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EDITORIAL

Dear readers,

The issue no. 3–4/2004 contains nine papers selected at the ***12th IEEE Mediterranean Electrotechnical Conference MELECON 2004*** *held in Dubrovnik, Croatia, on 12–15 May 2004. MELECON is a major IEEE Region 8 conference and it is held biannually. The nine papers published in this issue span the following areas: Adaptive Signal Processing (3 papers), Control Theory and Applications (4 papers), one paper in the field Electric Machines, and one paper in Renewable Energy Sources. The authors are coming from Bulgaria, Finland, Greece, Iran, Italy, Norway, Slovenia, UK, USA and Croatia.*

In the first paper, ***Transient Analysis of Adaptive Filters Using a General Framework****, Husøy and Abadi present a generalized transient analysis by employing a framework in which a number of adaptive filter algorithms can be treated as special cases. The second paper is* ***Adaptive Filter for Event-Based Signal Extraction*** *by Antunović and Cummer in which the authors present a new adaptive filter structure that exploits specific properties of event--based signals such as unpredictable time appearance and limited time duration. In the third paper,* ***Adaptive System for Engine Noise Cancellation in Mobile Communications****, Iliev and Egiazarian describe a highly stable and fast adaptive system which provides engine noise cancellation for hands-free cellular phones and which could considerably improve the speech intelligibility of hands-free cellular phone operation.*

The fourth paper is ***Sonar-based Pose Tracking of Indoor Mobile Robots*** *in which Ivanjko et al. present the problem of mobile robot's pose tracking based on odometry. Two sensor fusion methods based on Kalman filter theory are compared with the range data obtained from sonars. In the fifth paper,* ***New Adaptive Laws for Model Reference Adaptive Control Using Non-Quadratic Lyapunov Functions****, Rao and Hassan use a non-quadratic Lyapunov function and develop adaptive laws that demonstrate faster decay of the error signal towards zero, while still assuring the overall stability of the system. The sixth paper is* ***Simple Fuzzy Identification Implemented in Advanced Controller*** *by Blažič et al. where the authors focus on the model identification issues that are applicable to control of nonlinear plants. In the seventh paper,* ***An Adaptive Fuzzy Approach to Predictive Overload Protection Systems for Power Transformers****, Ippolito describes a methodology for the identification of a fuzzy model capable of reproducing thermal behaviour of large power transformers and consequently capable of estimating tolerable hot-spot temperature of windings that is used in overload protection systems.*

The eight paper is ***Synchronous Generator Load Angle Measurement and Estimation*** *in which Idžotić et al. focus on the load angle estimation method and the implications on the stability of synchronous generators.*

In the ninth paper, ***Performance Assessment of the Inverter-based Grid Connection of Photovoltaic Systems****, Chicco et al. present a comparative study of various types of inverter--based power conditioning units used to form photovoltaic systems. The comparison is based on extensive experimental results.*

I would like to take this opportunity to thank all authors for their contributions. I am deeply indebted to the reviewers for their time and expertise that ensured the highest quality of the papers. Finally, I would like to express my gratitude to Prof. Borivoje Rajković, the Editor-in-Chief of AUTOMATIKA, for giving me the opportunity and honour to serve as the guest editor of this issue.

Guest Editor
Prof. Adrijan BARIĆ, PhD