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Community Detection and Behaviour Study for Social Computing Using New Media Technology

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Abstract: *This paper presents a computational model for community detection and behavior study for social computing with new media technology. The proposed numerical results analysis of social computing is based on computational model how make efficient and accurate use of new media technologies. In this paper, we have used accuracy calculations of new media technologies for social computing results. The experimental results are evaluated using the numerical computing MATLAB 7.14. The Experimental results show the proposed approach optimistic solution for business growth of media.*
Keywords: *Social Media, Data Mining, Community Detection, Behavior Prediction, New Media Technology*

I. Introduction

New media is technology of digital, computerized, or networked information and communication technologies in modern era. New Media technology actually refers to next generation users are changes in media production, distribution and use.

These are more than technological changes:

- Textual
- Conventional
- Cultural.

The key terms in discourses about new media are

- Digital
- Interactivity
- Hypertextuality
- Dispersal and Virtuality.

Most technologies described as "new media" are digital, often having characteristics which could be manipulated, networked, dense, compressible, interactive and impartial. Some examples are Internet, websites, computer multimedia, computer games, CD-ROMS, DVDs and Mobile phones. New media are not television programs, feature films, magazines, books, or paper-based publication.

Drury, Sarah gave" The History of New Media"[3], Lievrouw, Leah and Sonia Livingstone gave "Introduction: the social shaping and consequences of ICTs" [7], Andrus, D. Calvin gave "The Wiki and the Blog: Toward a Complex Adaptive Intelligence Community."[1].

Manovich, Lev gave "New Media from Borges to HTML[8],Jenkins, Henry gave " Convergence Culture: Where Old and New Media Collide[4], Lenhart, Amanda gave "Social Networking Websites and Teens: An Overview." Pew Internet and American Life Project[6].

Langfitt, Frank gave "Social Networking Technology Boosts Job Recruiting."[5],Dearstyne, Bruce W gave "Blogs, Mashups, & Wikis: Oh, My!" [2], Ruiz, Jorge G., M.J. Mintzner and R.M. Leipzig, gave "The Impact of E-Learning in Medical Education." Academic Medicine[9].

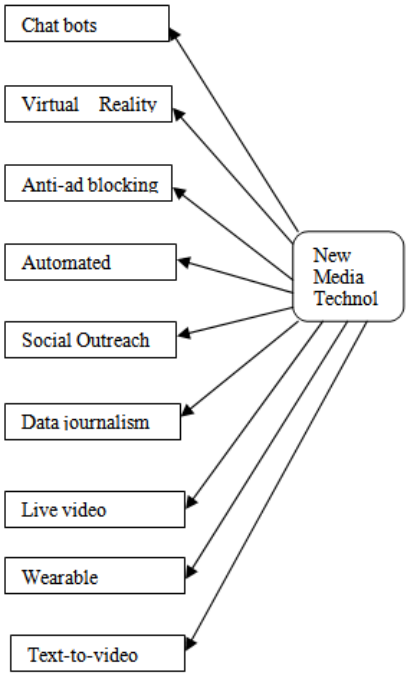

Figure1. New Media Technologies

II. Calculation For Accuracy Of Community Detection And Accuracy Of Behaviour Prediction Percentages

In this paper, we used three datasets Bag of Words datasets, 20-news group datasets, Legal Case Reports, for experimental results and performance evaluation. We shows accuracy percentages of Community Detections and Behavior predictions percentages with new media technologies Chatbots, Virtual Reality (VR),Anti-ad blocking, Automated journalism, Social Outreach apps, Data journalism /visualization, Live video platforms, Wearable journalism, Text-to-video creation

A. Tabulation

Table I shows accuracy percentages of Community Detections for Bag of Words data sets.
Table II shows accuracy percentages of Community Detections for 20-news group datasets.
Table III shows accuracy percentages of Community Detections for Legal Case Reports datasets.
Table IV shows accuracy percentages of Behaviour predictions for Bag of Words data sets.
Table V shows accuracy percentages of Behaviour predictions for 20-news group datasets.
Table VI shows accuracy percentages of Behaviour predictions for Legal Case Reports datasets.

Table 1: Bag of Words Datasets for Accuracy %

New media technologies	Bag of wordsaccuracy of Community Detections %
Chatbots	80
Virtual Reality (VR)	82
Anti-ad blocking	79
Automated journalism	74
Social Outreach apps	74
Data journalism /visualization	70
Live video platforms	73
Wearable journalism	74
Text-to-video creation	80

Table 2: Twenty News Groups Datasets for Accuracy %

New media technologies	**Bag of wordsaccuracy of Community Detections %**
Chatbots	70
Virtual Reality (VR)	72
Anti-ad blocking	79
Automated journalism	84
Social Outreach apps	74
Data journalism /visualization	70
Live video platforms	83
Wearable journalism	74
Text-to-video creation	75

Table 3: Legal case reports Datasets for Accuracy %

New media technologies	**Bag of wordsaccuracy of Community Detections %**
Chatbots	78
Virtual Reality (VR)	72
Anti-ad blocking	80
Automated journalism	84
Social Outreach apps	74
Data journalism /visualization	80
Live video platforms	73
Wearable journalism	84
Text-to-video creation	80

Table 4: Bag of Words Datasets for Accuracy %

New media technologies	**Bag of wordsaccuracy of Behaviour predictions %**
Chatbots	70
Virtual Reality (VR)	72
Anti-ad blocking	79
Automated journalism	84
Social Outreach apps	74
Data journalism /visualization	70
Live video platforms	83
Wearable journalism	74
Text-to-video creation	80

Table5: Twenty News Groups Datasets for Accuracy %

New media technologies	**Bag of words accuracy of Behaviour predictions %**
Chatbots	70
Virtual Reality (VR)	72
Anti-ad blocking	79
Automated journalism	84
Social Outreach apps	74
Data journalism /visualization	80
Live video platforms	73
Wearable journalism	84
Text-to-video creation	80

Table 6: Legal Case Reports Datasets for Accuracy %

New media technologies	Bag of words accuracy of Behaviour predictions %
Chatbots	70
Virtual Reality (VR)	72
Anti-ad blocking	79
Automated journalism	84
Social Outreach apps	74
Data journalism /visualization	80
Live video platforms	83
Wearable journalism	74
Text-to-video creation	80

II. Methodology

A. Data Collection

In this phase, I shall collect relevant data from social media like face book, blogger, twitter etc. Data from social media is large and very useful. These data help to do community detection and behaviour prediction.

B. Community Detection:

In this step, we complete review of literature in the field of social computing. Community detection: "formalize the strong social groups based on the social network properties" Some social media sites allow people to join groups, is it necessary to extract groups based on network topology. Not all sites provide community platform, not all people join groups. Network interaction provides rich information about the relationship between users: Groups are implicitly formed, Can complement other kinds of information, and Help network visualization and navigation, Provide basic information for other tasks.

C. Behavior Prediction:

In this step we user preference or behavior can be represented by labels (+/-): Whether or not clicking on an ad, Whether or not interested in certain topics, Subscribed to certain political views, Like/Dislike a product. Given: A social network (i.e., connectivity information), some actors with identified labels. Output: Labels of other actors within the same network.

D. Result Analysis:

Also developed synthetic benchmark databases are to be acquired for further testing of algorithms. All algorithms will be tested on both real and synthetic data. This performance will also be compared with theoretically calculated performance.

In this experiment, we used three datasets Bag of Words datasets, 20-news group datasets, Legal Case Reports, for experimental results and performance evaluation. Accuracy percentages of Community Detections and behavior predictions with new media technology.

a. Wrong community detections: positive for wrong community detections
b. Right community detections: negative for wrong community detections
c. True positive (TP) = the number of cases correctly identified as wrong community detections
d. False positive (FP) = the number of cases incorrectly identified as wrong community detections
e. True negative (TN) = the number of cases correctly identified as right community detections.
f. False negative (FN) = the number of cases incorrectly identified as right community detections.
g. Accuracy: The accuracy of a test is its ability to differentiate the patient and healthy cases correctly.

To estimate the accuracy of a test, we should calculate the proportion of true positive and true negative in all evaluated cases. Mathematically, this can be stated as:

$$\text{Accuracy} = \frac{TP+TN}{TP+TN+FP+FN}$$

III. Results And Discussion

In this experiment, we used three datasets Bag of Words datasets, 20-news group datasets, Legal Case Reports, for experimental results and performance evaluation.

A. Community Detections

Fig. 2 shows accuracy percentages of Community Detections with new media technology for Bag of Words datasets.Fig. 3 shows accuracy percentages of Community Detections with new media technology for 20-news group datasets.Fig. 4 shows accuracy percentages of Community Detections with new media technology for Legal Case Reports datasets

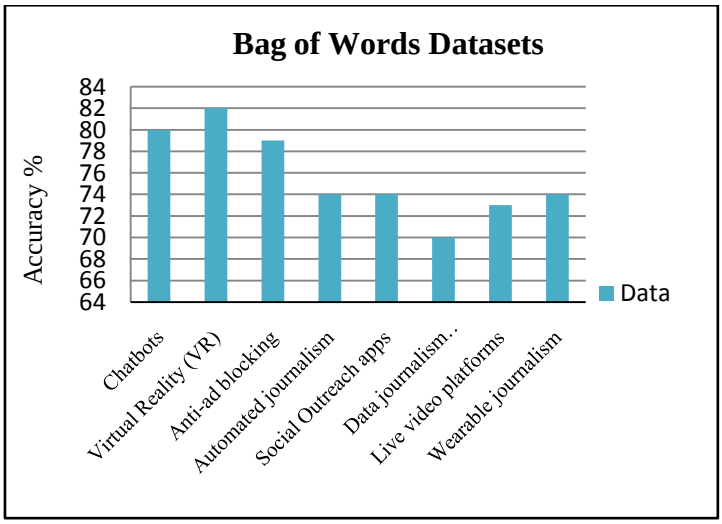

Figure 2. Bag of Words Datasets for Accuracy %

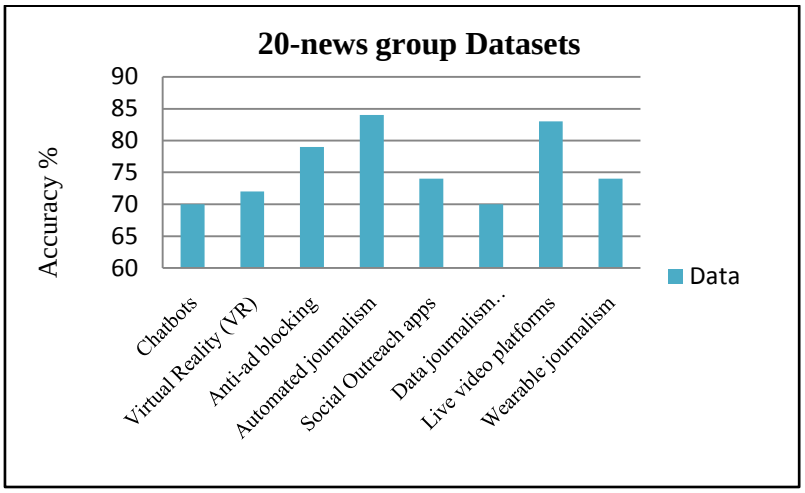

Figure 3.20-news group Datasets for Accuracy %

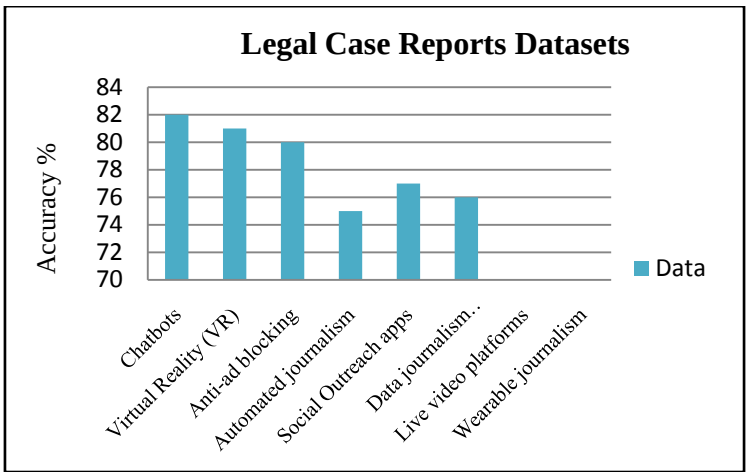

Figure 4. Legal Case Reports Datasets for Accuracy %

B. Behavior predictions

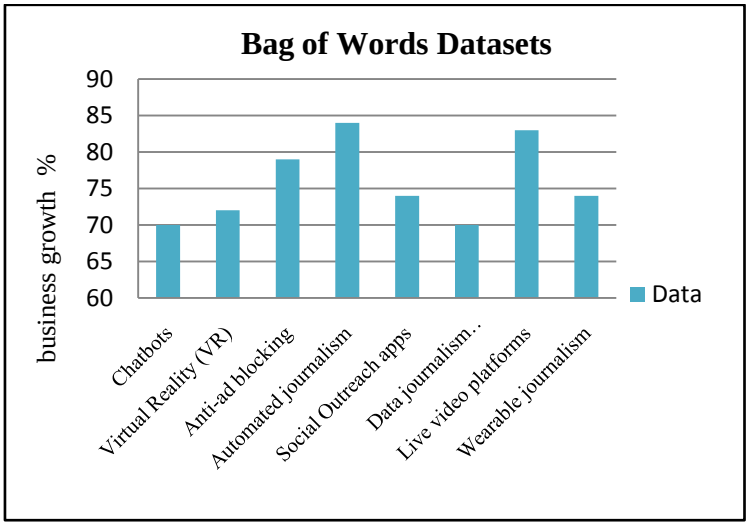

Figure 5: Bag of Words Datasets for accuracy %

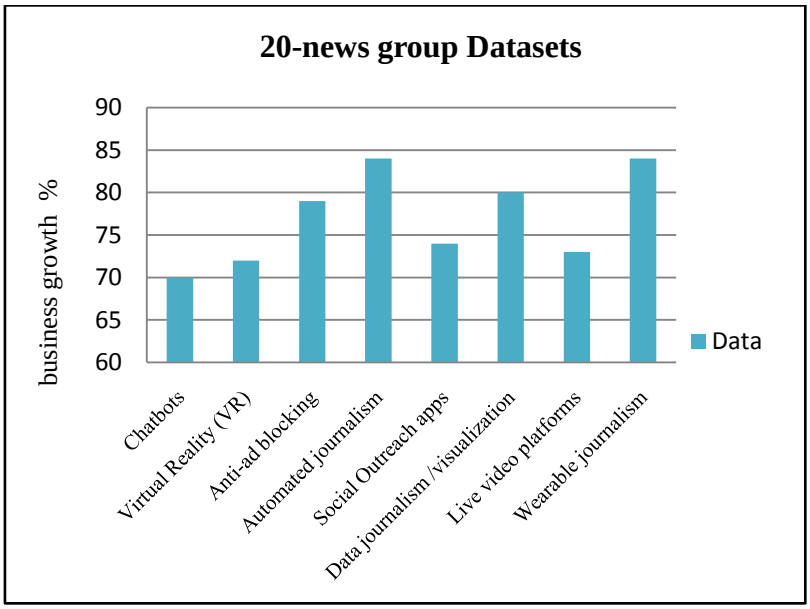

Figure 6: 20-news group Datasets for accuracy %

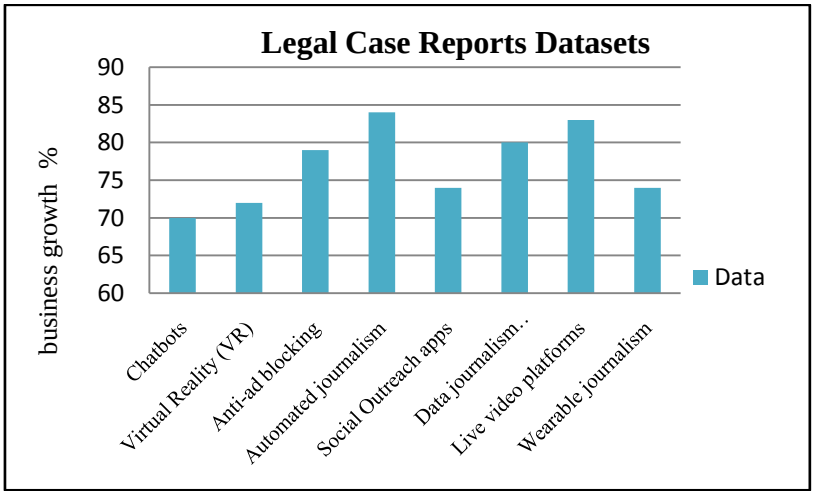

Figure 7: Legal Case Reports Datasets for accuracy %

Fig. 5 shows accuracy percentages of behaviour predictions with new media technology for Bag of Words data sets.Fig. 6 shows accuracy percentages of behaviour predictions with new media technology for 20-news group datasets. Fig. 7 shows accuracy percentages of behaviour predictions with new media technology for Legal Case Reports datasets.

IV. Conclusion

This paper analysed accuracy percentages of community detections and behaviour predictions are better with new media technology.The experimental results of accuracy percentages of community detections and behaviour predictions are most efficient and accurate outcomes. By this analysis we can easily understand the various conditions and responsible for accuracy used by the consumer. This analysis also shows that this method works efficiently, for large text data.

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