

In this issue

szabo@hit.bme.hu

IP mobility, co-existence of Wi-Fi networks with other systems in the license-free bands, enhancement of WiMAX protocols, location management in cellular networks are examples of hot topics in our broad area of infocommunications these days. This editor is happy that several good papers arrived from open call that address the aforementioned issues which now, after a rigorous peer review process, can be presented to our readers in this July issue of our Infocommunications Journal. I hope that our readers will find them interesting and useful for their work.

The first paper of this issue by *Balázs Héder and András Bertók* is titled “Detection of sleet attenuation in data series measured on microwave links”. Radio wave propagation on terrestrial high frequency microwave point-to-point links is highly influenced by atmosphere effects, especially by the attenuation of precipitation. Usable models exist for considering rain attenuation, but the statistics of rare sleet event are less known. The measurements carried out by the authors made it possible to model the sleet attenuation. They proposed an algorithm which exploits the important differences between the second order statistics of rain and sleet attenuation time functions.

In the past years it has become a widely accepted opinion that the current network layer protocol, IPv4, suffers from several serious problems. The sixth version of the Internet Protocol (IPv6) is assumed to become the network layer of the future Internet, which unfortunately inherits some weaknesses of IPv4. For instance, there are no easy solutions of the scalability problems caused by edge site multi-homing. In the paper “Multi-Homing in IP Networks Based on Geographical Clusters” the authors, *Gábor Németh, Gábor Makrai and János Tapolcai* propose an easy to deploy multi-homing strategy that decreases the number of entries in the routing tables by aggregating together the address space of several edge networks located close to each other.

Within our series “Design Studies” we publish practical results usually achieved within the framework of large scale European projects. This time we present the achievements of an EU project SAMBA in the paper titled “A Framework for Community-Oriented Interactive Digital Television” by *O. Mayora-Ibarra et al.* This paper presents the SAMBA Framework for community-oriented idtv. The main objective of this framework is to provide local communities and citizens (including low income population) to access community-oriented content and services by means of idtv channels. In order to achieve this, SAMBA implemented several steps such as 1) develop-

ment of a Content Management System for creating interactive applications that are cross-compatible between DVB-T MHP and DVB-H; 2) considering usability issues related to technology adoption by non expert users and 3) addressing low cost requirements for meeting the needs of low-income users and communities with use of power line communications for providing interactivity to remote rural areas.

Zoltán Horváth and Dávid Varga in their paper suggest a novel channel allocation technique for eliminating interference caused by RLANs on meteorological radars in 5 GHz band. Meteorological radars are used for short term weather prediction in Hungary and all over the world. These radars can be jammed by RLAN devices (e.g. home Wi-Fi routers). The authors introduce the background of this problem, and analyze the weakness of the current solution (DFS – Dynamic Frequency Selection) by modeling the radar operation and RLAN traffic, and also show its high efficiency in practice, based on well-known IEEE 802.11 RTS/CTS mechanism.

The paper by *S. Mumtaz, A. Gamerio and K. Saidul* titled “Enhanced Algorithm for WIMAX: MIESM” extends the already well studied link adaptation technique based on MIESM (Mutual Information based exponential SNR Mapping) for 802.16 based systems. The previous work on MIESM uses equal modulation order for all the subcarriers in an OFDM block. In the paper the concept of unequal modulation for the subcarriers in the single OFDM block is proposed, and a mathematical model is derived based on bivariate Gaussian distribution.

Efficient dimensioning of cellular wireless access networks depends highly on the accuracy of the underlying mathematical models of user distribution and traffic estimations. Mobility prediction also considered as an effective method contributing to the accuracy of IP multicast based multimedia transmissions, and ad hoc routing algorithms. In the paper “Markov model based location prediction in wireless cellular networks” by *Tamás Szálka, Sándor Szabó and Péter Fülöp* the authors focus on the trade-off between the accuracy and the complexity of the mathematical models used to describe user movements in the network. Markovian mobility models are proposed in order to utilize the additional information present in the mobile user’s movement history thus providing more accurate results than other widely used models in the literature. The new models are applicable in real-life scenarios, because these rely on additional information effectively available in cellular networks (e.g. handover history), too.

Csaba A. Szabó, Editor-in-Chief