B.Sc. Thesis: Dynamic Frequency Allocation for Cognitive Radios with Minority Games

Background

The employment of learning methods is one of the major ingredients used in cognitive networks research towards enabling adaptability through self-organization. Specifically, in this B.Sc. thesis we will be concerned with a dynamic channel allocation scheme based on a Multiple Choice Minority Game. Originally, Minority Games were inspired by the well known El Farol bar problem and they have been successfully used in economics as market toy models to model the dynamics of financial markets.

Tasks

The main task of this thesis will be the evaluation of an MG-based dynamic channel allocation scheme and its comparison with a random channel selection scheme. An already running implementation of the scheme will be provided, but changes/improvements might be probably called for.

Tools

The simulation tool we will use is Qualnet – a commercial network simulation tool. The student will not only use the ready-made functions provided by the software, but will get in touch with the source code, which is written in C/C++ in an event-driven style.

Image: renjith krishnan, URL: http://www.freedigitalphotos.net/images/view_photog.php?photogid=721

Contact
Maria Michalopoulou, M.Sc.
Institute for Networked Systems
0241 80-209 17
mmi@inets.rwth-aachen.de

INETS