
Editorial

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Biographical notes: Manoj Diwakar is working as an Associate Professor in the Department of Computer Science and Engineering at Graphic Era Deemed to be University, Dehradun. His research interests include image processing, information security and medical imaging. He has published more than 200 research papers in peer-reviewed journals, conferences, books and book chapters with national and international publishers of repute such as IEEE and Elsevier. He has also served as guest editor/associate editor/editorial member of many reputable journals and organised many international conferences.

Prabhishek Singh is working (Senior IEEE Member) as an Assistant Professor in School of Computer Science Engineering and Technology, Bennett University (Times of India Group), Greater Noida, India since 2022. He did his PhD in 2018. He is also awarded with young scientist award and excellent researcher award. He has published 100+ research papers in SCI/SCIE/Scopus, ESCI journals, and conferences. His research interest includes image processing and computer vision. He is serving as an associate editor, academic editor, review editor, guest editor, reviewer, and editorial committee chair of many SCI/SCIE/Scopus and ESCI journals, and prestigious conferences.

Maanak Gupta is an Assistant Professor in the Department of Computer Science at Tennessee Tech University, USA. He received his PhD in Computer Science from the University of Texas at San Antonio and has worked as a Postdoctoral Research Fellow at the Institute for Cyber Security. His primary area of research includes security and privacy in cyber space and AI. He has published over 90 research articles and is an expert speaker globally. His research has been funded by the US National Science Foundation (NSF), NASA, National Security Agency (NSA), US Department of Defense (DoD) and private industry.

Vinayakumar Ravi is an Assistant Research Professor at Center for Artificial Intelligence, Prince Mohammad Bin Fahd University, Khobar, Saudi Arabia. His PhD work is related to the application of machine learning (sometimes deep learning) for cyber security, and discusses the importance of natural language processing, image processing and big data analytics for cyber security. His current research interests include applications of data mining, AI, machine learning (including deep learning) for biomedical informatics. He has more than 100 research publications in IEEE conferences, IEEE Transactions and journals.

The emergence of Internet of Things (IoT)-based applications has made it more difficult to perform extensive data analysis on devices with low resources. Because IoT devices have limited resources, there is an increasing requirement for novel approaches to learning and data mining to help make sense of the massive amounts of data being collected. Thanks to recent advances in AI technology, applications may now rely on a billion-strong sensor network that understands its operational environment and can adapt to it based on what it hears, sees, and learns. This enables apps to react correctly to changes in their surroundings. This enables applications to provide unique features and capabilities across a wide range of use cases, all while improving safety, reducing complexity, and increasing dependability. Both industry and academia recognise the challenges presented by data analysis in limited networks such as the IoT. This challenge is created by the prevalence of small, low-powered devices that constitute a substantial portion of the network. Intelligent data computing has a great deal that is not yet able to satisfactorily meet the requirements in many emerging applications for the IoT. To make technological progress, new ideas and methods need to be conceived and created. This includes enhancing the performance of computer models and coming up with more creative applications for AI and machine learning.

The overarching objective of this special issue is to encourage academics to address challenges associated with advancing technology in deep learning-driven approaches to data analytics for IoT-based applications. A central concern in this special issue is whether we can build a connection between traditional techniques based on flexible and interpretable models and the emerging trends in AI, augmented intelligence, deep learning, machine learning, etc. This special issue has attracted many manuscripts, and the submissions have been rigorously reviewed by reviewers consisting of guest editors and external reviewers, and finally nine high-quality articles were accepted in the end. Next, we have briefly summarised the highlights of each paper.

Stephan et al. propose a deep learning-inspired IoT-enabled hybrid model for predicting structural changes in CNC machines based on thermal behaviour. The experimental results and analysis show their improved performance compared to existing methods. Sharma et al. show a performance evaluation using the throughput and latency of a blockchain-enabled patient-centric secure (BEPCS) and privacy-preserving EHR based on IPFS. Tan et al. propose a target imaging technology for wireless orbital communication radar. The experimental results and analysis show their improved performance compared to existing methods. Singh et al. propose a developing software predictive model for examining software bugs using machine learning. The experimental results and analysis show their improved performance compared to existing methods. Rai and Kumar propose an optimisation of the hybrid grey wolf method in a cluster-based wireless sensor network using edge computing. The experimental results and analysis show their improved performance compared with existing methods. Vinita and Dawn propose the detection of crop disorders using deep learning. The experimental results and analysis show their improved performance compared to existing methods. Shweta and Singh propose a page weight-based replacement algorithm to enhance the performance of buffer management in flash memory. The experimental results and analysis show their improved performance compared to existing methods. Srivastava and Kumar show a performance comparison of various machine learning classifiers using the fusion of LBP, intensity, and GLCM feature extraction techniques for thyroid nodule classification. Hamad et al. propose a complex network applied to the analysis of the dynamics of social systems.

These nine selected contributions reflect the new achievements in AI Enabled Data Analysis in Emerging of Internet of Things Based Applications, and we hope they can provide a solid foundation for future new approaches and applications. Finally, we would like to thank all authors for their contributions, reviewers for reviewing these high quality papers, and Editor-in-Chief of *IJGUC*, Prof. Fatos Xhafa, for his support and guidance throughout the process.