Editorial

In the ever-evolving landscape of science and technology, this issue brings together a collection of 14 accepted research papers that delve into diverse domains, ranging from robotics and healthcare to machine learning, cloud computing, neuroscience, cybersecurity, and control systems. Each paper represents a significant contribution to its respective field, offering novel methodologies, insights, and solutions to address contemporary challenges. The papers span a spectrum of cutting-edge topics, showcasing the breadth and depth of research endeavours undertaken by scholars and practitioners globally. As we navigate the intricate tapestry of technological advancements, these papers serve as beacons illuminating the path forward, each shedding light on unique aspects and applications within their domains. This compilation not only reflects the current state of research in these fields but also underscores the collaborative efforts of researchers pushing the boundaries of knowledge. In this editorial, we provide a glimpse into the key findings and contributions of each paper, highlighting the valuable insights they bring to their respective disciplines. Through this collection, we aim to foster a deeper understanding of the intricate intersections between technology and human progress, acknowledging the relentless pursuit of innovation that defines the essence of scientific inquiry.

In the realm of robotics, the paper on "Control Program Generator for Vehicle Robot using Grammatical Evolution" presents an innovative approach to designing control programs for autonomous mobile robots. Leveraging Grammatical Evolution (GE), the paper demonstrates the automatic generation of effective control programs for a LEGO MINDSTORMS EV3 robot. The integration with PyBullet for simulation ensures the reproducibility of the robot's trajectory, with calibrated parameters to bridge the gap between simulation and the real environment [1].

Moving into the healthcare domain, the "IoT System and Deep Learning Model to Predict Cardiovascular Disease Based on ECG Signal" paper addresses the critical issue of cardiovascular disease prediction. By combining Internet of Things (IoT) technology and deep learning models, the paper proposes an advanced system that analyzes Electrocardiogram (ECG) signals for accurate disease prediction, showcasing the potential for improving healthcare outcomes through technological interventions [2].

Shifting focus to machine learning, the paper on "Tree-Based Ensemble Models, Algorithms and Performance Measures for Classification" delves into the world of ensemble methods. Focusing on Tree-Based Ensemble Models with Decision Trees as base models, the paper introduces a Projective Decision Tree and explores algorithms for predictive performance. The study demonstrates promising results on datasets such as sonar and Breast Cancer Wisconsin, highlighting the potential of the proposed models in classification tasks [3].

In the era of information overload, the "Social Media Text Summarization: A Survey Towards a Transformer-based System Design" paper undertakes the challenge of summarizing text from social media. Recognizing the need for efficient summarization techniques, the paper reviews existing approaches and introduces a Transformer-based system design. This work opens avenues for leveraging advanced neural network models to distill valuable information from the vast sea of social media content [4].

Transitioning to cloud computing, the paper on "Infrastructure-as-a-Service Ontology for Consumer-Centric Assessment" contributes to informed decision-making in the adoption of cloud Infrastructure-as-a-Service (IaaS). By introducing an ontology tailored for consumers, the paper not only aids in decision-making but also enhances the competitiveness of IaaS providers. The

study exemplifies ontological engineering principles, ensuring a standardized representation for comprehensive consumer-centric assessments [5].

Addressing mental health concerns, the paper on "EEG Feature Extraction based on Fast Fourier Transform and Wavelet Analysis for Classification of Mental Stress Levels using Machine Learning" explores objective methods for assessing mental stress levels. By extracting features from EEG data using Fast Fourier Transform and wavelet analysis, the paper employs machine learning classifiers to achieve promising results. The proposed method holds potential for Computer-Aided Diagnosis (CAD) systems in mental stress assessment [6].

In the realm of medical diagnostics, the paper on "Comparative Study of J48 Decision Tree and CART Algorithm for Liver Cancer Symptom Analysis Using Data from Carnegie Mellon University" focuses on the correlation between hepatitis and liver disease symptoms. Employing J48 and CART decision tree algorithms, the study analyzes patient data to predict liver disease outcomes. The research underscores the potential of machine learning in medical prognosis and decision-making [7].

Turning to robotics, the paper on the "Design of Bio-Inspired Robot Hand Using Multiple Types of Actuators" presents a novel approach to prosthetic hand design. Emphasizing not only appearance and grip strength but also gestures, the paper introduces a bio-inspired robot hand with multiple types of actuators. This design allows for 10 hand gestures, resembling common emoji hand gestures, showcasing the potential for improved human-robot interaction [8].

In the realm of underwater rescue operations, the paper on "Implementation of a GAS Injection Type Prefabricated Lifting Device for Underwater Rescue Based on Location Tracking" addresses the need for efficient lifting systems in underwater accidents. The paper introduces a gas injection-type prefabricated lifting device with location tracking, ensuring fast and effective underwater rescue operations. The proposed device combines communication technology and efficient design for enhanced safety and efficiency [9].

The integration of technology in medical training takes centre stage in the paper on "Towards Real-Time Multi-Class Object Detection and Tracking for the FLS Pattern Cutting Task." Using YOLOv7 object detection neural networks, the paper aims to automate tool motion analysis during laparoscopic surgery training. The research underscores the potential of real-time object detection in enhancing surgical training and evaluation [10].

Ensuring secure and accessible healthcare information is the focus of the paper on "A Secure Medical History Card Powered by Blockchain Technology." Addressing data security concerns, the paper proposes a blockchain-powered medical history card, providing a secure and comprehensive repository of patient information. The research emphasizes the transformative impact of blockchain technology in fortifying healthcare systems [11].

Cybersecurity in cloud computing takes precedence in the paper on "Enhancing Cloud Security: A Comprehensive Framework for Real-Time Detection, Analysis and Cyber Threat Intelligence Sharing." The paper introduces a Hypervisor-based Virtual Machine Introspection (HVMI) framework for real-time detection and analysis of cyberattacks on cloud platforms. The proposed framework exemplifies a comprehensive approach to cloud security, integrating advanced technology with continuous refinement to navigate the evolving cybersecurity threat landscape effectively [12].

The realm of control systems and robotics is explored in the paper on "Dual Mode Control of an Inverted Pendulum: Design, Analysis and Experimental Evaluation." The paper presents a comprehensive analysis of an inverted pendulum system, featuring two distinct control modes for velocity and position. The research delves into the dynamics and control mechanisms, providing insights into optimizing the performance of such systems [13].

The closing paper on "Optimizing the Performance of Network Anomaly Detection Using Bidirectional Long Short-Term Memory (Bi-LSTM) and Over-sampling for Imbalance Network Traffic Data" addresses the critical issue of network security. Employing Bidirectional Long Short-Term Memory (Bi-LSTM) models, the paper optimizes the performance of network anomaly detection. The research underscores the significance of artificial intelligence in identifying and mitigating cybersecurity threats in network traffic data [14].

In conclusion, this compilation of papers represents a diverse array of cutting-edge research spanning robotics, healthcare, machine learning, cloud computing, neuroscience, cybersecurity, and control systems. Each paper contributes valuable insights, methodologies, and solutions to address contemporary challenges and advance their respective fields. The collective efforts showcased in these papers demonstrate the continuous pursuit of innovation and knowledge dissemination in the ever-evolving landscape of science and technology.

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