Editorial

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From the Editor

It is a great pleasure to present **Volume 4, Issue 2 (2025)** of the *Machines and Algorithms* journal. In this issue, we have presented various advanced researches relevant to the fields of machine intelligence, data sciences and computational models. These published papers validate the role of advanced machine learning algorithms are playing prominent role in advancing human understanding. The papers published in this issue belongs to several prominent domains, such that including quantum problem-solving, sentiment analysis, computer vision-based diseases diagnosis, automated AI based workflow analytics and environmental change forecasting. Collectively, all these researches are presenting the highly prominent role of AI and data science in industrial and scientific domains.

In the current issue, five multidimensional and thoroughly reviewed papers are being published, which are briefly introduced below:

The first paper is **"Sentiment Analysis on Tweets using N-Grams and Lexicon"**, which introduce a lexicon-based approach. The proposed approach refines textual noise in Twitter data and applies sentiment scoring from −1 to +1. Comparison of multiple n-gram configurations has been performed. Moreover, evaluation of sentiment accuracy against manually annotated benchmarks have also been performed. It provides insights into linguistic modeling for social media analytics.

The second contribution of this issue is, **"Systematic Literature Review on Problem Solving with Quantum Algorithms".** This paper presents a comprehensive synthesis of recent advances in quantum computation. Author of this study has examined thirty significant studies from 2015 to 2024. In this review, analysis of four cornerstone algorithms has been performed. These algorithms are: 1) Shor's, 2) Grover's, 3) QAOA, and 4) QFT. In addition to this, author of this study has also explored the applications of these algorithms in fields like optimization, cryptography, and machine learning. This work identifies significant and emerging research gaps of its field. Moreover, it also outlines promising future directions for inter-domain quantum applications.

The third article that has been published in this issue is, **"Deep Learning Architectures for Automated Ocular Disease Recognition".** This paper highlights the critical need of diagnosing ocular threatening diseases at an early stage i.e., diabetic retinopathy and glaucoma. Author of this study, has exploited transfer learning approach. More specifically, author has applied advanced CNN models like EfficientNet and InceptionResNetV2 for automated ocular disease diagnosis. The proposed approach has achieved a significant diagnostic accuracy of 98.2%. In addition to this, the presented method demonstrates how AI can make ocular screening more accessible for patients, especially in low-resource healthcare departments.

The fourth paper of this issue is, **"Robust Multi-Class Weather Classification from Images Using Deep CNN".** Author of this study, has proposed a computer-vision model for multi-class weather classification. The proposed model is capable of identifying five weather conditions including: clear, foggy, rainy, cloudy, and snowy, using weather imaging data. By achieving an accuracy of 85.2%, the proposed model also demonstrates its robustness in classification of different environmental conditions. Recommendations for enhancing similar future automated systems through transfer learning have also been provided in this study.

Finally, the last paper in this issue is, **"Predicting Employee Attrition Using XGB Classifier".** This paper investigates workforce analytics by the implication of optimized XGBoost classifier. For the training of this model HR dataset has been exploited. The proposed approach has achieved 87.76% prediction accuracy. Moreover, the model also highlights the potential significant variables including overtime, monthly income, and job satisfaction. Author of this study has also referred to the ethical considerations of transparency and fairness in predictive HR systems.

All of the above-mentioned papers reflect the dedication of our editorial board towards presenting highly and ethical AI based researches. I also want to extend my heartfelt appreciation to the authors for their precious scholarly efforts. I also appreciate to our reviewers for their thorough assessment of publications, and to the editorial team for ensuring the quality, excellence and integrity of published papers.

I am confident that all the readers of these papers, whether they are academic researchers or students, they will definitely find this issue both informative and inspiring. With the growth of our journal *Machines and Algorithms*, we are intended to expand the collaborations and introducing more thematic special issues. Furthermore, we are also intended to present more impactful and contributive papers for advancing computational innovation for the global research community.