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## Abstract

For effective utilization of the available spectrum and for preventing the channel interference among the users the sensing of the availability of spectrum becomes an essential task in case of Cognitive Radio Networks. Due to the effect of shadowing, fading, and uncertainty in the receiver, the overall performance of the spectrum sensing technique was compromised. Utilizing the spatial diversity of the nodes the above mentioned issues can be overcome by following a cooperative spectrum sensing approach. This approach slightly increases the overhead and the time consumed for sensing the spectrum. This work introduces a technique to check the availability of spectrum based on cooperative approach wherein the problem of sensing the spectrum is formulated as a classification task. The secondary units transfer the modulated signal present in the channel to the primary unit which estimates the spectrogram of the same and sends it to a trained convolution neural network model to detect whether it is a signal or noise. The efficiency of the cooperative sensing approach is analysed based on the accuracy in detection and the probability of detection under multiple levels of Signal to Noise Ratio levels.

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