Editorial

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Received: 5 October 2019 / Accepted: 9 October 2019 / Published online: 23 October 2019
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It is a matter of great privilege for me to unveil before you the 28th issue i.e. Volume 11 Number 04 of the “International Journal of Information Technology” [An official Journal of Bharati Vidyapeeth's Institute of Computer Applications and Management (BVICAM), New Delhi] with acronym BJIT. The issue is live on the Springer content platform SpringerLink and available to the prospective readers through Springer CS package globally.

Throughout the world, nations have started recognizing that Information Technology (IT) is now acting as a catalyst in speeding up the economic activities in efficient governance, citizens' empowerment, sustainable development and in improving the quality of human life. Recent advancements in IT have touched almost every conceivable area of human life. Its degree of pervasiveness, in day to day life, is rapidly increasing, every new day. On the backdrop of this, BJIT has accepted the challenge to consistently showcase, disseminate and institutionalize the rapidly changing huge knowledgebase globally, with authenticity and accuracy, having special focus on the new researches pertaining to IT applications for improving the quality of day to day life.

Volume 11 Number 04 presents a compilation of 36 papers, chosen out of over 300 manuscripts, that span a broad variety of topics from various emerging areas of information technology and computer science, especially addressing current research problems related to acoustic image denoising, virtual machine migration, severity

analysis, task scheduling, semiotics, joint entropy and mammogram classification to name a few.

To optimize the activity levels for different crops region wise. The first manuscript in this issue “Methodology for Region Level Optimum Crop Plan”, Rajni Jain et al. conceptualizes a linear programming based approach for optimizing crop output production under varied resource endowments and price scenarios. Mobile devices have become the prime medium of communication amongst humans. However, data security remains a prime concern in these modes. The second manuscript “TouchMetric: A Machine Learning Based Continuous Authentication Feature Testing Mobile Application”, Saeed Samet et al. introduces TouchMetric, a mobile application for testing a machine learning model for the development of Continuous Proof of Presence (CPoP) feature on the Android and iOS devices. Quality of modified software is assessed through efficient regression testing. The next manuscript “Total Fault Exposing Potential Based Test Case Prioritization Using Genetic Algorithm”, Deeptibala Mishra et al. suggests a Genetic algorithm based test case prioritization as well as minimization technique. Virtual Machine Migration (VMM) has an important role to play in providing elasticity to any cloud environment. The manuscript “Real-Time Resource Monitoring Approach for Detection of hotspot for Virtual Machine Migration”, Yashveer Yadav et al. introduces real time resource monitoring (RTRM) model to virtual machine migration to overcome shortcomings of conventional approaches. The manuscript “Comparison of Color Spaces for the Severity Analysis of Mitral Regurgitation”, Arun Balodi et al. evaluates the adequacy of four different color spaces for the severity analysis of mitral regurgitation. The manuscript “Dynamic Heterogeneous Shortest Job First (DHSJF): A Task Scheduling Approach for Heterogeneous Cloud Computing

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Systems”, Sonam Seth et al. designs a model to alleviate the problem of resource utilization in heterogeneous computing systems. Noise is a considerable degrader of image quality obtained through SONAR. The manuscript “Acoustic Image Denoising using Various Spatial Filtering Techniques”, Dhanushree et al. assesses various spatial filtering techniques to acoustic images to reduce speckle noise. A Sentence in Myanmar text consists of many ambiguous Parts of Speech (POS) tags. The next manuscript “Disambiguation using Joint Entropy in Part of Speech of Written Myanmar Text”, Sin Thi Yar Mint et al. advises on the disambiguation of POS of the words in written Myanmar text. Social media websites are an open platform for users to freely express their feelings. The manuscript “Multidimensional Sentiment Analysis on Twitter with Semiotics”, Darsha Chauhan et al. provides a mechanism to determine the sentiment score of a tweet through semiotics and multidimensional sentiment analysis. The manuscript “Security Concerns and Countermeasures in Cloud Computing: A Qualitative Analysis”, Anjana Saroha et al. presents a qualitative assessment of the vulnerabilities and threats associated with different service models of the cloud. Many authentication algorithms claim to secure the multi-server environment. The manuscript “Cryptanalysis of Hash based Multi-server Key Exchange Protocol using Smart Card”, Ashish Tomar et al. evaluate one such scheme and highlight its lacunae. The manuscript “An Innovative Method of retrieving Images through Clusters, Means and Wavelet Transformation”, Tamil Kodi et al. introduces a novel method to extort content based image retrieval. Keyloggers are dangerous programs capable of monitoring PC activity. The manuscript “A Modified Approach of Detecting Keylogger using Machine Learning Techniques”, Divyadev Pillai et al. propagates a machine learning based technique to detect all keyloggers in our PC. Thresholding is a popular conventional technique for image segmentation. The manuscript “Multi-Level Image Thresholding based on Social Spider Algorithm for Global Optimization”, Taymaz Rahkar Farshi et al. collaborates Social Spider Algorithm (SSA) for Global Optimization to achieve multi-level image thresholding. The manuscript “Mammogram Classification using AdaBoost with RBFSVM and Hybrid KNN-RBFSVM as Base Estimator by Adaptively Adjusting γ and C Value”, Udhav Bhosle et al. offers an effective breast mammogram classification technique. The manuscript “Expected Residual Lifetime based Ad Hoc On-demand Multipath Routing Protocol (ERL-AOMDV) in Mobile Ad Hoc Networks”, Anuradha Banerjee et al. details a novel optimal route selection protocol for ad hoc networks. Current healthcare sector is generating large amount of complex, voluminous data from varied sources. The manuscript “Big data for better Indian Healthcare”,

Tawseef Ayoub Shaikh et al. suggests a novel framework for efficiently integrating big data solutions in the healthcare sector. The manuscript “A Secured Routing Algorithm against Black hole Attack for Better Intelligent Transportation System in Vehicular Ad hoc Network”, Parul Tyagi et al. illustrates an algorithm to provide security against routing protocol attacks and improved network connectivity. Software fault detection and correction is a complex task owing to the complex nature of faults. The manuscript “Generalized Software Fault Detection and Correction Modeling Framework through Imperfect Debugging, Error Generation and Change Point”, Iqra Saraf et al. presents a Non-Homogeneous Poisson Process based unified scheme for a two stage software fault detection and correction framework. The twenty-first century has also witnessed the unveiling of certain ground breaking information technologies that have revolutionized our way of living. The next manuscript, “Information Technologies of twenty-first century and their Impact on the Society”, Mohammad Yamin recognizes the same. The next manuscript, “Various Image Enhancement & Matching Techniques used for Fingerprint Recognition System”, Munish Kumar et al. overviews various Image Enhancement Techniques (IETs) applied to Fingerprint Recognition Systems (FPR). It also proposes a mechanism to improve performance of these techniques. To enhance the spectral efficiency of any communication system, the manuscript, “Sensing Performance of Energy Detector in Cognitive Radio Networks”, Samit Kumar Ghosh et al. proposes a spectrum assignment technique based on energy detection. The manuscript, “A High Performance Multiband BAW Filter”, Paras Chawla et al. describes a multi band filter for 4G/LTE IEEE standard at mobile front end terminal. Quantum-dot cellular automata (QCA) is a new nano-innovation in digital systems. The manuscript, “An Optimal Design of Conservative Efficient Reversible Parity Logic Circuits using QCA”, Ali Newaz Bahar et al. unveils a new model of reversible odd-parity bit generator and checker to detect bit loss of information in telecommunication systems. The manuscript, “Regression based FPGA Power Estimation Tool (FPE_Tool) for embedded Multiplier Block”, Gaurav Verma et al. reports a power estimation model developed for embedded multiplier block for Spartan3 FPGAs. To tackle the increasing crime rates in the cities, the manuscript, “Analysis and Prediction of Crime Patterns using Big Data”, Ravi Kumar et al. introduces a Naïve Bayes classifier based solution for criminal identification in a crime scenario. The manuscript, “Acoustic Analysis and Perception of Emotions in Hindi Speech using Words and Sentences”, Shweta Bansal et al. reports a perceptual assessment of emotions expressed in Hindi speech and their acoustic prosodic correlates. Data stored on the digital platform is of high importance. The

manuscript, “Performance Analysis of AES, DES and Blowfish Cryptographic Algorithms on Small and Large Data Files”, Kuntal Patel evaluates the performance of three algorithms on small as well as large data files. Wireless networks are far widespread in the current world beyond the limits of our imagination. The manuscript, “A Security-based Asymmetric Cryptographic Algorithm to Improve IEEE802.11i Protocol”, Mohammad Hossein Shafiabadi unleashes a new asymmetric cryptographic algorithm to ensure the security of IEEE802.11i protocol. The manuscript, “VLSI Implementation of Residue Number System based Efficient Digital Signal Processor Architecture for Wireless Sensor Nodes”, Ananthalakshmi et al. focuses on the design and implementation of power efficient RNS based digital signal processor architecture. In the recent times, Big Data has gained rapid momentum. The manuscript, “A Study of Big Data and its Challenges”, Sheikh Idrees et al. addresses the bottlenecks in efficient analytics of this vast ocean of data. The next manuscript, “Development of Village Information Systems for Faridkot district using Remote Sensing and Geographic Information System”, Ramandeep Kaur et al. reports a village information system developed through Geographic Information System (GIS) technology for the Faridkot district of Punjab. Vehicular Communication has also emerged as a favorite domain in research due to issues like standardization, traffic management, road safety etc. The next manuscript, “TSP-HVC: A Novel Task Scheduling Policy for Heterogeneous Vehicular Cloud Environment”, Sanjaya Kumar Panda et al. evaluates the Storage as a Service (STaaS) issue in vehicular ad hoc networks. The manuscript, “Malicious Node Analysis in MANETs”, Shariq Aziz et al. evaluates the varied possible attacks on mobile networks. In the current economic scenario, workplace stress is almost inevitable. The manuscript, “A Study on Stress Management with respect to Level and Background of Education of employees in IT-ITeS Companies”, Rupali Arora assesses the stress levels amongst employees of ITeS-BPO companies and its inter relationship with education level of an individual. The last manuscript, “Dual-band Substrate Integrated Waveguide (SIW) Band Pass Filter for Scientific Radar Applications”, Aman Kumari et al. proposes a dual-band substrate integrated waveguide filter.

I am sure the contributions in this issue, which is an amalgamation of novel trends and technologies in domains like Virtual Machine Migration, Wireless Sensor Networks, Ontology, Crime Pattern Analysis, Cyber Attack

Detection, Big data, etc. will not only enrich our reader’s knowledgebase but will also motivate many of the potential researchers to take up these challenging application areas and contribute effectively for the overall prosperity of the mankind.

As a matter of policy, all the manuscripts received and considered for the Journal, are double blind peer reviewed by at-least two independent referees. Our panel of expert referees posses a sound academic background and have a rich publication record in various prestigious journals representing Universities, Research Laboratories and other Institutions of repute, globally. Finalizing the constitution of the panel of referees, for double blind peer review(s) of the considered manuscripts, was a painstaking process, but it helped us to ensure that only the best, interesting and novel of the considered manuscripts are showcased and that too after undergoing multiple cycles of review, as required.

I wish to express my sincere gratitude to the entire editorial board, members of the resident editorial team and our panel of experts in steering the considered manuscripts through multiple cycles of review and bringing out the best from the contributing authors. I thank my esteemed authors for having shown confidence in BJIT and considering it a platform to showcase and share their original research work. I would also wish to thank the authors whose papers could not have been published in this issue of the Journal, probably because of the minor shortcomings. However, I would like to encourage them to actively contribute for the forthcoming issues.

I will fail in my duty, if I do not thank the members of the team from the Springer, particularly Ms. Suvira Srivastav, Mr. Madan Ellappan, Mr. Abilash Nair and Ms. Nidhi Chandok from Springer for their constant support in realizing the issue and presenting it before you.

The undertaken Quality Assurance Process involved a series of well defined activities that, I hope, went a long way in ensuring the quality of the publication. Still, there is always a scope for improvement, and so, I request the contributors and readers to kindly mail me their criticism, suggestions and feedback at bjit@bvicam.ac.in and help in further enhancing the quality of forthcoming issues.

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