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Thittaporn Ganokratanaa[1,2,*]

[1] *Department of Mathematics, Faculty of Science, King Mongkut's University of Technology, Bangkok, 10140, Thailand*
[2] *Editor-in-Chief, Journal of Smart Sensors and Computing, GR Scholastic, Ahmedabad, Gujarat, 382424, India*
**Email:* eic.ssc@gr-journals.com (T. Ganokratanaa)

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This issue of the *Journal of Smart Sensors & Computing* (Volume 1, Issue 3, December 2025) features a multidisciplinary collection of research articles covering smart agriculture, neuromorphic computing, AI-based disease detection and prediction, and machine learning applications in loan default prediction. The issue comprises three original research articles and one review article, reflecting the journal's emphasis on methodological rigor, applied relevance, and interdisciplinary integration across smart sensing and computational intelligence domains.

Salve *et al.*[1] present a comprehensive study on smart agriculture systems that integrate the Internet of Things (IoT) and Machine Learning (ML) to enhance crop monitoring, optimize resource utilization, and support sustainable farming practices. IoT-based wireless sensor networks (WSNs) enable continuous real-time acquisition of environmental and soil parameters, while ML algorithms analyze the collected data to facilitate informed decision-making. Experimental results demonstrate that the proposed ensemble-based ML model achieves high predictive accuracy, validating the effectiveness of combining multiple learning algorithms for smart agriculture applications. Jadhav *et al.*[2] introduce UNAL (Unified Adaptive, Hardware-Agnostic Neuromorphic Assembly Layer), a novel compilation framework that translates high-level Spiking Neural Network (SNN) models into portable, spike-level assembly across heterogeneous neuromorphic platforms. The framework incorporates a unified intermediate representation (UNAL-IR), a compact instruction set, and an optimization-driven mapping pipeline that jointly addresses latency, energy efficiency, routing congestion, and adaptability. Quantitative evaluations on standard SNN benchmarks (DVS Gesture and CIFAR-10 SNN) mapped to Intel Loihi 2 demonstrate 18–32% latency reduction, 21–38% energy savings, and 25–40% lower routing congestion compared to Loihi-native and platform-specific toolchains. A smart-city surveillance case study further validates the framework's capability for real-time edge deployment, establishing UNAL as a scalable and future-ready neuromorphic compiler infrastructure. Shegar *et al.*[3] propose a multi-class skin lesion classification framework based on transfer learning, integrating an EfficientNet-B3 backbone with a Convolutional Block Attention Module (CBAM) to enhance discriminative feature learning. EfficientNet-B3, pre-trained on large-scale natural image datasets, serves as a robust feature extractor, while CBAM adaptively emphasizes informative channel and spatial features, enabling the network to focus on diagnostically relevant lesion regions while suppressing background artifacts. The model is trained and evaluated on the DermNet-23 dataset comprising 23 clinically significant skin disease classes. Experimental results show that the proposed EfficientNet-B3 + CBAM model achieves 87.1% accuracy, an 85.6% macro-F1 score, and a 0.94 AUC, outperforming baseline CNN, ResNet50, MobileNetV3, and standard EfficientNet-B3 models. Gour *et al.*[4] investigated the performance of ensemble machine learning algorithms, including Random Forest, Gradient Boosting, XGBoost, and LightGBM, for loan default prediction. Using a publicly available benchmark dataset, the study adopts a systematic

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experimental workflow involving data preprocessing, feature engineering, class imbalance handling, model training, and performance evaluation. The results, assessed using standard metrics such as accuracy, precision, recall, F1-score, and ROC-AUC, demonstrate the effectiveness of ensemble learning approaches in improving predictive performance for financial risk assessment.

Use of artificial intelligence (AI)-assisted technology for manuscript preparation

The authors confirm that there was no use of artificial intelligence (AI)-assisted technology for assisting in the writing or editing of the manuscript and no images were manipulated using AI.

References

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