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联合交互式多模型概率数据关联算法

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COMBINED INTERACTING MULTIPLE MODELS PROBABILISTIC DATA ASSOCIATION ALGORITHM

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摘要	参考文献	相关文章

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摘要 通过对交互式多模型（ＩＭＭ）算法和概率数据关联（ＰＤＡ）算法的研究，指出Ｂａｒ－Ｓｈａｌｏｍ和Ｂｌｏｍ等提出的ＩＭＭＰＤＡ算法结构和理论上存在的问题。根据全局最优的思想，设计了一个最优波门，从而得到全局最优的量测集合，保证了系统的理论完整性和结构合理性。推导完成了新的联合ＩＭＭＰＤＡ算法——Ｃ－ＩＭＭＰ－ＤＡ算法。大量仿真计算验证了Ｃ－ＩＭＭＰＤＡ算法在减少计算量的同时，总体性能上较之原ＩＭＭＰＤＡ算法有大幅度提高。

关键词： 交互式多模型　概率数据关联　多目标跟踪

Abstract： Considering the four defects of construction and theory of IMMPDA algorithm which is proposed by Y. Bar Shalom and H. A. P. Blom, the authors work out a new Combined IMMPDA algorithm C IMMPDA algorithm. In C IMMPDA, a global optimal validating gate for every sub filter is constructed instead of the different gates for every sub filter in IMMPDA algorithm. That means it has only one PDAF in the filter system. All the formulas are deduced and the diagram of the new algorithm is drawn. The work makes the IMMPDA more satisfactory in construction and theory. Simulation results show that the new algorithm will decrease the computational burden and be of much better performance than IMMPDA.

Keywords： interact ing mult ip le models algo rithm　p robabilist ic data associat ion algo rithm　mult ip le targetst rack ing

引用本文：

潘泉;刘刚;戴冠中;张洪才. 联合交互式多模型概率数据关联算法[J]. 航空学报, 1999, 20(3): 43-47.

PAN Quan;LIU Gang;DAI Guan-zhong;ZHANG Hong-cai. COMBINED INTERACTING MULTIPLE MODELS PROBABILISTIC DATA ASSOCIATION ALGORITHM[J]. Acta Aeronautica et Astronautica Sinica, 1999, 20(3): 43-47.

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