Optimization of Cooperative Spectrum Sensing with Energy Detection in Cognitive Radio Networks using Voting Rule

International Journal of Computer Applications
Foundation of Computer Science (FCS), NY, USA

Volume 127
Number 16

Year of Publication: 2015

Authors:
Tina Sain, Kartik Sharma

10.5120/ijca2015906612

Abstract

We consider cooperative spectrum sensing in which multiple cognitive radios collaboratively detect the spectrum holes through energy detection and investigate the optimality of cooperative spectrum sensing with an aim to optimize the detection performance in an efficient and implementable way. The optimal voting rule has been derived for any detector applied to cooperative spectrum sensing. Also, detection threshold is optimized when energy detection is employed. Finally, a fast spectrum sensing algorithm for a large network is proposed which requires fewer than the total number of cognitive radios in cooperative spectrum sensing while satisfying a given error bound.

References


7. Wei Zhang, Member, Ranjan K. Mallik, Senior Member, , and Khaled Ben Letaief, Fellow." Optimization of Cooperative Spectrum Sensing with Energy Detection in Cognitive Radio Networks," IEEE TRANSACTIONS ON WIRELESS COMMUNICATIONS, VOL. 8, NO. 12, DECEMBER 2009 5761


Index Terms

Computer Science Wireless
Keywords