Editorial

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Received: 11 May 2020 / Accepted: 13 May 2020 / Published online: 20 May 2020
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In this grave situation of pandemic that has hit the entire globe; we all stand one for saving humanity. BJIT remains committed to delivering on its challenge of consistently showcasing and disseminating novel researches pertaining to computing applications and capable of altering the quality of human life. It is a matter of great privilege for me to unveil before you the thirtieth issue i.e. Volume 12 Number 02 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 12 Number 02 presents a compilation of thirty-nine papers, chosen out of over 400 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 Semantic Web, COVID-19, Wireless Communication, Crime Data, Cyber Forensic, Augmented Reality and Mobile Networks to name a few.

The current pandemic COVID-19 is not only claiming human lives, it has also shaken all fundamentals of the global economy. The first manuscript in this issue “Counting the Cost of COVID-19”, Mohammad Yamin assesses the economic, social, cultural and educational impact of COVID-19. Diversity is the key parameter in outlining the exploration capability of natural computing algorithms. The second manuscript “Diversity-based Self-Adaptive Clusters using PSO Clustering for Crime Data”, Seema Patil et al. propositions a novel algorithm on crime datasets of Karnataka and Bengaluru to determine similar and dissimilar crime characteristics. Search Engines have become an important disseminator of information on the click. The next manuscript “A Systematic Review on Page Ranking Algorithms”, Prem Sagar Sharma et al. critically evaluates the issues with various page ranking algorithms for popular search engines. Improvements in technology have transformed computers as ammunition capable of incurring huge losses if used for incorrect motives. The manuscript “REGEX: An Experimental Approach for Searching in Cyber Forensics”, Pratima Sharma et al. implements regular expression keyword search technique in Computer Forensics investigation to reduce the search space by filtering unknown files. Pervasive Computing has piqued the productivity of the mechanisms in which the users can perceive the information from their environment. The manuscript “An Augmented Reality based Tool for

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Contribution to OpenStreetMap”, Kamalpreet Kaur Grewal et al. intends to enable simpler user experiences for amateur users on OpenStreetMap. Current demand of continuous wireless connectivity has increased due to rise in the number of handheld devices. The manuscript “Design and Analysis of a Hybrid Mobility Scheme for Wireless Mesh Network to Handle Highly Mobile Mesh Clients”, Abhishek Majumder et al. designs a novel scheme for routing internet packages using routing table entries. Human age prediction is an important part of forensic investigation. The manuscript “Human Age Prediction using DNA Methylation and Regression Methods”, Priya Karir et al. presents a novel algorithm to age prediction using three different regression methods. The next manuscript “Optimal Trajectory Tracking Control of Unmanned Aerial Vehicle using ANFIS-IPSO System”, Boumediene Selma et al. advises a novel tracking hybrid controller for a quad rotor UAV that combines the robust adaptive neuro-fuzzy inference system (ANFIS) controller and Particle Swarm Optimization (PSO) algorithm. In the current scenario efficient image processing in the spatial domain will result in better appearance as well as improved execution speed. The manuscript “Design and Simulate Different Digital Image Enhancement Techniques for Biomedical Applications using VIVADO System Generator”, Mahavir Singh et al. evaluates various techniques for digital image enhancement in the biomedical domain. Early identification of tumor slices can help in saving lives. The manuscript “Deriving Tumour Detection Models using Convolutional Neural Networks from MRI of Human Brain Scans”, Kalaiselvi T. presents six convolutional neural network based models to find the best model for tumor identification and classification. The manuscript “Complex Environment Perception and Positioning Based Visual Information Retrieval”, Asif Khan et al. suggests a new scheme for robot visual perception with improved intellectual visual features. The manuscript “Diagnosis of Diabetes Type-II using Hybrid Machine Learning based Ensemble Model”, Abid Sarwar et al. defines an expert system based ensemble model for diagnosing type-II diabetes. In today’s scenario, e-learning has become an important mode of learning and dissemination of information. The manuscript “An Experimental Comparative study on Slide change detection in Lecture Videos”, Purushotam E. et al. compares the various available techniques for key frame identification. In Nigeria, services like What’s App, Facebook Messenger and Skype are Over-The-Top-Communication Services. The manuscript “Over-The-Top Services (OTT) on Telecommunication Operators in Nigeria: Exploring Consumers’ Behaviour”, Emoghene Ogidiaka et al. captures the habits and preferences of consumers in using OTT services. The manuscript “Design and Fabrication of Hexagonal Antenna for Wireless

Applications”, Shashi B. Rana et al. offers multiband antenna application in wireless communication. The manuscript “Rate Adaptation Performance and Quality Analysis of Adaptive HTTP Streaming Methods”, Selvaraj Kesavan et al. details a comprehensive study of different emerging adaptive streaming models. User generated content on social media allows for extracting user preferences through their emotions. The manuscript “Analyzing Emotion based Movie Recommender System using Fuzzy Emotion Features”, Mala Saraswat et al. evaluates available emotion recommender systems. Intelligent diagnostic approaches are being vehemently used for advanced diagnosis and detection of several diseases. The manuscript “An Improved Method Using Supervised Learning Technique for Diabetic Retinopathy Detection”, Sabyasachi Chakraborty et al. details a supervised learning based approach using artificial neural network (ANN) to achieve more accurate diagnoses outcomes for the case of diabetic retinopathy (DR). Efficient data mining from text is an important component of any data mining task. The manuscript “BFM: A Forward Backward String Matching Algorithm with Improved Shifting for Information Retrieval”, Md. Abaidullah Al-Faruk et al. proposes an efficient and faster algorithm for string matching. The manuscript “Virtual Machine Allocation to the Task Using an Optimization Method in Cloud Computing Environment”, Pradeep Singh Rawat et al. suggests and evaluates performance of proposed scheme based on BB-BC optimization method. Artificial Intelligence is providing new insights in every important sphere of life. The manuscript, “Highly Sensitive Lab-On-Chip with Deep Learning AI for Detection of Bacteria in Water”, Afzal Nehal Sheikh et al. introduces a novel convolutional neural network based mechanism to improve water quality. In present times to enable better healthcare services, Computer-assisted Medical Diagnosing (CMD) systems are gaining popularity. The manuscript, “Factors Influencing the Adoption of Computerized Medical Diagnosing System for Tuberculosis”, Rani Ommann Panicker et al. examine the factors influencing the adoption of Computer-assisted Medical Diagnosing (CMD) system for TB by clinicians and lab technicians in the context of developing countries health care. The next manuscript, “An Energy-Efficient Data Gathering Scheme in Underwater Wireless Sensor Networks using a Mobile Sink”, Fatemeh Banaeizadeh, proposes a novel protocol to overcome the limitations of underwater sensor networks. The manuscript, “FPR: Fuzzy Controlled Probabilistic Rebroadcast in Mobile Ad Hoc Network”, Anuradha Banerjee et al. computes rebroadcast probability of a mobile node based on various factors to reveal that the novel protocol performs better than the conventional ones. Earlier prediction of faulty modules in software development helps to reduce the overall cost of

software development. The manuscript, “Cross Project Defect Prediction using Hybrid Search Based Algorithms”, Wasiur Rhmann et al. proposes a novel algorithm for cross project defect prediction. The next manuscript, “RTT based Wormhole Detection for Wireless Mesh Networks”, Amit Kumar Roy et al. extends the AODV routing protocol to prevent it against wormhole attack in Wireless Mesh Network. The manuscript, “An ontology-based Information Extraction and Summarization of Multiple News Articles”, Swathilakshmi V. proposes an IE-supported summarization system for extraction and summarization of information from news articles. The manuscript, “Design and Performance Analysis of tri-band Wang shaped MIMO Antenna”, K.Vasu Babu et al. presents the design of a compact Wang shape MIMO antenna with triband operation for LTE 2500, 2.4/5.2 GHz WLAN, 2.5 GHz WiMAX, 8 GHz ITU application. Water is an essential element for life, however, floods can lead to huge damage of life and property. The manuscript, “Wireless Sensor Network (WSN) Based Early Flood Warning System”, Ali Akbar Siddique et al. details a Wireless Sensor Network (WSN) based flood warning system to timely warn the nearby villages about the impending flood situation. The manuscript, “DNA QR Coding for Data Security using DNA Sequence”, S. Pratap Singh et al. offers a DNA-QR code based mechanism for secure message transfer in the cyber world. The manuscript, “A Load based Transmission Control Protocol for Wireless Sensor Networks”, Neelam Sharma et al. details a load based transmission control protocol, where by varying the load, transfer of packets can be controlled, and dissipation of energy can be reduced to improve, stability period, network lifetime and throughput. The manuscript, “SALT cryptography for privacy in Mobile Crowdsourcing”, Shailja Joshi et al. applies SALT cryptography to enable secure environment for the users or workers of crowd sourcing. Robustness and security of watermarking schemes has been a challenge for researchers in the past. The manuscript, “Robust and Blind Watermarking using Arnold 4D Cat Map in Discrete Wavelet”, Chittaranjan Pradhan et al. details a novel mechanism to counter these problems using Arnold 4D cat map in discrete wavelet domain. The next manuscript, “Spectrum Management in Cognitive Radio Ad hoc Network using Q-Learning”, Shiraz Khurana et al. puts forward a reinforcement learning technique to handle spectrum management. The manuscript, “Revised Architecture for Automatic Modulation Recognition”, Sunil S. Mathad et al. deals with modulation recognition through feature based approach. The manuscript, “Phishing E-mail is an Increasing Menace: A Review”, Ajay Uttamrao Surwade et al. identifies the research gap in the available anti-phishing techniques and proposes an architecture for classifying the phishing e-mails. The increasing rate of network

connectivity is driving us towards a new era of virtual reality. The manuscript, “important components of 5G”, Ketanpreet Kaur et al. details the important components of a 5G network. The manuscript, “Dynamic Task Scheduling with Advance Reservation of Resources to Minimize.

Turnaround Time for Computational Grid”, Sophiya Sheikh et al. introduces a Dynamic Task Scheduling with Advanced Reservation (DTSAR) of resources to optimize turnaround time (TAT). The last manuscript, “Hybrid OCS/MDRZ Wavelength Division Multiplexing Millimeter Wave Radio Over Free Space System”, Simbarashe Magidi et al. presents a novel architecture for effective upstream data transmission.

I am sure the contributions in this issue, which is an amalgamation of novel trends and technologies to improve our life and sustainability in the present environment, 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, Ms. Deepika Sureshkumar 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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