

UW CENTER FOR PATTERN ANALYSIS AND MACHINE INTELLIGENCE

GRADUATE SEMINAR SERIES

Spectrum Sensing in Cognitive Radio: Multi-techniques based Model

Speaker: Yusra Maatug

Date: October 10, 2012

Time: 4 pm – 4:30 pm

Place: E5 (4128) Refreshments will be served

Abstract :

Cognitive radio (CR) paradigm is a new radio technology proposed to solve spectrum scarcity and underutilization. Central to CR is the spectrum sensing (SS), which is responsible for detecting unoccupied frequencies. Since Detection techniques differ in their performance, selecting the optimal detection method to locally perform SS has had a significant attention. This research aims to enhance local decisions' reliability under a low SNR by developing an SS model based on multi-detection techniques. This model can either select the optimal technique or make these techniques cooperate with one another to achieve better sensing performance. The model performance is measured by the value of both detection and false alarm probability as well as sensing time. To develop this model, first, the performance of three detection techniques were evaluated and compared. Second, two fusion models were used to combine techniques' results. Concluding remarks will be provided to highlight the significant improvement in the sensing operation of CRs.