
Editorial

Sabu M. Thampi*

School of CS/IT,
Indian Institute of Information Technology and Management-Kerala (IIITM-K),
Technopark Campus, Trivandrum 695581, India
Email: sabu.thampi@iiitmk.ac.in
*Corresponding author

El-Sayed M. El-Alfy

CCSE,
King Fahd University of Petroleum and Minerals,
P.O. Box 371, Dhahran, Dhahran 31261, Saudi Arabia
Email: alfy@kfupm.edu.sa

Biographical notes: Sabu M. Thampi is a Professor at the Indian Institute of Information Technology and Management-Kerala (IIITM-K), Trivandrum, India. His main research areas are sensor networks, IoT, social networks, and video surveillance. He has authored and edited few books and published papers in academic journals and international proceedings. He has served as a guest editor for special issues in journals and as a program committee member for many conferences. He has co-chaired several workshops and conferences. He has initiated and is also involved in the organisation of several annual conferences. He is a senior member of IEEE and a member of IEEE CS and ACM.

El-Sayed M. El-Alfy is a Professor at the College of Computer Sciences and Engineering, King Fahd University of Petroleum and Minerals (KFUPM), Saudi Arabia. His current research interests are related to machine learning and computational intelligence with applications to data mining, pattern recognition, and security systems. He has published many papers in these areas, attended several international conferences, contributed in the organisation of many world-class international conferences, and was a guest editor in a number of special issues in reputable journals. He is a senior member of IEEE and is/was in the editorial board in a number of premium international journals including *IEEE/CAA Journal of Automatica Sinica*, *IEEE Transactions on Neural Networks and Learning Systems*, *International Journal on Trust Management in Computing and Communications*, and *Journal of Emerging Technologies in Web Intelligence*. His work has been internationally recognised by a number of awards.

Motivated by the latest advances in machine learning and computational computing, many researchers have become interested in exploring their potential in building intelligent systems for a variety of interesting applications in different disciplines. This special issue of the *International Journal of Computational Science and Engineering* includes rigorously expanded versions of four papers selected after a second peer review from papers presented at the International Conference on Advances in Computing, Communications and Informatics (ICACCI-2016), which was held in Jaipur, India, 21–24 September 2016.

Below is a summary of the included papers.

With the prevalence of social media platforms and smartphones in our lives, the volume of social posts and user-generated contents is growing exponentially. Over the past decade, social network analysis has attracted significant research effort owing to its wide range of potential application domains, such as marketing, election campaigns, national security, bibliometric analysis, etc. In the first paper in this issue, Tejaswi and his colleagues review the

influence of propagation models in social networks. They survey the state-of-the-art approximation algorithms for seed node selection to identify a minimum subset of entities, i.e., seed nodes, to maximise the spread of influence through the network. This problem is known as ‘influence maximisation problem’, which is a critical NP-hard time-consuming problem in large-scale social networks. The paper also highlights open research problems in this domain.

Another optimisation problem is addressed by Gautam and Bedi in the second paper for collaborative filtering-based recommendation systems. News items are highly dynamic and it is required to recommend a small subset of relevant news to a user. In this paper, a technique is proposed to classify news items into different categories and extend the user-item matrix to incorporate contextual information, giving a ranking tensor which is factorised to make recommendations. The proposed system is implemented and evaluated on a distributed and scalable framework of Apache Spark using MLlib library.

Combining collaborative filtering with fuzzy difference vector, Saha et al. in the third paper propose a novel approach for estimating missing values in DNA microarray datasets. The proposed algorithms are applied on three benchmark datasets: yeast gene expression data, human tumour cells and prostate cancer dataset.

Medical applications are another interesting field for computer scientists and the machine learning community. In the fourth paper, a novel approach is proposed by Pramanik et al. to detect breast abnormalities from breast thermograms using a combination of texture and vascular features. The fused feature vectors are used to train a backpropagation neural network to recognise malignancy and benignity of breast abnormalities. This approach demonstrated comparative recognition rates on the DMR-IR database.

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