

Jordan University of Science and Technology

Cooperative Space Time Coding for Semi Distributed Detection in Wireless Sensor Networks

Authors: Al-Jarrah, M. A., Al-Ababneh, N. K., Al-Ibrahim, M. M., & Al-Jarrah, R. A

Abstract: Parallel distributed detection in wireless sensor networks (WSNs) is considered in this paper. In parallel architecture, sensors process the observations to make local decisions and send them to a central device called fusion center. Parallel architecture is assumed in this paper with cooperative sensors in order to obtain Alamouti space time block codes (STBCs). A similar idea was discussed by Vosoughi and Ahmadi (2009). Although the likelihood ratio provided in that paper is correct, the simulation results don't make sense. In this paper, we are going to prove that the results provided in (Vosoughi & Ahmadi, 2009) are not correct. Upper bound for the detection performance is also derived. Furthermore, suboptimal fusion rules are derived to support our results. Moreover, correct results are shown in this paper.