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Editorial

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From the Editor

It is great pleasure for me to present this issue of *Machines and Algorithms* journal. This issue explores the concept that how technology is not only reshaping industries and society, but also driving key innovations through both theoretical progress and practical applications. The contributions in this issue cover topics from machine learning applications in natural language tasks, computer vision tasks, and decision-making systems in medical field. Collectively, all of the contributed authors have explored the depth of ongoing researches being performed in this area, as well as the primary challenges and potential prospects that still persist.

In this issue, a rigorous collection of scholarly research articles is compiled, which have been assessed by a thorough peer-review process. I want to sincerely thank all the authors of this issue for their valuable contributions and specially acknowledge the contribution of reviewers for their dedicated work. Here's a quick look of the articles published in this issue.

The paper “The Rise of Conversational BI and NLP’s Impact” is based on a comprehensive review of eighteen studies, which are based on Natural Language Processing (NLP) and revealed that it significantly improves Business Intelligence. By creating conversational interfaces, NLP makes data more accessible and assists people in better decision making. This study also highlights the existing challenges with scaling, computation, and ethics in this field.

The paper “Unveiling Hidden Communities: A Graph Clustering Approach to User Interactions and Closeness” has presented a new way to locate social communities that uses local knowledge and node space similarity. The proposed method has combined graph embedding, eigenvector centrality, and closeness measures in the presented hybrid graph clustering approach. The performance evaluation of proposed hybrid model has been done over six real-world open-access datasets, which include DBLP, Amazon, and Facebook-Ego. Results of this study shows that; the proposed approach has outperformed traditional algorithms dedicated for the detection of communities in social networks. Moreover, it has also achieved high accuracy and scalability on the selected datasets.

The paper “Predicting Colorectal Cancer Using Machine Learning and Worldwide Dietary Data” have explored the implication of different state-of-the art machine learning based approaches for the early-stage diagnosis of colorectal cancer (CRC). This study involved the testing and evaluation of nine different supervised and unsupervised machine learning models, which have been primarily tested on a large-scale dietary dataset of 109,343 individuals. The performance analysis of this paper shows that Artificial Neural Network (ANN) has achieved the best performance among all tested models, with a misclassification rate of only 1% for CRC and 3% for non-CRC cases. These findings highlight the potential of ANN-based predictive modelling for CRC screening, which can significantly improve early diagnosis and treatment outcomes regarding CRC.

The paper “Traffic Sign Recognition Using a Customized Convolutional Neural Network” has introduced a customized Convolutional Neural Network (CNN) for the classification of traffic signs. The main motive of the proposed approach is to deal with one of the most prominent components of intelligent transportation and autonomous driving systems. Using the German Traffic Sign Recognition Benchmark

(GTSRB) dataset with data augmentation techniques, the proposed CNN achieved a significant accuracy of 97%. Such a prominent performance of proposed model highlights its potential for real-world deployment in autonomous vehicles, intelligent traffic management, and road safety applications.

Finally, the paper “Efficiency of K-Prototype and K-Mean Algorithm Using Support Vector Machine (SVM)” focuses on gauging the efficiency of state-of-the-art clustering algorithms. This research compares K-Means and K-Prototype clustering algorithms on five benchmark datasets of mixed datatypes (labeled, unlabeled, mixed). By validating clustering outcomes through an SVM classifier, the study finds that K-Means excels on labeled datasets, while K-Prototype is better suited for unlabeled and mixed data. It further observes that accuracy decreases as the number of clusters increases, with two-cluster setups yielding optimal results. These findings provide valuable insights into selecting appropriate clustering techniques depending on data type and complexity.

With this I concludes the summaries of the papers finalized for this issue. I trust that this collection of articles will not only inform and inspire researchers, practitioners, and students, but also contribute meaningfully to advancing knowledge in machines and algorithms. For the future, we aim to increase our journal's reach by collaborating with top research institutions, and potentially introduce special issues on new technologies. We value your participation and feedback, which are key to our growth. My sincere thanks once again to the researchers and reviewers who made this a reality.