# Guest Editorial Preface

# Special Issue on Adaptive Machine Learning and Knowledge-Based Systems

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Intelligence displayed by machines has evolved substantially in past decade, where more and more industrial progression relied on the capability of machines perceiving and learning from surrounding environments, assisting in succession of given tasks. The growing role of technologies such as the Internet of Things, blockchain, artificial intelligence and machine learning algorithms are bringing decision-makers to cross-roads. The combination of knowledge-based systems, artificial neural networks, and adaptive genetic searches are known to be synergistic.

This special issue of IJKBO presents finalized versions of a series of well-positioned, peer-reviewed papers. Altogether, it is hoped that the finalized versions of these released papers, that have been doubly peer-reviewed and found acceptable for release for IJKBO readers, will significantly impact and influence the future work of the Knowledge based Information Systems.

## INSIDE THIS ISSUE

The four papers in this special issue cover a range of aspects of work related to adaptive Machine Learning and Knowledge-Based Systems. Each of these papers has undergone full double blind peer review, prior to being selected for this special issue.

"Rakshak: A Child Identification Software for Recognizing Missing Children Using Machine Learning-Based Speech Clarification," the first of four articles included here, is a contribution by Ashutosh Dixit, Preeti Sethi and Puneet Garg. The authors remind the social problem of child trafficking and abduction. The authors proposed the tool "Rakshak" with an idea to diminish the problems faced by police officials after finding a lost child. The functioning of Rakshak has been divided into the following steps, Sampling, Recognition, Tokenization, Filtration, Categorization and Error Detection and Correction, output. This is a novel idea developed using machine learning.

The second article, "A Bio-Inspired DNA Cryptographic-Based Morse Code Ciphering Strategy for Secure Data Transmission: DNA Cryptography-Based Morse Code Encoding," by authors Adithya B and Santhi G., discusses a bio-inspired cryptosystem that proposes DNA computing with Morse code encoding to secure data during network transmission. The proposed framework has been proven secure from BFA, COA, LCA, DCA, and TA. The execution of the proposed strategy has been compared with the performance of current methods regarding attack resistance. The proposed algorithm's characteristic is a unique biological simulation that fulfils all the functional and non-functional attributes. DNA cryptography is still in its infancy, and this computational paradigm can be used to construct a robust cryptosystem.

"MANET Proactive and Reactive Routing Protocols: A Comparison Study" by Neha Shukla and others justifies the role of routing protocols along with comparison to different algorithms like - AODV, DSDV, etc. Throughput, Energy Consumed, End-to-End Delay, and PDR are the performance measures utilized in simulation. The NS2.35 simulator is used to conduct the performance assessment. The results are well justified and work has technical relevance.

Lastly, "An Approach for Semi-Supervised Machine Learning-Based Mobile Network Anomaly Detection With Tagging" is contributed by Vijaya Kumar B P and others. There is likelihood to escalate the fraud activity and misuse the corporation's network. Hence, strengthening of network security is necessary to prevent such unwanted activities. Implementation of the proposed ADS model for labelling and clustering is carried out in real time networking scenario to identify the applications for anomaly detection. Tagging Application dataset and the proposed Fix Weight Kohonen's Self Organizing Maps are developed to detect the anomaly based on semi-supervised machine learning method for real time network traffic. The TA dataset is created as the benchmark and scale network packet data with several applications labelled. The dataset is used by the KNN and KSOM algorithms to classify and cluster the network packets into application categories.

We hope that reading these high-quality papers will inspire you to make your own submissions to IJKBO, and to support the research community. May these contributions pave the way for the broad and open waters ahead with all the new developments in machine learning and knowledge-based systems!

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