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Communication Technology and Digital Publishing of Mainstream Media in the Era of Integrated Media

Abstract: - In era of integrated media, concept of communication technology and digital publishing in mainstream media is evolving to encompass seamless connectivity, interactive user experiences, and personalized engagement strategies the challenges in the integration of communication technology and digital publishing in mainstream media in the era of integrated media is the need to effectively manage and adapt to rapidly changing technological advancements and trends, ensuring that media organizations remain agile and competitive in a dynamic digital landscape. This manuscript proposes a communication technology and digital publishing of mainstream media in the era of integrated media with Density Clustering and Graph Neural Network (CTDP-MMIM-DCGNN). Initially, the data is collected from survey and focus group discussion guide based on analysis data. Afterward, the information's are fed into preliminary processing. In preliminary processing section, Unsharp Structure Guided Filtering (USGF) is used to eliminate the missing data. The outcome from the pre-processing data is transferred to the DCGNN. The DCGNN method effectively classifies credibility levels as highly credible, fairly credible and not credible. The Red Piranha Optimization (RPO)is used to enhance the weight element of DCGNN. The suggested technique is executed in Python and the effectiveness of the suggested CTDP-MMIM-DCGNN technique is assessed with help of numerous performance measures like accuracy, precision, recall, sensitivity, specificity and computation time. Proposed CTDP-MMIM-DCGNN method attains higher accuracy 22.32%, 31.25% and 29.31%; higher sensitivity 16.34%, 12.23%, and 19.12%; higher precision36.22%, 38.13% and 28.17%,higher recall 31.13%, 23.33% and 23.13%for highly credible analysed to the existing methods, like novel attack finding system for Physics-informed neural networks with periodic activation functions for solute transport in heterogeneous porous media (PAF-SHPM-PiNN), Realization of artificial intelligence interactive method for promoting education in era of 5G integrated media (ISAE-IM-RNN),Research on Digital Communication Mode of National Traditional Sports Culture Based on BP Neural Network(DC-NTSC-BPNN).

Keywords: Communication Technology, Density Clustering and Graph Neural Network, Information Preference, Integrated Media, Mainstream Media, Media Credibility, Media Exposure, Red Piranha Optimization.

I. INTRODUCTION

a) Background

In the contemporary landscape of media and communication, the convergence of various technologies has given rise to what is often termed as the era of integrated media [1]. This dynamic environment has transformed the method information is dispersed, consumed, and interacted with by individuals and communities worldwide [2]. At the forefront of this transformation are mainstream media outlets, which are continually adapting their communication strategies to effectively navigate the complexities of this digital age [3].The communication strategy based on communication technology and digital publishing in the era of integrated media represents a multifaceted approach aimed at maximizing the reach, impact, and engagement of mainstream media content [4]. Leveraging the power of advanced communication technologies, such as social media platforms, mobile applications, and multimedia content delivery systems, this strategy seeks to create a seamless and immersive experience for audiences across various digital channels [5].The rise of digital media has brought forth a flood of user-generated content, which appears to rival the output of mainstream media about of speed in dissemination, accessibility, and widespread usage [6]. These differences in the characteristics, organization, and operation of digital and general media have sparked a broad spectrum of attention and apprehension between various segments of society [7]. Though media professionals engage in debates over the principles and proficiency of these media networks, consumers express concerns about the validity of vast amount of data constantly flowing from these sources [8].The abundance of information produced on a daily basis by digital and traditional media, particularly in Nigerian media, has made the Nigerian public question the veracity of the media platforms that produce this information as well as its legitimacy [9]. The necessity to look at how the public perceives the credibility of the media has taken on new community significance and ancient urgency in light of the quick

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developments in new media skills, the emergence of partisan broadcasting, and the widespread availability of false newsflash [10].

b) Challenges

In the era of integrated media, mainstream media faces multifaceted challenges at the intersection of communication technology and digital publishing. One prominent challenge lies in adapting to the ever-evolving landscape of communication technologies. From social media platforms to emerging interactive content formats, media organizations must continuously innovate to engage audiences effectively. Additionally, the proliferation of digital channels requires adept navigation in content distribution, ensuring seamless delivery across diverse platforms while maintaining consistency in messaging. The gate keeping and fact-checking process increases viewers' trust in mainstream media. Participants voiced discontent that general media platforms frequently operate as spokespersons for their proprietors, constraining journalistic freedom. This puts participants' faith in the consistency of general media in jeopardy. However, informality in news distribution and contributors' anonymity on digital media platforms are blamed for participants' negative opinion of them. The Internet has transformed the way that data is dispersed traditionally, leading to a significant level of media integration. The news media sector has been substantially impacted by the new features that the media integration period has brought to news communication activities. At the same time, global news education is facing hitherto unheard-of obstacles. Alternative digital media are described as platforms that aim to correct or challenge the prevailing narrative found in mainstream media within a particular system. Therefore, alternate digital media, whether left- or right-wing, contest can strive to overthrow mainstream media's dominance and authority in presenting social reality.

c) Literature Review

Several research works were proposed in literature related to DL based, digital publishing of mainstream media in the era of integrated media a some recent works are revised now,

Faroughi et al. [11] have developed the Neural networks with periodic activation functions applied to soluble transportation in heterogeneous porous media, informed by physics. PiNNs concurrently solve for numerous dependent or independent area factors, like pressure and soluble concentration areas, while simultaneously constraining the network during the training phase using strong-form mathematical models. in contrast to typical neural networks that trust on extensive training data collections. To build PiNN method by double activation functions, sin and tanh, for seven instance studies, covering 1D and 2D consequences, to show how well PiNNs method with a periodic activation function decide soluble transportation in porous media. Next, using absolute point error and mean square error measures, the precision of the PiNNs' predictions was assessed and contrasted with the analytically or numerically determined ground truth solutions.

Ma et al. [12] have developed the recognition of AI interactive method for promoting learning in the period of 5G integrated media. The advancement of media incorporation has emerged as one of the future improvement trends as human society moves into 5G period. The state of media integration development was improving steadily with the help of 5G technologies. Study on the evolution and revolution of media incorporation in 5G era was conducted at the theoretical level, and appropriate techniques were suggested. Media meeting has emerged as a key improvement trend in light of the 5G technology's quick development. A new era of the Internet was about to begin, especially in light of the development and implementation of this technological product, especially in recent years. The intermediate class will experience a significant increase in population in the near future, and this segment was essential to the growth and advancement of medium.

Wang [13] have developed digital interaction method of national outdated sports culture depends in BP neural network. The strength of outdated national sports culture, which captures the essence of country, was crucial for the promotion of sports culture. The goal of current research was to ascertain the most effective way to employ network technology in the Internet era to disseminate national outdated sports culture. In suggested study explores the reasons national sporting traditions should be passed on, the obstacles that stand in the way of the movement, and the ways that the Internet might help. It also improves the timeliness and relevance of national traditional sports culture communication and provides a theoretical framework for design of national outdated sports culture interaction modes in the Internet era by analyzing its guiding principles and implementation strategies in the growth of national traditional sports culture via network communication mode.

Lwinet al. [14] have suggested the function of mainstream media in community health communication during emergencies: evaluation of reporting and error alteration of COVID-19 missing data. Community health

emergencies, like current COVID-19 epidemic, seem to be ideal conditions for the spread of false information. Mainstream news organizations have a special chance to leverage their position as reliable sources of information to dispel false information and alert the public about it. There a lack of empirical research on the ways in which mainstream news media have aided in the management of disinformation, despite evidence suggesting that they may be more effective in countering misinformation in society. This suggested study looks into how mainstream news publications in Singapore maintain and rectify misconceptions linked to COVID-19 in order to fill in these significant research gaps.

Banafaa et al. [15] have developed the digital twins, large external reality (XR)/virtual reality (VR) applications, and three-dimensional (3D) communications were examples of extremely immersive applications that were in demand. These applications will require 6G abilities to be achieved at scale in order to be financially practical. Essentially, believe that only the soon-to-come 6G networks is able to support extraordinarily high-performance connection with vast statistics of connected strategies even in demanding conditions like high compactness, varied flexibility, and high-energy surroundings.

Zhang et al. [16] have developed School-based programs were thought to be an essential part of digital media literacy education, as the field has grown and has become a shared duty of all educators. All instructors now share responsibility for teaching students about digital media literacy, and school-based programs were thought to be an essential part of this curriculum. The impacts of digital media literacy (DML) sequence on students' DML proficiency were investigated in this 10-week intervention study. 58 fifth students from two Beijing classes made up the participants. Structural equation modeling (SEM) and analysis of covariance (ANCOVA) were used to investigate how the DML course affected primary school students' digital media literacy.

Ren et al. [17] have developed the Social media platforms' influence on conventional media news viewing is reflected in the use of digital platforms in the news industry. People are prompted by this attention to look for more information that was expertly reported in outdated media. In particular, the amount of community media posts about stock affects how much care is paid to it the following era, as measured by how many people see news stories on the same stock that are published the day after.

d) Research Gap and Motivation

The research gaps highlighted in the cited studies underscore the need for further investigation into two distinct yet interconnected areas. Firstly, the emergence of digital necromancy and posthumous communication technologies presents a fascinating intersection of technology and socio-cultural practices [18]. The growing prevalence and user perceptions of these technologies, there remain a dearth of empirical research into how individuals utilize online communication tools for interacting with the deceased. Studying digital necromancy and posthumous communication requires innovative research methodologies that accommodate the unique nature of online interactions with the deceased. Researchers may encounter difficulties in accessing relevant data, designing appropriate research instruments, and interpreting the nuanced meanings behind users' behaviors and perceptions. Additionally, the increase of alternative digital media and its effect on political outcomes presents another intriguing research frontier. Despite existing studies on the counter-public sphere cultivated by alternative digital media, there's a notable gap in understanding its association with key political indicators such as interest and knowledge. Delving into how alternative digital media shapes political engagement over time, and its interplay with mainstream media, holds promise for informing media literacy initiatives and advancing understanding of digital democracy.

e) Contribution

The main contributions are summarized as follows,

- At first, the data are gathered via the data of survey and focus group discussion guide based on analysis data.
- Using an Unsharp Structure Guided Filtering to eliminate the missing data at survey and focus group discussion guide based on analysis data in the pre-processing segment.
- The pre-processed data are fed into the Multiple scale Hypergraph-based Feature Alignment Network to effectively categorize the credibility levels as highly credible, fairly credible, and not credible.
- The proposed CTDP-MMIM-DCGNN method is placed into repetition, and performance measures namely accuracy, precision, sensitivity, specificity, recall and computation time are considered.

f) Organization

Rest of this paper is ordered as follows: section 2 describes suggested methodology, section 3definesresult and discussion and section 4defines the conclusion.

II. PROPOSED METHODOLOGY

This section, Density Clustering and Graph Neural Network along with Red Piranha Optimization (DCGNN - RPO)is proposed. Block diagram of suggested Methodology is presented in Figure 1. This method contains of five steps: Data Acquisition, pre-processing, classification, and optimization. Accordingly, briefed explanation of entire step given below,

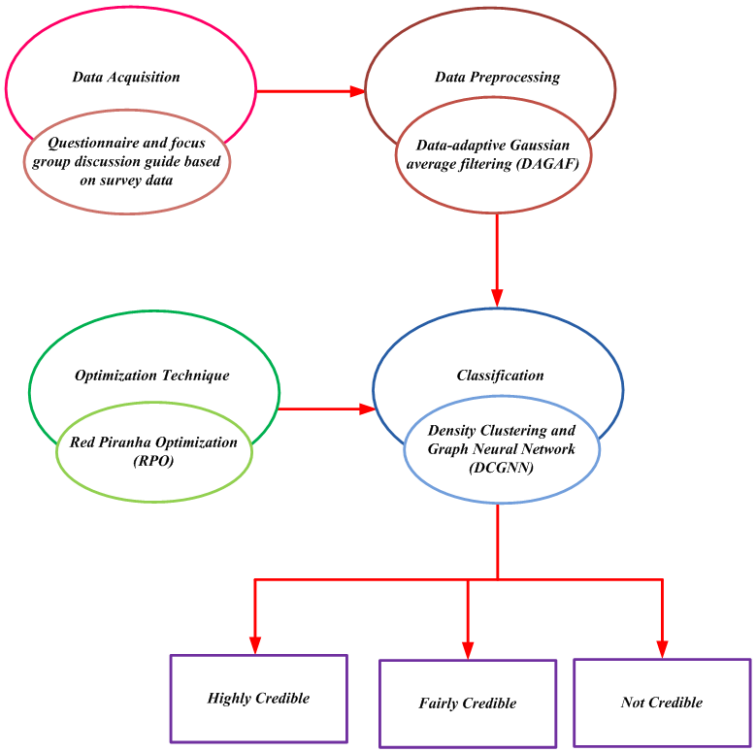

Fig 1: Block diagram for the Proposed Methodology

A. Data Acquisition

A questionnaire and a discussion guide for focus groups based on survey data are used in this study. Nevertheless a better dependence on digital media for data, the general media was still seen as having greater credibility, according to an analysis of both quantitative and qualitative data. A conversation guide for focus groups and a questionnaire were used to gather data. While survey data gave us individual opinions regarding the veracity of digital and general media, information from focus group discussions (FGDs) allowed us to better understand the elements influencing respondents' perceptions of these two media platforms. First, the exposure design of defendants to digital mainstream media was determined using descriptive statistics. The association among defendants' media exposure patterns and their opinions of the legitimacy of general and internet media was then investigated using multiple regression analysis.

B. Preprocessing using Unsharp Structure Guided Filtering (USGF)

This section, Unsharp Structure Guided Filtering is used eliminate the missing data. Standard guided filtering accepts there is natives equential relation among input data I and leadership data G [19]. USGF is a powerful data processing technique that offers significant advantages in improving data quality and facilitating various tasks. One of its key advantages lies in its ability to preserve edges and fine details while effectively reducing missing data. By employing non-linear filtering methods, USGF ensures precise control over the filtering process, resulting in visually appealing without introducing artifacts. The collected data undergoes a rigorous preprocessing stage using USGF to address missing data issues effectively. USGF, a powerful data processing technique, preserves edges and fine details while reducing missing data, thus ensuring the integrity of the dataset. The coefficients in USGF are determined through a learning network, enhancing the denoising

performance and reliability of the filtered data. In this instance, data of G can be transmitted to I. Such association is specified by the data of the inputs. Assuming wk indicates the native window placed at image k, data is considered by:

$$a_k = \frac{\frac{1}{|w|}\sum_{i \in w_k} I_i G_i - \bar{I}_k \bar{G}_k}{\sigma_k^2 + \in} \quad (1)$$

$$b_k = \bar{I}_k - a_k \bar{G}_k \quad (2)$$

Wherever G_k and I_k signify the mean of G and I in wk, σ_k^2 denotes the alteration of G in wk, $|w|$ signifies the amount of pixels in wk, and $\in$ represents regularization period. Rendering to the sequential constants a_k and b_k, the forecast output P is uttered by:

$$P_i = a_k G_i + b_k, \forall_i \in w_k \quad (3)$$

Meanwhile the whole information includes many windows wk covering pixel i, the clarified outcomes for that point are dissimilar. The average of all values can be used to get the final result of P_i:

$$P_i = \frac{1}{|w|}\sum_{k \in w} \left(a_k G_i + b_k\right) \quad (4)$$

Outdated directed sifting involves experiential parameter adjustments to achieve ideal a_k also b_k, resulting in limited denoising performance. Nevertheless, digital media are receiver-controlled because the receiver can regulate the speed at which they digest information, regardless of the medium by which they are provided. Using a self-supervised learning network to estimate two coefficients at the same time can increase training instability and result in inconsistencies in predicted data. Consequently, the constant b_k can be removed by placing Eq. (2) into Eq. (4)

$$P_i = \frac{1}{|w|}\sum_{k \in w_k} a_k G_i + \frac{1}{|w|}\sum_{k \in w_k}\left(\bar{I}_k - a_k G_k\right) \quad (5)$$

Then, achieve the following formulation

$$P_i = \frac{1}{|w|}\sum_{k \in w_k} a_k \left(G_i - \bar{G}_k\right) + \frac{1}{|w|}\sum_{k \in w_k} \bar{I}_k \quad (6)$$

A box mean filter is engaged to get the value of G_i^*. Thus, G_i^* represents very adjacent to its nasty Gk method in window w_i. Then, Eq. (6) can be redrafted as

$$P_i = a_i^* \left(G_i - G_i^*\right) + I_i^* \quad (7)$$

Wherever $a_i^* \frac{1}{|w|}\sum_{k \in w_i} a_k$, $I_i^* = \frac{1}{|w|}\sum_{k \in w_i} \bar{I}_k$. It can be detected that $\left(G_i - G_i^*\right)$signifies the unsharp frameworks of the leadership data. The constant a $*$ controls the concentration of frameworks. Particularly, the term $a_i^*\left(G_i - G_i^*\right)$ agrees the essential data that needs to be communicated to the filtered data I_i^*. To respond to the constants, two deep neural networks were trained. in Eq. (8), is uttered as

$$P = \partial_a (I, G) * G + \partial_b (i, G) \quad (8)$$

Wherever ∂_a and ∂_b denotes double CNNs, $*$ signifies partially multiplication. Additionally, to optimize the preprocessing phase, the study integrates a box mean filter and trainable deep neural networks, which collectively enhance the accuracy and efficiency of the information pre-processing process. On this foundation, Equation (9) can be revised as

$$P = \partial_a (I_{us}, G_{us}) * G_{us} + f(I) \quad (9)$$

Wherever the function $f(.)$ signifies a classical mean box filter, followed by a 3×3 convolutional level. $I_{us}=I-f(I)$, $G_{us}=G-f(G)$ signifies the unsharp frameworks of input data I and leadership data G .By eliminating missing data and preserving essential structural information, USGF lays a solid foundation. Overall, the preprocessing phase, particularly leveraging USGF, shows a pivotal role in confirming the reliability and quality in data, so collaborating to the success of proposed methodology in analyzing the communication technology and digital publishing landscape in the era of integrated media. Finally, the data is pre-processed by USGF, which eliminates the missing data. These pre-processed data are fed into the classification using DCGNN method.

C. Classification using Density Clustering and Graph Neural Network (DCGNN)

This section, DCGNN method is discussed. DCGNN is used to classify the credibility levels of highly credible, fairly credible and not credible. This section presents the suggested DCGNN [20], a Single-Stage 3D Object Recognition Network that blends DCGNN methods. DCGNN is considered to multiple scale and vertical, targeting to improve precision of 3D object recognition. This approach is used to control the overall act of flywheel method. Most assessments of media reliability and the variables affecting reliability perception has been conducted primarily with an eye toward the western audience. The DCGNN network contains three parallel structures, like S_1 , S_2 , S_3 and S_3, followed by final level. While S_1 , S_2 , and S_3 have identical architectures, they have different parameters. Parallel to other point-based networks, make furthest point try out and assembling using density clustering to build the initial point collections. All electronic media that can transform data into a digital format and connect to the Internet are considered digital media. Stimulated by 3DSSD, utilize F-FPS method to confirm that additional points are tested between the object, captivating into account spaces calculated using X, Y, Z organizes, and semantics features shown in equation (10) below.

$$L(\alpha,\beta)=C_E(\alpha,\beta)+C_D(\alpha,\beta) \tag{10}$$

Where $C_E(\alpha,\beta)$ and $C_D(\alpha,\beta)$ signify Euclidean X-Y-Z space and feature space correspondingly.

Create a GNN method to excerpt native Point-for-point features from assembled point collections using the local GNN Layer. Regarding the speed at which information is processed, the receivers have influence over this pace or do not. A graph pair $D=U,F$, wherever U signifies the set of vertices and F signifies the collection of edges. The graph D_i is created, where U_i contains of all points in a assembled point collection, and F_i is created rendering to below equation,

$$F_i=\{(P,Q)\,|\,P,Q\in U_i\} \tag{11}$$

Then, graph SAGE is used to retrieve the association between the whole graphs, as shown in the equation below

$$r_{N(j)}^{l+1}=\max\left(r_i^l\,\middle|\,i\in N(j)\right) \tag{12}$$

$$r_i^{l+1}=RELU\left(S.concat\left(r_j^l,r_{N(j)}^{l+1}\right)\right) \tag{13}$$

Wherever $N(j)$ signifies the neighbor point j , S represent the weight of linear level, and r_j^l denotes the features of point j in jth layer.

Global GNN Level: Design alternative GNN to retrieve the association of features among every assembled point collections. For every assembled point collection, a maximum combining operation is made to achieve factor points in U_0 , and KNN graph D_0 in U_0 , wherever F_0 is created according to below equation (14)

$$F_0=\{(\alpha,\beta)\,|\,\alpha\in U_0,\ \beta\in KNN_k(\beta)\} \tag{14}$$

Where $KNN_k(P)$ signifies k adjacent neighbour of P . Feature fusion is executed as follows: Initial, native from whole diagrams and worldwide features are retrieved from the KNN diagram. Each vertex in KNN diagram is then consistently separated and added to the every point in conforming assembled point collection. Finally, maximum pooling operation is applied to compute the factor of every grouped point collection. Vote Layer: After S_3 , This level to move the centre points enquired with FPS method to actual centre of substances in 3DSSD method and Vote Net. F-FPS method is also used this level. So the weight element α,β of DCGNN

method is fundamental to enhance by the optimization process. In this work, Red Piranha Optimization is utilized to enhance the DCGNN. Now, RPO method is utilized for tuning the weight and bias α, β element of DCGNN.

D. Optimization using Red Piranha Optimization (RPO)

The RPO is used to enhance the weight element of DCGNN. Here, step-by-step procedure for utilizing Red Piranha Optimization (RPO) to get ideal DCGNN values is explained. The RPO algorithm draws inspiration from the chasing behavior of Red Piranha fish, a species known for its schooling and opportunistic feeding habits [21]. When a Scout identifies potential target, it emits a specialized signal named the Prey Encircling Signal (PES), prompting the rest of the swarm to encircle the prey in spiral movements. As the swarm closes in, the feeding frenzy commences upon the detection of the Frenzy Signal (FS), with piranhas regulating their movements in an Attack-Then-Escape (ATE) method to efficiently consume the target until it is depleted. This algorithmic approach mirrors the coordinated and efficient hunting strategies observed in nature's piranha swarms. Fig 2 shows the Flowchart of RPO optimizing DCGNN.

Step1: Initialization

Initialize the population of RPO the weight parameter values of generator α, β from DCGNN. Thus, it is expressed in equation (15)

$$\vec{D}_{K_n} = \left| \vec{M}.\vec{Y}_{Sct_i}(r) - \vec{Y}_{K_n}(r) \right| \quad (15)$$

Where, $\vec{D}_{K_n}$ represents the distance between the n^{th} object, $\vec{Y}_{Sct_i}(r)$ indicates the place vector of the scout of i^{th} media object, $\vec{M}$ are the coefficient vector. Then the distance vector is expressed in equation below,

$$\vec{Y}_{K_n}(r+1) = \vec{Y}_{Sct_i}(r) - \vec{B}.\vec{D}_{K_n} \quad (16)$$

Here, $\vec{B}$ denotes the coefficient vectors.

Step 2: Random Generation

After initiation, input fitness function generated by casualness through RPO technique.

Step 3: Fitness Function

The result derives from primed calculations and the casual response. The impacts of weight element optimization α, β are used in the fitness function valuation. It is expressed in equation (17)

$$fitness\ function = Optimizing[\alpha, \beta] \quad (17)$$

Step4: Encircling the Prey for Optimizing α

In initialization, Object occurs after age of time, objects attain an equilibrium condition. Thus the exploration phase is presented by equation (18)

$$Y^{i}_{binary\_n}(\alpha) = \begin{cases} 1 if\ rand\ (0,1) \geq sigmoid(\alpha) \\ 0 otherwise \end{cases} \quad (18)$$

Where, $Y^{i}_{binary\_n}(\alpha)$ represents the binary value of n^{th} individual at i^{th} bit in next repetition, $f\ and\ rand(0,1)$ indicates the casual value between $[0,1]$.

Step5: Attacking the Prey for Optimizing β

Exploitation is the final stage, during which a media object is actively takes advantage of the hardness in the system under evaluation. RPOs exploitation phase is expressed in equation below

$$sigmoid(\beta) = \frac{1}{1+e^{\beta}} \quad (19)$$

Where, $sigmoid(\beta)$ indicates the sigmoid function that denotes the probability of i^{th} bit and it takes $0\ or\ 1$.

Step6: Termination

In this step, the weight parameter values α, β from DCGNN are optimized with the help of RPO Process, will progressively repeat the step 3 till the stopping criteria $D = D + 1$is met. Lastly DCGNN classifies the credibility levels of highly credible, fairly credible and not credible by higher accuracy for highly credible.

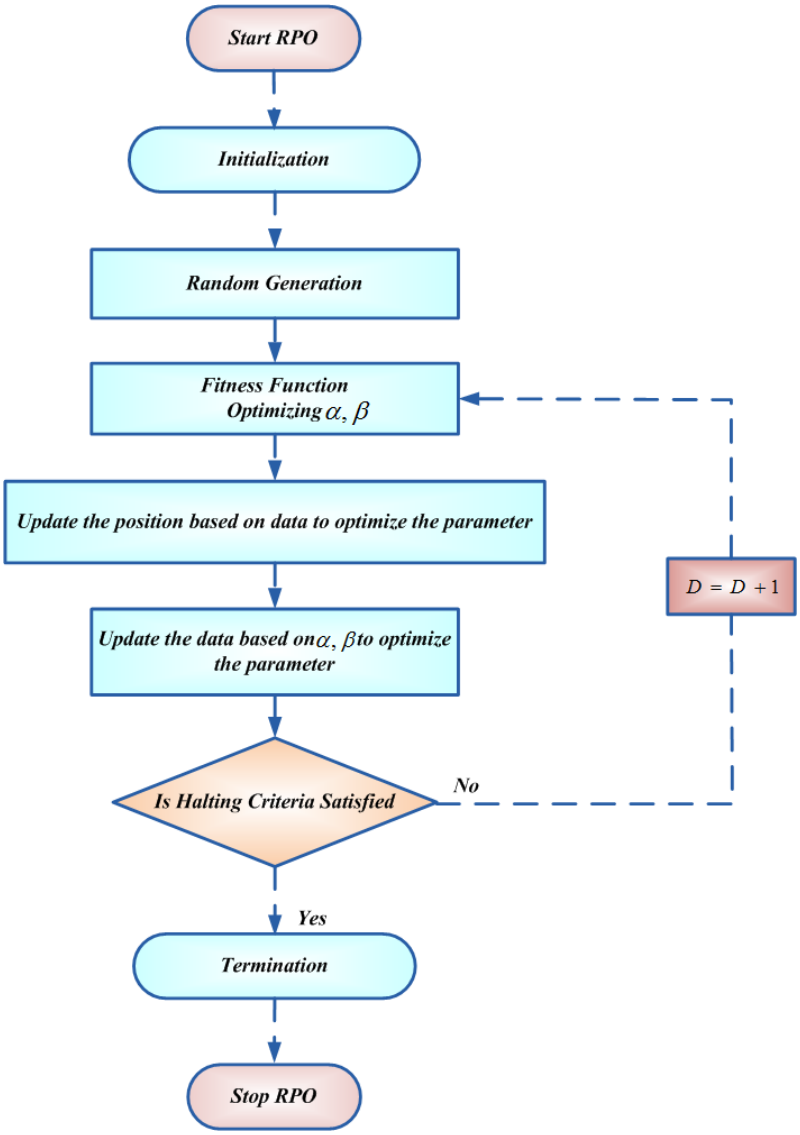

Fig 2: Flowchart of RPO optimizing DCGNN

III. RESULT AND DISCUSSION

The experimental results of suggested method is discussed this section. Then, suggested method is replicated using Python under mentioned performance measures. The obtained outcome of the suggested CTDP-MMIM-DCGNN method is evaluated with existing methods namely PAF-SHPM-PiNN, ISAE-IM-RNN and CTDP-MMIM-DCGNN respectively.

A. Performance measures

This is important task for greatest classifier selection. To study the performance measures, like Accuracy, precision, sensitivity, specificity, recall, processing time, are studied.

1) Accuracy

The capability to measure precise value is called as accuracy. Accuracy is a measure which generally defines how the model makes across all classes. It is measured as a following expressed equation (20)

$$Accuracy = \frac{(TP + TN)}{(TP + FP + TN + FN)} \tag{20}$$

In this step TP represents True positive TN shows True negative FP denotes false positive FN signifies false negative.

2) Precision

This estimation include many positive labels had expected with high accuracy, it is given an equation (21)

$$\text{Precision} = \frac{TP}{(TP + FP)} \tag{21}$$

3) Sensitivity

Sensitivity usually refers to how accurately the graph displays small changes in data values. It also finds the proportion of positive samples and it is expressed equation (22)

$$Sensitivity = \frac{Tp}{Tp + Fn} \tag{22}$$

4) Specificity

The percentage of true negatives that the technique properly recognizes called specificity. It is defined by the equation (23),

$$Specificity = \frac{TN}{TN + FP} \tag{23}$$

5) Recall

Recall measures machine learning method can identify positive cases. In other words, it measures likely you will get positive outcome. Thus it is given an equation (24)

$$Recall = \frac{TP}{(TP + FN)} \tag{24}$$

B. Performance Analysis

Fig 3 to 8 portrays simulation outcomes of CTDP-MMIM-DCGNN method. Then, the proposed CTDP-MMIM-DCGNN method is likened with existing PAF-SHPM-PiNN, ISAE-IM-RNN and CTDP-MMIM-DCGNN methods.

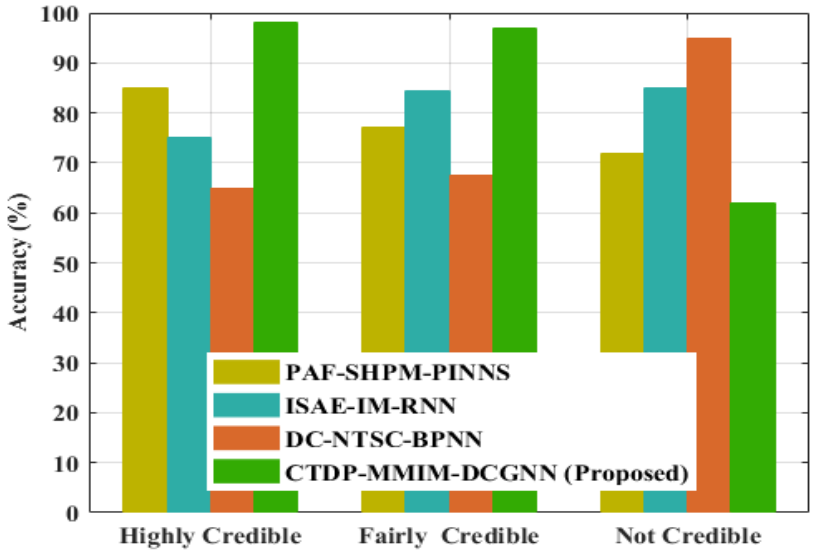

Fig 3: Performance analysis of Accuracy

Fig3 represents accuracy analysis. The suggested CTDP-MMIM-DCGNN provides 22.32%, 31.25% and 29.31%greater accuracy for highly credible; 20.46%, 21.28% and 19.23%greater accuracy for fairly credible; 29.17%, 27.42% and 32.31%lower accuracy for not credible; when evaluated to the existing PAF-SHPM-PiNN, ISAE-IM-RNN andDC-NTSC-BPNN models respectively.

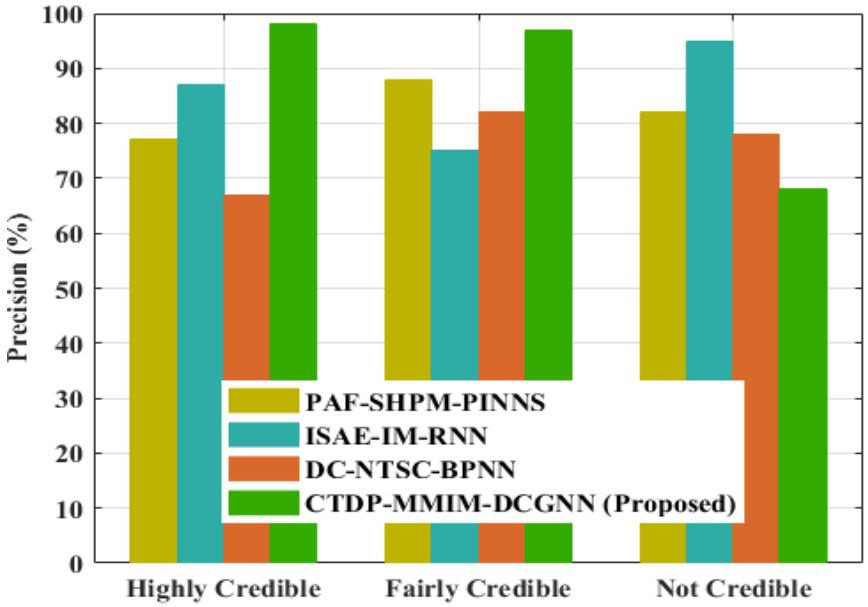

Fig 4: Performance analysis of Precision

Fig4 represents precision analysis. The suggested CTDP-MMIM-DCGNN provides 36.22%, 38.13% and 28.17%greaterprecision for highly credible; 20.34%, 27.37% and 28.34% greater precision for fairly credible; 38.42%, 26.21% and 35.38% lower precision for not credible; when evaluated to the existing PAF-SHPM-PiNN, ISAE-IM-RNN and DC-NTSC-BPNN models respectively.

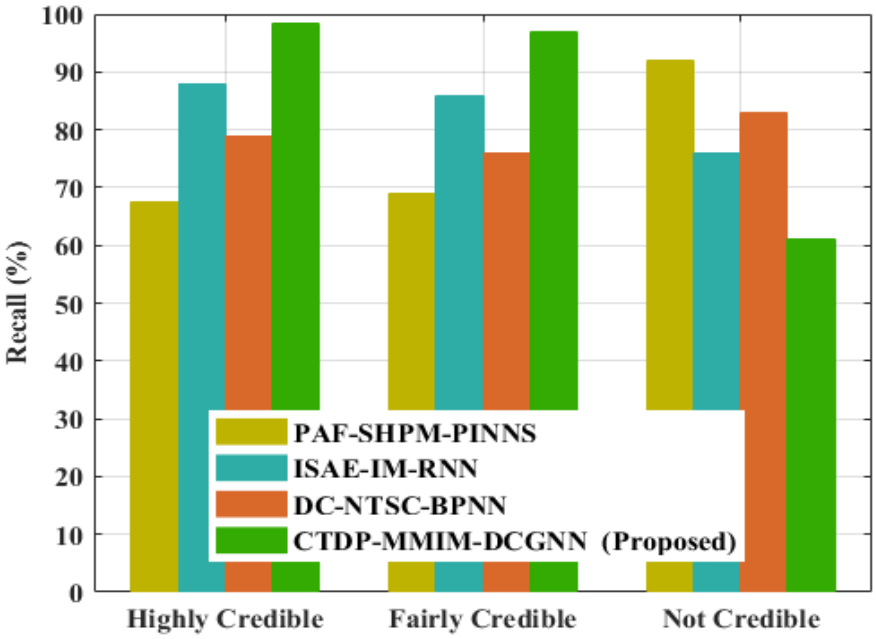

Fig5: Performance Analysis of Recall

Fig5represents recall analysis. The suggested CTDP-MMIM-DCGNN attains 31.13%, 23.33% and 23.13%greaterrecall for highly credible; 34.14%, 23.42% and 38.23% greater recall for fairly credible; 42.27%, 8.79% ,16.47%lower recall for not credible; when evaluated to the existing PAF-SHPM-PiNN, ISAE-IM-RNN and DC-NTSC-BPNN models respectively.

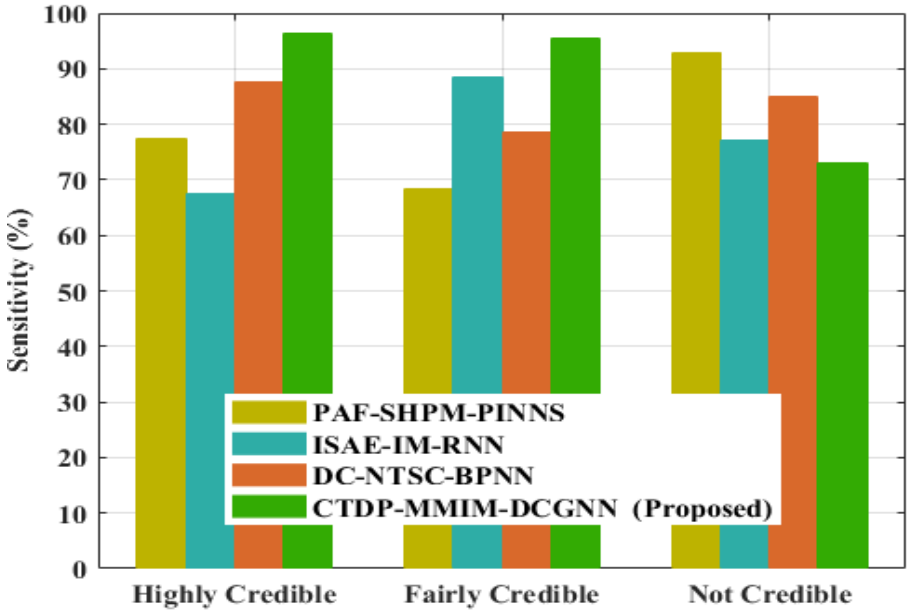

Fig 6: Performance Analysis of Sensitivity

Figure 6shows sensitivity analysis. The suggested CTDP-MMIM-DCGNN achieves 24.43%, 27.32%, 38.24%greatersensitivity for highly credible; 37.20%, 18.59% and 24.43% greater sensitivity for fairly credible; 23.34%, 25.44%, 36.22% lower sensitivity for not credible; when evaluated to the existing PAF-SHPM-PiNN, ISAE-IM-RNN and DC-NTSC-BPNN methods respectively.

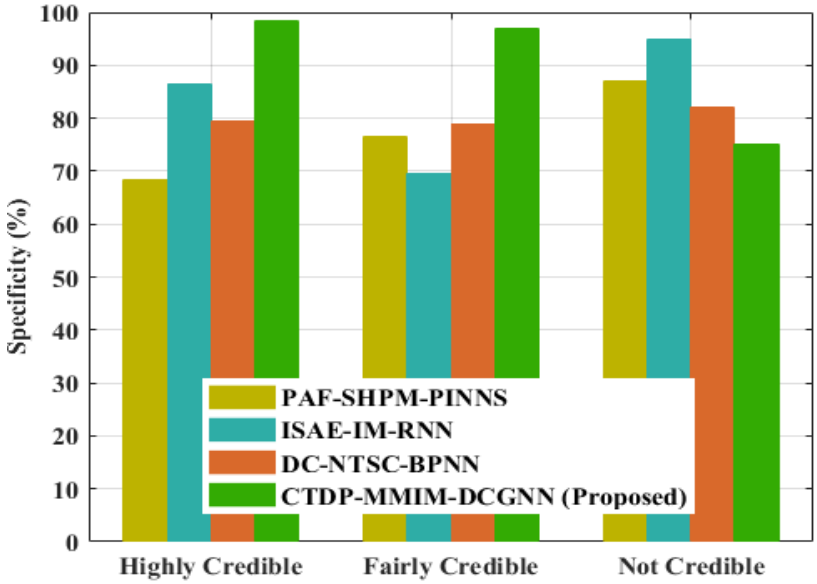

Fig 7: Performance Analysis of Specificity

Fig 7 shows performance study of specificity. The act of the suggested CTDP-MMIM-DCGNN technique results in specificity that are 30.56%, 21.76%, 35.97% greater for highly credible, 21.46%, 33.58%, 23.54% grater for classification of fairly credible and 21.45%, 30.76%, 18.43% lower for not credible, when evaluated to the existing PAF-SHPM-PiNN, ISAE-IM-RNN and DC-NTSC-BPNN models respectively.

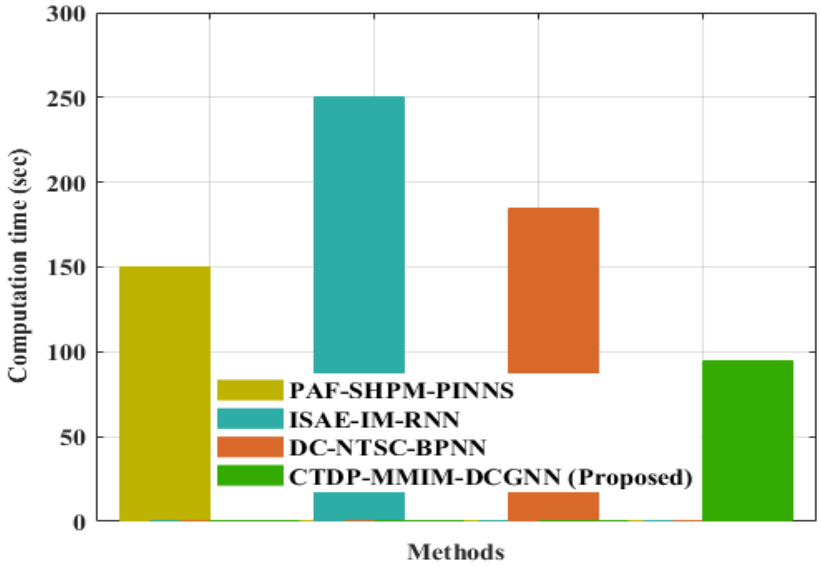

Fig 8: Performance analysis of Computation time

Fig 8 depicts performance study of Computation Time. Here, the suggested CTDP-MMIM-DCGNN method attains 29.47%, 38.76% and 28.78% processing time related with existing approaches like PAF-SHPM-PiNN, ISAE-IM-RNN and DC-NTSC-BPNN respectively.

Table 1: Information preference of respondents on mainstream and digital media

Information type	**Information Preference (%)**	
	Mainstream Media	**Digital Media**
News	55.4%	17.5%
Education	5.8%	5.4%
Economy	3.8%	2%
Politics	9.6%	3.3%
Science	4.2%	2%
Health	1.3%	1.6%
Sports	4.6%	7.1%
Entertainment	14.2%	60%

Table 1 shows the Information favor of defendants on general and social media. The data is indicates News (55.4%) is the most favored kind of data accessed by defendants on general media. Entertainment (14.2%) follows as the second most favored and political data (9.6%) ranks third. However, 10% of respondents prefer other types of data on general media. In contrast, on social media, Entertainment (60%) emerges as most favored, with News (17.5%) ranking second.

C. Discussion

ACTDP-MMIM-DCGNN model for a survey and focus group discussion guide based on analysis information is developed in this paper. The CTDP-MMIM-DCGNN method involves encompasses based data pre-processing. Instance of survey and focus group discussion guide based on analysis information, the average highest outcomes from the method is related to the average outcomes is given in existing approaches like IPCPAF-SHPM-PiNN, ISAE-IM-RNN and DC-NTSC-BPNN respectively. The accuracy values of PAF-SHPM-PiNN, ISAE-IM-RNN and DC-NTSC-BPNN are 77.5%, 62.6% and 75.4% respectively, lesser than proposed method. Similar to this, whereas the average specificity value of comparison techniques is 83.44%, the specificity value of the suggested method is 98.93%.The proposed method CTDP-MMIM-DCGNN has high specificity and accuracy evaluation metrics than existing methods. So, the comparative methods are financially more expensive than the suggested method. It effectively addresses the challenges associated with the socialized teaching and demonstrates superior performance compared to existing methods.

IV. CONCLUSION

In conclusion, this paper proposes a digital publishing of mainstream media in the era of integrated media. The Unsharp Structure Guided Filtering used to eliminate the missing information during preliminary processing. The preliminary processing outcome is transferred to the DCGNN is to efficiently classifies the credibility levels of highly credible, comparatively credible and not credible. The proposed CTDP-MMIM-DCGNN approach is

implemented in Python utilization of survey and focus group discussion reference depends on analysis information. The suggested method is analysed under different cases like accuracy, precision, sensitivity, specificity, calculation time, and recall. Presentation of proposed CTDP-MMIM-DCGNN method covers 30.56%, 21.76%, 35.97% higher specificity for highly credible; and 29.47%, 38.76% and 28.78% lower computational time for highly credible analyzed to the existing methods such as PAF-SHPM-PiNN, ISAE-IM-RNN and DC-NTSC-BPNN respectively. Future work in the realm of communication technology and digital publishing in the era of integrated media could focus on several key areas. Firstly, advancements in artificial intelligence and machine learning algorithms could be leveraged to enhance content curation and recommendation systems, thereby improving user experiences and mitigating the spread of misinformation. One limitation in the future of communication technology and digital publishing in the era of integrated media could be the persistence of digital inequality. Nevertheless efforts to bridge the digital divide, disparities in entry to technology and internet infrastructure may persist, mostly in marginalized or underserved communities.

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