

## GUEST EDITORIAL PREFACE

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The data in every field of business is increasing day by day. This is evident from the fact that every company is demanding space for keeping their Tera-bytes of data. More importantly, there is a strong demand to compute available data to retrieve information from it. This results in demand of new and improved ways to reveal the nuggets of information from Tera-bytes of data available. The revealing of information is possible using wide variety of available data extraction tools and techniques which are increasing in efficiency and methodology. The revealing of information also brings with it the issues related to security as how and to whom such information should be shared. This day's need for information security measures has grown to its peak. The reason behind this is personalization and need to hide any unwanted revealing of either personal or business information to outside world.

The aim of the issue was to encourage the buddy researchers to float their ideas and theories that would bring a revolutionary development in the field

of data computation, information processing and security. The aim would be to create a forum where the researcher would share their new and improved theories and prove them to develop an efficient data computation and information secured processing environment in business process.

The scope of the issue was not only to cover the researchers who are pursuing their PhD's in the area as is common in most issues but would like to have healthy contribution from the people of industries. The issue would create a platform for both academia and industry people to share their thoughts and ideas on such a theme which is so diversified and is of utmost importance for both academia and industry people. The common sharing of thoughts would result in producing a quality output which is need of the era and is rarely evident in most of the special issues.

The broad topic or Areas of interest which can be part of the said proposed issue can be:

- Big Data and Big data Analytics
- Tools and techniques of Big Data and Big data Analytics
- Big data Modeling and effective frameworks
- Requirement phase data computation and its security issues
- Data Semantic computations and its security issues
- Business analytics using Data warehousing and data mining
- Effective maintenance of databases, its integrity and issues related to ETL process
- Data Tuning, its Migration, etc.
- Risk analysis, modeling and management of databases
- Trustworthy computing, management, evaluation
- Theoretical foundation of data and information integrity
- Information integrity structure and design
- Legal, procedural, regulatory, ethical aspects
- Interactions/integration of information privacy/security/integrity
- Data models
- Database design and architecture
- Intelligent system design
- Data integration and exchange

The scope is not only limited to these topics but would be large which will enable immense potential in the market especially for those researchers who are working on technology mix or venture.

The need of any research in any field arises when the development in the said area is overwhelming and of great encouragement. This is true for the discussed and said themes. It is evident

from the latest development in the Data Engineering field as most of the current work is done to extract nuggets of the information from the data and provide efficient information retrieval which is free and secure in terms of security for the safe usage in the industries or for personal usage.

The current development in this field is evident from the new and secure data processing methods which are merging every day. The data analytic tools like data mining, OLAP tools are helping the business users to gain profit and increase their ROI. The emergence of high transaction like ATM transaction, weather forecasting, space shuttle launching creates huge bulk of data which needs to be analyzed and processed in safe and secure manner. The emergence of Big data analytics has helped and created an revolution in the said field. The data related to social media and network analysis to secure the users data has got importance in the current researchers who are working day and night to find efficient and error free system and mechanism.

The uniqueness of the issue would be that it is would try to narrow the gap which is existing in current journals and there issues and that is related to finding utilities of various data computational technologies under one umbrella and also relating to the same with security measures. It is evident that lot of research is going on use of interdisciplinary technologies for benefit of the industry as common goal and researchers in such field are finding difficult to put their thoughts and ideas at one place. This issue would narrow such big gap and

would try to diversify the importance of technological venture of various products and development which is till date separate.

The need of the hour is to develop a platform where researchers of such interdisciplinary technologies can show and put ideas which will enable the strong ideas to be floated among engineers, scientist and business executives. The very cause as discussed above would attract all the famous researchers to put their idea on such diversified covered issue theme.

The target audience of this issue will be composed of professionals and researchers working in the field of data computation, data analytics, business intelligence, big data analytics and information security. Moreover, the issue will provide insights and support executives concerned with the management of expertise, knowledge, information and organizational development in said field and environments. The target audience will be:

1. The researchers who will be able to know the latest application development in the area.
2. The business users will get to know how inclusion of new data computation techniques and tools will help them in information processing and security.
3. The common people will get the secure edge for their data which is revealed in the computation of data using various technologies.

Intended Audiences:

1. Business users.
2. Researchers
3. Consultants
4. Data analysts and data miners
5. Database administrators
6. Applied statisticians
7. Operation researchers
8. Common peoples
9. Graduates and Post graduate students intended to work in area of data computation, information processing and information security.

In early part of the year 2014 with the call for papers, I urged and sought for contribution to this special issue from researchers, IT savvy's and young Engineers and industrialist, across the globe with an aim to extract and accumulate the whole modern day research in the field of Data Computation, Information Processing, and Security. In the initial stages, I got mails from many researchers across the globe to enquire about the procedure and other cordial formalities. At a later stage, I started to receive the manuscript of varied prospects showing the importance of Data Computation, Information Processing, and Security in various field. The papers were a mix of conceptual and advance work in the said field. The authors whose paper got selected were asked to include the future research direction to enable the young engineers and researchers to work in the domain.

The special issue is a collection of the four papers which are written by eminent professors, researchers. The chapters were peer reviewed by the reviewers who themselves span over

many countries. The papers are farmed in such a manner that all the papers are having the basic introductory topics and also the advances with all the future research directions which will enable the budding researchers and engineer to pursue their work in Data Computation, Information Processing, and Security in various fields.

In paper 1 by T. K. Das, D. P. Acharya and M. R. Patra authors discussed as how Rough set was conceptualized to deal with indiscernibility or imperfect knowledge about elements in numerous real life scenarios. But it was noticed later that an information system may establish relation with more than one universe. So, rough set on one universal set was further extended to rough set on two universal sets. This paper presents eleven possible types of classifications on the whole and it is proved that out of those eleven types only five types which were hypothesized by Busse (1988) are elementary and the rest six types can be reduced to the elementary five types either directly or transitively. This paper also analyzes to predict the all possible combinations of types of elements for a classification of 2 and 3 numbers of elements. It is established that, the number of classification with 2 elements is 3 whereas with 3 elements is 8 instead of 64.

In paper 2, Shipra Jain and Vishal Bhatnagar proposed an A Novel Ammonic Conversion Algorithm for Securing Data in DNA using Parabolic Encryption. The authors discussed that in today's era, the traditional cryptographic methods are not sufficient to provide security to

the data. Everyone wants to secure their data whether the data is bank transaction, email transaction, personal data or the data related to work. To provide security to the data, DNA cryptography emerges as a new field. DNA cryptography is a new branch of cryptography. It provides security to the data by converting the data in the form of DNA sequence. A lot of research has been done in the area of this cryptography. It consists of various stages like converting data in the form of DNA, reverse conversion, various methods of encryption etc. Various methods of encryption are present till now in the DNA cryptography. But the problem with them is that they all have more emphasis on biological encryption methods. There is a need of methods which make use of simple biological methods and complex binary or other number system encryption. In this paper, the authors are proposing a new algorithm for providing security to the data at two levels. The authors propose a parabolic transposition in a circular arrangement of data. In the proposed algorithm, data is arranged in a circular way. The number of rows and columns acts as a key for binary encryption. For encrypting the DNA sequence, the authors convert the DNA sequence into amino acid. This amino acid sequence will acts as a cipher text and send to the receiver through the open environment. The proposed algorithm is a type of block cipher. It is a transposition cipher. It changes the position of data for binary encryption.

In paper 3, Manish Kumar, Santanu Das and Sneha Govil Analyzed the stock

volatility clustering using ANN. The authors argued that According to model building theories, stock index forecasting models fall into two categories. General Autoregressive Conditional Heteroskedasticity (GARCH) and Stochastic Volatility model (SV) lies in the first category on statistical theories and the second category are models based on artificial intelligence, such as artificial neural network (ANN), the support vector machine (SVM) and particle swarm optimization (PSO). In previous literature many of the statistical models when compared with artificial neural network models were outperformed by these models. This paper analyses stock volatility using ANN models as Multi-layer perceptron with back propagation model and Radial Basis function.

In paper 4, Shailendra Kumar Sonkar, Vishal Bhatnagar and Rama Krishna Challa showed the Need of Intelligent Search in Dynamic Social Network. The authors argued that the user of dynamic social network does not require irrelevant and vast amount of information during a search. A need of an intelligent search is required to get the reduced, filtered and relevant information that is achieved using an intelligent information retrieval and web mining. In this paper, identification and description

of facts related to needs of an intelligent search in dynamic social network has been done by the authors after the deep and through study conducted on several journal and conference papers that are scattered on different electronic databases globally. The usage of intelligent agent for effective information retrieval from the social network site is a very emerging area will help the users to find the relevant and concerned information quickly and efficiently. The findings of the authors will help researchers and scholars who are already working in this area to get the relevant information in the direction of future research.

This special issue book will encourage the young researchers to work in the field of Data Computation, Information Processing, and Security. Engineers who are witnessing the ever ending competition in each and every field will get to know that by vast development in this field and will be motivated towards incorporating the changes in their field with the knowledge gained from the reading of the latest development in the field of Data Computation, Information Processing, and Security.

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