

Editorial

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Biographical notes: Sandeep Kumar has obtained his PhD in field of Nature Inspired Computing. His area of interest is theoretical computer science, swarm intelligence and evolutionary computing. He has published more than 50 research papers in refereed journals and international conferences and edited 2 books and 2 conference proceedings.

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Dharm Singh is a Professor in the Department of Computer Science of Namibia's University of Science and Technology. His interests span the areas of multimedia communications, wireless technologies, mobile communication systems, roof computing and video transmission over wired-wireless networks,

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1 Introduction

Artificial intelligence (AI) makes machines intelligent and empowers them to work proficiently in the same way as human beings. In the early phase of its growth, the role of AI was limited to very few areas, but now AI is part of day-to-day life. AI has become a powerful tool for small business organisation. AI is taking care of recruitment, training and development, compensation and benefits, compliance, sales, predictions of customer behaviour, customer services, and many more areas. Use of AI in business management is very helpful as it is possible to analyse and predict important factor with higher efficiency and low cost in timely manner. Entrepreneurs have good idea but limited resources for the implementation of ground breaking ideas. New technologies like artificial intelligence, machine learning deep learning are very useful. With the help of these technologies new entrants in market can analyse and visualise market trends, possible risks, and target customers including their behaviour by the help of social media analysis and by analysing previous data.

2 Papers in issue

This issue collects several different contributions that extend selected works presented at the International Conference on Sustainable Technologies for Computational Intelligence (ICTSCI-2019).

Jadwal, Jain and Agarwal proposed a machine learning based model for credit risk evaluation that can determine if a loan should be granted or not for the loan applicants. Here, a new technique developed that is based on combining clustering algorithm along with a classification algorithm. The new approach uses clustering algorithms to group the similar loan applicant's data, and further use various classification algorithms to develop the model.

Kumar and Garg introduced a new approach by integrating machine learning-based and lexicon-based techniques for sentiment analysis, into a single two-tier framework. This assigns to each tweet one of the seven classes (high negative, moderate negative, low negative, neutral, low positive, moderate positive and high positive), thus providing a fine grain grading. The SentiCircles (lexicon-based algorithm) used is different from typical lexicon-based approaches. It captures context related information by taking into account the co-occurrence pattern of words in the text and thus assigns a better polarity and strength to the tweets. The comparison of various tree based machine learning classification algorithms in the field of twitter sentiment analysis has also been discussed in this work and observed that in general ensemble based algorithms give better results as compared to individual algorithms.

Nanda and Gautam suggested a holistic approach to study the behavioural constructs and challenges in adapting the IoT based remote medical wearable from the perspective of Marketing Managers, Manufacturers, policy makers, patient and physicians.

Goel and Mittal conducted a study to summarise information which has been discussed in the prior studies concerning the economic, legal and financial perspectives of cryptocurrencies, associated opportunities, threats and the future of cryptocurrencies. The study identified certain issues to the adoption of cryptocurrencies which are: price manipulation, limited acceptance and absence of a regulatory framework that monitors payments made through virtual currency structure. In addition, there are various risks associated with cryptocurrencies as well which were recognised to be mainly the market risks, financial risks, legal risks, and the security risks.

Agarwal and Yadav considered facility layout design (FLD) problem and proposed a new variant of artificial bee colony (ABC) algorithm by introducing mutation operator in ABC in addition to hyperbolic spiral search. The newly proposed approach managed balancing between two contradictory but important process of ABC, i.e. it make proper balance between exploration of considered search space and exploitation of best solutions. The mutation based approach efficiently solved FLD problem and outperformed other competitive algorithms.

Gupta and Saraswat presented uncorrelated colour space (UCS), grey wolf optimisation (GWO) and steerable pyramid transform (SPT) based image watermarking for the protection of colour images. The UCS increases the efficient use of all channels of image (host) in contrast to the correlated colour spaces. Furthermore, GWO is being used to calculate the optimum value of strength factors of the proposed technique, which is responsible for enhancing the quality and robustness and hence improves the performance. The quality and robustness of the proposed technique have been tested against common signal processing and geometric attacks.

Kumar, Raja, Dadheech and Bhardwaj developed a new algorithm which is used for segmentation of image. It is a gradient and clustering-based approach for 3-D image segmentation. Authors applied proposed algorithm directly on the colour image without using colour space and converting it into grey scale image. The proposed algorithm is capable to reduce the concern demanding problem in the segmentation of 3-D colour images. The use of gradient and different operator has shown that the proposed approach can be very successful. The temporal changes of the shape of the objects of image will undoubtedly provide useful information which can be used to resolve the ambiguity at a particular frame of given image data. The experiment tested on different colour image and it give good result and shows that it works perfectly with all types of coloured images. The result shows that it is very efficient in segmenting the image and reduces the time complexity also. Use of gradient and different image tool operator is used in filtering and giving the edge to all regions.

3 Conclusion

Authors of this issue have provided many different contributions that extend the selected works presented at the ICTSCI 2019. These contributions in this special issue represent several different approaches related to financial credit risk evaluation, sentiment grading, wearable health solutions, economic, legal and financial perspectives on cryptocurrencies, facility layout design for warehouse, image watermarking and new clustering techniques for segmentation.