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## Editorial

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**Biographical notes:** Mian Ahmad Jan is an Assistant Professor at the Department of Computer Science, Abdul Wali Khan University Mardan, Pakistan. He obtained his PhD in Computer Systems from the University of Technology Sydney (UTS) Australia in 2016. He had been the recipient of various prestigious scholarships during his PhD studies. He was a recipient of International Research Scholarship (IRS) at the University of Technology Sydney Australia and Commonwealth Scientific Industrial Research Organization (CSIRO) scholarships. He has been awarded as the best researcher in 2014 at the University of Technology Sydney Australia. His research interests include energy-efficient and secured communication in wireless sensor networks and internet of things security. His research has been published in prestigious IEEE Transactions and Elsevier journals. He has been the Guest Editor of special issues in various prestigious journals such as *Springer Mobile Networks and Applications (MONET)*.

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Muhammad Alam obtained his PhD in Computer Science from the University of Aveiro, Portugal in 2013–2014. He has participated in several European Union FP7 projects such as Hurricane, C2POWER, ICSI, PEACE and Portuguese government funded projects such SmartVision. He has been working as a Senior Researcher at the Instituto de Telecomunicações and participating in European Union and Portuguese government funded projects. Currently, he is an Assistant Professor from the Xi'an Jiaotong-Liverpool University (XJTLU), Suzhou, China. His research interests include IoT, real-time wireless communication, 5G, vehicular networks, context-aware systems and radio resource management in next generation wireless networks. He has authored/edited three books and over 100 publications in refereed journals and conferences as well as book chapters. He served as general co-chair of future 5V conference and also served as session chair in a number of reputed conferences. He also provided his services as a guest editor to several journals.

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With the advent of new technologies like internet of things, communication technologies, and wide variety of social media applications (Usman et al., 2017a, 2018, 2017b), organisations produce huge volumes of data in unified formats. Analysing such data and gaining decision-relevant knowledge is indispensable for any kind of stakeholder such as governments, organisations, and communities. Thus, applying techniques from business intelligence and data mining to extract relevant knowledge from available data sources constitutes an important vein of research in the field of big data and business intelligence. Big data analytics that discover insights from evidence has a high demand for computing efficiency, knowledge discovery, problem solving, and event prescription. It also poses great challenges in terms of data, process, analytical modelling and management for organisations to turn big data into big insight. Recently, the term big data has been coined, which is characterised with high volume, variety and velocity, increasingly drives decision making and is changing the landscape of business intelligence. Due to the crucial role and importance of social media and online product reviews, the above trends become vital for various stakeholders to ensure competitiveness and, thus, already gained high research attention.

The specific objective of this special issue is to collect high quality research articles with solid background in both theoretical and practical aspects of business intelligence and data mining as well as specific approaches dealing with big data and web data mining in the travel and tourism domain. In total, we received 31 papers and after rigorous review process, only five papers have finally been selected for this special issue. Below are the main ideas of each accepted paper.

The first paper is ‘A novel dynamic approach to identifying suspicious customers in money transactions’ by A.K. Shaikh and A. Nazir. In this paper, the authors discussed the challenges faced while detecting suspicious customers in money laundering activities.

Money laundering activity causes a negative impact on the development of the national economy. Anti-money laundering (AML) solutions within financial institutions facilitate to control it in a suitable way. However, one of the fundamental challenges in AML solution is to identify real suspicious transactions. To identify these types of transactions, existing research uses pre-defined rules and statistical approaches that help to detect the suspicious transactions. However, due to the fixed and predetermined rules, it is highly probable that a normal customer can be identified as suspicious customers. To overcome the above limitations, the authors proposed a novel dynamic approach to identifying suspicious customers in money transactions that is based on dynamic analysis of customer profile features to identify suspicious transactions. The experiment has been executed with real bank customers and their transactions data and the results of the experiment provide promising outcomes in terms of accuracy.

The second paper is 'Fibonacci retracement pattern recognition for forecasting foreign exchange market' by M.F. Ramli et al. In this paper, the authors have discussed Fibonacci retracement, which is the basis of Elliott wave. These waves have the pattern which reflects the psychology of the moments. K-nearest neighbour (KNN) and linear discriminant analysis (LDA) algorithms are used for extracting nonlinear feature of Elliott wave patterns. The results showed that LDA is better than KNN in terms of classification accuracy. Fibonacci retracements analysis for forecasting through the trends of pattern was identified. The market trends upwards or downwards have a retracement wave before the next impulse wave approaches new region. The main objectives of this study was to recognise the pattern using the Elliott wave pattern; to compare accuracy patterns classification between KNN and LDA; and to forecast short-term forex market using Fibonacci retracement methods.

The third paper is 'ScrAnViz: a tool for analytics and visualisation of unstructured data' by S. Kameswaran and V.S. Felix Enigo. In this paper, the authors have discussed a visualisation tool for big data (ScrAnViz). The authors have surveyed existing visualisation tools for structured and unstructured data. They concluded that about 90% of the business data is unstructured, and dealing with unstructured data is challenging because it do not have structure and relational form. The proposed ScrAnViz, has the ability to format the unstructured data, perform analysis, and provide visualisation and is helpful for decision makers. In this tool, the authors have developed an attribute-based opinion mining algorithms. Performance analysis shows that the algorithm has reduced the search time by three fold than the traditional document level sentiment analysis systems.

The fourth paper is 'Implementation of multi node Hadoop virtual cluster on open stack cloud environments' by S. Karthikeyan and R. Manimegalai. In this paper, the authors have proposed a real-time implementation of multi-node Hadoop virtual cluster on open stack cloud environments. The proposed solution has the ability to process enormous datasets on parallel different virtual machines. They have compared average execution time for different node virtual clusters and various size inputs. They have considered, public cloud, private cloud, and hybrid cloud, and have worked on Infrastructure as a service, platform as a service, and software as a service.

The fifth paper is 'Impact of clustering on quality of recommendation in cluster-based collaborative filtering: an empirical study' authored by M. Singh and M. Mehrotra. In this paper, the authors have performed an empirical study on the impact of clustering in collaborative filtering (CF). The authors examined that in memory nearest neighbour

computation is a typical approach for CF due to its high recommendation accuracy. However, this approach fails on scalability; which cause the declined performance of the same due to the rapid increase in the number of users and items in archetypal merchandising applications. One of the popular techniques to attenuate scalability issue is cluster-based collaborative filtering (CBCF), which uses clustering approach to group most similar users/items from complete dataset. The authors have specifically studied how the extent of clustering impacts CF systems in terms of quality of predictions, quality of recommendations, throughput and coverage. Based on the empirical results obtained from two datasets, Movielens100K and Jester; the paper concludes that with increasing number of clusters the quality of predictions, the quality of recommendations and the throughput are enhanced but the coverage provided by clustered subsystems declines.

## References

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