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算法研究

协作频谱感知中的可信双门限硬判决融合算法

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摘要：

数据融合硬判决算法有效提高了协作频谱感知的精确性。然而，传统硬判决融合算法不加筛选的接收感知数据，且采取单门限判决机制，为恶意用户提供了可乘之机。为了防御恶意用户实施的频谱感知数据篡改攻击，本文提出一种基于声誉的双门限硬判决融合算法RHDF (Reputation-based Hard Decision Fusion Algorithm)，只有可信认知用户的感知报告才会被融合中心接收；同时，引入优先取半的双门限判决融合思想，提高了融合判决的效率和性能，从而有效规避了恶意用户的影响。仿真结果表明，与传统硬判决融合算法相比，RHDF算法能更有效地防御SSDF攻击，保证更好的协作频谱感知性能。

关键词： 协作频谱感知；数据融合判决；频谱感知数据篡改攻击

Double Thresholds of Trusted Hard Decision Fusion Algorithm in Cooperative Spectrum Sensing

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Abstract:

Hard decision fusion algorithm improves the accuracy of cooperative spectrum sensing.

However, traditional hard decision fusion algorithms receive all sensing data without filtering, which provides an opportunity to malicious users. To defense malicious users' spectrum sensing data falsification attack, this paper proposes a double thresholds of reputation-based hard decision fusion algorithm (RHDF). Only trusted secondary users' sensing reports will be received by fusion center. Meanwhile RHDF algorithm adopts priority to take half fusion method with double thresholds to improve the efficiency of fusion decision, and better to avoid the impact of malicious users. The simulation results show that compared with traditional hard decision fusion algorithms, RHDF algorithm can more effectively defense SSDF attacks and ensure better cooperation spectrum sensing performance.

Keywords: Cooperative Spectrum Sensing Data Fusion Decision Spectrum Sensing Data Falsification Attack

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