Guest Editorial Preface

Special Issue on Internet of Things, Next Generation Networks, Data Mining and Cloud Computing 2016, Part 1

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The current era witnesses the enormous usage of automation and intelligent machines. The soft computing emerges with numerous modeling techniques. The problems are resolved using different machines learning, soft computing and Internet of things domains. In order to realizes the dream of IoT, smart cities and soft computing, across the globe lot of research works are going on and in parallel the industry are giving the products to materialize these goal. The main idea of this Special issue is to cover both the theory and applications issues from researcher, academicians, scientists and engineers covering a wide range of areas to present their latest research findings in Internet of Things, Smart cities, soft computation techniques and related areas to identify present problem's solution and future challenges in the combination of research areas.

There is a rich literature on the topic and numerous advancements have appeared in the past decade with the focus on improved security against various privacy attacks in the cloud computing environment. Demand of security assurance against emerging privacy attacks makes the task of maintaining output's utility to public become ever more challenging. At present, the underlying mobility of services remains limited: end-user services other than voice are hardly portable across networks. This functionality is central to exploiting thing-to-thing communications. In this respect, next-generation networks hope to offer mobility much more broadly. "Generalized mobility" is a term closely associated with NGN. It denotes the possibility of seamless and ubiquitous access to services, irrespective of location and the technology used.

NGN is a broad concept, and there are several definitions of NGN at this time. ITU formally defines NGN as a "packet-based network able to provide telecommunication services and make use of multiple broadband transport technologies in which service-related functions are independent from underlying transport-related technologies".8 In general, most analysts describe NGN as a multi-service network based on Internet Protocol (IP) technology. NGN will address both network and service elements, providing new opportunities for service providers, operators, content developers, manufacturers and users. The use of data search capabilities and statistical algorithms to search existing databases for patterns and correlations between them that give new meaning to their data content is data mining. Data Mining is recently a new trend used to identify large data sets due to complexity, cardinality and continuality.

In this regards first paper talks about tele-medicine system. In emergency cases the delay in receiving the necessary pre-hospital care results in a large no. of deaths every year. Providing appropriate preliminary care, along with proper time management & pre-hospital management can contribute to a better survival rate. Here we propose a portable system which transmits the vital/ important parameters to the health care center along with the images of the patient, also availing the PHR to the doctor, thus bridging the gap between the hospital and the ambulance and "virtually" bringing the doctor to the ambulance. this system will prove very effective in cases of serious injuries such as burns, fatal wounds, head injuries and other emergencies such as pregnancy etc. ensuring better health care services.

Second paper is on Mobile Sink with Mobile Agents - Effective Mobility Scheme for Wireless Sensor Network. Mobility allows the applications of Wireless Sensor Network to be compatible with IoT (Internet of Things) applications. As mobility enhances capability of the network it also affects the performance of the network at each layer. In recent years the various methodologies are proposed to handle mobility. Most of them use mobility for efficient data collection in WSNs. The purpose of this paper is to study effects of mobility on various performance parameters of the network and to explore the effective techniques to handle mobility in network. This paper proposes Mobile Sink with Mobile Agent mobility model for WSN which will increase the lifetime of the network using sink and agent node mobility.

Third Paper talks about Stock Price Trend Prediction and Recommendation using Cognitive Process. paper emphasizes on stock price trend prediction based on the online textual news. Cognitive process uses existing knowledge and generates new knowledge. The existing knowledge such as online textual news and historical stock prices are used. Extraction of Contextual features (CF) from online news sites are done and recommendations based on the interpretations are generated and sent to traders. A Naïve bays classification algorithm is used to efficiently classify the news sentiment into positive or negative. A News Sentiment Index (NSI) is calculated for news and effect of the news on particular stock is calculated to predict the trend. Along with news sentiment index, technical quality of the same stock is calculated by various statistical technical indicators which are called as Stock Technical Index (STI). The weighted index of NSI and STI is taken into consideration for predicting the trend of stock and recommending the stock to the traders. The results are compared with traditional systems and it shows significant improvement.

Fourth Paper talk about Twitter Intention Classification Using Bayes Approach for Cricket Test Match Played Between India and South Africa 2015. There is enormous amount of data in the form of tweets. It builds data processing system that creates informative data about the cricket test matches. Using Twitter data, we find the sentiments or polarity of fans posting tweets related to game. Polarity is given as positive, negative and neutral. Analysis of the feelings or emotions of people posting tweets. Emotions are given as anger, disgust, fear, joy, sadness, surprise and unknown. Machine learning algorithm (Bayes) using R technology shows the accuracy when trained with emotion data.

Fifth paper is on Privacy Preserving Association Rule Data Mining. Large numbers of data mining tools are available to get the useful information. These tools can be utilized to break the privacy and security of useful sensitive information present in the database. This sensitive information may be personal information, patterns, facts etc. This sensitive information if mined will result in loss of business logics of database owners. Hence there is a need to hide sensitive knowledge. The hiding process must ensure that the knowledge should be mined without disclosing sensitive association rules to the users with minimum impact on non-sensitive association rules. Also, intentional as well as unintentional attackers who are trying to retrieve sensitive association rules should not be successful once they are hidden. In this paper, the authors propose a methodology to hide sensitive association rules.

In Sixth paper review is done of author identification methods. Applications of Author identification include plagiarism detection, detecting anonymous author, in forensics etc. In this paper we outline features used for Author identification that are vocabulary, syntactic and others.

Researchers worked on various methods for Author identification we also outline this paper on types of Author Identification methods that include 1. Profile-based Approaches which includes Probabilistic Models, Compression Models, Common n-Grams (CNG) approach, 2. Instance-based Approaches which includes Vector Space Models, Similarity-based Models, Meta-learning Models and 3. Hybrid Approaches. At the end we conclude this paper with observations and future scope.

Seventh Paper talks about Tradeoffs between Forensic and Anti-forensics. Increased use of altered digital multimedia contents and the need of content verification have provoked the researchers to develop more sophisticated forensic techniques. With advanced forensic techniques, Anti forensic community is also getting triggered for the development of new techniques that will defeat existing forensic techniques. When Anti-forensic is applied, a forger must balance between fingerprints concealing efforts and the distortion introduced to the content. An intelligent forger needs to manage the trade-off between the un-detectability of forged image and distortion of image quality. Additionally, the forger may compress the forgery for storage and transmission, which introduces new tradeoff between data rate and distortion. In this paper, we first reviewed various forensic and anti-forensic techniques. Then we analyze various tradeoffs introduced during anti-forensics and review some state of the art work carried out to improve these tradeoffs.

As guest editors, we hope that spectrum of research works covered under this special issue will be of value for multitude of readers/researchers working in the domain Internet of Things, Next Generation Networks, Data Mining and Cloud Computing. At the same time, we are also grateful to the authors for making their valued research contributions to this issue and their patience during crucial revision stages. The technical standards and quality of published content is based on the strength and expertise of the reviewer board members who have been grossly involved in providing high quality reviews for the submitted papers. Our special thanks go to the Editor-in-Chief of the International Journal of Rough Sets and Data Analysis (IJRSDA), Dr. Nilanjan Dey for all his help, support, efficiency and competence rendered to this special issue.

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