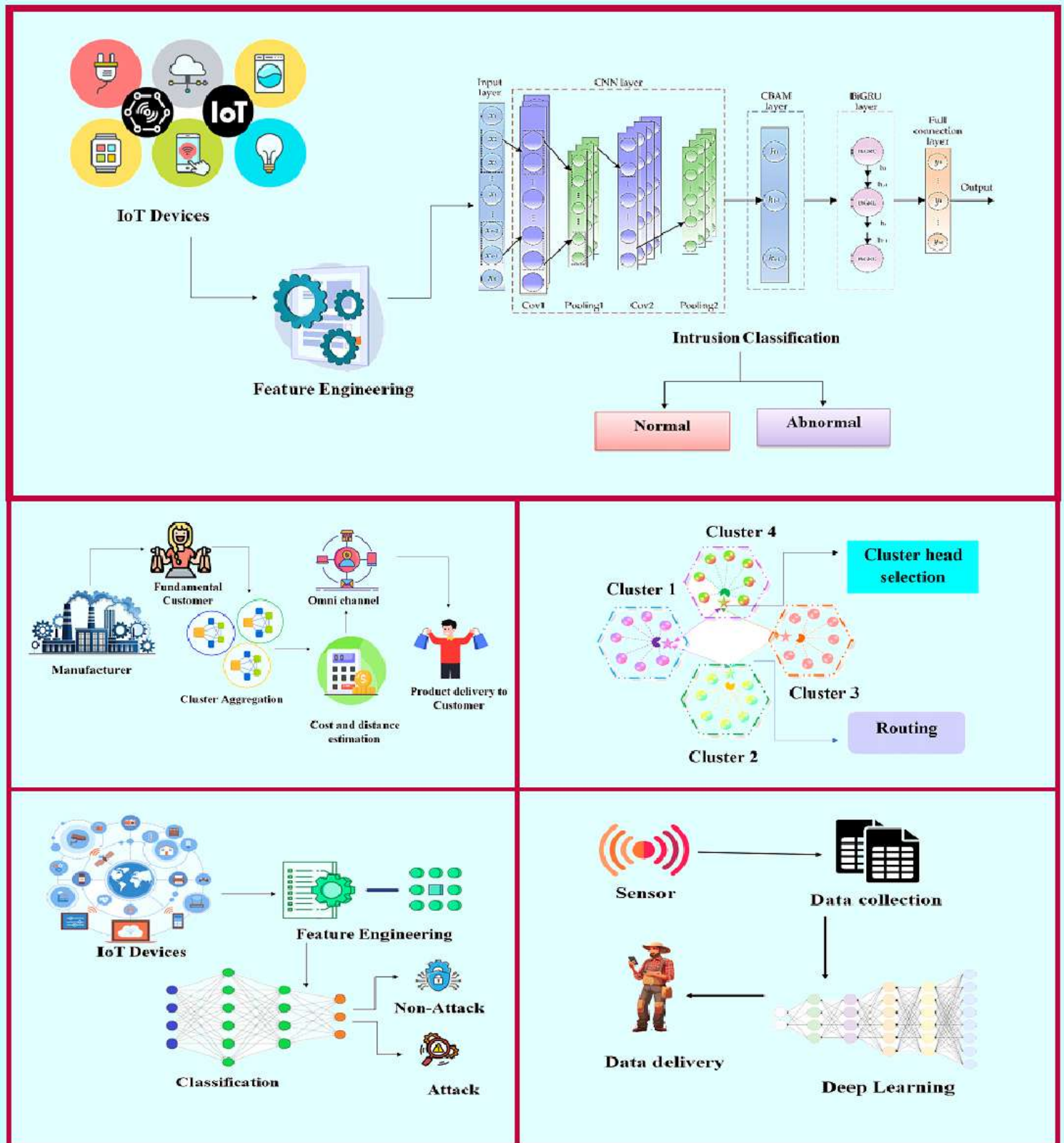


IJCEO

ISSN: XXXX - XXXX

International Journal of Computer and Engineering Optimization



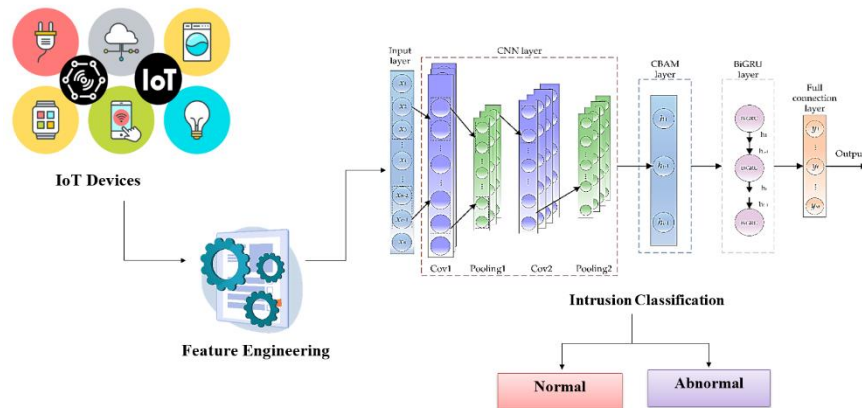
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1. IOT BASED MALWARE ATTACK DETECTION USING LAYERED DEEP LEARNING FRAMEWORK

Vishnu Karthik Ravindran

Abstract – Internet of Things (IoT) is the network connected among physical devices with various sensors which plays a key role in modern and smart societies. However, the IoT paradigm is prone to security concerns as many attackers try to hit the network and make it vulnerable. To overcome



these issues, a novel Firefly optimization Algorithm combined SNN with Conv-BiLSTM for attack termination in IoT (FAST-IoT) approach is proposed for detecting attacks in IoT environment. Initially, the IoT devices generate data packets, which undergo data pre-processing. The processed data is then passed through a Spiking Neural Network model (SNN) for feature extraction. These features are selected by using the Firefly Optimization Algorithm (FOA) which is fed into a Convolutional-Bidirectional Long Short-Term Memory (Conv-BiLSTM) model. The Conv-BiLSTM model classifies the input as either Attack or No-Attack and if an attack is detected, it is blocked otherwise, the user proceeds without interruption. The FAST-IoT approach is evaluated by using the N-BaIoT dataset and it is simulated by a cloud simulator (Cloudsim). The proposed FAST-IoT approach achieves the highest accuracy of 93.2%, compared to 65.8% for DeepAK-IoT, 78.6% for MalBoT-DRL, and 87.4% for Hierarchical Cloud DNN respectively

Keywords – Malware Attack Detection, Internet of Things, Spiking Neural Network model, Firefly Optimization Algorithm.

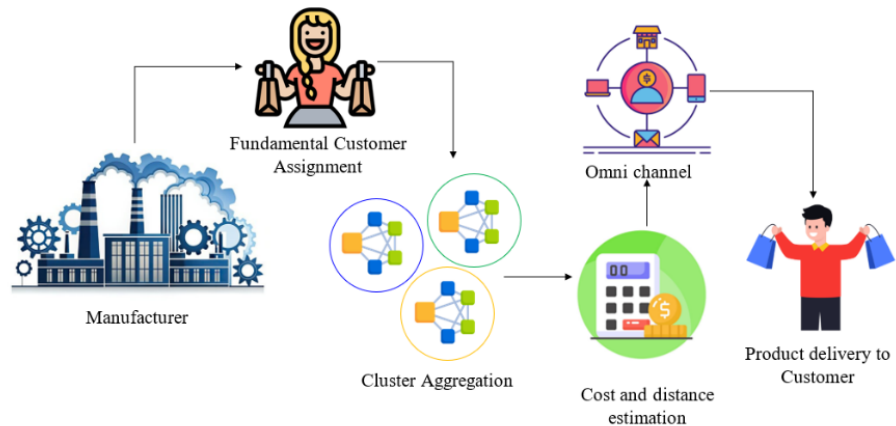
2. ROLE OF WALMART FULFILMENT MANAGEMENT SERVICES IN OMNI CHANNEL RETAILING USING MULTI-DEPOT VEHICLE ROUTING MECHANISM

Ramya Thatikonda

Abstract – The challenge to develop innovative FF solutions for online orders has rapidly grown into a huge challenge for brick-and-mortar retailers. Pure online players have increasingly been able to challenge them on in-store sales, and the advantage of focusing purely on in-store sales

is no longer sustainable. Retailers are in a perpetual quest for new methods of fulfilling online orders and arranging last-mile logistics. Lead-time reduction, in this case, has become an important requirement. Of the newest approaches for doing so, the OC approach via using already existing infrastructure, by incorporating DCs and local stores into one FF system is among others. Therefore, this paper introduces the fast integrated order FF concept in grocery retailing and meets new challenges arising from this development. Empirical analysis yields cost items pertinent to decisions regarding order processing in a store, and a procedure for computing total FF costs is constructed. The policy involves allocating orders to different depots and determining routes at each of these depots as a function of their particular FF costs. An especially designed cluster-first, route-second heuristic is applied. The results indicate that the integrated rapid order FF saves approximately 7.4% of costs over a DC-based FF. However, because the in-store order processing will still be the key cost factor, this does not mean that DCs will be entirely substituted with store-based FF. All these results reflect the need for modeling the in-store processing costs much more precisely when deciding FF over a diverse network.

Keywords – Omni Channel Retailing, Walmart, Multi-Depot, Combined Instant Order Fulfilment, Same-Day Delivery, Transport Routing.



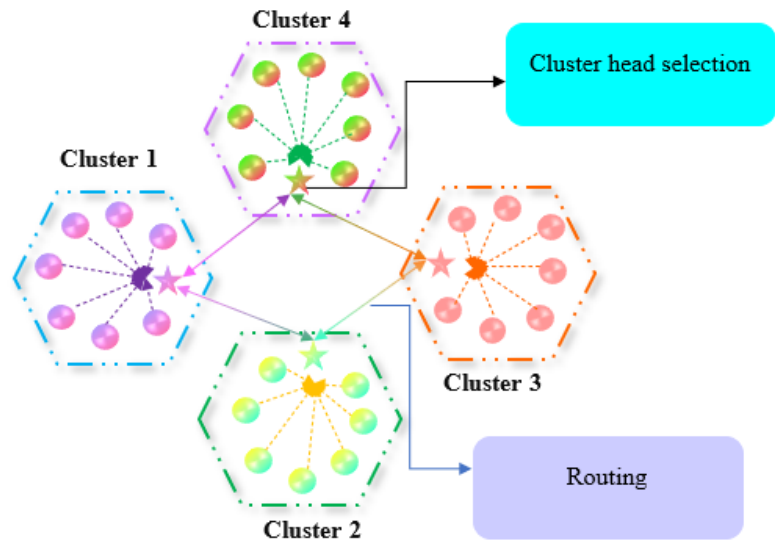
3. ENERGY EFFICIENT ADAPTIVE ROUTING VIA ENHANCED TEMPORAL CONVOLUTIONAL NEURAL NETWORK

Gokul Pran S, Padmavathi E, Jhansi R, Godlaveti Simhadri, Praveen D and Thonduru Karthik

Abstract – A Wireless Sensor Network (WSN) comprises numerous resource-constrained sensor nodes (SNs) that are tasked with sensing, processing, and transmitting data. Among the primary challenges in WSNs are optimizing energy consumption (EC) and extending network lifetime (NL). In this paper, a novel Energy-based Routing Algorithm for Adaptive Wireless Sensor Networks (ERA-WSN) is proposed to address these challenges. The ERA-WSN framework employs an Enhanced Temporal Convolutional Network

(ETCN) for optimal cluster head (CH) selection, ensuring energy-efficient clustering. Subsequently, routing is performed using the Grey Wolf Optimization (GWO) algorithm to improve data transmission efficiency. The proposed method is evaluated using the NS2 simulator. Experimental findings show that ERA-WSN outperforms existing models such as FTOPOSIS-HJBO, EEACHS, and M-PSO methods in terms of latency, EC, packet delivery ratio (PDR), and NL. ERA-WSN decreases latency by 19.6% compared to FTOPOSIS-HJBO, 13.5% compared to EEACHS, and 16.1% compared to M-PSO methods respectively.

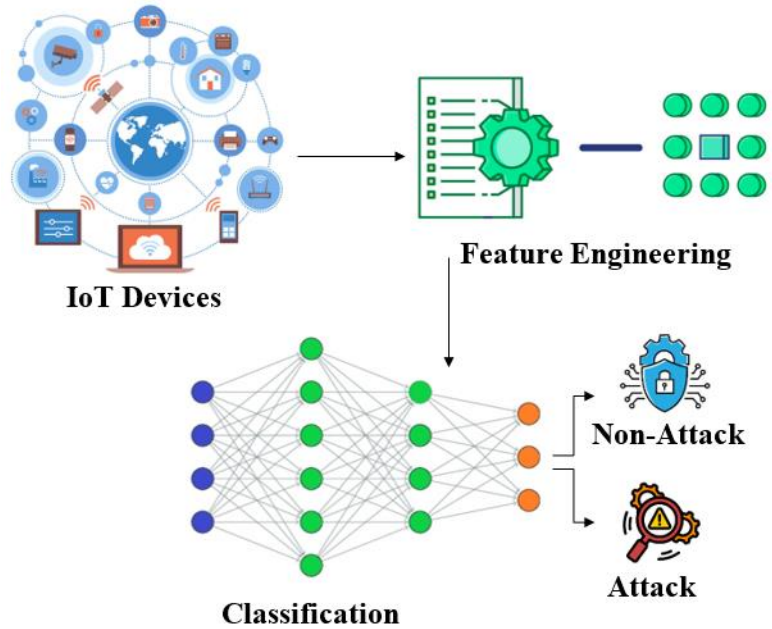
Keywords – Wireless Sensor Networks, Enhanced Temporal Convolutional Network, Grey Wolf Optimization, data transmission.



4. CAB-IDS: IoT-BASED INTRUSION DETECTION USING BACTERIA FORAGING OPTIMIZED BiGRU-CNN NETWORK

Jhansi Bharathi Madavarapu

Abstract – Internet of Things (IoT) is an advancing technology that enables the development of various essential applications. Despite its potential these applications frequently depend on centralized storage systems which pose challenges such as privacy risks, security threats, and vulnerability to single points of failure. To overcome these issues, a novel CNN-BiGRU based Bacteria foraging optimization for Intrusion Detection System (CAB-IDS) framework is proposed for detecting and mitigating intrusions in IoT networks and to enhance the security. Initially, the generated IoT data packets undergo data pre-



processing module which is carried out by data normalization. After pre-processing, feature extraction is performed using a regulated network and the feature selection process is optimized through a Bacteria Foraging Optimization (BFO) algorithm. The chosen features are input into a Bidirectional Gated Recurrent Unit combined with a Convolutional Neural Network (BiGRU-CNN) to carry out the classification which determines whether the data is normal or abnormal. The CAB-IDS method is validated by using Network Simulator 2 (NS2) and assessed by using detection accuracy, false positive rate, residual energy, and computing overhead. The accuracy of the proposed CAB-IDS framework is 97.72% higher than that of the SPIP method which is 83.43%, HybridChain-IDS method which is 88.57% and TLBO-IDS method, which is 92.12% respectively.

Keywords – Internet of Things, Intrusion Detection System, Bacteria Foraging Optimization, Bidirectional Gated Recurrent Unit - Convolutional Neural Network.

5. AWARE-AGRI: REAL TIME SENSORS-BASED ADAPTIVE WEATHER FORECASTING FOR AGRICULTURE

Madumidha Subramanian and Sivaranjani Paramasivam

Abstract – Weather and climate conditions have become more erratic and unpredictable, both domestically and internationally, which might have a devastating effect on agricultural output. Numerous climatic elements, including temperature, humidity, precipitation, air quality, and many more, are constantly altering in a frighteningly unpredictable way. Having a local weather station that can provide farmers with up-to-date information on the weather is crucial. It is essential to have a nearby, real-time weather station that can inform farmers of the present weather. In order to overcome the se issues, a novel Adaptive Weather forecasting Application using REal time sensors for AGRiculture (AWARE-AGRI) technique has been proposed in this work. The proposed AWARE-AGRI technique monitors the weather in real time by using Stacked convolutional neural network (SCNN) based Bidirectional Long Short-Term Memory (BiLSTM) technique for classifying weather data. An Android application has been deployed for tracking the weather online, which can access a dedicated server. MATLAB has been used to evaluate the proposed technique. Certain metrics, including accuracy, precision, f1-score, and recall have been used to evaluate the performance technique. The proposed AWARE-AGRI will give farmers more hope that they will be able to complete their agricultural responsibilities in real time.

Keywords – Agriculture, Sensors, Weather Forecasting, Stacked Convolutional Neural Network.

