Editorial

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Biographical notes: Rajanikanth Aluvalu is a senior member IEEE, and working as a Professor, Department of Information Technology, CBIT, Hyderabad. He served IEEE-Hyderabad Section as the Vice-chair, Entrepreneurship and Startup Committee, Treasurer and Secretary, IEEE Computer Society. He is having more than 19 years of teaching experience. He obtained his Doctor of Philosophy (PhD) with Cloud Computing as specialisation. He published more than 90+ research articles in various peer-reviewed journals and conferences. He is an Academic Editor in *PeerJ Computer Science Journal*. He is a reviewer for many Scopus indexed and SCI journals. He received the Best Advisor Award from IEEE Hyderabad Section. He is the Recipient of the IUCEE Faculty Fellow Award in 2018. He is a life member ISTE, and member ACM, MIR Labs. He organised various international conferences and delivered keynotes.

Brojo Kishore Mishra awarded PhD in Computer Science from Berhampur University in 2012 for his excellent work in the field of web mining. He is a Professor with the Department of Computer Science and Engineering at GIET University, Gunupur, India and working as a Joint Secretary of IEEE Bhubaneswar Subsection. He published 100+ publications. He has successfully guided one PhD research scholar and currently six research scholars are continuing. He received more than seven national awards so far. He is also a life member of ISTE, CSI, and senior member of IEEE.

V. Uma Maheswari is a member IEEE, and working as an Associate Professor, Department of CSE, Chaitanya Bharathi Institute of Technology, Hyderabad. She is a past Treasurer, IEEE-RAS, Hyderabad Section. She completed her

PhD from Visveswaraya Technological University, Belgaum in the area of Image Analytics and Data Science. She published 30+ research articles in SCI, ESCI, WoS, DBLP, and SCOPUS indexed journals and conferences. She has done an enormous study and given contributions in the field of facial expression analysis and applications. She had received the Best Faculty Award under the innovation category for the year 2019 by the CSI Mumbai chapter.

The *IJDATS* special issue on 'A new era of sustainable cities with data science' is designed to report state-of-the-art research outcomes in the field of data science with various applications related to smart city. There were several submissions received from around the globe to this special issue. The editorial board of the journal has carefully selected a few technically strong research works within the scope of the special issue with the help of the reviewers. A brief discussion on the works included in this special issue is stated below.

The first article by Rastogi et al. discusses how quality of life is a measure of well-being that includes factors such as comfort, happiness, mental, physical, social, emotional, and spiritual health. With the growth of smart cities and technology, there is a need for a holistic approach to sustainable living, which includes analysing the quality of life of individuals. The SF-36 questionnaire was used to collect responses from 205 people belonging to different age groups, professions, and educational backgrounds. The data was analysed using Python libraries, and the results showed the variation of the PCS value according to gender and profession. The paper provides a comprehensive model for assessing the wellness of individuals and promoting sustainable living in the 21st century's smart cities.

The next article discusses spectrum scarcity in ad hoc wireless networks due to the increasing demand for frequencies from mobile devices. Cognitive radio ad hoc networks (CRAHNs) combine ad hoc network characteristics with cognitive radios to support heterogeneous communication scenarios. The paper provides a comparative analysis of different spectrum sensing algorithms for cognitive radio networks based on dynamic threshold and noise uncertainty. Using a dynamic threshold improves the performance of spectrum detection without much computational complexity. The simulations were carried out in different scenarios, and it was observed that dynamic threshold conditions perform better in spectrum sensing, even under low signal-to-noise ratio (SNR).

The next research work discusses the development of an automated system for detecting diseases in pomegranate crops using convolutional neural networks (CNNs). The study used real field images of pomegranate fruits and leaves captured using an agriculture drone and classified them into six categories with the help of a domain expert. The CNN-based architectures used were VGG16, VGG19, InceptionV3, Resnet50, and Xception. The results showed that Resnet50 was the most suitable model for the dataset with an accuracy of 98.55%. To address the 'black box' problem of deep learning models, the gradient-weighted class activation mapping (Grad-CAM) model was integrated with ResNet50 to highlight the most important regions on the fruits and locate accurate diseases. The study is expected to contribute significantly to pomegranate research and development.

The next work explores the impact of online trading on the trade of stocks in emerging markets. The paper investigates how online trading has changed the way people trade stocks and the impact it has had on individuals' personal and technical abilities to trade. The study also explores the potential benefits and drawbacks of online trading in

emerging markets and examines the role of technology in facilitating online trading. Overall, the paper provides valuable insights into the changing landscape of stock trading in emerging markets, and the impact of technology on personal and technical aspects of trading.

Shitharth et al. propose a method for prognosis of urban environments using time series analysis and artificial intelligence (AI) to prevent overexploitation. The method involves collecting and analysing data from various sources such as remote sensing, geospatial data, and meteorological data to develop time series models. The models are then used to predict the impact of human activities on the environment and provide early warnings for potential overexploitation.

Khandare et al. discussed various Python libraries for natural language processing. They discussed about Gensim, AllenNLP, Polyglot, SpaCy, Scikit, CoreNLP, NLTK, and Textblob. They discussed about each library and their functionality in detail.

Finally, Choudhary and Sharma describes ten popular open-source text visualisation tools for word-clouds. It is observed that these tools take only a single text file as input while unstructured corpora have multiple-file format. A priority window technique is proposed to convert the corpus into a small single text file that retains the characteristics like a standard model found in structured corpora. Experiments are performed over a self-collected corpus to demonstrate the effectiveness of the proposed frequency-based technique. This technique is aimed at ease of use by users that lack expertise of data mining.

The guest editor of the special issue would like to extend sincere thanks and gratitude to the Editor-in-Chief of *IJDATS*, Professor John Wang, all the reviewers and authors involved in this special issue and the publisher.