



A REVIEW OF SENSING AND DISTRIBUTED DETECTION ALGORITHMS FOR COGNITIVE RADIO SYSTEMS

Ramanarayanan Viswanathan and Babak Ahsant
Department of Electrical & Computer Engineering
Southern Illinois University, Carbondale 62901-6603
Illinois, USA
Emails: viswa@siu.edu , bahsant@siu.edu

Submitted: Feb. 16, 2011

Accepted: Feb 17, 2012

Published: March 1, 2012

Abstract – Optimized spectrum sensing using distributed detection techniques for secondary user spectrum access is becoming important in Cognitive Radio (CR) systems, which have been proposed to utilize the available frequency spectrum more efficiently. For achieving best performance and ensuring minimal acceptable interference to spectrum owners, it is important to accurately sense and detect the presence or absence of primary licensed users. For this purpose, the solutions learned within the framework of distributed detection in wireless sensor networks have been considered. In this paper, we review sensing algorithms and approaches of distributed detection and their relevance to CR systems.

Index Terms: Wireless Sensor Networks, Sensing Techniques, Distributed Detection, Cognitive Radio