

عنوان مقاله:

A Potential Game Governing a Non-Cooperative Distributed Cognitive Radio Network: A Price-Based Approach

محل انتشار:

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نویسندگان:

Arsham Mostaani - Department of Electrical Engineering, University of Isfahan

Mohammad Farzan Sabahi

خلاصه مقاله:

In the following paper a Cognitive Radio Network (CRN) is studied by means of the mathematical tool of game theory. When we are faced with a distributed CRN, it is observed that selfishness of users will decrease the efficiency of network resource usage. Indeed, this is the selfishness of the users dispossessing them of optimum achievable state in the network. Using a game theoretical approach, we will offer a suitable pricing method which formulates the game as a potential one and allows the users to get more of network resources as long as they pay for it. Furthermore, how this method functions in a simulated CRN will be shown. According to simulation results, it can be perceived that in a noncooperative environment, an ordinary network face a considerable drop in the number of convergence trials and the access of users to network resources, whereas exploiting the suggested pricing method mitigates the negative effects of selfishness of users. Moreover, the simulation results show that there are even some parameters which are bettered using the pricing method in the network in comparison with cooperative setting

کلمات کلیدی:

Cognitive Radio Network, Pricing, non- Cooperative Network, Potential Game

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