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**Detection and Prevention of Types of Attacks Using Machine Learning Techniques in Cognitive Radio Networks**

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**Abstract**

A number of studies have been done on several types of data link and network layer attacks and defenses for CSS in CRNs, but there are still a number of challenges unsolved and open issues waiting for solutions. Specifically, from the perspective of attackers, when launching the attack, users have to take into account of the factors of attack gain, attack cost and attack risk, together. From the perspective of defenders, there are also three aspects deserving consideration: defense reliability, defense efficiency and defense universality. The attacks and defenses are mutually coupled from each other. Attackers need to adjust their strategies to keep their negative effects on final decisions and avoid defenders’ detection, while defenders have to learn and analyze attack behaviors and designs effective defense rules. Indeed, attack and defense ought to be considered together. the proposed methodology overcomes the problems of several data link and network layer attacks and it effects in CSS(Co-operative Spectrum Sensing) of CNRs using Machine Learning based Defense, Cross layers optimization techniques and Defence based Prevention mechanisms.

**Keywords:**

Cognitive Radio Networks (CRN); SSDF; DOS; WRSNN’s; Cognitive Radio Wireless Sensor Node Networks (CRWSNN’s);

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