

An Algorithm for Determining the Arrival Behavior of a Secondary User to a Base Station in Cognitive Radio Networks

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Abstract : This paper presents the development of an algorithm that predicts the arrival of a secondary user (SU) to a base station (BS) in a cognitive network based on infrastructure, requesting a Best Effort (BE) or Real Time (RT) type of service with a determined bandwidth (BW) implementing neural networks. The algorithm dynamically uses a neural network construction technique using the geometric pyramid topology and trains a Multilayer Perceptron Neural Networks (MLPNN) based on the historical arrival of an SU to estimate future applications. This will allow efficiently managing the information in the BS, since it precedes the arrival of the SUs in the stage of selection of the best channel in CRN. As a result, the software application determines the probability of arrival at a future time point and calculates the performance metrics to measure the effectiveness of the predictions made.

Keywords : cognitive radio, base station, best effort, MLPNN, prediction, real time

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