2009 Joint Workshop on 'Cognitive Wireless Networks and Systems - Cognitive Radio Networking'
Held in conjunction with IEEE ICC 2009
14 June 2009 Dresden, Germany

:: Important Dates
Full papers due: 1 November 2008, 11:59 PM EDT (EDAS time)
Acceptance notification: 16 January 2009
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:: Call for Papers [PDF]

:: Organizing Committee
Prof. Panagiotis Demestichas, University of Piraeus, Greece
Dr. Matthias Siebert, Deutsche Telekom/T-Systems, Germany
Dr. Didier Bourse, Motorola, France
Prof. Victor Leung, University of British Columbia, U.S.A.
Dr. Hiroshi Harada, National Institute of Information and Communications Technology, Japan
Ignas Niemegeers

:: Latest News
1. 10 July 2008: IEEE 2009 Joint Workshop on 'Cognitive Wireless Networks and Systems - Cognitive Radio Networking' proposal has been accepted by the IEEE ICC 2009 Organizing Committee
2. 15 May 2008: Proposal for ICC 2009 Workshop on 'Cognitive Wireless Networks and Systems' submitted to workshop co-chairs

:: Scope of the Workshop

The International Joint Workshop 'Cognitive Wireless Networks and Systems - Cognitive Radio Networking' is the juxtaposition of many initiatives, from around the world, which strive in parallel to contribute to the development of cognitive networking technologies, and wireless communications and networks. The Workshop provides a forum for discussion of all these developments, bringing together industry and academia, engineers, scientists and researchers. The discussions will cover achievements and open issues in research, standards, regulation, business models and products. The attribution of cognition in the wireless world is one of the most exciting areas in modern telecommunications. Targets are to increase efficiency and to address the complexity in the wireless world. Technical approach includes the development of intelligent management functionality and reconfigurable infrastructure. Reconfigurable infrastructures cover terminals, devices, access points and fixed-network elements. Management includes context acquisition mechanisms, decision making strategies and decision enforcements means.

Moreover, the incomparable evolution of wireless communications is reflected in the tremendous investments on research and development, targeted at the continuous introduction of innovations that could serve the information society. This has led to the coexistence and complementary exploitation of versatile, legacy and also emerging Radio Access Technologies (RATs), such as wireless wide area networking technologies (WWANs), which include 2G/2.5G/3G mobile communications, the IEEE 802.16 suite, WiMAX and broadcasting technologies, and wireless short range networks (WSRNs), which include wireless local/personal area networks (WLANs/ WPANs), as well as wireless sensor networks (WSNs).

The evolution of wireless access networks is most commonly referred to as B3G (Beyond the 3rd Generation) systems. In the B3G era, network operators (NOS) will have to address increased complexity. Complexity derives from the inevitable heterogeneity of the network and terminal infrastructure,
business model aspects and application areas. To meet these objectives, NOs have to deploy complex network topologies of heterogeneous nature. The different RATs will have to co-exist, and be complementarily exploited. Since different RATs have different capabilities, in terms of capacity, coverage, mobility support, cost, etc, each RAT is best suited for handling certain situations. In this respect, a NO will have to rely on different RATs for raising the customer satisfaction, and achieving the required Quality of Service (QoS) levels, in a cost-effective manner. QoS refers to performance, availability, reliability, as well as security/safety.

The aspects identified above motivate the introduction of cognitive systems in wireless B3G infrastructures. Specifically, an option for meeting the requirements and the resulting complexity is to attribute the wireless B3G infrastructures with ‘cognitive network’ capabilities. In general, cognitive systems determine their behaviour, in a reactive or proactive manner, based on the external stimuli (environment aspects), as well as their goals, principles, capabilities, experience and knowledge. In the case of cognitive networks, this definition can be translated as the ability to dynamically select the network's configuration, through self-management functionality that reaches optimal decisions, taking into account the context of operation (environment requirements and characteristics), goals and policies (corresponding to principles), profiles (corresponding to capabilities), and machine learning (for managing and exploiting knowledge and experience).

In response to the above, the objectives of this Workshop, accordingly, are to provide:

:: The motivation for the development of cognitive networking technologies;
:: The specification of novel, intelligent management functionality applicable in cognitive network segments, access points and wireless terminals.

:: Topics of Interest

:: Context management, sensing, reasoning and context acquisition
:: Policy based management of B3G wireless infrastructures
:: Collaborative radio resource, spectrum, power management, resource optimisation
:: Autonomic computing, self-x functionalities for cognitive elements and terminals for managing elements of wireless infrastructures
:: Flexible spectrum management
:: Negotiation strategies
:: Profiles of user applications, elements, learning user preferences
:: Pilot channels, radio enablers in support of cognitive infrastructures
:: Cognitive 2.5G/3G/3.5G, wireless wide area infrastructures
:: Cognition in short range networks, mesh topologies
:: Cognitive radio devices, enablers
:: Reconfigurable elements, evolution from software defined radio to cognitive infrastructures
:: Demonstrations and Proof of Concept of reconfigurable and cognitive infrastructures.
:: Business models for cognitive infrastructures.
:: Standardisation and regulation aspects
:: Evolution from reconfigurable networks towards cognitive networks
:: Applications of cognitive wireless networks
:: Initial experiences with cognitive radio pilot implementations
:: Architectures for hardware and software defined cognitive radio
:: Regulatory policies for non-centralized spectrum management
:: Enforcement of policies for cognitive radio devices
:: Pricing and billing for cognitive radio devices
:: Authorization and authentication of cognitive radio devices
:: Novel dynamic/opportunistic spectrum access techniques
:: Cross-layer optimization of cognitive radio wireless networking
:: End-to-End modelling of cognitive radio wireless networking
:: Security of cognitive radio wireless networking
:: Signal processing for cognitive radio wireless networking

:: Workshop Programme

The workshop will be a full day workshop. The joint workshop will be composed of:
- three technical sessions
- panel sessions
- poster session.

The workshop will favor the inclusion of very strong papers, which should also offer the opportunity for discussions and debates on hot-topics.

Papers on problem areas requiring inter-disciplinary approaches are envisaged, as well as papers related to standardization activities and major research initiatives.

It is expected that an annual IEEE TCCN meeting will be hosted as part of the workshop.

:: Submission Guidelines and Registration

All the information are available at IEEE ICC 2009 Workshop Papers Submission Page.
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