Editorial

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Samit Ari graduated in Electronics and Tele-communication Engineering from University of Kalyani, India in 2001. He received the MTech degree from University of Calcutta, India in 2003 and PhD degree in 2009 from Indian Institute of Technology, Kharagpur, India. Since July 2009, he is serving as a faculty member at Dept. of Electronics & Communication Engineering, National Institute of Technology, Rourkela. His research interest is in the broad area of signal processing, image processing, modelling, neural networks, pattern recognition, RFID detection etc. Dr. Ari has over 15 publications in journals and conference proceedings. He has served/is serving various administrative responsibilities.

Welcome to the first issue for 2013 of the International Journal of Signal and Imaging Systems Engineering (IJSISE) which comprises a special issue on 'Electronic Systems'. This issue contains nine papers covering diverse areas like Image processing, Communication, Signal processing and VLSI contributing to the main topic. I believe that the selected papers present various novel techniques for the advancement in these areas.

The first paper entitled 'Design and Study of High Bit-rate Free-space Optical Communication System employing QPSK Modulation' by B.N. Patnaik and P.K. Sahu proposes free-space optics wireless communication systems which are diffused link and line-of-sight setup using quadrature phase keying technique. The system can find application in local area network, optical communication system and wireless sensor network.

The second paper entitled 'ACS Fed Koch Fractal Antenna for Wide-band Application' by Y.K. Choukiker and S.K. Behera presents a compact asymmetric coplanar strip fed modified Koch fractal shape printed slot antenna. The antenna exhibits wideband frequency response and omni directional radiation pattern for entire band.

The third paper entitled 'An Efficient Sparse 8×8 Orthogonal Transform Matrix for Color Image Compression' by R.K. Senapati, U.C. Pati and K.K. Mahapatra introduces an efficient orthogonal sparse 8×8 transform matrix for colour image compression at low bit rate. It indicates significant saving in computation and hardware resources over DCT, Signed DCT and approximate DCT.

The forth paper entitled 'Analyzing ION/OFF in Ultra Deep Submicron CMOS Devices using Grooved nMOSFETs for Low Power Applications' by S. Dhar, P. Rajaram and M. Pattnaik analyses the sub-threshold characteristics in ultra low power applications by studying the influence of single corner grooves and changing corner

angle in deep submicron and ultra deep submicron grooved gate nMOSFET.

The fifth paper entitled 'A Broadband Sierpinski Gasket shaped Triangular Dielectric Resonator Antenna for X-band' by D. Soren, R. Ghatak, P.K. Mishra and D.R. Poddar explains the realization of Dielectric resonator antenna using Teflon and discusses its resonance as well as radiation characteristics. It shows an improvement in impedance bandwidth.

The sixth paper entitled 'Encryption by Hill cipher and by a Novel Method using Chinese Remainder Theorem in Galois Field' by S.K. Chhotaray, J. Majhi and G.S. Rath suggests a novel method of Hill-cipher employing Galois field for cryptography. Simulation results indicate the utility of the method in data security of private networks.

The seventh paper entitled 'Planar Ultra Wideband Fractal Antenna with 3.4/5.5 GHz Dual Band-notched Characteristics' by S. Natarajamani, S.K. Behera and S.K. Patra proposes a simple as well as compact coplanar waveguide-fed ultra wideband antenna. The results show that the antenna has good impedance matching, consistent gain, stable radiation patterns and consistent group delay.

The eighth paper entitled 'A Correlation based Stochastic Partitional Algorithm for Accurate Cluster Analysis' by S.J. Nanda, P.M. Pradhan, G. Panda, L. Mansingh and K.F. Tiampo proposes a simple stochastic partitional clustering algorithm based on Pearson correlation based similarity measure. Experimental results demonstrate the superior performance of this algorithm compared to the popular distance based K-means algorithm.

The last paper entitled 'Deformed Ω for Realization of LH Characteristics' by D. Mishra, D.R. Poddar and R.K. Mishra introduces two new types of unit cell structures to be used in an array for realization of double negative metamaterial characteristics. The new deformed omega structures are capable of exhibiting enhanced negative refractive index bandwidth with proper choice of the dimensions and periodicity.

This special issue, thus, gathers contributions from various research domains that address Electronic systems from different perspectives, including both theoretical and experimental points of view. I would like to thank all contributors and reviewers for their outstanding work as well as all the new and interesting things I learned from them. My special thanks and gratitude to Editor-in-Chief of International Journal of Signal and Imaging Systems Engineering, Prof. Dimitrios A. Karras for his continuous support and help during the publication process. Last but not the least, Mrs Liz Harris deserves thanks for her excellent effort in bringing out this special issue.