

EDITORIAL

Dear reader,

You have at your desk the issue no. 2/2014 of the journal AUTOMATIKA, which contains ten original scientific papers in the fields of computing, control systems, power electronics, digital signal processing and communications.

In the first paper, **Vehicle Routing Optimization Using Multiple Local Search Improvements**, Juraj Fosin et al. propose a novel multiple improvements pivoting rule for capacitated vehicle routing problem (CVPR) and report a reduction in the time required for the optimization. The search algorithm is tested on 4 large scale real-world problems in Croatia with up to 7,065 customers and 236 vehicles, and on standard CVRP benchmark sets. The following paper entitled **Multiplierless Implementation of Digital Colored Noise Generator** by Mladen Vučić and Marko Butorac proposes a multiplierless realization of the colored noise generator based on the filtering of 1-bit random signal by a finite impulse response filter. Furthermore, an application is described in which the proposed generator is used in mitigation of undesired effects caused by nonlinearities in an analog to digital converter. In the third paper, **Capacity Analysis of MIMO-WLAN Systems with Single Co-Channel Interference**, Ching-Tang Hsieh et al. calculate channel capacity of multiple-input multiple-output wireless local area network (MIMO-WLAN) systems with single co-channel interference (CCI). Ensuingly, the authors investigate the ability to combat CCI for the MIMO-WLAN simple uniform linear array and polarization diversity array. The paper entitled **Modifying Power Quality's Indices of Load by Presenting an Adaptive Method based on Hebb Learning Algorithm for Controlling DVR** by Mohammad Reza Khalghani et al. presents a method based on dynamic voltage restorer to compensate the harmful effects of disturbances on voltage, and since power systems fundamentally have complicated dynamic behavior, especially during faults, the Hebb learning self-tuning controller has been used. Furthermore, for the aforementioned controller a new structure is proposed based on a fuzzification method. In the following paper, **Robust Design of Power System Stabilizer using Harmony Search Algorithm**, Abdul Hameed and Palani Sankaran propose a harmony search algorithm for robust and optimal design of a PID controller connected to power system stabilizer in order to dampen low frequency power oscillations of a single machine infinite bus bar power system. The paper attempts to optimize the controller parameters via a music-based metaheuristic optimization algorithm. Iva Bačić et al. present in their paper entitled **Simulation Model for Evaluation of the DVB-SH-A Performance** a simulation model following the ETSI standard EN 302 583. The model includes DVB-SH transmitter and receiver, supports different system parameters and transmission channels and provides overall evaluation of DVB-SH system parameters and can be used for educational purposes. The paper entitled **Calculation of the Mean Output Power of Base Transceiver Station in GSM** by Predrag Jovanović et al. calculates the distribution of output power of traffic channels of base station in GSM network depending on the traffic load. The principle of the calculation is to find the distribution of the output power of one traffic channel, and then to combine this distribution with the distribution of the number of busy traffic channels. In the eight paper, **The New Normalized Subband Adaptive Filter Algorithms with Variable Step-Size**, Mohammad Shams Esfand Abadi and Mohammad Saeed Shafiee present a variable step-size normalized subband adaptive filter algorithm with the goal of having the largest decrease in the mean square deviation (MSD) for sequential iterations. In simulations the authors analyze the convergence speed and steady-state

*MSD of the proposed filter. The ninth paper entitled **Fuzzy Logic Based Rate Control Scheme for ODMRP in Mobile Ad hoc Networks** by Alireza Shams et al. presents an enhancement to on demand multicast routing protocol (ODMRP) referred to as fuzzy logic based rate control ODMRP, which attempts to adapt the arrival rate from upper layers to the state in the network by using feedback information from receivers of the multicast group. The authors compare in simulation the performance of the proposed approach to conventional ODMRP methods. The last, tenth, paper entitled **PWMSC Controller Design for Damping Electromechanical Oscillations** by Amin Safari et al. proposes a current injection model of pulse width modulated based series compensator (PWMSC) and incorporates it in the transmission system model. The authors analyze in a case study the effectiveness of the proposed controller to mitigate the power system critical modes of oscillation.*

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