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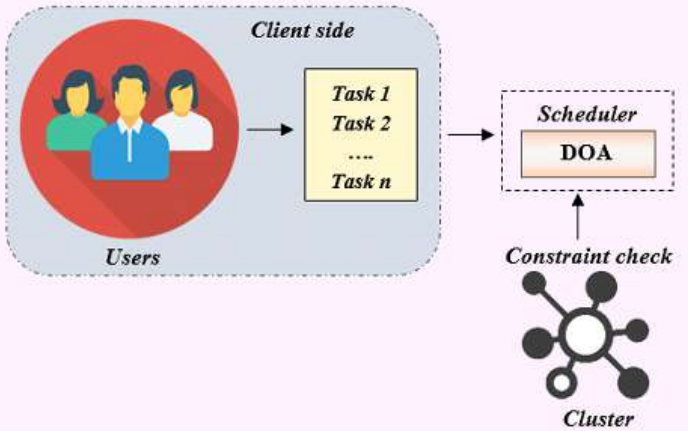

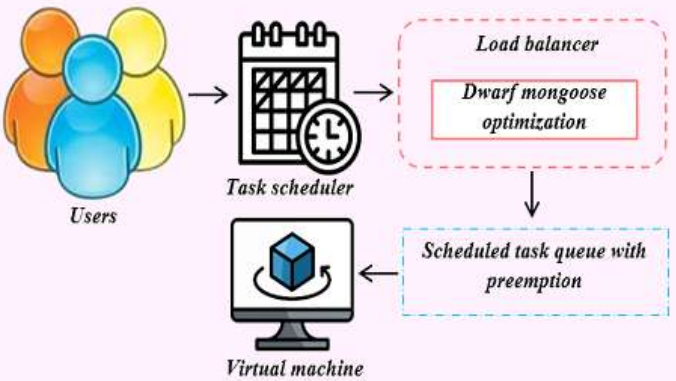

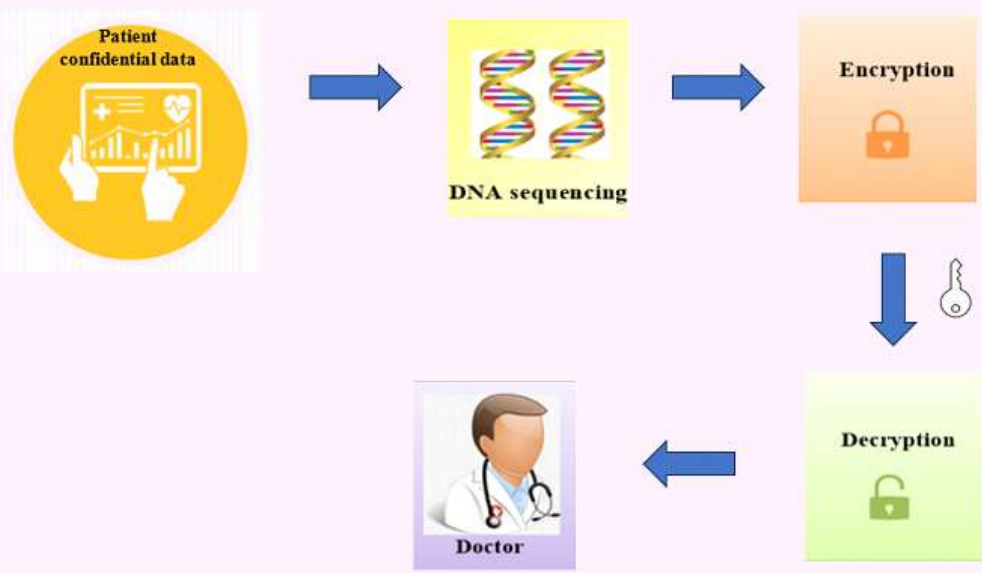

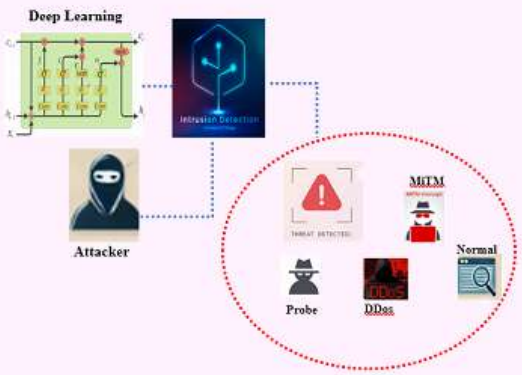

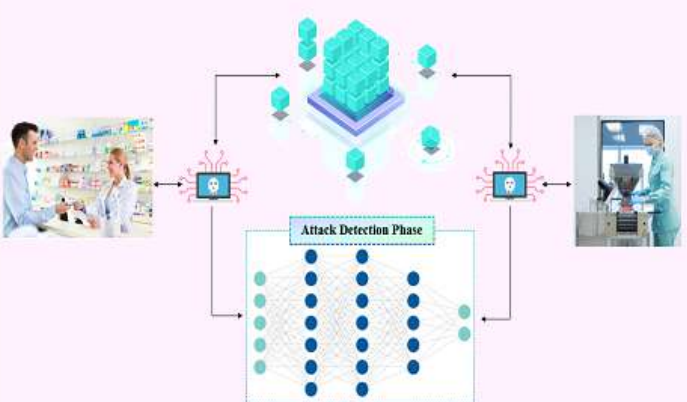

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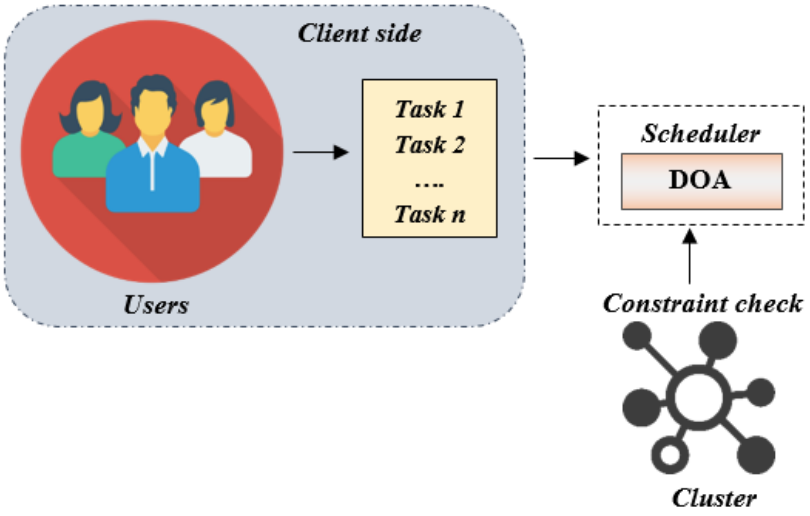
1. DEADLINE AWARE TASK SCHEDULING USING DRAGONFLY OPTIMIZATION IN CLOUD ENVIRONMENT

R.R. Sathiya and A. Ahilan

Abstract – Chatbots have become integral to modern digital communication, particularly in industries like Retail, Supply Chain, and E-Commerce, where seamless interaction is key to customer satisfaction. This paper presents the design, development, and implementation of a WebSocket-based chatbot application that combines responsive front-end technologies with the advanced capabilities of large language models (LLMs). Leveraging React, JavaScript, HTML, and CSS, the chatbot interface ensures an intuitive and dynamic user experience while WebSocket facilitates real-time communication. By integrating LLMs, the chatbot enhances its ability to interpret user queries, deliver personalized responses, and transition to live agents when necessary. Comprehensive performance evaluation and user satisfaction metrics highlight the system's efficiency and accuracy. This research contributes to advancing chatbot design by integrating emerging technologies for seamless conversational experiences. User feedback indicated a high



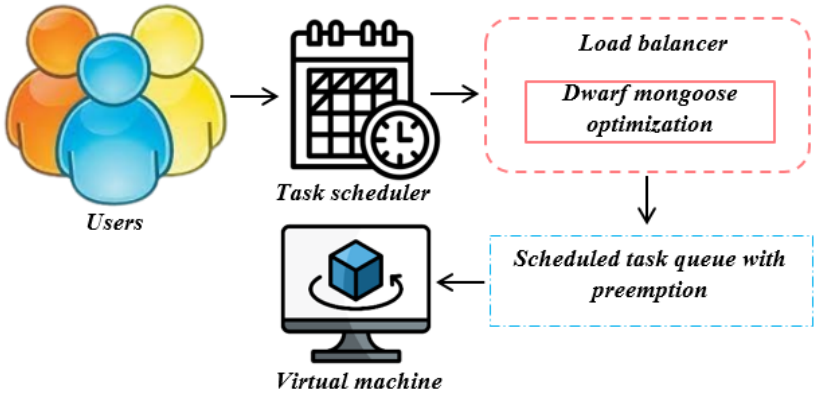
level of satisfaction with the system, with 92% of users reporting a positive experience. The combination of real-time interactions and accurate responses contributed to this outcome, with a 95% intent recognition accuracy achieved by the LLM-powered system.

Keywords_ Cloud computing, load balancing, Dragonfly optimization algorithm, Quality of Service, and Mkespan.

2. DWARF MONGOOSE OPTIMIZATION BASED TASK ALLOCATION MODEL IN CLOUD COMPUTING FOR COST EFFECTIVENESS

S. Lokesh and M. Ramya Devi

Abstract – Task scheduling plays an important role in the cloud computing (CC) platform. The cloud allocates each task using different physical and virtual machines. One disadvantage of existing task scheduling algorithms in CC is their inefficiency in handling dynamic workloads, leading to resource underutilization or overload. This can degrade performance and increase operational costs. To overcome this challenge, a meta-heuristic model for task scheduling for cloud called Dwarf Mongoose Algorithm based Task Allocation (DMA-TA) has been introduced. The proposed model intends to solve the issues of optimal resource allocation (ORA) and scheduling in Cloud model, using a parallel scheduling process can improve the task scheduling during the connectivity between serial operations remains constant. The significant factor of dynamic tasks is provided by users in serial manner as queue, in which the tasks are having different priorities based on the order of execution. Moreover, the model developed a Deadline-based Task Classification (DTC) for efficient results on scheduling. The paper uses dwarf mongoose optimization (DMO) for scheduling tasks in minimal latency, through which the



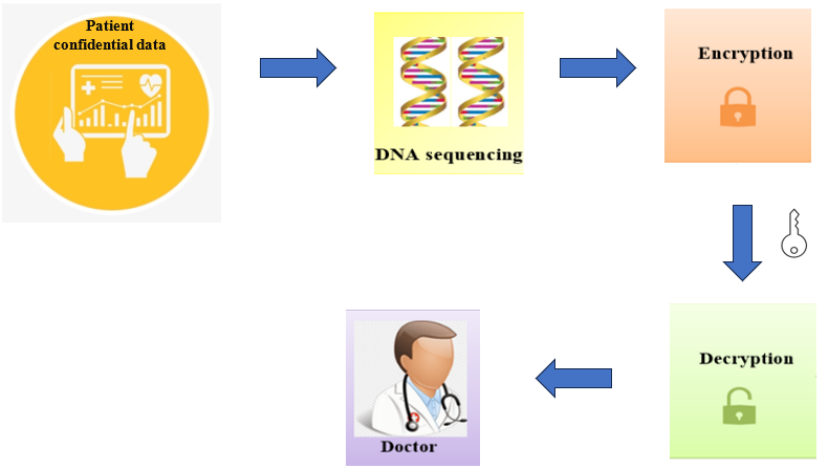
user satisfaction is improved. The results are effectively analyzed based on parameters such as makespan, time effectiveness, cost effectiveness and efficiency. The proposed DMA-TA technique achieves the lowest processing time of approximately 10 ms, compared to BSO-LB, QODA-LB and CSLBA respectively.

Keywords *– Task scheduling, cloud computing, Deadline, Dwarf mongoose optimization.*

3. EO-SSPR: EURYGASTER OPTIMIZED SECURE SHORTEST PATH ROUTING PROTOCOL IN WIRELESS SENSOR NETWORK

T. Rajesh and S. Sony Helen

Abstract – Wireless sensor network (WSN) has numerous sensor nodes connected to sink nodes creating a network that is both dynamic and resource limited. The ever-changing environment and the sensor nodes' limited resources make it difficult to determine the best and most secure network structure. The data relay paths are one of the key issues with data transfers in WSNs strategy. In these situations, meeting the quality-of-service requirements is essential. To overcome these challenges and to find the shortest path Eurygaster optimized secure shortest path routing (EO-SSPR) approach has been proposed. The goal of EO-SSPR is to determine the shortest path while ensuring the secure data transmission. The sensor data collected from the patient is DNA encrypted and further encryption is done with the help of Crystal Kyber encryption. Shortest path is determined with the help of Eurygaster optimization. With the help of key generated, DNA decryption is performed further and the original signal data is finally recovered. The authorized user finally receives the original signal data via the shortest



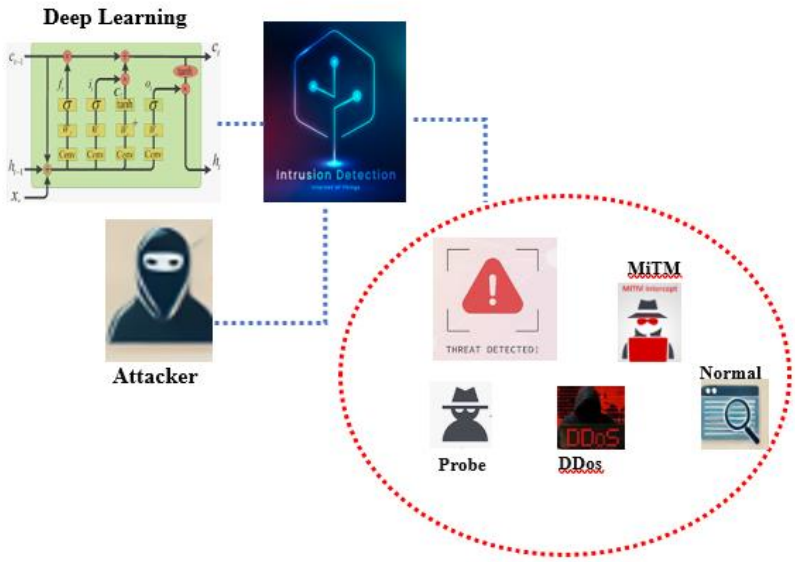
path determined. The encryption and decryption time of the proposed EO-SSPR is 12.03%, 8.57%, 4.01% better than DynCH, SEAMHR, SPSRN respectively.

Keywords *– Wireless sensor network, Eurygaster optimization, Crystal Kyber encryption, encryption time, decryption time.*

4. CODE-IDS: CONVOLUTIONAL NEURAL NETWORK BASED INTRUSION DETECTION SYSTEM USING DEEP LEARNING

Ramakrishna Hegde and S M Soumyasri

Abstract – The Internet of things is a network of interconnected devices that exchange data and communicate with the cloud and other IoT devices. IoT devices, which may include consumer electronics as well as mechanical and digital equipment, are typically equipped with sensors and software. But conventional IDS frameworks frequently have trouble correctly distinguishing intricate attack patterns from typical activity, which leads to a high false-positive rate and little flexibility to changing threats. This paper proposes a novel CODE-IDS framework using deep learning Network to improve network security by precise cyber threat identification and mitigation. While allowing secure access to attacker, the system records the actions of possible attackers. The technique successfully differentiates between typical, DDoS, MiTM, and probe attack traffic by using Deep learning. PCA is used for feature extraction and the Adaptive Weighted Particle Swarm Optimization is applied to retain the most important classification for feature selection. The parameters, enhancing its accuracy and performance the overall accuracy of the suggested model is 98.78% and methods achieving a low accuracy of 93.85% 96.8% and 96.8% respectively.

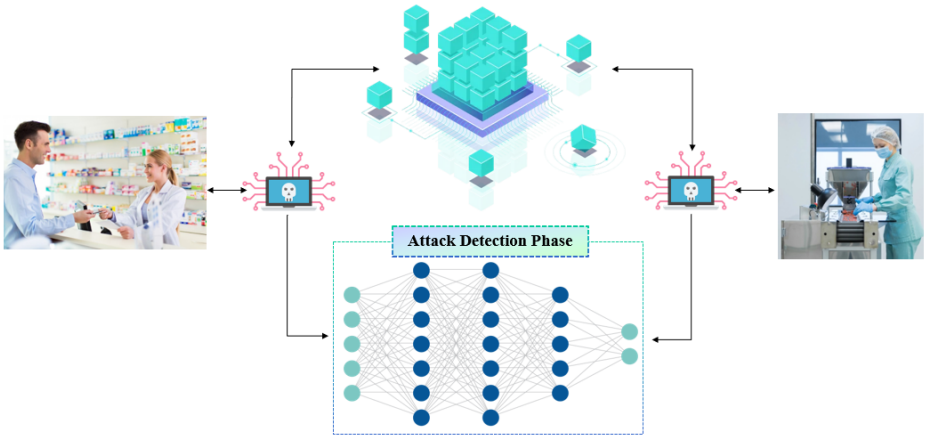


Keywords *– Intrusion Detection, Adaptive Weighted Particle Swarm Optimization, Deep Learning, Convolutional Neural Network, Principal component analysis.*

5. $SID^2S - CHAIN$: Secure Solana based Intrusion Detection in Pharmaceutical Supply Chain Management using Stacked GRU-LSTM

R.R Sathiya[1, *] and A. Ahilan[2]

Abstract – In this research work, a novel Solana based Intrusion Detection using Deep learning in pharmaceutical Supply Chain management ($SID^2S - CHAIN$) framework is proposed for securing the pharmaceutical supply chain to resist from cyber-attacks in the healthcare environment. Initially, the input data from the pharmacy are updated to the blockchain and all the entities in the supply chain has the synchronized and immutable record of the stock requirements. The supplier accesses the blockchain to retrieve the updated stock details and performs a data integrity check to ensure that the information from the blockchain is accurate. If any inaccurate information is sensed, those data are fed under the attack detection phase which is integrated with correlation-based pre-processing and combined Stacked Deep Learning (Stacked-DL) network-based data classification. Once verified, the supplier sends the required medicine information to the manufacturer to prepare the medicines and finally, all the requested medicines are packed based on the manufacturer's instructions. The $SID^2S - CHAIN$ framework is evaluated by using IoT-23 dataset and it is simulated by using MATLAB. The experimental result shows that the accuracy of the $SID^2S - CHAIN$ framework has increased up to 90% for attack detection in PSCM. The



accuracy of the $SID^2S - CHAIN$ framework achieves 5.55%, 2.22%, and 8.88% improvements compared to the Pharma Chain, IMEFC, and BSFR-SH techniques respectively.
Keywords – *Pharmaceutical Supply Chain Management, Solana Blockchain, Intrusion Detection, Stacked Gated Recurrent Units-Long Short-Term Memory.*