Guest Editorial: Introduction to the Special Issue of ELECO'2003

Welcome to the special Issue of ELECO'2003 Conference! This conference is the third International Conference on Electrical and Electronics Engineering held on 3–7 December 2003 in Bursa-Turkey. The history of ELECO conferences goes back to year 1986, initially organized as an ELMEKSEM Electromechanical Conference by the Chamber of Turkish Electrical Engineering Turkey Bursa Section, repeated in 1988, 1993 and 1997. A further national conference series organized by the same institution was the Computer-Telecommunications Conferences. The 5th conference of this series was held in 1998. Until 1999 the conference series remained as local, but in 1999 both conferences are united to ELECO and organized as an international Conference. ELECO'99 is thus the first International Electrical and Electronics Engineering Conference held in Bursa.

It was decided to continue to organize the conferences at an international level in odd numbered years and as a national conference in even numbered years. ELECO'2003 ist herefore the third one at the international level. Participants coming from four different continents and 18 different countries have presented valuable papers on Electrical and Electronic Engineering topics. ELECO'2003 is jointly organized by Uludag University Bursa, Istanbul Technical University and Chamber of Turkish Electrical Engineers Bursa Section. IEEE Circuits and Systems Society Turkey Chapter was Technical Co-Sponsor of ELECO'2003.

From the scope of the Technical Program it was probably the largest Electrical and Electronics Engineering conference ever held in Turkey. The wide scope of the conference covers the topics such as electric power systems, electrical machines and drives, power electronics, high voltage techniques, electrical materials, electronics, circuits and systems, signal processing, electromagnetics, antennas and propagation, microwave theory, communication systems, mechatronics, control theory, control applications, automation systems, robotics and intelligent control systems.

Bursa was an important city during West Roman Empire Period that covers the first millennium, as well as the Ottoman Empire Period, which covers the most of these condmillennium. ELECO conferences are becoming traditional biennial events in Bursa.

This Special Issue consists of extended papers selected from the Conference ELECO'2001 under peer review process.

The paper by Serigne Dia, Balwant Godara, Frederic Alicalapa, and Alain Fabre entitled ULTRA WIDE-BAND : STATE OF THE ART; IMPLEMENTATION OF A PERFORMANCE-CONTROLLABLE LOW NOISE AMPLIFIER was presented in ELECO'2003 as invited paper. Towards the design of UWB transceiver modules, a new topology for the Low-Noise Amplifier has been introduced in this paper.. This performance-controllable amplifier incorporates the functions of a low-noise amplifier and a variable-gain amplifier, towards simplifying the receiver architecture.

The paper by Alper Duruk and Hakan Kuntman is entitled A NEW CMOS DIFFERENTIAL OTRA DESIGN FOR THE LOW VOLTAGE POWER SUPPLIES IN THE SUB-MICRON TECHNOLOGIES. In this paper, a new CMOS differential OTRA topology is proposed. The CMOS OTRA topology was realized with 0.13 μm STMicroelectronics technology.

The paper by Enis Günay, Esma Uzunhisarcıklı, Recai Kılıç and Mustafa Alçı is entitled A REALIZATION of SC-CNN-BASED CIRCUIT USING FTFN. In this paper, a realization of the State Controlled Cellular Neural Network (SC-CNN)-based circuit using Four Terminal Floating Nullor (FTFN) as active element is presented. In this realization, a new version of autonomous Chua's circuit has been considered using FTFN realization of SC-CNN-based circuit.

The paper by Serdar Hekimhan, Serdar Menekay and N. Serap Şengör is entitled PRIOR KNOWLEDGE INPUT METHOD IN DEVICE MODELING. In this paper, instead of using artificial neural networks as a unique modelling device prior knowledge input method based on feed-forward artificial neural network structures as multi-layer perceptrons and wavelet-based neural networks is investigated.

The paper by Milan Stork is entitled SIGMA-DELTA VOLTAGE TO FREQUENCY CONVERTER WITH PHASE MODULATION POSSIBILITY. In this paper, a New SVFC (NSVFC) is described. This NSVFC operates similarly as conventional SVFC but it has a pure tone on output .

The paper by Metin Kaya is entitled AN ALGORITHM FOR IMAGE CLUSTERING AND COMPRESSION. This paper presents a new approach to image compression based on fuzzy clustering.

The paper by Gonca Çakır and Levent Sevgi is entitled DESIGN, SIMULATION and TEST OF A LOW-COST MICROSTRIP PATCH ANTENNA ARRAYS FOR THE WIRELESS COMMUNICATION. In this paper new antenna arrays are designed with 35o beam-widths and 60o electronic scanning capabilities. Their characteristics are investigated both numerically and experimentally.

The paper by Ilke Türkmen and Kerim Güney is entitled COMPUTATION OF ASSOCIATION PROBABILITIES FOR SINGLE TARGET TRACKING WITH THE USE OF ADAPTIVE NEURO-FUZZY INFERENCE SYSTEM. In this study, a simple method based on the adaptive neuro-fuzzy inference system (ANFIS) is presented for computing the association probabilities.

The paper by Okan Özgönenel,   Güven Önbilgin and Çağrı Kocaman is entitled TRANSFORMER PROTECTION USING THE WAVELET TRANSFORM. This paper introduces a novel approach for power transformer protection algorithm. Power system signals such as current and voltage have traditionally been analysed by the Fast Fourier Transform. This paper aims to prove that the Wavelet Transform is a reliable and computationally efficient tool for distinguishing between the inrush currents and fault currents.

The paper by Yavuz Cengiz, Filiz Güneş and Mehmet Fatih Çağlar is entitled SOFT COMPUTING METHODS IN MICROWAVE ACTIVE DEVICE MODELLING. In this work, the signal and noise behaviors of a microwave transistor within its operation domain are modeled by the Artificial Neural Network (ANN) and Fuzzy Logic System (FLS) without using any information on the microwave circuit theory .

The paper by İstemihan Genç and Ömer Usta is entitled IMPACTS OF DISTRIBUTED GENERATORS ON THE OSCILLATORY STABILITY OF INTERCONNECTED POWER SYSTEMS. In this paper, the impacts of distributed synchronous generators on oscillatory stability are studied.

The paper by Berk Üstündağ, Özcan Kalenderli, Haluk Eyidoğan is entitled MULTILAYER CAPACITOR MODEL OF THE EARTH'S UPPER CRUST. In this study, an equivalent electric circuit model of Earth's upper crust is proposed to explain the behavior of measurement patterns acquired from network of the earthquake forecast project. A multilayer capacitor model having active components that couples with the monopolar probe close to the surface is proposed to determine earthquake precursory patterns due to priory structural changes.

The paper by Ufuk Demirci and Feza Kerestecioğlu is entitled FAULT TOLERANT RE-CONFIGURING SLIDING MODE CONTROLLER. In this paper, a controller design method for linear MIMO systems is presented which a sliding mode controller is reconfigured in case of system faults.

The guest editor would like to thank the Editor-in-Chief, Kemal Leblebicioğlu, for valuable supports, Lale Edgüer for the development of this Special Issue and the staff at TÜBİTAK Elektrik Journal for their assistance in producing this volume. I hope you enjoy very much reading this special issue of Elektrik.

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