Abstract

In order to improve the spectrum utilization, cognitive networks have been proposed. A cognitive network can reuses the spectrum of licensed user in a way such that the services of the licensed users are not disrupted harmfully. This paper presents the optimization of interference generated by a secondary network to a primary network for a cognitive radio (CR) networks using genetic algorithm (GA). The interference model used for optimization, in cognitive radio networks, is presented employing power control. A power control scheme is studied to govern the transmission power of a CR node. The probability density functions (PDFs) of the interference received at a primary receiver from a CR network are first studied numerically and then under the control scheme the interference distributions are fitted by log-normal distributions with reduced complexity. In GA optimization, the chromosome’s genes correspond to the adjustable parameters in a given radio, and the chromosomes are genetically manipulated so that GA can find a set of parameters that optimize the radio according to the user’s current needs.
Interference Mitigation in Cognitive Radio using Genetic Algorithm

References


Index Terms

Computer Science
Mobile Communication

Keywords

Cognitive radio  Shadowing  Hidden node  Probability distribution function (PDF)