In Favour of Posting

THE CHINESE UNIVERSITY OF HONG KONG
Department of Information Engineering
Seminar

Energy-Efficient Design of Sequential Channel Sensing in Cognitive Radio Networks

by
Dr. Ying-Chang Liang
Institute for Infocomm Research
Singapore

Date : 15 December, 2010 (Wed.)
Time : 11:00am-12:00noon
Venue : Room 833, Ho Sin Hang Engineering Building
The Chinese University of Hong Kong

Abstract
Energy-efficient design has become increasingly important to battery-powered wireless devices. In this work, we focus on the energy efficiency of a cognitive radio network, in which a secondary user senses the channels licensed to some primary users sequentially before it decides to transmit. Energy
is consumed in both the channel sensing and transmission processes. The energy-efficient design calls for a careful design in the sensing-access strategies and the sensing order, with the sensing strategy specifying when to stop sensing and start transmission, the access strategy specifying the power level to be used upon transmission, and the sensing order specifying the sequence of channel sensing. The objective is to identify the sensing-access strategies and the sensing order that achieve the maximum energy efficiency. In this talk, joint design of the channel sensing order and the sensing-access strategies will be presented, together with performance evaluation of the proposed energy-efficient design.

Biography
Ying-Chang Liang is a Senior Scientist with the Institute for Infocomm Research (I2R), A*STAR, where he has been leading the research activities in cognitive radio and cooperative wireless communications. He was a visiting scholar with the Department of Electrical Engineering, Stanford University, from Dec 2002 to Dec 2003. His research interest includes cognitive radio, dynamic spectrum access, reconfigurable signal processing for broadband communications, space-time wireless communications, wireless networking, information theory and statistical signal processing.

Dr. Liang is now an Associate Editor of IEEE Transactions on Vehicular Technology. He served as an Associate Editor of IEEE Transactions on Wireless Communications from 2002 to 2005, Lead Guest-Editor of IEEE Journal on Selected Areas in Communications, Special Issue on Cognitive Radio: Theory and Applications, and Special Issue on Advances in Cognitive Radio Networking and Communications, Lead Guest-Editor of EURASIP Journal on Advances in Signal Processing Special Issue on Advanced Signal Processing for Cognitive Radio, and Guest-Editor of COMPUTER NETWORKS Journal (Elsevier) Special Issue on Cognitive Wireless Networks. He received the Best Paper Awards from IEEE VTC-Fall in 1999, IEEE PIMRC in 2005, and EURASIP Journal on Wireless Communications and Networking in 2010. He also received the Institute of Engineers Singapore (IES) Prestigious Engineering Achievement Award in 2007. Dr Liang has served in the Public Sector Funding Review Panel of A*STAR's Science and Engineering Research Council since 2005, and was the TPC Co-Chair of 3rd International Conference on Cognitive Radio Oriented Wireless Networks and Communications (CrownCom' 08), TPC Co-Chair of 2010 IEEE Symposium on New Frontiers in Dynamic Spectrum Access Networks (DySPAN' 10), and Co-Chair, Thematic Program on Random matrix theory and its applications in statistics and wireless communications, Institute for Mathematical Sciences, National University of Singapore, 2006. Dr. Liang was recently elected as an IEEE Fellow.

**** ALL ARE WELCOME ****

Host: Professor Jianwei Huang (Tel: 2609-8353, Email: jwhuang@ie.cuhk.edu.hk)
Enquiries: Information Engineering Dept., CUHK (Tel.: 2609-8385)