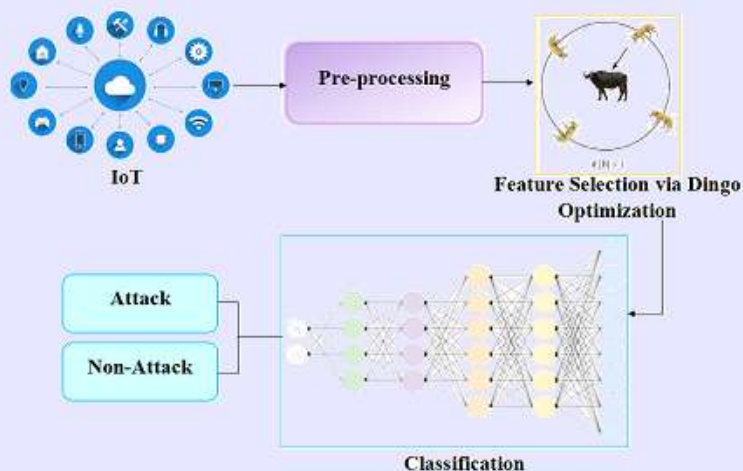
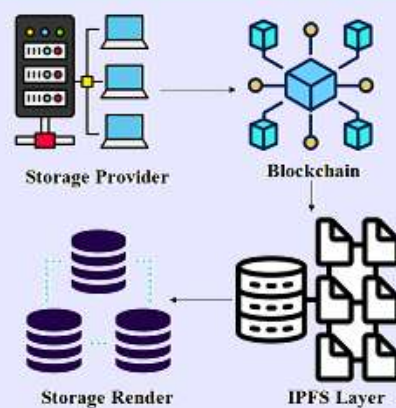
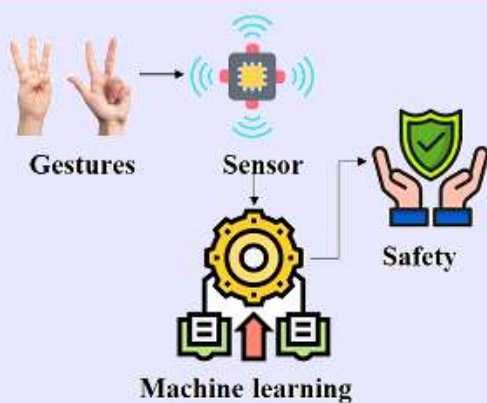
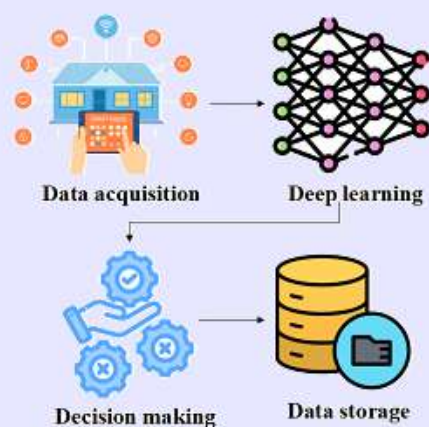
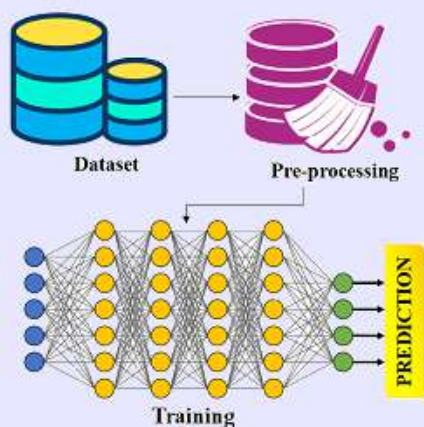


IJDSAI

ISSN: 2584-1041

International Journal of Data Science and Artificial Intelligence



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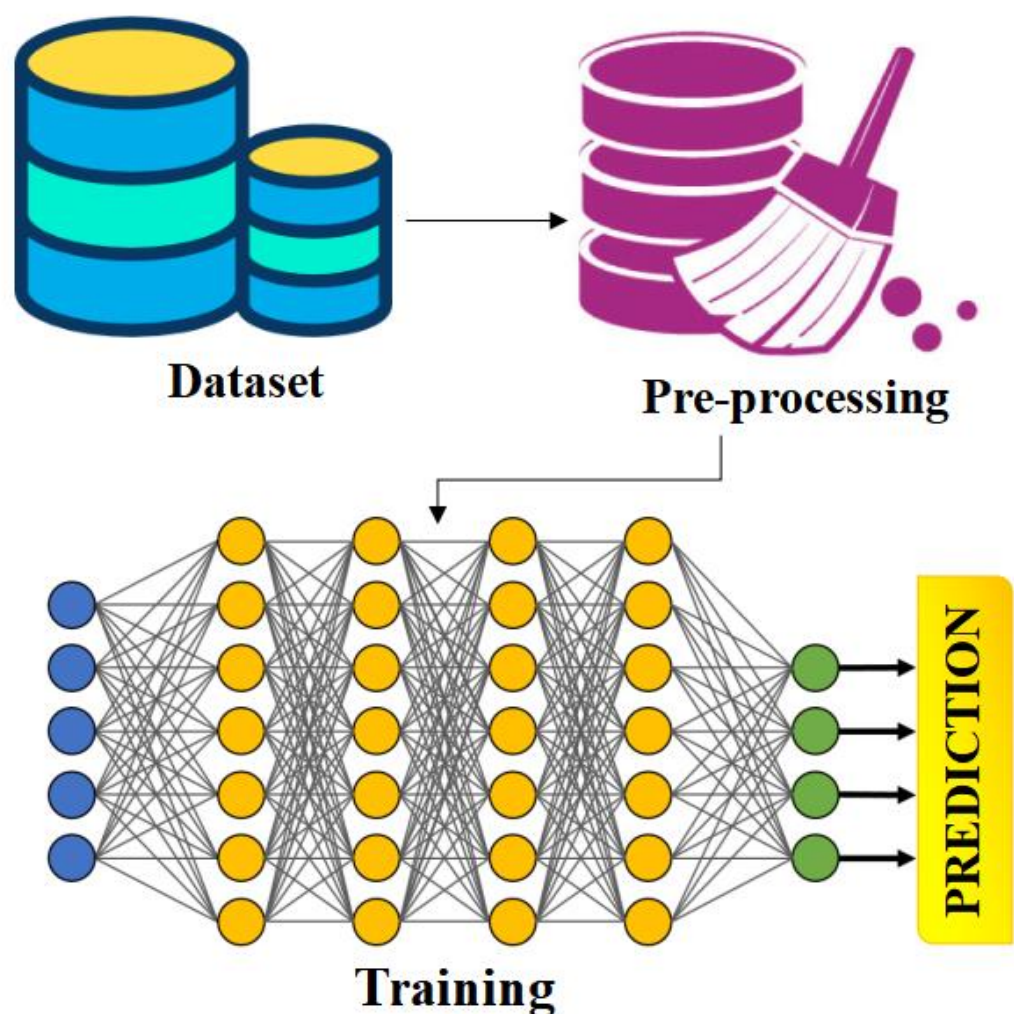
International Journal of Data Science and Artificial Intelligence

1. REVIEW ON ANIMAL SPECIES RECOGNITION USING TRANSFER LEARNING

Mayuri M. Vengurlekar, Ashish Pal, Pravin Parihar, Mustafa Nandervawala, Saahil Parmar, Shankar Amalraj

Abstract —This review paper provides a comprehensive overview of recent advancements in animal species recognition through the application of transfer learning, with a particular focus on the VGG16 model. The integration of deep learning techniques, specifically convolutional neural networks (CNNs), has demonstrated substantial improvements in the classification accuracy of diverse animal species. By leveraging pre-trained models, researchers have been able to achieve remarkable results, even in

scenarios where labelled data is limited. This paper synthesizes findings from various studies that utilized the VGG16 architecture across different datasets, including mammals, birds, and marine species, showcasing its efficacy in capturing intricate visual features essential for species differentiation. Despite the promising outcomes, significant challenges persist, such as the dependency on well-annotated datasets and the need for robust data augmentation techniques. Additionally, the review highlights gaps in current research, particularly regarding the adaptability of the VGG16 model across underrepresented species and ecological contexts. This synthesis of existing literature serves as a foundational resource for researchers pursuing advancements in automated species recognition methodologies.



Keywords – Animal Species Recognition, Transfer Learning, Convolutional neural network, fine-tuning, VGG16

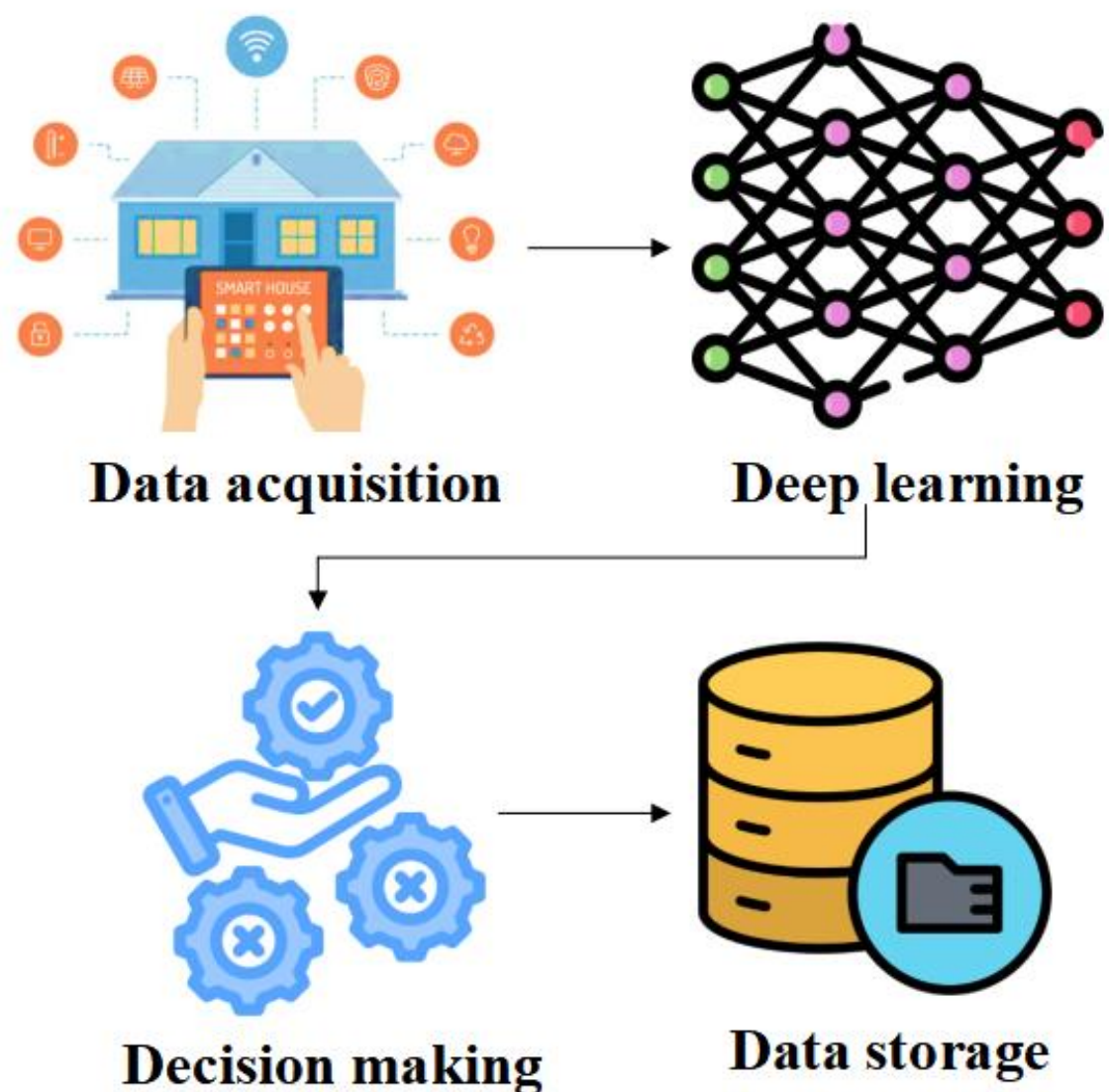
2. A SURVEY ON AR EDUCATIONAL APPLICATIONS: ENHANCING LEARNING THROUGH AUGMENTED REALITY

Harsha Jain, Daksha Pawar, Shreya Shitole, Balaji Yadav, Shankar Amalraj

Abstract— In today's classrooms, traditional teaching methods often fail to fully engage students, making it harder for them to grasp complex concepts. To tackle this issue, there is a growing need for interactive tools that can enhance learning experiences. Our project addresses this by developing an Augmented Reality (AR) Educational Application that brings learning materials to life. Using AR, we allow students to visualize and interact with 3D models related to their subjects. The

application works by overlaying digital information onto the physical world, guiding students through various concepts in an engaging way. Initial testing has shown that this approach significantly improves both engagement and understanding.

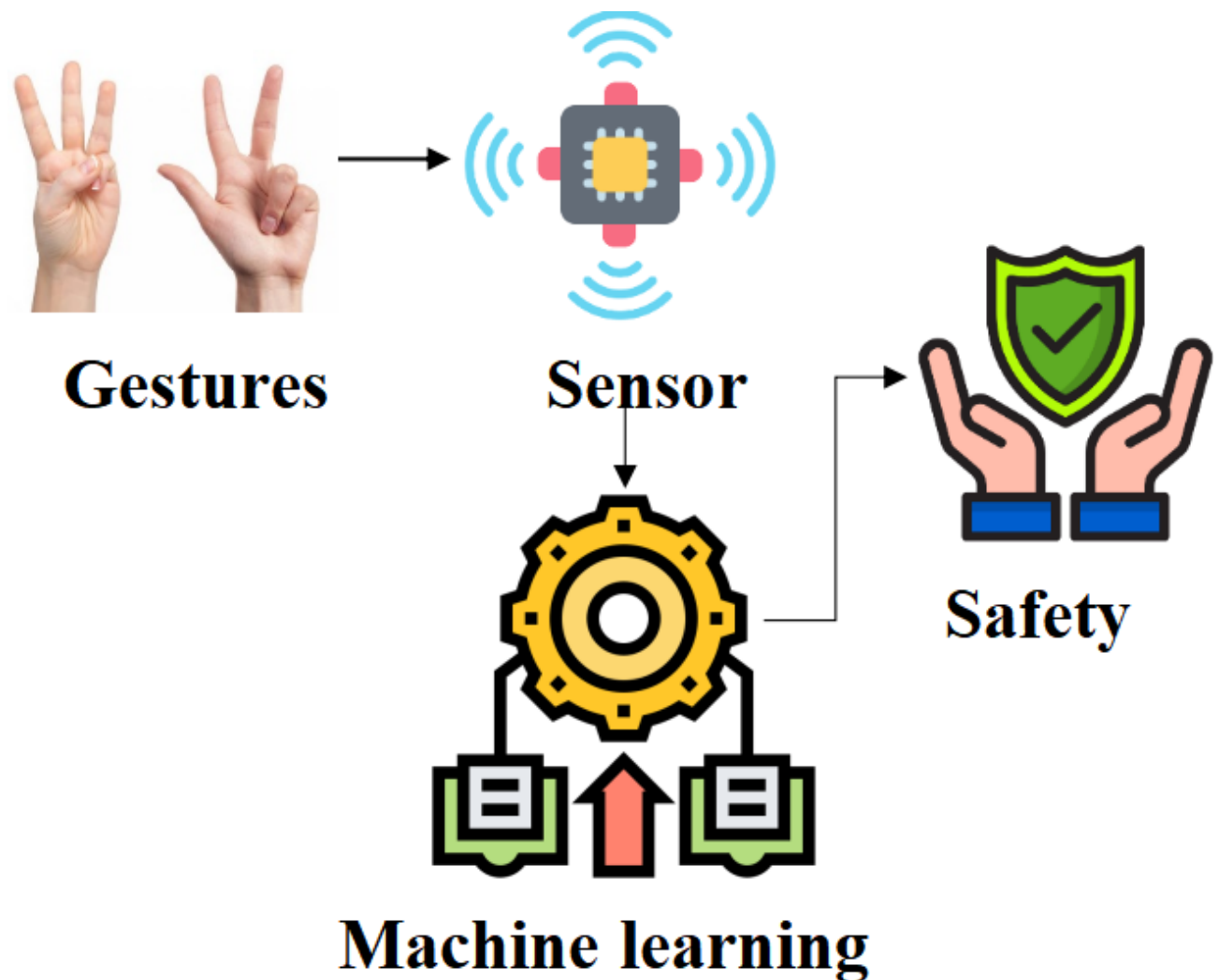
Keywords – AR Education, Augmented Reality Learning, Interactive Learning, AR Classroom.



3. REVIEW OF HOME AUTOMATION USING ML FOR GESTURE CONTROL AND SAFETY DETECTION

Prashant Raut, Vishal B. Kaushal, Parth D. Khamkar, Aditya B. Lugade, Shankar Amalraj

Abstract —Home automation systems are evolving rapidly with advancements in machine learning (ML) and gesture-based controls, enhancing user convenience and safety in smart environments. Traditional automation interfaces lack intuitive control and adaptability, making integrating ML-driven gesture recognition and safety monitoring essential.



Event-based sensors capture dynamic, high-resolution data, allowing asynchronous gesture interpretation and optimized device control. ML models, including convolutional and recurrent neural networks, improve gesture recognition, while safety monitoring systems identify hazards like falls and dangerous proximity for vulnerable residents. This paper comprehensively reviews current advancements in gesture control, safety monitoring, and energy efficiency within home automation. It highlights the efficacy of technologies such as event-based cameras, sensor networks, and ML algorithms while addressing limitations in accuracy under varying environmental conditions. A comparative analysis suggests future improvements in adaptive, secure, and energy-efficient systems that support personalized, user-centered automation.

Keywords – home automation, smart homes, machine learning, intelligent home automation, recurrent neural network, convolutional neural network, and Energy Efficiency

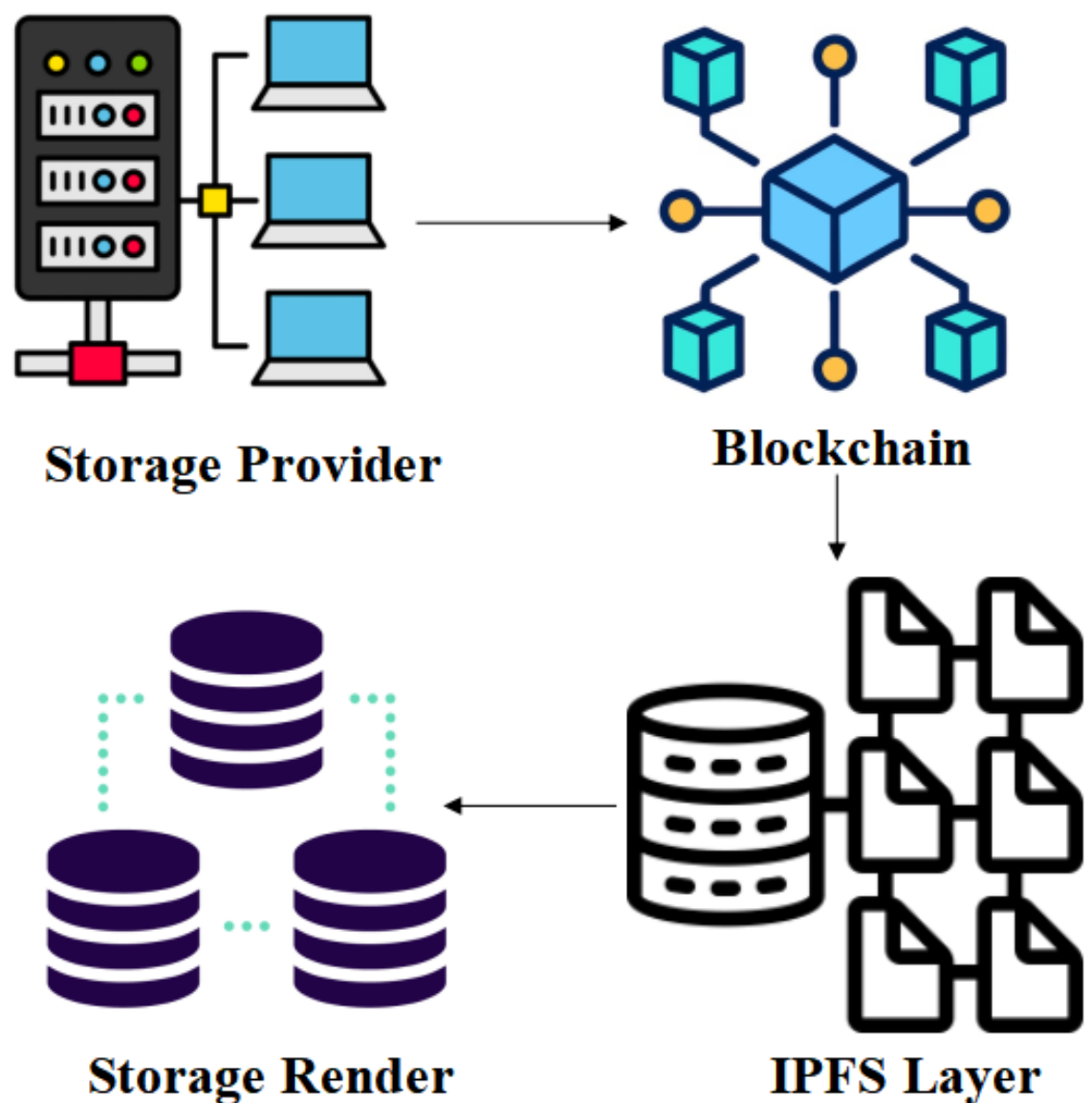
4. BLOCKCHAIN-BASED DISK SPACE RENTAL SYSTEM

Ashwini Kamble¹, Manoj Pise, Ajit Waman, Rameshwar Vishwakarma, Suraj Suryawanshi¹, Shankar Amalraj

Abstract—This paper presents a blockchain-based decentralized disk rental system designed to securely and efficiently utilize unused storage capacity. Unlike traditional cloud storage models reliant on centralized providers, this system integrates blockchain technology with the Inter Planetary File System (IPFS) to establish a decentralized, tamper-resistant storage solution. Smart contracts automate storage agreements, ensuring transparency and

immutability, while advanced cryptographic techniques and proof mechanisms guarantee data integrity and confidentiality. Leveraging lightning network technology for fast, low-cost transactions, the system distributes data across a decentralized network of nodes, significantly enhancing data privacy, security, and availability. This architecture addresses key vulnerabilities of centralized storage models, such as single points of failure and data breaches, offering a robust, scalable alternative for distributed storage applications. The proposed solution provides a promising pathway for more secure and resilient storage infrastructure in decentralized environments

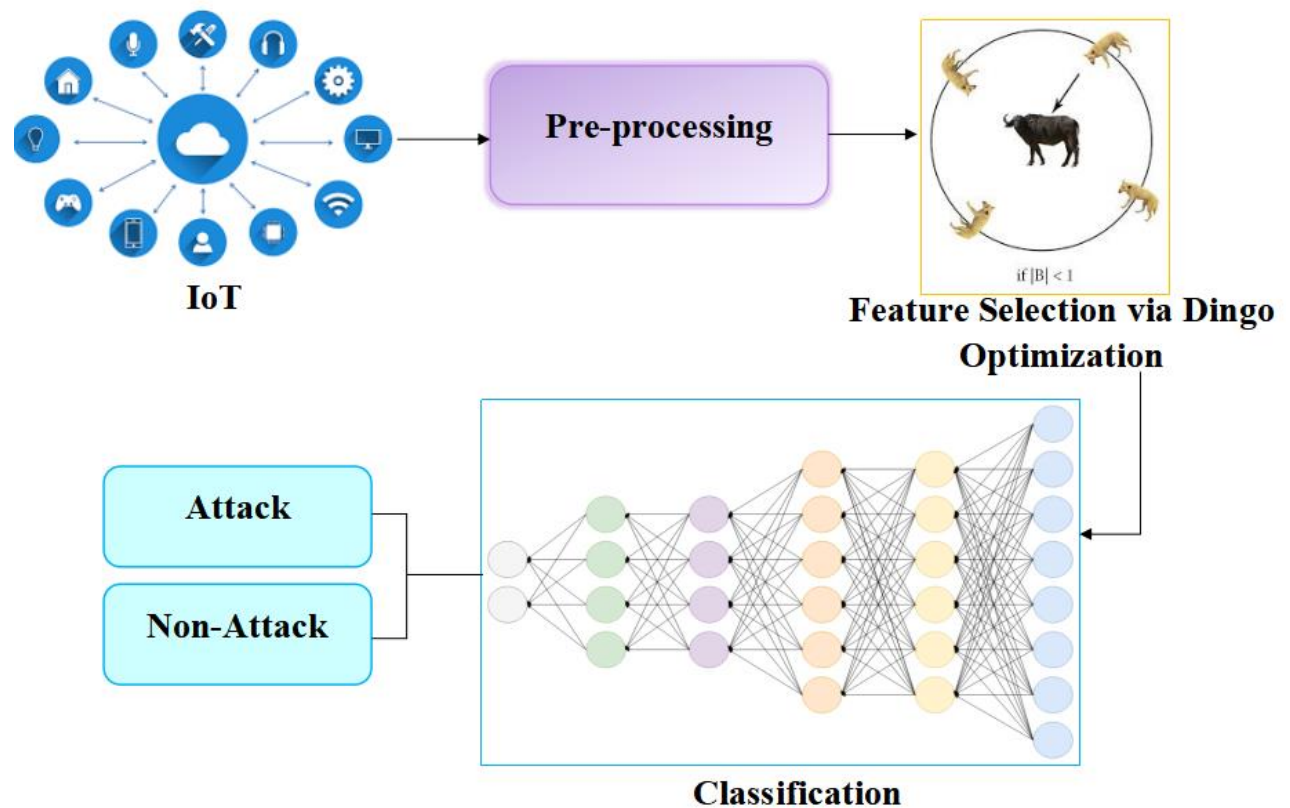
Keywords – Blockchain, Decentralized Storage, Data Integrity, Cryptography, Data Privacy.



5. DOLO-ID: DINGO OPTIMIZED HIERARCHICAL AUTO-ASSOCIATIVE POLYNOMIAL CONVOLUTIONAL NEURAL NETWORKS FOR INTRUSION DETECTION

Abdullah Muhammad Noman, Sakiru Adebola Solarin and Lye Chun Teck

Abstract—The Internet of Things (IoT) facilitates the seamless integration of diverse physical devices with the Internet, enabling groundbreaking applications across sectors such as defense, transportation, agriculture, and healthcare. These applications have gained significant traction due to their capacity to address



real-time challenges efficiently. Nevertheless, IoT systems are inherently vulnerable to security threats, exposing them to various cyberattacks that can compromise their functionality and reliability. To address these challenges, a novel Dingo Optimized hierarchical Auto-Associative polynomial convolutional neural networks for Intrusion Detection (DOLO-ID) approach has been proposed to enhance the security and detecting intrusion effectively. The raw data is pre-processed through cleaning and normalization to enhance quality and usability. Feature selection is achieved utilizing the Dingo Optimization which iteratively identifies and optimizes the most relevant features for classification tasks. The selected features are fed into a deep learning architecture incorporating a HAPP CNN Network for accurate classification of intrusions into categories such as attack or normal. The f1score, recall, precision, and accuracy of the proposed DOLO-ID method are 92.8%, 91%, 92% and 98.56% which is higher than the existing techniques.

Keywords –Dingo Optimization, Internet of Things, Polynomial convolutional neural networks, Cyberattack, Preprocessing