

分布式检测系统的一种软决策融合算法

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摘要：

在分布式检测系统中，为了进一步提高系统的性能，各传感器可以向融合中心发送多位二进制判决信息。对于这种发送多位判决信息的软决策融合系统，本文提出了一种对各传感器观测空间进行再划分的方法，它将各传感器的观测空间按照其检测概率和虚警概率进行再划分。这种划分方法能够简化融合中心的计算，且计算机仿真结果表明，应用该方法后融合系统的检测性能有明显的提高。

关键词：分布式检测；软决策；观测空间再划分；多传感器

A Soft decision fusion algorithm for distributed detection systems

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Abstract:

In order to improve the performance of detection systems, each local detector can transmit multiple-bit decision to the fusion center in the distributed detection systems. Based on soft decision fusion systems in which each detector transmits multiple-bit decision, the paper proposes a new method about subpartition of local decision space. The subpartition is based on the false alarm probability and detection probability of each detector. The method can simplify computation of the fusion center, and the simulation shows that the detection performance of fusion systems markedly increases after employing the method.

Keywords: distributed detection; soft decision; subpartition of decision space; multiple sensors

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