

Guest Editorial Preface

Special Issue on Advances in Intelligent Data Analytics and Computational Techniques

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The modern era is an era of data revolution. It would not be wrong to say that ‘Data is the mother of all inventions’ rather than saying that ‘Necessity is the mother of all inventions.’ The data undergoes through a process of rigorous churning from collection till processing and finally, analysis.

It is rightly said by Ronald Coase, a famous economist & author, ‘Torture the data, and it will confess to anything.’ This torture of data is intelligent data analytics. The scope of application of intelligent data analytics bounds no limits and no domains. The beauty of application of intelligent data analytics lies in the novel and simple solutions to complex problems in an intelligent manner using computational techniques. The techniques and methodologies such as artificial intelligence, machine learning, artificial neural networks, fuzzy logics, swarm intelligence, bio-inspired techniques, and many others blossom under the wide shelter of intelligent data analytics. This special issue addresses the proposal, application, and usage of intelligent data analytics to counter complex problems in an efficient way that cannot be accomplished with traditional approaches.

In the first article entitled “A Hybrid User Centric Approach for Efficient Web Service Selection” Negi et al. propose a model that preprocesses web services using the J48 classification technique. The approach finds its utility in appropriate web service selection based on functional and nonfunctional requirements. A hybrid weight evaluation mechanism is employed to obtain the weight values of each nonfunctional parameter. Next, the web services that are near to user expectations are selected out using the ranking method.

The second article entitled “Cloud4NFICA-Nearness Factor based Incremental Clustering Algorithm using Microsoft Azure for Analysis of Intelligent Meter Data” by Chaudhari et al. propose a Cloud4NFICA, which is a distributed version of Nearness Factor-based Incremental Clustering Algorithm (NFICA) deployed on Microsoft Azure public cloud platform for improving the operational efficiency, improvise electricity consumption patterns, scalability, cost, and security of household electric meters. The approach is implemented on real time data to prove its utility.

The third article entitled “Hybrid Ensemble Learning with Feature Selection for Sentiment Classification in Social Media” by Sharma et al. presents an empirical evaluation of various ensemble classifiers and ensemble features for sentiment classification of social media data. Also, a novel framework for a hybrid ensemble learning model is proposed and its utility is proved by its application on data collected from twitter. The application results of proposed model are compared with the traditional methods to show its efficiency.

Malik et al. propose a new and significant method of optimization for digital image watermarking using a combination of genetic algorithms (GA), histogram, and Butterworth filtering in the article entitled “GA Based Optimized Image Watermarking Method with Histogram and Butterworth

Filtering.” The histogram range selection of low frequency components is taken as a significant parameter which assists in bettering the imperceptibility and robustness against attacks.

The last contribution entitled “Predictive Model of Solar Irradiance using Artificial Intelligence - An Indian subcontinent case study” by Soni et al. propose an optimized prediction model of monthly potential of solar irradiance of Indian Subcontinent, by utilizing hour-wise unstructured voluminous satellite-based data. The proposed model along with sustainable financial model can be used to identify major locations to setup solar farms, wherever local meteorological data measuring facilities are not available in India.

The collection of all these research contributions makes this issue really special. We hope that a study of this collection will open up gates in the form of new and extended research for prospective researchers in the related domains. We would like to extend thanks to all the authors who opted to submit the papers in this issue and enriched the issue with their research contribution. Our sincere thanks to all the reviewers and editorial board members for their valuable contribution towards the review process and enriching the research contributions with their valuable comments and suggestions. A great many thanks to the Editor-in-Chief, Prof. Zhongyu (Joan) Lu for giving us the opportunity to be associated with her kind self in the form of special issue in her esteemed journal, International Journal of Information Retrieval Research. We have no words to express the constant motivation, support and guidance of Prof. Lu throughout the process of editing the special issue. Last, but not the least, we would like to express special thanks to Ms. Kayla Bishard and her journal publishing team for their great efforts to enable the issue.

Best Wishes,

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