

多传感器冲突信息的加权融合算法

作者: 刘准钊, 程咏梅, 潘泉, 苗壮

单位: (西北工业大学自动化学院, 西安, 710072)

基金项目: 国家自然科学基金重点资助项目 (No.60634030); 航空科学基金 (No.2006ZC53037)

摘要:

针对在多传感器目标识别系统中, DS规则对高冲突信息融合结果不合理的问题, 本文提出了一种新的加权融合算法。在多源证据信息融合时, 首先根据两证据距离大小来确定其相互支持度, 将证据支持度矩阵最大特征值对应的特征向量作为证据的权重向量, 然后确定各证据的相对折扣因子, 并修正证据信息, 最后用DS规则融合。通过实验仿真对比分析了多种方法的融合效果, 表明了新方法可以较好的解决高冲突信息融合的问题。

关键词: 信息融合; 证据理论; 证据距离; 折扣因子

Weight Evidence Combination for Multi-sensor Conflict Information

Author's Name: LIU Zhun-ga ,CHENG Yong-mei ,PAN Quan ,MIAO Zhuang

Institution: (College of Automation, Northwestern Polytechnical University, Xi'an Shanxi 710072, China)

Abstract:

When the information of multi sensors highly conflict in target identification system, the information fusion result will be unreasonable by DS combination rule. In order to solve the problem, weight evidence combination approach is proposed in this paper. When several pieces of evidences are combined, the support degree for one another can be calculated according to the evidence distance. Eigenvector for the maximal eigenvalue of evidence support degree matrix is considered to be weight vector. Then, evidence discount coefficient can be gained, and it is used to modify every evidence, which is combined by DS rule. Finally, several methods are compared and analyzed through numeric simulation, and the result suggests the new approach is very available to solve the problem of high conflict information fusion.

Keywords: information fusion; evidence theory; evidence distance; discount coefficient

投稿时间: 2008-11-26

[查看pdf文件](#)