一局部融合节点的同一航迹的两个量测形成临时航迹, 再由临时航迹与系统航迹融合生成系统航迹, 航迹关联是在临时航迹与系统航迹间进行的; 并引入信源相对可信度, 当有多条临时航迹与系统航迹关联时, 选取信源相对可信度最大的临时航迹与系统航迹关联。将该算法用于一个多源航迹关联的仿真实验中, 仿真结果表明该算法在保证关联正确率的前提下, 与传统的模糊航迹关联算法相比, 进一步提高了航迹关联的计算速度和系统航迹的精度, 是一种有效的多源航迹关联方法。

关键词: 临时航迹 航迹可信度 航迹关联

A novel track-to-track association algorithm in distributed sensor network

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Abstract:

Focused on improvement on computational speed of track-to-track association in distributed sensor network, a novel multi-source fuzzy track-to-track association algorithm based on temporary tracks and source relative credibility is proposed in this paper. Firstly, in the global fusion center, temporary tracks are formed by two measurements of the same local track from the same local fusion node, then system tracks are generated by the fusion of temporary tracks with system tracks, and track-to-track association is between temporary tracks and system tracks. In addition, source relative credibility is introduced to use as the association rule that only the temporary track from the maximum relative credible source can be selected to associate with the system track when there exist several temporary tracks associated with a system track. By applying the proposed method to the simulation experiment of track-to-track association, the simulation results show that it can determine targets' tracks accurately, has better performance in the computational speed of track-to-track association and the precision of system tracks than the traditional fuzzy association method, and is an effective and feasible multi-sensor track association method.

Keywords: temporary tracks track reliability track association

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