Guest Editorial Preface

Special Issue on Global Information Technology:

Wheel to be Successful in This Fast-Changing Technology Oriented Market

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Globalization is the perception of the world as one big market place. The notion of the boundaries world is expected to produce dramatic changes in key markets, major competitors, and Information Technology products. As a result, organizations are encouraged to rise above the national boundaries and change their orientation to global corporations. Further, the increased spending in Global Information Technology, which is anticipated to grow several folds within the next five years, is adding fuel to this shift. Events such as economic integration of Europe, merging of the companies across national borders, stock exchanges, outsourcing of Information Technology services to the third world countries, and the use of World Wide Web are forcing companies to re-evaluate their Global Information Technology management and to develop Global Information Strategy so as to get the most out of their business in the world economy. As the scope of Global Information Technology spans the global market, it is going to present mangers with a host of thorny issues. This paper suggests the key issues to be used as a guide for the Global Information Technology Managers to be successful in this fast-changing technology oriented market, and also recommends Global Managers Evaluation Wheel which can be used for the appraisal of managers, subordinates, peer managers, on-site supervisors and clients working in the global Information Technology environment. Information is an important resource which can be used in a novel way to enhance the competitive position of business, information technology and information systems are becoming strategically important for business. Information systems are moving out of the backroom, low-level support position, to emerge as the nerve centers of organizations and competitive weapons at the front end of businesses. The focus of attention moved from being tactical to becoming strategic, and changed the nature of systems and the system portfolio. It is evident that activity in the information systems field will continue in many directions at once, driven by fashion and market forces, by organizational need and technical opportunity. However, it appears that the application of information technology is at the threshold of a new era, opening up new opportunities by using the technology strategically for the benefit of organizations and businesses. It is still to be seen how the technology and the developers will deliver against these new expectations.

The aim of the special issue is providing a quality publication with innovative ideas and implementation methodology to upcoming buddy researchers and users in the modern-day era.

The unique characteristics of the special issue would be:

1. The proposed work of eminent researchers in the aspect of global information system like Industrial systems Evolutionary computation, Autonomic and autonomous systems, Bio-technologies, Knowledge data systems, Mobile and distance education, Intelligent techniques, logics, and systems, Knowledge processing, Information technologies, Internet and web technologies, Digital information processing, Cognitive science and knowledge agent-based systems, Mobility and multimedia systems, Systems performance, Networking and telecommunications, Software development and deployment, Knowledge virtualization, Systems and networks on the chip, Context-aware systems, Networking technologies, Security in network, systems, and applications, Knowledge for global defense, Information Systems [IS], IPv6 Today - Technology and deployment, Modeling, Optimization, Complexity, Control theory and systems, Fault-tolerance and reliability, Data engineering, Enterprise computing and evaluation, Electrical and electronics engineering, Economic decisions and information systems, Intelligent agent technologies, Intelligent and fuzzy information processing, Intelligent computing and knowledge management, Intelligent systems and robotics, Fault-tolerance and reliability, Fuzzy logic & systems and Genetic algorithms which are current topics of research will be part of proposed publication;
2. The proposed publication will be very well targeted towards providing quality, best and latest research by eminent researchers considering the fact that how such researches affect and make significant influences on common people in their everyday life;
3. The area which will be part of published work will be having a significant influence for the business users, common people and has a great impact on the society.

This special issue is a collection of seven papers which are written by eminent professors, researchers and Industry people from different countries. The papers were initially peer reviewed by the Editorial board members, reviewers and industry people who themselves span over many countries.

In the paper *Predict Coordinated Development Degree of County Eco-Environment System using GA-SVM: A Case Study of Guanzhong Urban Agglomeration,* A support vector machine (SVM) model was constructed to classify and predict coordinated development degree of county eco-environment system. In order to improve the discrimination precision of SVM in classification, a Genetic Algorithm (GA) was used to optimize SVM parameters in the solution space. The method was compared with artificial neural network, decision tree, logistic regression and naive Bayesian classifier regarding coordinated development degree of county eco-environment system prediction for Guanzhong urban agglomeration. It found that the method has the best accuracy rate, hit rate, covering rate and lift coefficient. The simulation indicated that the county slowing-down of economic development would not have positive effect on the environment sustainability. GA-SVM provides an effective measurement for region eco-environment system classification and prediction. The results demonstrated that, from a methodological perspective, GA-SVM had the characteristics of simple classification surface, high generalization performance and high fitting accuracy, etc. From a perspective of conditions and structure of data, under conditions that has rich samples with plenty of support vectors, abundant indices, and larger probability of county eco-environment system coordinated development degree in the samples, GA-SVM had a high precision for predicting. Although GA-SVM only realizes the function simulation as a "black-box" approach, a new method to classify and predict regional eco-environment system coordinated development degree is provided for future regional coordinated development research in China.

In the paper *AGC of multi area hydro-thermal power systems with GRC non-linearity and classical controller,* the optimal gain value of Proportional-Integral controller (PI) is obtained using different performance indices in Automatic Generation Control of Interconnected three area Hydro-Thermal power system. The thermal and hydro areas are incorporated with reheat turbine and mechanical governor; respectively. A suitable technique for tuning the PI gain, when 1% of step load wss given to the Thermal area (Area 1) is proposed. The performance of several controllers, such as Integral (I), Proportional-Integral (PI), Integral-Derivative (ID) were evaluated and were compared to the

cases of with and without Generation Rate Constraint (GRC). The classical controller gain values optimizations were performed using the Integral Time Square Error (ITSE), Integral Square Error (ISE) and Integral Time Absolute Error (ITAE) performance indices. The minimum optimal value of controller gain normally offers better dynamic response. In this work, performance of the I, PI and ID classical controllers are evaluated in three area hydro-thermal interconnected power system considering GRC nn-linearity. The optimal gain values of classical controllers are obtained using Integral Time Square Error (ITSE), Integral Square Error (ISE), and Integral Time Absolute Error (ITAE) performance indices. The ITAE performance indices provided minimum gain values and good dynamic response for all classical controllers compared to ISE and ITSE indices based controller response. The simulation results were evaluated based on ITAE gain value. Finally, simulation result depicted that the PI controller provided good dynamic response and minimum overshoot compared to the I and ID classical controllers with and without considering GRC non-linearity effect in the hydro-thermal investigated power system.

In the paper *Optimized Routing for Efficient Data Dissemination in MANET to Meet the Fast-Changing Technology,* the author presents Optimized routing for efficient data dissemination in MANET to meet the fast-growing technology of today's world. A novel metric for such optimized routing in MANET is proposed. Main parameters considered to evaluate this metric are the energy consumed during the communication, link stability, Packet Delivery Ratio (PDR) and traffic. The concept is based on a scenario in which a mobile node (Source) sends data packets to another mobile node (Destination) through its dynamically connected neighboring nodes. The path which consumes lowest energy and also shows highest link stability is selected for consideration. In case of the paths which consumes same amount of energy, the highest stable path is chosen. In this manner the most optimized path is selected. The routing approach shows more efficiency than earlier in dissemination of data and information over the Mobile Ad-Hoc Networks. The results demonstrate Routing in Mobile Ad hoc Networks (MANETs) has always been a challenging task due to continuous topological changes. In this paper, authors presented a new metric for route optimization in MANETs. Proper dissemination of Data/Information and management of network is main concern of this age specifically when we are considering a Mobile Ad-Hoc network where already lot of scarcities are there from limited resources to the interference and battery power to the computational power. The proposed metric has the dynamic nature to adapt with the dynamic topology of MANET. Moreover, it takes link stability in account and hence has the least chances of link failure also it does not increase the load on the network as it does not generate the extra snooping packets. On the basis of the validation and results it could be concluded that CPEC is most suitable for the MANETs to achieve optimized routing.

In the paper, *Multi-Label Naïve Bayes Classifier for Identification of Top Destination and Issues to Accost by Tourism Sector,* authors have proposed unified framework and used tweets shared by tourists for the identification of major issues faced by tourism sectors. Identified issues are categorized into four main categories. The results demonstrated that Proposed unified framework for the tourism sector will help overall and consolidated view of the data and helps stake holders of tourism sector to achieve customer retention and 360 degree customer satisfaction. It will also give overall single view of the sector to all the domestic or foreign tourists. Tweets posted by tourists are analyzed to gain insights into the various issues raised by tourists. The experimental result specifies that social issues are considered first by tourists before planning their holiday and London is the top destination preferred by users. The tourism sector can use this result for self-assessment and addressing social issues where there are any gaps observed.

In the paper, *Community Based Feature Selection Method for Detection of Android Malware,* a technique for permission based detection of Android malware through community based feature selection methods has been proposed. Proposed methodology primarily uses Cosine similarity and Levenshtein Distance as the measure of similarity between permission vectors and uses community detection mechanisms of Infomap, Louvain Algorithm and VOS clustering algorithm which is very

rarely used in the context of feature selection of permission based Android malware detection. Better classification performances have been yielded over existing feature rankers like IG, Gain Ratio, and Pearson's Correlation coefficient, OneR, Chi Square and Relief for most of the machine learning classifiers. Therefore, the main contribution of this work is to exhibit that it is possible to implement community based feature selection for filtering out malware in Android. From the experimental results, it can be concluded the proposed approach have used smaller storage space, reduced computation time, gained higher predictive performance and is compatible with the well-known feature selection algorithms. In this context, a subset of a standard dataset used by (Wang et al., 2014) has been used. Even if a larger data set were applied, the feature selection techniques developed in this study can be used for feature selection to make the classification more efficient. In permission based static malware detection approach, the quality of detection primarily depends on availability of representative benign and malwares (Arp et al., 2014). Furthermore, computing overhead of such methodologies is influenced by the number of features to be extracted from manifest files. Obfuscations strategies may also affect the performance of static detection model models. Machine learning based detection methods may also generate high false alarm rates (Zheng, Lee & Lui, 2013). Therefore, considering only the permissions set would have difficulties to improve classification results, in future rough set theory based Meta heuristic algorithms can be projected to design more efficient feature selection methods in permission based Android malware detection.

In the paper, *Mobile Sink as Checkpoints for Fault Detection towards Fault Tolerance in Wireless Sensor Networks* presents a network is of mobile sensors and a sink. A mobile sink is selected as check-point to have the recoverability of the network. A Fuzzy Rule based system (FRS) is used to construct and select efficient static sensor nodes having adequate resources as Check Point Storage Nodes (CPSNs). The objective of FRS is to increase the probability of recovery of check-pointed data subsequent to a failure, thereby allowing a distributed application to complete its execution successfully. Simulations show FRS's better recovery probabilities in comparison to a random check-pointing arrangement. This paper dwells of Fault Detection and Fault Tolerance with respect to the data acquired by the Base Station in a Wireless Sensor Environment having static sensors and mobile sinks. The paper assumes that the mobile sinks are prone to loss due to their geographical environment, electronic-mechanical damage to its circuitry or simply loss of power. Concept of Check Point Storage Nodes (CPSNs) has been introduced, which are identified from the existing set of already deployed static sensor nodes. This process has been optimized using Fuzzy rule sets. The CPSNs provide the TOCs of sensor data held with Mobile Sinks to the Bases Station for regular checks so as to ensure data fidelity.

In the paper, *SENSEX Price Fluctuation Forecasting Comparison Between Global Indices And Companies Making It,* presents the world markets are highly correlated and a shock in one market triggers panic in all the global markets. But all these markets operate in different geographies which are in different parts of the worlds and hence it becomes very difficult for an investor to keep track on all of them simultaneously. Also, the sheer number of share markets globally makes it further difficult to keep a track. One of the other major issues with the markets is that their indices are themselves composed of a different number of companies. The performance of these companies impacts the performance SENSEX. But, a careful study of these companies shows that most of these operate globally or have business where an offshore event triggers price change. Thus, again making it difficult for investors to keep a check on their performance. In our study, we have been able to show that the forecasting performance of the neural networks has been better when the closing price of the companies was used as compared to the forecasts generated by the closing price of the global indices. Though both have their own importance and hence both of them can be used to show where the market can be leading the next day. In this study, we have found that the companies which make up the SENSEX have far more impact on its next day closing price as compared to the global indices.

The artificial neural network has given comparatively better results when the input was the closing price of the companies as against the closing price of the global indices. But, this doesn't undermine the importance of global impact on the SENSEX. It has been seen in a number of historical events that any panic in one of the global markets can spread across the globe extremely quickly and thus, cause an unexpected change which was not expected earlier owing to price of companies. Thus, the output of both the scenarios is crucial for making any decision in the markets.

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