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## Editorial

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**Biographical notes:** V. Suma holds a BE in Information Science and Technology, MS in Software Systems and PhD in Computer Science and Engineering. She has a vast experience of more than 17 years in teaching. She has published more than 183 international publications which include her research articles published in world class international journals such as ACM, ASQ, *Crosstalk*, *IET Software*, international journals from Inderscience publishers, and from journals released in MIT, Darmout, USA, etc. Her research results are published in NASA, UNI Trier, Microsoft, CERN, IEEE, ACM portals, Springer, and so on.

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The recent advances in computer aided techniques will enable the smart fabrication of various complex digital communication models, which are not possible by deploying conventional technologies. The unprecedented flexibility of computer aided techniques offers various opportunities and challenges in designing such digital models. In this perspective, this special issue discusses the significance and flexibilities offered by state-of-the-art computer algorithms and design to empower the evolving digital communication models. These efforts taken in this issue will accelerate the prototyping of computer aided techniques to the real-time implementation.

In the aforementioned aspect, this issue contains eight research articles, where it covers various aspects of next-generation wireless techniques from state-of-the-art communication protocols to emerging communication techniques in the innovative computer aided perspective. Brief summaries of the articles included in this special issue are given as follows.

The first article 'PPHE-automatic detection of sensitive attributes in a privacy preserved Hadoop environment using data mining techniques', by Kumaran Umapathy and Neelu Khare examines the authentication of Twitter users by using the integrated algorithm RSA and Elgamal algorithm. Furthermore, this article attempts to categorise tweets based on type-2 fuzzy logic system. Finally, the proposed system will be evaluated by analysing the system performance in terms of accuracy, precision, recall and F-measure. 'SIBLAR: a secured identity-based location aware routing protocol for MANETs', by R. Suma, B.G. Premasudha and V. Ravi Ram discusses about the mobile ad hoc network (MANET) based on its security aspect. This research article has considered the security with respect to location aided routing (LAR) and proposed a secured identity-based location aware routing (SIBLAR) protocol to achieve system security with improved key refreshment mechanism. The results of the proposed model helps to prove that the proposed SIBLAR scheme is efficient when compared to basic LAR. The third article 'Divide-by-16/17 dual modulus prescaler design with enhanced speed in a 180nm CMOS technology', by Uma Nirmal and V.K. Jain proposes a high-speed dual modulus divide by 16/17 prescaler design IV with 8.9 GHz operating rate. Here, the proposed design is implemented in 180 nm CMOS technology and consumes only 0.38 mW power from a 1V supply voltage.

'IoT-enabled traffic sign recognition for safe driving' by S. Iwin Thanakumar Joseph, P. Rachel Kiruba Paulin, Jippi Ann George, Jerrin Joy and J. Ephim Smily designed an IoT platform that can automatically share the information about the road signs. This paper provides an overview of the traffic sign detection with the help of the output generated by the IOT devices like NodeMCU. The proposed research work presents a device that will detect the road sign with the help of IOT by using a very simple logic. The proposed approach can be very helpful for the development of a safe a driving environment.

The fifth article 'A hybrid SATS algorithm-based optimal power flow for security enhancement using SSSC' by Kumar Cherukupalli, Padmanabha Raju Chinda and Sujatha Peddakotla helps to devise proper measures for maintenance and improvement of security in the power system. This research work helps to enhance the security of power system and minimise the generator fuel cost. Finally, the simulation studies are carried out on standard IEEE 30 bus to identify effectiveness of proposed hybrid method and the obtained outcomes are put in comparison to SA with SSSC and TS with SSSC methods. 'HUPM-MUO: high utility pattern mining under multiple utility objectives', by A. Muralidhar and Pattabiraman Venkatasubbu argues that neither utility nor frequency of the itemset alone influence the target objective. Further, the manuscript endeavoured to define a novel model that discovers the top-K high utility patterns under multiple utility objectives (HUPM-MUO). To conclude, an experimental study was carried on various datasets, which will portray the performance advantage of the proposed model over the other contemporary models. 'A hybrid approach to diagnosis mammogram breast cancer using an optimally pruned hybrid wavelet kernel-based extreme learning machine with dragonfly optimisation', by P. Kumara Guru Diderot and N. Vasudevan has come up with model a breast cancer prediction system with a novel machine learning approach called hybrid optimally pruned wavelet kernel-based extreme learning machine (HOP-WKELM) based on wavelets. As an advantage, the proposed strategies achieved a maximum accuracy of 98.8% and a maximum precision of 98.1% when compared with existing Adaboost systems.

‘Hardware implementation of a modified SSD LDPC decoder’, by A. Rajagopal, K. Karibasappa and K.S. Vasundara Patel proposed a modification approach to the simplified soft distance algorithm by considering soft Euclidean squared distance as a performance metric. An attempt has also been done to compare and analyse the performance of modified SSD with other popular algorithms such as SPA, SSPA and LogSPA. Based on FPGA results, this paper aims to conclude the performance of modified SSD is similar to that of LogSPA with changes observed as improved throughput speed and improved bit error rate (BER). And the last article ‘Spur gear safety prediction through the analysis of stress intensity factor’, by Fung Z. Hiung, Haidar F. Al-Qrimli, Mustafa J. Al-Dulaimi and Kenobi I. Morris discusses about the application of gear in heavy industry. Here, the study of crack propagation pathway was conducted by analysing the crack tip behaviour. The analysis had implemented the application of extended finite element method (XFEM) in ABAQUS to avoid the need of re-meshing as in finite element method (FEM). The simulation outcomes show that the cracked gear model is experiencing a significant compressive in-plane shear than tensile stress.