2019

HAPPY NEW YEAR

Artificial Intelligence

Know Your CSI

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an individual.

2 are friends.

3 is company.

more than 3 makes a society. The arrangement of these elements makes the letter 'C' connoting 'Computer Society of India'.

the space inside the letter 'C' connotes an arrow - the feeding-in of information or receiving information from a computer.

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Editorial

Prof. (Dr.) S. S. Agrawal
Chief Editor

Dear Fellow CSI Members,

Greetings for the New Year and wishing for a very active and fruitful year of CSI.

"Success in creating Artificial Intelligence will be the biggest event in human history" – Stephen Hawking

"A year spent in Artificial Intelligence is enough to make one believe in God" – Alan Perlis

"Artificial Intelligence is no match for natural stupidity" www.quotesnimages.blogspot.com

AI is created by humans, to replicate their behavior by the computers, machines and robots etc. AI may reach human levels by 2030 upto a level where, we can have the human biological machines. From the above quotes, it may be realized that it can be used for good or bad purposes. If we misuse it, it will be a risk, if we use it properly it will be very helpful.

The cover story "Artificial Intelligence: Simplifying Human Life" by Dr. Kurmude, Kakarwal and Prof. R Deshmukh is an application oriented article describing use of AI in important areas of social applications, such as Agriculture and Health etc.

Similarly, another cover story "AI-Shaping our lives" by Mr. Aditya Bhatia and Mr. Sanjay Bhatia from Houston, USA is showing how AI has entered in our daily life and the products we use which works using AI.

In the technical trends and research front the topics covered on "Fake News Analysis and Agent based Intelligent System and Language and Speech Communication", all using AI elements are very relevant and being perused in various research institutions worldwide. The General article on Artificial Intelligence & Education in Future, its role in New Media, Param Brain, Everyday life & Business Intelligence are of great interest.

It is good to know that CSI is very active in organizing various conferences, seminars at various levels and supporting student activities. The highlights of these events are mentioned in this communication. More specifically, i would like to draw your kind attention to the report regarding 2nd Asia-Africa ICT and Development Summit, Expo & Awards, 2018. This was co-organized by CSI in Navi Mumbai on 1st and 2nd December, 2018. Conference/Seminar/Workshop/ Activities on Dial-2018 at Lucknow, Internet of Things at Aurora's Technical & Research Institutes., information Technology Development at Agra, FDP, Big Data Analytics and Intelligence etc. have been very timely activities.

We are thankful to all the contributors and look forward to receive your valuable articles in future also. We express our gratitude to all the execom members and the CSI Officials. We look forward to receive constructive feedback and suggestions from our esteemed members and reader of CSI fraternity. Please log on to http://www.csi-india.org/ and email to csic@csi-india.org.

With kind regards,

Prof. (Dr.) S. S. Agrawal
Chief Editor

Message from the
Vice President cum President Elect

From	: Vice President, Computer Society of India
Date	: 01 January, 2019
Email	: vp@csi-india.org / Cell : (91) 82106 93239

The theme of this issue of CSI Communication is Artificial Intelligence having great importance to create Expert Systems, the systems which demonstrate intelligent behavior, learn, explain, exhibits and advice its users as well as to Implement the Human Intelligence in Machines which create systems that understand, learn, think and behave like humans.

Now days the Artificial Intelligence (AI) has become very significant & playing the important role in ICT due to it's widely use in e-commerce e-Governance, Education, Industries, Finance, Aviations, Geography, Ecology & Environment, Government, Hospitals & Medicines, HRD, Job search, Marketing, Media, Music News publishing & writing, Online Customer Services, Sensors, Telecommunications, Toys & Games, Transportation & many more with the goal & objective of planning, controlling, executing, knowledge reasoning, machine learning, natural language processing, computer vision & robotics etc. Viewing all these large applications with goals & objectives of this concerned technology, I feel choosing Artificial Intelligence as the theme of January 2019 issue of CSI Communication is praise worthy.

Inauguration of New Student Branch at RJIT, Madhya Pradesh

Expansion of CSI continues all over the country by establishing more & more Chapters & Student Branches. The establishment of a new Student Branch at RJIT in last month is another milestone which is the clear indication that more & more academic Institutions & students are extending their faith & confidence in CSI by enrolling themselves under CSI Domain. The society achieved the substantial growth in Student Membership enrolment in the current year comparison to the previous year. I take this opportunity to congratulate the Management & student members of RJIT along with Sri Jayant Binde, former Chairman of CSI Gwalior Chapter for their great efforts.

Momentum in Chapter Activities

Many of our chapters are quite dynamic & vibrat in organizing quality activities from local level, state level, national level to international level seminars/workshops/conferences. The National Seminar DIAL organized by Lucknow Chapter on 8th December 2018, Computer Day Celebration by Kolkata Chapter on 15 th December 2018 were successfully conducted. I congratulate Prof. Arvind Sharma, RVP-1 & Mr. Gautam Hazra, Vice Chairman cum Chairman Elect, Kolkata Chapter respectively for their pioneer efforts & leadership to organize the respective events successfully & effectively in excellent manner.

Being a new chapter, Agra Chapter became very active & conducted one more prominent activity in December after conducting two major activities in November 2018 i.e. A Special Session on Information Technology & Development in the National conference on Mathematical Sciences & Development on 24th December 2018. I congratulate the Chairman & Managing Committee Members of the Agra Chapter for their pioneer efforts & spirit of Professionalism.

Second Asia Africa ICT & Development Summit

Second Asia Africa ICT & Development Summit, Expo & Award 2018 was held at Mumbai on 1st & 2nd December 2018 in which CSI was a prominent Collaborator. The gala event has witnessed different activities like Business Conclave, Keynote Addresses, Interaction Sessions, Award ceremony & many more. The detailed report of the same is published in this issue for the reference of our esteem members. I take this opportunity to congratulate to Dr. Ripu Ranjan Sinha under whose leadership & efforts this great event has been brought in to action to achieve the scale of excellence

Though CSI is having good numbers of Chapters, Institutional Members, Students Branches & the number is increasing day by day still then it's association with the increasing number of companies & corporations are most required. In this direction, the efforts will be to enhance our services so as to render satisfactory services to the members & ensure their continued association

Now a days, more & more Technical activities are conducted by the chapters & student branches which is quite visible by the reports published in CSI Communication. Chapters & student branches are requested to come with more & more technical activities to cater the effective services to their members, because it is the need that members should be addressed regularly & value to members should be enhanced.

I take this opportunity to seek the active & kind support of the members to make CSI more dynamic, vibrant, productive & sustainable to achieve the height of excellence.

I sincerely request all the Office Bearers, Executive Members, Chapter Managing Committee, CSI Student Branch Coordinator, SIG Managing Committee & CSI Office Staffs to kindly work with responsibility for the Society (CSI) to serve honestly for the cause of every Division, Region, Chapter, SIG, Student Branch & every Individual Members including Student Members.

Let us come forward to make Clean CSI & Green CSI with transparent activities & visions to make it Swachh, Pardarshi & Hara Vara.

Wishing all of you a Happy & Prosperous New Year

AKNayak

Prof. Akshaya Nayak
Vice President, CSI

Artificial Intelligence: Simplifying Human Life

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1. Introduction:

Human like behaviour/decision making by a machine is artificial intelligence (AI). AI enabled computer systems can execute several tasks just similar or more often in efficient way than human saving time and energy. AI systems are capable of giving an error less response to certain complex situations. AI is proposed by John McCarthy in 1956 the possibility of AI was verified by Turing test. In near future activities such as, visual understanding, words identification, taking decisions, and paraphrase will be carried out by AI.

2. Scope of Artificial Intelligence:

AI is being used in almost every sector, such as agriculture, medical, health care services, education, legal, public, energy, insurance, banking, financial, water, big companies and social media platforms. AI incorporated along with Machine Learning simplifies the task. AI powered digital assistants has the potential to free people from everyday chores. It helps in planning routine tasks such as making restaurant booking. Self Driving Cars, Boston Dynamics, Navigation Systems, Human verses Computer Games are some of the applications of AI. Following sections briefs few areas where AI is being used.

2.1 AI in Agricultural Industry

Climate variation, population expansion, marketing, demand and supply, food safety concern are some of the issues in front of agriculture industry. AI powered technology helps to have better work rate, to tackle issues regarding crop yield, soil fertility and herbicide opposition in the field of agriculture. Milking robots are generally used in dairy farming.

2.1.1. Agricultural Robots –

By means of computerization and robotics crops can be protected efficiently from weeds. *See & Spray robot* leverages machine vision to control and specially spray weeds on cotton plants. Specific spraying prevents herbicide resistance. Strawberry farmers select and bundle their crops using especially designed robots which can harvest up to eight acres per day alike to thirty human workers.

2.1.2 Crop and Soil Monitoring –

PLANTIX is a deep learning application for recognition of potential defects and nutrient deficiencies in soil. Analysis is carried out by software algorithms to associate particular plant life patterns with certain soil defects, plant pests and diseases. For defects recognition images taken by the user's smart phone camera are used. Soil reinstatement techniques, tips and other feasible solutions are also provided.

Images of vineyards recorded by drone using machine vision are used for study to get comprehensive report on the health of the vineyard, specially the condition of grapevine leaves to improve crop yield at less costs. Such drones can inspect fifty acres in twenty four minutes and gives data analysis with 95 % accuracy. Figure 1 gives use of AI in agriculture sectory [1].

2.1.3 Predictive Analytics –

Machine learning algorithms in association with satellites can analyze crop sustainability, detects farms for the existence of diseases and pests and predict weather. These tools are helpful to researchers, crop consultants and farmers[2].

2.1.4 AI in Indian Agriculture –

CROPIN, GOBASCO, FASAL, SATSURE, INTELLO LABS, AIBONO and are some of the foremost Indian Agri-Tech Start-ups that are changing agriculture in India. These start-ups make use of new technologies such as satellite imaging, machine learning and data analytics.

SATSURE help farmers what to sow, when to irrigate or add fertilizers, or prepare for harvest. SATSURE's solutions are widely used by the Andhra Pradesh Government, large banks and insurance companies in India are also leveraging SATSURE's solutions. FASAL one more start-up presents microclimate forecast custom-made to each farm location carried out at a point scale. AI-based microclimate forecasting algorithm incorporates real in-field information and relates it to explicitly reachable weather reports, so that farmers can take advantage from real-time, actionable information relevant to day-to-day operations at his farm. CROPIN is a collection of analytics solutions, supervision and farm administration. INTELLO LABS have provided machine vision based solutions with captured images for deriving insights and executable options. It leverages AI, deep learning, and IOT to help farmers for efficient growth of business.

2.2 AI in medical field

2.2.1 Clinical and Diagnostic

- Instead of depending on experience, Doctors are using AI powered and providing health care and clinical
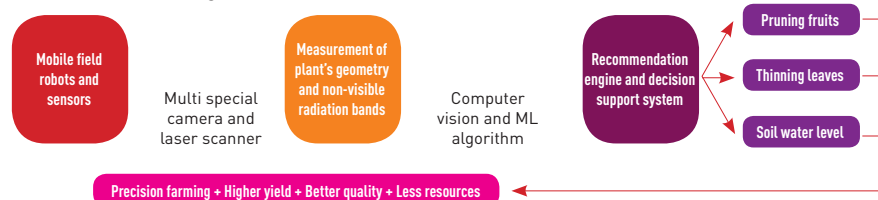

Figure1: Representation of AI in Agriculture Sector

services efficiently. Moreover, scientists use Intel AI diagnosed heart conditions with better exactness. Intel® Saffron™ AI is able to examine ten thousand signals per heartbeat and gives more than ninety percent accuracy. AI is democratizing expert diagnoses. AI based on genetics, is helpful in early detection of cancer and vascular diseases that people might face.

2.2.1 Health care Services –

Anthology and investigation of medical records, past history, a variety of tests, scans, cardiology, radiology reports, is being effectively managed by artificial intelligence and digital automation. Robots assemble, store, reform, and trace data to formulate faster and more regular access. Babylon app using AI provides medical consultation and suggests preventive action using personal medical history and common medical knowledge/data. Molly, machine learning based digital nurse monitors patient's condition and keeps a track of follow up.

2.2.2 Medicine –

AI is used in creation of drug, it saves time, money and sometimes lives too. Recently, Ebola virus scare, a program powered by AI was used to scrutinize existing medicines that could be redesigned to fight the disease and finally found two medications that may lessen Ebola infectivity in one day[3].

2.3. Other Applications:

AI is used in law enforcement, for example, it helps in finding out a missing or exploited child. Based on instances of suspicious online activity, millions of cyber tips, artificial intelligence in correlation with advanced analytics helps analysts to process these tips in the service of law enforcement authorities. AI enabled system is able to detect financial frauds by dealing out with large data dealt with by the financial institutions. Intel powered AI can also prevent manufacturing errors.

3. Merits and Demerits of AI:

AI can reduce human casualties in wars and dangerous workspaces, car accidents, natural disasters, saving time, money and energy. AI makes everyday life easier by serving people with tasks such as cleaning, shopping and transportation. Scientists are predicting that by the huge dependency on AI humanity could extinct. Some scientists are of the opinion that by having AI machines, people will be jobless and that will conclude in losing the sense of living. As machines are learning and doing things more efficiently and effectively in a timely manner, this could be the reason of our extinction.

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[2] Website: https://emerj.com/ai-sector-overviews/ai-agriculture-present-applications-impact

[3] Website:https://novatiosolutions.com/10-common-applications-artificial-intelligence-healthcare ∎

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Artificial Intelligence – Shaping Our Lives

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AI – Latest Buzzword

Artificial Intelligence, Robotics or Learning Machines seem to be the household topic of discussion in India recently. Thanks to the recent movies released in India in multiple languages starring lead actors from South and Bollywood industry, AI has become quite popular with Indian masses. While Hollywood have been making movies on Robotics since decades and earning Billions of Dollars, I am thrilled to see that the Indian Cinema is also catching up and making movies on such complex scientific topic. More excitement comes from the fact that these movies are proving to be block busters and earning hundreds of Crores of Rupees, suggesting that the Masses are now able to Connect to these scientific topics.

AI earlier was perceived to be reserved for only "Genius" or "Research" or "Computer" Community whose place was in Science Labs or Mass Computer Centers. How- ever it now impacts each aspect of our lives and becoming increasingly "Influential" in shaping our thoughts, actions, and day to day chores. Many times, we don't even know about it.

Like every scientific innovation, AI too potentially has Good Aspect and Bad Aspects. The recent movies and their sequel have brilliantly shown both the aspects.

AI – Different Aspects

The main character of the first movie is a robot which can feel emotions and think just like a human while having all powers of a Super Computer. The "Robot", causes a lot of destruction after an evil scientist hijacks him. Later he is banned and ceases to exist.

But in the sequel, he helps defeat the villain, restoring society's trust in him.

There are plenty of Hollywood movies who have Super Heroes and most of the super heroes have powers acquired thru AI or some form of Robots. The Super Hero always manages to save the world from potential destruction caused by Aliens or Internal Villains.

Robot is a film example of artificial intelligence demonstrating that it can both be used for good and for bad. But what is artificial intelligence and is it possible to build a robot like what we see in Movies? Only time will tell.

However taking clues from movies, which many a times are potential future mirrors, can bad AI be built? And the Logical Answer is "Yes".

This calls for very strong regulations around AI and monitoring the development closely to ensure that it is not built with bad intentions.

AI – In day to day life

Thru various AI workshops and seminars, I attended, my simple interpretation is Artificial Intelligence is the ability for a machine to Learn, think and being able to act, perceiving its environment just like humans already can naturally with their in-built brains.

But this is not the only type of AI, some other types include internet bots which are responsible for how search engines and online advertisements work which is an intelligent observation by an Internet software put into action.

If you were to log in to all your websites and look to the side it is likely you would see advertisements for products similar to your online activity

Recently I have been looking online for a good Wrist Watch. Yesterday I went to the Fox News website and when I looked at the advertisement on my screen, it showed as below.

In my simple 15 years old brain, these little "bots" tracked my activity and on my next logging, showed me what I could still be looking for.

These little bots make up 52% of the internet, and their job is to track your online activity for advertising and data collection purposes. They do this by looking at the keywords you use and analyzing the images you look at

For example, a team of bots from Google and Amazon would notice me spending a lot of time on different watch websites. They will then scrutinize the activity and see that I mainly click on watches with leather bands that are under $200. The bots are trained to mark this down as preferences and if you notice in the advertisement above, all the watches are under $200 and most them have leather bands

Wow! I expected advertisements for watches to be following me everywhere on the internet, but at that precise level of accuracy!?

That is artificial intelligence at work. But there is much more to artificial intelligence than just small bots that spy on your computer.

On the US Citizenship and Immigration Service website, there is EMMA available now. Emma is a Virtual chat assistant on the website which

is your first point of contact and will answer most of your questions on chat. I could imagine how intelligent she needs to be as this website will have millions of visitors having questions on variety of visas, green card, citizenship etc. etc. and she is able to answer most of them correctly and very quickly.

AI – Driverless Cars

The next big thing on AI front is Driverless Cars.

Autonomous cars are now here, Thanks to Tesla which has already released the feature in its cars

Autonomous cars are self-driving cars without the need for a human driver. They are being tested and integrated into cars as you read this article. They consist of precise computer systems connected to motion sensors and cameras. These are special computers which are trained to recognize other cars and humans while driving.

In as early as 2-3 years you could be calling an Uber or an Ola and getting picked up by a car with no driver in it.

But is it safe to put our lives at the hands of artificial intelligence? The companies making these cars have tested them for millions of hours and driven them for millions of kilometres. There have been few accidents where these so called smart cars could not adopt to the situation and failed to perceive a new environment it was not designed for. However, every invention goes thru the failure cycle and these AI cars are no exceptions.

These cars will only be allowed by governments after being put through rigorous tests.

While online bots and autonomous cars are both artificial intelligence, the highest level of artificial intelligence is when a computer can start to think like a human, just like what we see in movies. This is what most people think of when they think of artificial intelligence.

AI – Future Use

Whether we like it or not, argue a lot about dangers of AI, it is here to stay, and the future belong to AI.

Under proper security and control, AI can be a great aid for humanity and will be very helpful in building new technology. We could use this for things such as space exploration, quantum computing, virtual reality, and improving processors and transistors. ∎

About the Authors

Aditya Bhatia (Membership No. 1161672) is a 15-year old 10 grade student. He lives in Houston TX and is a big technology reader. Aditya is a firm believer in positive uses of Technology and its potential impact on Human Lives. Having filed 2 Patents, 4 approved Copyrights and 2 approved Trade Marks, Aditya is pursuing Venture Capital funding for his new mobile app he has designed for India's street vendors. His mobile app SportsConnect featured in 21 newspapers in India/USA. Aditya can be reached at adityabhatia78@gmail.com

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Analysis of Spread of Fake News on Messaging Platforms Using Non-Cooperative Game Theory

▶ Annapurna P Patil

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In recent times with the growth of social media and messaging platforms, a lot of information is in circulation, most of which are clickbait, advertisements or misinformation. The issue arises when fake news modelled as real news reaches thousands of users, altering their perceptions. This is especially problematic when it leads to cases of mob lynching and other forms of violence or defamation.

Most algorithms used in field for tackling fake news utilize natural language processing and machine learning for detection but are not involved in controlling the spread of fake news. This project aims to mitigate the gap by modelling this problem as a game using non-cooperative game theory. The game is currently being analyzed using the concept of subgame equilibria for infinitely repeating extensive form games to find the Nash equilibria. The findings are needs to be compared to the result of a controlled testing environment to simulate the game to conclude that over a long period of time the behavior of the game in theory and practice merge which can be used by administrators to control the spread of fake news.

1. Introduction

Due to the widespread use of social media and messaging platforms, falling prices of smartphones and ease of accessibility to the internet, almost everyone is virtually connected to one another, leading to rapid spread of information. In recent times, misinformation has been forwarded with the aim to change perceptions of candidates in elections by causing defamation, to increase online readership to generate revenue, to spread hoaxes which can lead to unfortunate cases of mob lynching, resulting in possible death of the victim.

First, it creates mistrust amongst the users of such platforms on which fake news is circulated causing harm to the name of the platform. Second, misinformation has led to several incidents in which a warning circulated led to beatings and deaths of innocent people mistaken for kidnappers or criminals. Third, fake news undermines authentic news as the spread of sensational news is much higher than real news which adversely affects situations in which public image is crucial such as elections.

Many approaches have been developed to detect fake news using natural language processing, machine learning, pattern recognition, etc. but analysis of the spread of fake news is paramount to control its spread. For social media platforms it is economical and for the government methodical.

Game theory is the study of strategic interaction between rational decision makers known as players and is widely applied in the fields of social sciences and computer science. Basically, game theory tries to model a problem into a game to determine the moves and strategies considering the rationality of players and hence to predict the likely outcome.

In game theory, games can be modelled as cooperative or non-cooperative depending on how multiple players act, that is, either independently or as a group. In cooperative game theory, coalitions between decision makers, that is, players are formed due to external enforcement. In contrast, non-cooperative game theory deals with games in which either such coalitions cannot be formed or need to be self-enforcing. The proposed model considers a *non-cooperative game* as there cannot be a coalition between the users and perpetrators of fake news.

The game is identified as a *sequential extensive form game* as players take turn to act and the game doesn't end after a single simultaneous move taken by the players as in normal form or simultaneous move games. all players know the set of players, their strategies and their payoffs, hence it is a game with *complete information* but do not know about all other players past decisions, hence having *imperfect information*. Each player knows all their past moves, that is, have *perfect recall* and it is assumed that all players are *rational*, thus they choose a strategy that gives the highest possible payoff.

The objective of this project is to analyze how fake information spreads on a messaging platform using non-

cooperative game theory.

2. Related Works

A game in the term game theory as defined in [2] is a set of rules described by it, instance from the start to the end is called play of the game and strategy is the plan of moves taken to rise as the winner. A game is classified based on the information available to the players as complete and incomplete, on cooperation between the players as cooperative and non-cooperative, on rounds of decision-making as normal-form and extensive form. Extensive form games further branches out to perfect-information and imperfect-information.

The game used in the paper is extensive-form, complete and imperfect information game. As the approach of this paper is new in its domain, appropriate reference is not available. A major form of reference through the building phase of this paper in the book written by Takako Fujiwara-Greve[1].

Fake news is classified into: actual fake news[3][4], fake satire news[3][4], poorly reported news [3], poorly written news[4] or misleading news[3]. [4] takes into account detection of fake reviews in addition to fake news.

Researches also wind up at the fact that fake news in most cases is similar to satire than to real news[5]. Title structure and use of proper nouns in titles is a significant form of differentiating fake from real news. Real news articles have sound arguments whereas fake news persuade readers through heuristics.

[6] uses theories of humor, satire and irony to formulate predictive method for satire detection that achieved 90% precision and 84% recall while considering grammar, punctuation and absurdity in account. The conceptual contribution of this paper lies in linking deception detection and computational satire, irony and humor research.

Classification of a news as fake or real requires computed technique to make it efficient and realistic. [12] uses combination of machine learning, supervised learning and rule-based classification to create a hybrid classification of the news fed. [13] approaches the problem in a more realistic way by detecting any online references of the subject and

determines the sentiment for each one of them. It uses linguistic resources: sentiment lexicon and sentiment pattern database doe analysis.

Arriving at applications of game theory, game theory is being used in various fields other than computer science. Its most considerably used in economics, political science, social science and applied mathematics and philosophy. Game theory was used in economics initially to including behavior of firms. markets and consumer[7]. It is an effective tool for diplomats and politicians to analysis any situation of conflict between individuals or group of individuals. Anatol Rapoport in [8] speaks applying game theory in critical circumstances like making a decision in a nuclear-armed world any inappropriate decision would risk the life of fellow citizens. Zijie, Lingyang, Zhu Han and Geoffrey in [9] use game theory in offloading data processing to several agents and merging the results to form the main large task that had to be achieved.

Game theory is also used in electrical grid system. [10] game theory is used to create infrastructure and algorithms to increase penetration of energy resources which are distributed, encourage local generation and consumption and application of demand response and storage technologies. The game assumed considers the following players: generator, consumer and retailer.

Ling, Fang and Kolter in [11] came up with end-to-end fully differential learning framework for zero-sum normal and extensive form games to learn the payoff of partially observable games with under-explored information. It develops- (1) primal-dual Newton method to find equilibrium points for the games (2) analytical computation of gradients of relevant parameters through backpropagation method.

3. Technique

Two sets of players are identified for the game, the first being *perpetrators*. Perpetrators are those users who intentionally try to spread fake news. Their moves include creating a fake message, forwarding an existing fake message or not forwarding it to avoid suspicion.

SP = {C, F, NF} where C=create, F=forward, NF=not forward.

The second are *users*, who are universal set of users minus the perpetrators, and hence include passive spreaders of fake news and those who actively try to stop their spread. Users can either report a suspicious message, not forward a suspicious message or forward it, assuming its real.

SU = {R, NF, F} where R=report, NF=not forward, F=forward

Administrators keep track of the number of times a user is reported and is found to be forwarding fake news. A user is blocked if he crosses a certain threshold. This serves as a warning for unintentional forwarders of fake news to be more careful of the content they forward and is also a reason for the move NF for perpetrators to avoid suspicion. Administrators are not considered as a player of the game for simplification as they act only when R occurs by checking the reported message for authenticity using existing algorithms for detection of fake news.

In a game, each player considers all possible outcomes and assigns a payoff (real number) to them, with the assumption that larger the payoff, the better. Payoff depends not only on the individual player's strategy (action plan throughout the game) but on other players' strategies as well. Also payoff can be used to capture certain abstract utilities like the good it can bring to the general public without considering any monetary or concrete benefit from the action.

For example, considering the game as a simultaneous move one, the payoff can be something as follows:

Table 3.1 Payoff matrix for normal form representation of fake news game

User/perpetrator	C	F	NF
R	(50, -100)	(50,-75)	(-50, 0)
NF	(25, -50)	(25, -50)	(0, 0)
F	(-50, 100)	(-50, 75)	(50, 0)

where the first coordinate corresponds to user's payoff and the second to the perpetrator's. Here payoff for the NF move for perpetrators is assigned as the perpetrators don't forward any message but still the users are acting on a message means that the message in consideration is authentic. This is done to incorporate the circulation of authentic news along with the fake news.

Since a messaging platform resembles a sequential game rather than a simultaneous one, it can be more appropriately depicted using a *game tree diagram* as shown in Fig.3.1.

A game tree has two types of nodes; *decision nodes and terminal nodes*. Decision nodes are points in the game when a player needs to decide on an action. Terminal nodes represent the outcomes of the game and are associated with payoff values. The root node is a decision node which has zero indegree. The root node in this case, xa, belongs to the player perpetuator, indicating that the game starts with the perpetuator making the first move. Each circle or ellipse represents an information partition. Since, the game has imperfect information, users do not know in Fig. 3.1 that which decision the past player has taken and hence, must take the same set of actions at all three decision points.

In Fig. 3.1, when perpetrator chooses NF, a real message comes into circulation. So for any move of the user, his payoff remains 0. If the user chooses F, his payoff increases, if he chooses R, then it decreases and is 0 in case he decided NF. When perpetrator decides to forward a fake message(F), his payoff increases only when the user also chooses F as the message then goes into circulation thereby achieving the perpetrator's goal. In this scenario, if the user chooses either NF or R, user's payoff increases and perpetrator's payoff decreases as the user is able to stop the spread of that particular fake message from his side. The analogy for payoffs when perpetrator chooses C is similar to when he chooses F, but are magnified to indicate that the perpetrator is the origin of the fake message.
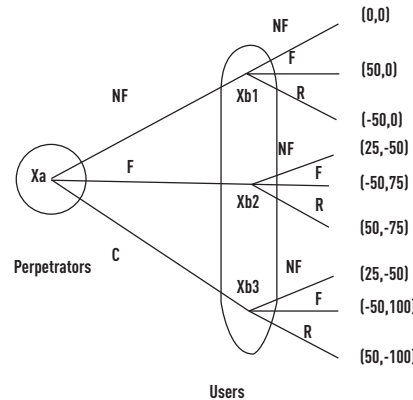

Fig. 3.1 : A game tree diagram to represent the fake news game, first payoff corresponds to the user and second to the perpetrator

To model the messaging game in a more realistic manner we consider an infinitely repeating extensive form game with a stage game resembling Fig. 3.1. Other possible stage games are shown in Fig. 3.2 and Fig. 3.3. Another possibility includes forwarding of messages from users to perpetrators as shown in Fig. 3.4. In Fig. 3.2, when the first perpetrator (perpetrator1) chooses NF, a real message comes into circulation. In such a case, the payoff of perpetrator1 will always be 0 as the real message has entered the game through no actual action of his. Following this move when the second perpetrator(perpetrator2) decides F, a positive payoff is assigned to him. If
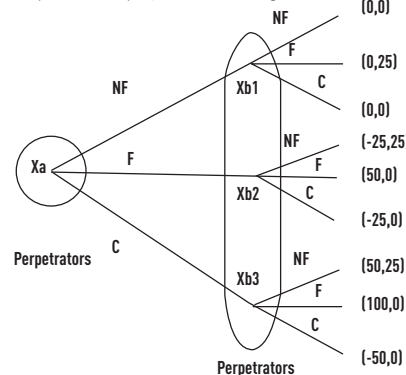
Fig. 3.2 Subgame when perpetrators forward to perpetrators, first payoff corresponds to the previous perpetrator

perpetrator2 chooses C, the payoff is 0 as the consequence of the creation of this

fake message can only be evaluated in the consequent subgames. Considering the case when perpetrator1 chooses to F, if perpetrator2 chooses either NF or C, the payoff of perpetrator1 decreases as his message cannot go any further. If perpetrator2 chooses F in this scenario, the payoff of perpetrator1 increases. Similar payoffs are assigned when perpetrator1 chooses C, but are higher in value as in this case he is the origin of the fake news.

In Fig 3.3, when the first user(user1) reports a message, it doesn't get forwarded to the second user(user2), thus there is no action to be taken on behalf of user2. The payoff for user2 will be 0 and depending on if the news is fake or not the payoff of user1 is assigned. To discourage users from reporting any message in hopes of increasing payoff, a negative payoff is assigned if the news is real. Similarly, if user1 chooses NF both get a payoff of (0,0) at t3. When user1 chooses F, only then user2 can act upon the message. If user2 reports it, then according to its authenticity, payoff for either user1 or user2 will increase and the other one's will decrease. If user2 decided to NF, (0,0) is assigned at t6. Again depending on its authenticity, payoff will be awarded to both users when user2 also chooses to F. In this case their payoffs will be symmetrical.
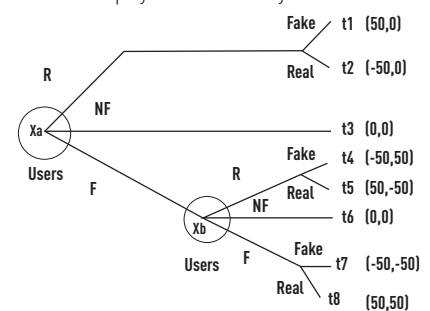
Fig. 3.3 Subgame in which users forward messages to other users, first payoff corresponds to the first user. When the user chooses R or NF, it results in terminal nodes. In the tree, the last branching before terminal nodes (except in NF) maps to fake and authentic news.

In Fig. 3.4, users forward messages to perpetrators. The case in which user chooses either R or NF, the previous subgame already considers these

case and hence the payoffs in both these scenarios are (0,0). When the user chooses F, we assume that the perpetrator knows if the message it receives is fake or not and hence decides accordingly. If the news is fake and perpetrator chooses NF, then his payoff increases as any move which promotes circulation of authentic news is encouraged in the game. If the perpetrator chooses F or C, user's payoff decreases but the payoff of the perpetrator is 0 as his payoff will be decided by the subsequent subgames as those will decide the fate of the fake message that he circulates. When the news forwarded by the user is real, then NF move of the perpetrator has no real impact and hence a payoff of 0 but for the user it increase. If the perpetrator chooses F then it increases and if he chooses it is 0 according to the above given explanation.

Assumptions include, first, the game starts with the action of a perpetrator and at NF move, an authentic message is considered resulting inclusion of circulation of fake as well as real news. Second, at each level in the game both sets of players can make moves as each player consists of many individuals and no player knows which group a particular individual belongs to except their own group, thus the four possible subgames. Third, payoffs aren't assigned at the end of a game but at the end of each subgame and each subgame begins in the middle of the previous subgame. Fourth, NF and R move for users ends in a terminal node for the entire game.
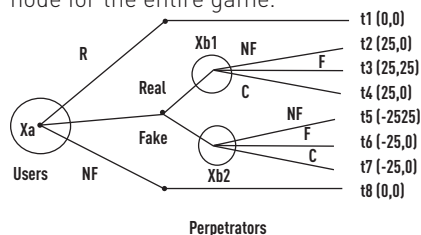

Fig. 3.4 : Subgame in which user forwards a message to a perpetrator

For an infinite game, sum of payoffs will tend to infinity, therefore for comparison between strategies, discount factor is used, which is a real number between 0 and 1, common to all players. At each payoff assignment,

the discount factor is multiplied such that the power of the discount factor increments by one each time.

4. Discussion

As count of messages being shared through messaging platform is exponentially increasing in day to day life, it is not possible to check the genuinity of each and every message that is being shared. Though different approaches and methods for detecting fake news which are 95% accurate exists. Hence there is need for first phase of screening of messages which are doubted to be fake and then these messages are analyzed either through machine learning, sentimental analysis, Natural language processing techniques. Game theory approach is employed in the first phase of filtering messages which have the probability of being unreal. Game theory tries categorizing the person as perpetrator or genuine user based on the moves and the corresponding payoff. After certain period of time based on the actions and payoff it is easy to categories people and according actions are taken by the administrator.

As there are different categories of fake news, it is difficult to categories the fake news and it was difficult to find patterns among the category. Hence the accuracy of detection of fake news was less. But categorizing real news was less complicated as compared to previous approach. There are two categories in the latter method with labels as real and unreal. Unreal would include satire, opinion pieces, fake news, everything else. Then patterns are found for each category. With this approach accuracy increased to 95%.

5. Limitations

Since the approach has not been finalized yet or simulated to check its strength in a testing environment, there are multiple limitations which can be identified at this stage. Moreover, the structure of the identified game has not been considered in the referenced literature as they do not analyse the infinitely repeating extensive form games with multiple possible stage games.

First, current encryptions for messages are end to end therefore the implementation of the game theoretic

approach cannot identify the origin of the fake message but only the one who forwards it to the vigilant user. Second, a better method must be formulated to capture the circulation of authentic news along with fake news as maximum messages in consideration are fake. Also, perpetrators can also forward real news alongside fake news, this fact is not analysed in their moves. Third, the game only considers fake news from sources which formulate it to resemble real news, for example, articles with references or links to such articles. It does not consider personal messages or fake news which are modelled as personal messages. Also the developed theory applies only to textual news and not for images or media. This is one of the major drawbacks as in most cases of lynching, warnings have been forwarded in this format.

6. **Conclusions and Future Work**

The gaming approach taken towards controlling the spread of fake news though not simulated but analytical complete is a satisfactory solution for problem statement. It aims at standing out as an unique approach in this field of fake news detection. The users and perpetrators who are the players sufficiently aid in achieving sub-goal states at each level of the game. The payoff matrix and game tree diagrams theoretically modelled justify the game. Once properly implemented this game could 'change the game'.

The future aim is towards implementing this gaming approach into real time applications by employing servers in various network domains that can process the instructions specified. Servers would be capable of keeping track of the hosts trying to spread fake news (belonging to their network domain) based on the how genuine the actions/moves taken in messaging platform are and take actions accordingly. Initially server has no information regarding the hosts in their network domain that is if they are intentional or unintentional fake news spreader. Server maintains a database named *wrongmoves*. *wrongmoves* database has information regarding the hosts details, payoff of hosts taking wrong moves. Server starts learning about the genuineness of the moves

of hosts based on the report action of other hosts in network.

When a person reports a message the details of sender, receiver, message content will be sent to the respective local server in the network. Then the message is processed using Natural Language Processing algorithms for detection of the content for real or fake. If it is found to be fake, then server maintains the details of the message sender and gives payoff accordingly. In other case that is when message is found to be real the reported person details will be stored in *wrongmoves* database and given payoff accordingly. Initially when a host payoff goes below the min payoff value then he/she will be warned for their wrong actions and will be deactivated from messaging platform for certain period. After activated if the same is being continued then they will be disabled from accessing the messaging platform. This would force people into re-thinking before they take any action on such platforms, which will ultimately would lead to control of the spread of fake news.

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An Overview of Agent Based Intelligent Systems and its Tools

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In an Artificial Intelligence world, Agent-based technology is one of the most vibrant and important areas of R&D, emerging in Information Technology in the industry in recent years. Intelligent Agent (IA) is an autonomous entity which observes, analyses and responds to an environment appropriate to achieve the expected objective. The IA posses several categories such as Coordination, Integration, Mobility, Believable Agent and Assistance in achieving its expectancy. Agent Program is a tool/process which supports the IA Implementation. Agent program is defined briefly as a mathematical function of an IA which maps all the possible sequences of perceptions in every action. IA can respond either to a resulted coefficients or feedback elements or even to a function or constant which affects eventual actions.

1. Introduction

Intelligent Agents are initially originated from Artificial Intelligence and Distributed Programming. These two regions have been combined together, to form Distributed Artificial Intelligence (DAI), by which the vision of Intelligent Agent emerges. In mid-1950's, the idea of an intelligent entity existed which was also known as an Agent, but nothing really happened until the late 70's. The actual progress in its development began only in early 90's; coinciding with the breakthrough of the Internet. There is a very close connection across object-orientation and agent-technology. This is only to be expected, since the fields of distributed programming and artificial intelligence are developed on this basis. This agent-orientation grasp the object-orientation a bit extent by giving the agent a desired target with its extant.

1.1 Intelligent Agent

One among the fastest growing areas of artificial intelligence is the agent technology, which is of paramount importance in current research. An Intelligent Agent is considered to be a software entity located in an environment. IA can be
- Autonomous;
- respond to changes in the environment;
- be proactive in attaining its goals; and also
- Sociable.

IA is shown in the figure 1. For the purpose of attaining the goal, an IA learns by itself and makes use of its internal knowledge base. Thus it is seen as natural metaphor for human acts. It has an elevated performance behavior in data distribution and control of self-imposed expertise.
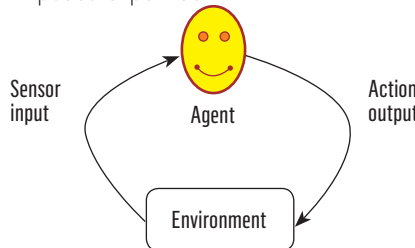
Fig. 1: Basic Agent

The core utilization of an IA Model is in the area of documentation, where various IA types will be supported in the system which is in the development stage. IA instances will understand these agents clearly during its execution. Characteristics of an IA play a critical role in the implementation of any IA-based Applications. It may be one-to-one link between roles and agent types. A simple IA-type tree defines an IA model, where leaf nodes of the tree respond to roles whereas other intelligent agent types are referred by other nodes.

1.2 Attributes of Intelligent Agents

The three attributes: agency, intelligence and mobility are used in intelligent agent systems, to measure system properties. Figure 2 illustrates the relationship between agency and intelligence:

- **Agency –** The degree and extent to which independence is exhibited by an agent. For example, given that an agent operates in an Internet environment, it must at the least, be able to go on working while the user might not be connected or might not be connected to the Web.
- **Intelligence –** The ability of an agent to assimilate and adjust to a domain, by means of user requests and available assets to the agent.
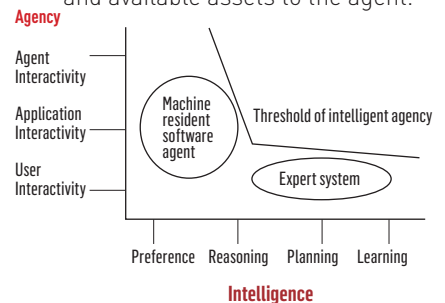
Fig. 2: Scope of Intelligent agent

Systems above the threshold lines are recognized as intelligent agents as

shown in Fig. 2. Those falling under the threshold line, for example expert systems i.e. "systems representing some knowledge they gathered by means of elicitation or knowledge-acquisition into a computer program to perform specific tasks".

2. Agent Function

The agent function which maps a series of observations into action is a mathematical function. The agent function is applied as agent program. The part in which the agent takes an action is called an actuator.

2.1 Agent Versus Program

- Size: The size of an agent is typically less than that of a program.
- Motive: The purpose of an agent is limited and peculiar whereas the purpose of programs is multiuse.
- Endurance: Agent's duration doesn't depend totally on a user organize and depart it.
- Self-Governing: Agents are autonomous and is not dependent on user's input for functioning.

Fig. 3: Structure of Agent

3. Categories of Agent Based Intelligent Systems

There are five categories in the Intelligent Agent based systems:-
- **Integration :** Integration of information and sharing of knowledge.
- **Coordination :** Cooperative problem-solving and multi-agent

systems.
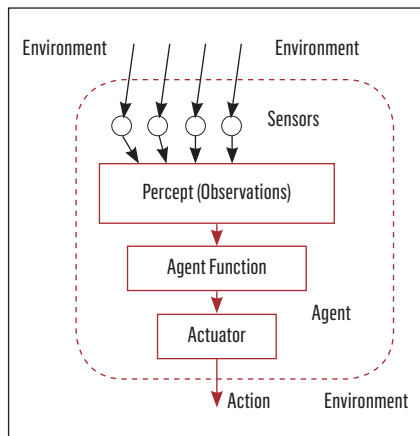- **Portability:** Portable agent/ object solutions.
- **Assistance:** Unique assistance, soft-bots and data mining.
- **Believable Agents:** life and simulation.

3.1 Integration

The key goal of integration in any situation is to give components that can facilitate various learning frameworks. It is imperative that the fused data is very much organized, and contains all the data and clarifications important to its cognizance.

3.2 Coordination

Coordination is a special case of interaction in which agents are aware how they depend on each other and attempt to adjust their actions appropriately. Understanding the process of an IA technology is helping people to work more effectively and contributes to better results. The supportive coordination of this distributed-processing is in the interest of various research communities.

3.3 Assistance

Assistance typically acts as representative of a human or an organization endeavoring to accomplish their ultimate goals or intentions.

3.4 Believable Agent

Believable agent has behavioral characteristics which make it easier to suspend the unbelief that the agent is a true person. It interacts with the player in real time and is sufficiently autonomous to plan its own actions in order to increase credibility.

4. Java - Based Agent Technology

- **Java -** based agent technology includes the tools and support needed to develop multi-agent large - scale systems using the Java platform. Several organizations and vendors are involved in the design of tools and frameworks for the construction of Java technology - based systems. Some of the commonly used technologies are summarized below:

- **Aglets –** The Aglets are invent to locate mobile agents. One of the first agent technologies built using Java technology are Aglets.

- **JADE (Java Agent Development Framework) -** Software framework which is entirely designed and coded in the Java language. The purpose of the framework is to make execution of multi-purpose systems easier, by using a middleware which is compliant with the FIPA specifications and using a group of built-in tools e.g. the sniffer agent and the platform management console to help debug and deploy agent - based systems. The JADE framework can be distributed and remotley controlled by using a built-in GUI.

- **Bee-gent (Bonding and Encapsulation Enhancement aGent)–an agent -** based system development framework. Bee-gent has integrated capabilities to promote communication between applications for software. Agents are used to deliver the messages. Developers can build open distributed systems so that existing application services can be used.

- **Zeus –** "a toolkit designed to help quickly design, develop and deploy agent - based systems". Zeus toolkit includes components of the library, construction and visualization tools.

- **IBM Agent Building Environment (ABE)-**Intelligent agent design and building toolkit developers.

- **Java -** based agent technology makes it easy to develop commercial agent - based applications on a large scale that can share data with organizational or Internet applications.

5. Java Agent Development Framework

Java Agent Development Framework (JADE) is a program substructure developed in Java language by TILAB. This includes two segments, The first part is the libraries (Java classes) in which the agent applications and functions are developed. The second part is a run-time environment , which provides some needful assistance for the agents' execution. Platforms can be executed in a peer-to-peer multi party communications and distrvibuted networks . This system makes use of the

both wired and wireless infrastructure. The platform supports cross functional operations for system execution. The layout can be supervised via a remote user interface; moreover, at runtime the platform supports hot exchange and moving users from one system to another.
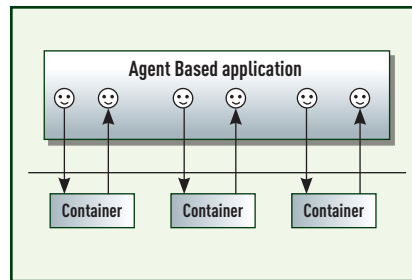
Figure 4: JADE Architecture

An Intelligent Agent, which surrounds the same purpose, will help us to find out relevant content most efficiently and effectively. The IA based system assist the creator to resolve complicated real world issues, by contibuting idea to make-up the stumbling block and to group-up the result. It is argued that the IA based system utilizes the large number of agent very effectively with the help of agent generation algorithm.

6. **Conclusion**

About the Authors

Dr. S. Balakrishnan (CSI Membership 2060000034) is a Professor at Sri Krishna College of Engineering and Technology, Coimbatore, Tamilnadu, India. He has 17 years of experience in teaching, research and administration. He has published over 15 books, 3 Book Chapters, 6 Technical articles in CSI Communications Magazine and over 100 publications in highly cited Journals and Conferences. His professional awards include: Deloitte Innovation Award, Cash Prize ₹ 10,000/-, from Deloittee for Smart India Hackathon 2018, Patent Published Award, Impactful Author of the Year 2017-18, Best Faculty – Computer Science and Engineering, Teaching Excellence Award, I2OR - Bright Researcher Award, Best Outstanding Faculty Award, Best Teacher Award, Best Research Paper Award, Best Book Publication Award and Best Book Chapter Award, Special Contributor Award and Star Performer Award. His research interests are Artificial Intelligence, Cloud Computing and IoT. He has delivered several guest lectures, seminars and chaired a session for various Conferences. He is serving as a Reviewer and Editorial Board Member of many reputed Journals and acted as Session chair and Technical Program Committee member of National conferences and International Conferences at Vietnam, China, America and Bangkok. He has filed/published Patents on IoT Applications. Dr.Balakrishnan is a life member of ISTE, IAENG, IEAE, IARDO, CSI, UACEE, SDIWC and CSTA.

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Applications of Language and Speech Processing in Effective Communication and Knowledge Sharing in the Digital Market

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Introduction

Digital revolution can be defined as a change in the exertion of the humans and which have effect on the culture, economy and the mankind. It has become essential to be digitalized as we humans started to access information through applications and platforms on daily basis. This revolution in the epoch of digital world is possible with the pillars such as platforms, crowd and intelligent machines. Since the digital revolution the way in which the information disseminated across the earth had been changes and it affords venues for business in international standard. It also heightened the areas of communication for the empowerment of the economy and the users by giving access to information available through various platforms like mobile internet, cloud-based technology, big data, IoT, nanotechnology, robots (artificial intelligence), and other digital technologies. Hence the digital revolution has concreted the way for creation, communication, and collaboration resulting in fewer barriers and more efficiency for innumerable organizations.

The role of NLP in Digital Revolution

Humans have reached the highest of digital world as they expect sophistication in what they are using as products and how it would be beneficial for them on daily basis. In order to cope with the needs of the consumers, business organizations handle various tactics and advanced technologies. Natural Language Processing or NLP comes into the picture as a smart solution to meet the necessities of the business organizations irrespective of the type of organization and domain,.

NLP is widely used in business market nowadays and has become the catchphrase in each and every engineer's life. In simple NLP is everywhere.

NLP or Natural Language Processing is also known as computational linguistics is a combination of language, machine learning & artificial intelligence (AI). It figures an expertise that allows the users to interact with machines like a normal human to human conversation. An example for this is 'Hey Siri' on iPhone or 'Ok Google' on Android mobile is the products of Natural Language Processing. Before the emergence of NLP if the user needs to search something in Google, he/she should type the keywords into the search engine to get the desired results/pages. But now with the advent of NLP, the user can feed the query in their voice which will be technically assisted. Natural Language Processing has enormous applications in business nowadays. Apart from Natural Language Processing, the research areas of machine learning includes,

- Speech Recognition
- Image Recognition
- Medical Diagnosis
- Social Media Services
- Email Spam and Malware Filtering
- Product Recommendations and etc.

Business Applications of Natural Language Processing

Here we are going to discuss the most top applications of language processing for business. [1]

Sentiment Analysis

NLP is a tool in understanding and analyzing the responses that are published on the social media in respect to the business domain. It is useful in analyzing the emotion and mood of the person who is making comments on the social media. The process of analyzing and understanding the mood of the writers (happy, sad, angry and annoyed etc.) is called as opinion mining. Opinion mining helps the business firms to understand the consumer's mindset and accordingly they can adapt a system to meet the consumer requirements through which the customers/consumers can feel greater experience in utilizing the product.Furtherly sentiment or emotion analysis is a way through the perception of the brand can be explored.

Chatbots

One way of assisting the customers in case of any inconvenience is the customer care call assistance system but the customers feel frustration in using it. One stop solution to this the use of Chatbots which provides virtual assistance to the customers for the problems experienced. Chatbots are the intelligent solution to assist the customers in near future. Salesforce first launched an SMS chatbot product in 2014, and has since expanded it to include Facebook Messenger. The company also offers a product called Live Agent Chat, which facilitates human-to-human interactions.

Customer Service

The major challenge of a business organization is to ensure that the customers are happy and feel content with their products. To provide loyalty to their customers, business organizations focus on customer service which
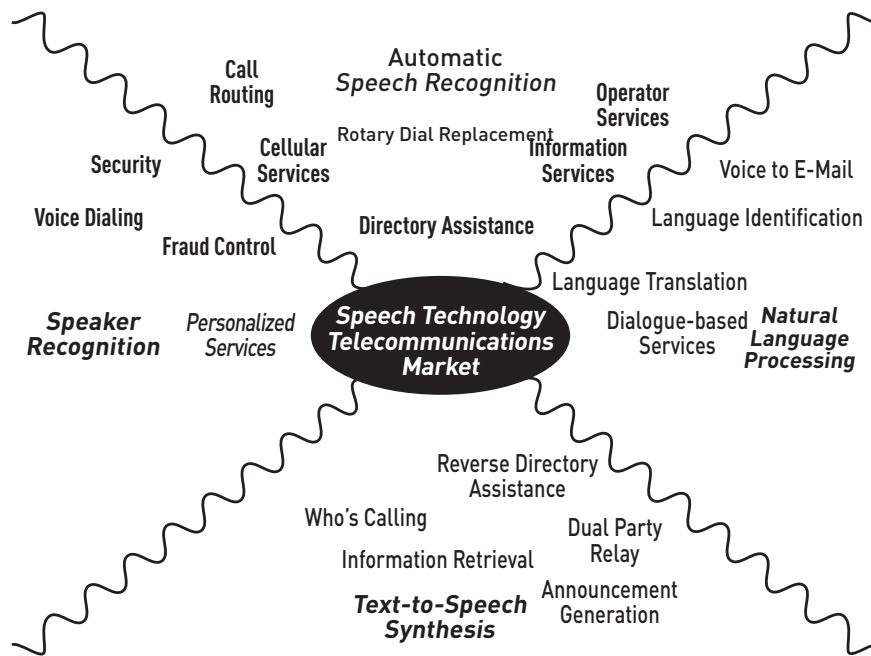
Fig. 1: Role of Speech Technology in Telecommunication Market

insight is to understand the customer's preferences and perception about a product. Speech processing is the technique where the intelligent system will understand the customer voice and answer the calls separately. Even the blind people are assisted with the text to speech systems. One way of ensuring the quality of the customer service is understood or analyzed through the call recording of the communication in which the feedback about the service is marked. Here NLP could assist in translating customer's speech into a text message which could be easily analyzed by the engineer.

Market Intelligence

Business markets are influenced and impacted by market knowledge and information exchange between various organizations, stakeholders, governments and regulatory bodies. It is vital to stay up to date with the industry trends and changing standards. NLP is a useful technology to track and monitor the market intelligence reports for and extract the necessary information for businesses to build new strategies. Widely used in financial marketing, NLP gives exhaustive insights into employment changes and status of the market, tender delays, and closings, or extracting information from large repositories.

Applications of Speech Recognition/ Synthesis System

The applications of speech recognition system for the digital market [2] and [3] had been given as follows,

Playback of modest information

Speech recognition systems should be used to cut down the waiting times of the customers when they want to get any information from the live person or the operator. The customer calls should be filtered in such a way that the calls should be directed to the speech recognition systems for those who need the basic information based on the nature of the query. Also the live person should also be available to answer the queries raised by the customers.

Call steering

Call steering is a way in which the callers are directed to the right department. Speech recognition is a solution where the customers can select a self-service path or they can directly communicate what they need and which will be steered to the right department or the appropriate person. Customer would get dissatisfaction in situations, where they have to wait in call for a long to get through the operator and in worst scenario if they have been routed to the wrong operator. Hence in order to

gain customer satisfaction the speech recognition system should be intelligent in handling the customer calls.

Automated identification of the customers

Automated identification of the customers saves time in answering the customer when they make call to the system next time. For example in banking sector, a 'voiceprint' can be created based on the specific input such as 'Name' and 'Account Number'. Then this information is stored against each customer record. So when the customer makes next call, they can simply input their name and if the voiceprint matches against the stored record, then the the caller is put straight through to the representative person of the customer care service.

Take away Interactive Voice Response (IVR) menus

IVR is an Integrated Voice Response System which permits the computer system to act in response to the human requests and it takes input from the keypad of the mobile device as response. IVR plays a major role in the field of telecommunications.

Usage of IVR in India

IVR in India [4] provides solutions to lever sophisticated volumes of calls at a certain instance of time at lower cost. The queries raised by the callers are solved in short time without any interference of a live operator with the help of IVR systems. If the customer feels that if he/she is not satisfied with the solution provided, there is an option in which the call of the customer will be redirected to the live agent to whom the queries can be raised.
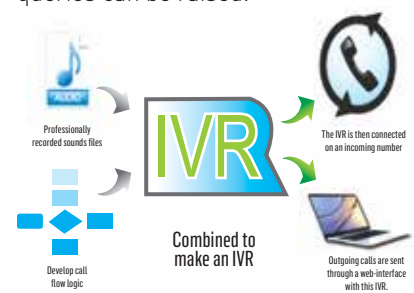

Fig. 2: An illustration of IVR System

The call systems in general should be able to identify and differentiate the customers/callers based on their profile. The customers should

be provided options to wait on call, choose an automated facility or request to callback. The system should be able to authenticate the callers from the network. Certain biometrics like account number, date of birth are obtained for user identification. IVR also provides solutions where the customers will be prioritized based on his profile in the business firm.

Due to the lack of proper infrastructure to implement the IVR systems, it is unable to handle the customers' calls and it is unpopular because of the push button IVR menus. Hence it is necessary to replace such push button menus to improve the system.

The popular IVR providers in India are

- Next Level Education and Technology
- Bay Talkitec
- Exotel
- Knowlarity
- MyOperator

Conclusion

Though the applications of Natural Language Processing and Speech Processing aids humans in the digital revolutionary world still there are certain practical difficulties faced by them due to the unstandardized implementation of the intelligent systems. Hence the research works [5], [6] in the areas of language and speech processing are focusing on implementation of smart intelligent systems like bots, support of invisible UI, intelligence from unstructured information to assist the humans as well as the business organizations to sustain their market through the digital revolution. Thus we the customers can happily enjoy the digital revolution.

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Artificial Intelligence & Education in Future

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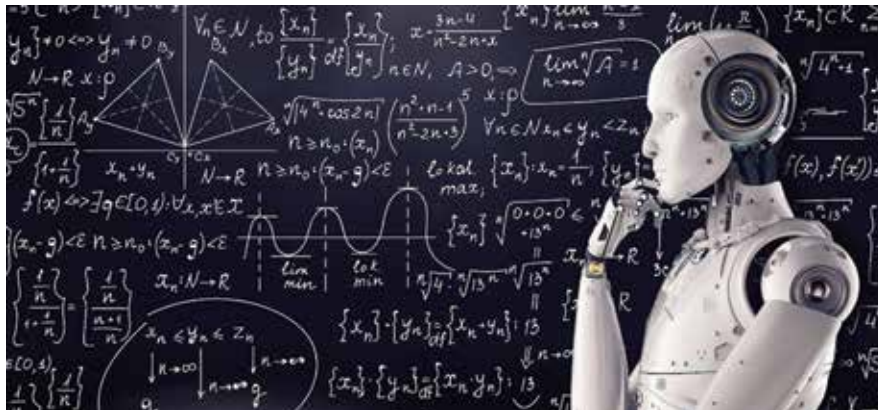
Artificial intelligence is transforming how we'll learn in the future. It goes without saying that artificial intelligence is changing the nature of industries from transportation to finance, and education is no different with the prospect of personalized learning quickly becoming a reality. As more and more of a student's education is experienced through a computer, data on their educational progress can be collected, leading to more personalized learning plans while assisting the teacher in identifying problem areas for students. While artificial intelligence in education might appear unnerving for some, the benefits are too great to ignore.

Artificial Intelligence and Big Data in Education: There are few spaces in life that haven't been touched in some form by computer software. Whether it's shopping, dating, or just keeping up with old friends, everything we do seems to be mediated in some form by computers. It shouldn't surprise us then that how we educate ourselves isn't immune. D2L, a leader in educational software, is the maker of Brightspace Insights, a suite of analytical tools for educators. Brightspace is able to capture, aggregate, and analyze data streamed from several different sources, including learning apps, online resources, publishers, and other learning management systems to build a complete model of individual student learning behaviors. By pulling this student data into one place, Brightspace can produce reports, predictive data analytics, and visualizations in real time that are fed into an instructor's workflow. Over time, this can teach the teacher exactly what a student needs to succeed. "With the previous version of our analytics product, instructors received information on learner success even before they took their first test. But it was only using data based on Brightspace tools," says Nick Oddson, Senior Vice President of Product development for D2L. "With the new Brightspace Insights, we can now deliver that same insight, but based on the entire ecosystem of learning tools." Until recently, the only way to measure student learning was through tests and assignments, but that only captures a small slice of a student's education. Over the course of a student's educational career, they output an enormous amount of data in the form of papers, exams, and classroom participation that rarely carries over to the next term. With these new tools, however, student data can be stored an analyzed over time to see what material they engage with more successfully and what educational deficits they may have hidden in their past work that might be inhibiting their future potential.

Personalized Learning: Teaching the Teachers: By having a fuller understanding of the student on day one, educators are better positioned to utilize their training and skills to address these students' individual needs from the start, rather than spending weeks or months identifying problems that they'd then have little time to actually address.

According to D2L President John Baker, with software like Brightspace Insights, "we've made it easier for instructors to predict and forecast learners at risk, to help them while they're learning, not just by flagging issues at the end of a term." Meanwhile, by having all of a students' data pulled together and aggregated in advance, these learning management systems help assist the teacher in crafting personalized learning plans for students. This system works to a student's strengths rather than approaches a classroom full of students and uses one approach that works better for some while leaving others behind. This is one of the most powerful aspects of artificial intelligence in education. AIs and machine learning are especially good at identifying patterns that may be opaque to human eyes, so by looking at a student's educational data, an AI can assist the teacher in identifying the ways individual students comprehend the material. Some students thrive by reading assigned materials, while others are inhibited by a wall of text that is more readily understood when presented in a lecture form. By identifying these trends in a student's data, students can be presented material in a more accessible way that won't leave them behind with a one size fits all approach, creating a personalized learning experience that can improve educational outcomes.

AI, the Ultimate Teacher

Assistant: It might be tempting to think that machine learning and AI can replace classroom instructors, but that misses the essential role that artificial intelligence should play in education, and not just in developing personalized learning plans. Machines are dreadful when it comes to tasks requiring emotional intelligence, a skill that is essential for educating a diverse student body.

Simply putting an AI in front of a classroom is a recipe for disaster as students eager to slough off work learn to game the AI, thereby ruining whatever advantage the AI brings to the wealth of educational data available to it. Instead, the AI is meant to free the educator from the most time-consuming and monotonous tasks, such as grading exams and checking papers

for plagiarism. Any teacher will tell you how this work takes up a majority of their time, time that could be better spent using their specialized training to improve the quality of their student's educations. By having an AI assisting the teacher, rather than replace them, AI-enhanced education can unleash the educator to fully utilize their training in ways that simply were not possible to earlier generations of educators.

The Changing Role of the Educator: Naturally, there is some hesitancy when it comes to bringing artificial intelligence into the classroom. Teachers over the past couple of decades have been on the receiving end of budget cuts and abuse, leading them to understandably become rather twitchy when someone comes into their classroom with the next big idea that looks an awful lot like

a replacement. But an AI isn't anywhere close to being capable of doing a skilled educators job, much less outperforming them. Like other industries where artificial intelligence is making inroads and generating anxiety, this is largely a product of a misunderstanding of the underlying technology. Proper introduction and teaching the teachers how to harness these new tools in the classroom can go a long way to assuaging the anxieties such technology can create. It is vital that we begin to do so. AIs cannot and should not replace teachers, but through personalized learning programs and having AI assist the teacher by eliminating time-consuming paperwork, AIs can be a transformational and liberating innovation in education.

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Role of Artificial Intelligence in New Media
(Technology based perspective)

▶ **Rabinder Henry**
Director of Pralhad P. Chhabria Research Center

1. Introduction and definition

New media can be defined as a highly interactive digital technology which allows people to interact anywhere anytime. This has evolved as a non-tangible channel for communication on the preset of growth in Information Technology. The ability to transform content to digitized format allowed the new age media take shape within the internet. Accessibility through hand-held devices like mobile platforms, personal computers, digital devices, and virtual computing machines has aided the growth of new age media. The medium of new media is not just restricted to social networking platforms, blogs, online newspapers, digital games and virtual reality but any aspect of communication that can be real time communicated, processed, stored and delivered in formats of data instantaneously. Accessibility, speed of data access, reversibility & storage capacity are the basic three parameters which characterize new media. Since new media creates a medium which is basically one and zeros, which represent all aspects of human senses readability including video, audio and tactile data. In the last one decade the rapid development in Artificial Intelligence has led to the evolution of more intelligent new media for communications. Since the machine learning codes can play the role of human cognitive abilities, they have the information storage and processing ability to represent or imitate human level of communication.

2. Evolution of New Media

The growth of new media has been the generic development riding the wave of technology progress over the human species evolution. The migrating human species out of Africa
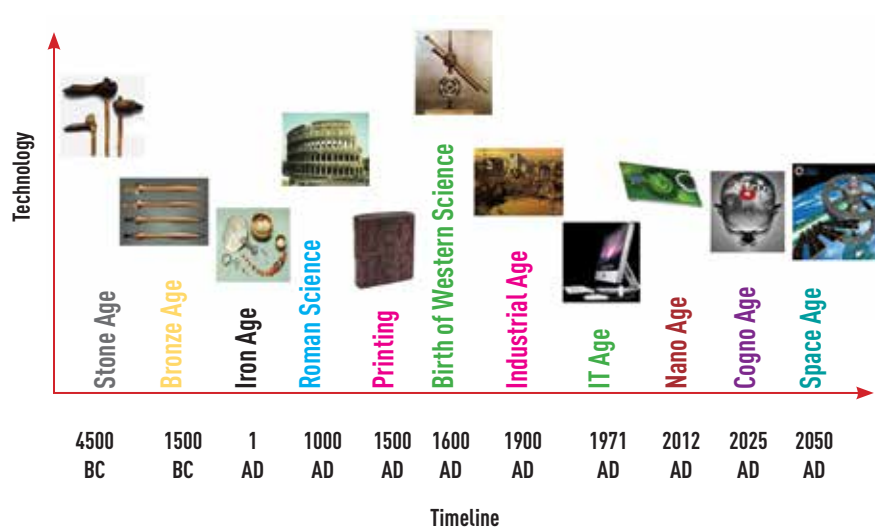
Fig. 1: Evolution of Technology

around 80, 0000 years ago, started representing data through cave arts at different geographical locations. The urge to communicate, co-operate and share is the basic aspect of human species. With evolution of languages and visual art, the cognitive ability of the human species, more tools and crafts like terracotta, dyes, inks, cotton etc. emerged. And techniques of carving and writing aided representation of data from the environment and also expressing creativity in a more refined from. This technology advancement subsequently led to the development of paper 220 AD in China. The breakthrough in paper processing led to evolution more books keeping and recording, which eventually to rapid communication with invention of printing press. The 16th century phenomena led to mass media communication evolution. The technological breakthrough in late 18th century and 19th century led to evolution of transmission of sound and followed by

transmission of video. The combination of audio and video revolutionized modern broadcasting. The invention of transistor in 1947 and the ultimate integration of first Pentium processor in 1970 transformed data communication, controlling and computation. The data representation and growth in communication have eventually led to new media by early 2000. The evolution of technology is shown in Fig. 1.

3. Composition of New Media

New media encompasses all aspects of modern digitized data communication. The digitized data being created, consumed, communicated over the internet using digital devices. Even the old media have found new way of expression within the new media like e-newspapers, e-books, etc. Evaluation of smart phones based and apps have led to mini revolution in the social and interactive space. Standalone social networking platforms like Twitter, Facebook, and Instagram have all tried

A) Social Networking   B) Micro Blogging   C) Blogging

D) Photo sharing   E) Video Sharing   F) e-newspapers
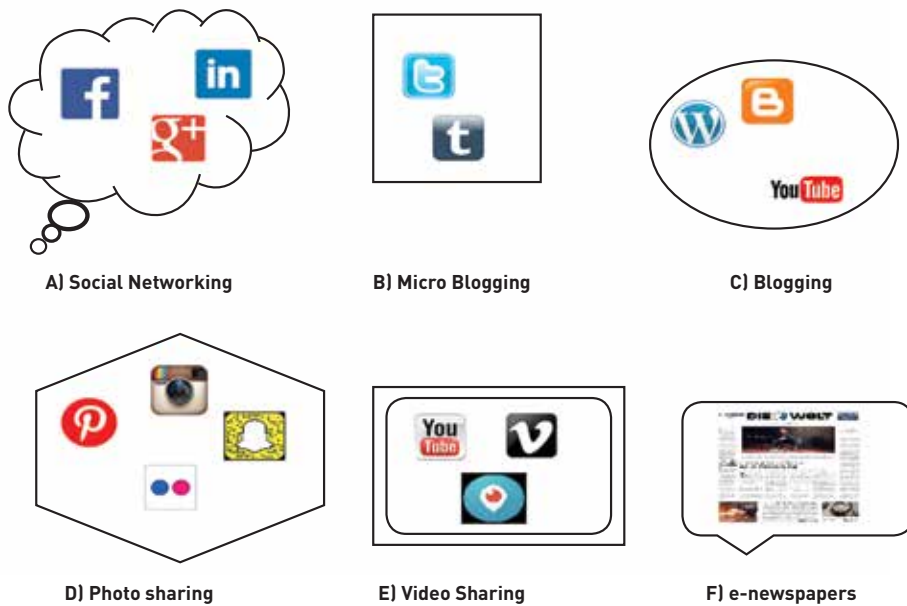
Fig. 2: Trends in New Media

to integrate old-ways of chat boxes along with advertisement and e-commerce. Generally new media can be classified based on different parametric aspects like user age group, digital platform, communication platform, accessibility, content generation, security, computational methods and algorithm, number of users etc. Since it is an ever evolving technology based phenomena, it's difficult to categorize under specific parameter. A more scientific classification would be based on semantics and user interfaces. Some of the recent trends in new media are listed in Fig. 2.

The list also includes Video games, virtual reality, real time chat interfaces and dating sites with digital interactivity like tinder etc. But most of the networking interfaces are based on transaction a particular website attracts .But most important classification would be based on technology framework. The new media can be characterized broadly based on the following parameters

- Digital (Extend of digitization)
- Interactivity (Number of users/transaction)
- Hypertextual
- Virtual (Integration of Virtual / Augmented reality)

- Networked (Accessibility and reach)
- Simulated (Flexibility and usability)

4. Future of New Media

Self-learning, self-controlling and self-communicating standalone intelligent systems have enabled entirely different aspect of view point in recent years. Virtual reality uses the programming abilities to create totally new environment or replicate existing environment. This is coupled with ability of the user to interact and interface virtual objects and spaces in that environment. Graphics, games and simulations have fled open the gates wherein each individual recreates his imagination as virtual world. In similar way augmented reality has enabled users to directly or indirectly view real environment and at the same time interact with it, using computer generate audio, video or touch. Basically the computer programs enable the user to supplement the real world environment with objects created through computer. In a broader sense Virtual reality, intelligent systems and automation will slowly replace different aspects of industry, human interaction and progress of the human species at large.

5. Role of AI and Machine Learning

The human based content generation will be taken over by machines and software algorithms, capable of imitating human cognitive abilities. This will lead to new way of generating, communicating and consuming data (Mass communication). Social networking platforms and personalized communication will be more intelligent and sophisticated. In the immediate near future, the human emotions which are being conveyed as data by humans will be equally or will be contributed by machines. Combined with virtual and augmented reality, self-learning systems or intelligent systems will percolate mass communication and personal communication. Artificial intelligence is a broad name suggesting concepts developed over the years and which are being implemented today due to ability of computing platforms like microprocessor, graphical processors and microcontroller to compute large volume of data in short duration. AI can be roughly defined as the ability of the manmade of computing devices to replicate and perform cognitive functions of human brain. The basic goal of AI to realize reasoning, inherent knowledge, learning ,perception, language synthesis and the ability to manipulate materials similar to human sensory-motor actions using forelimbs and hind limbs. The ultimate goal of AI is to achieve complexity and flexibility like human brains. The formal methods to achieve these goals are statistical methods, computational intelligence and traditional AI tools. The traditional AI tools include are symbolic approaches to computing problems. The most commonly used symbolic approach has been expert systems. Whenever symbolic representations failed to achieve the decision making ability modified representation using fuzzy logic and artificial neural networks were developed.

Modern AI tools have become more human like tools with progressive integration of higher level intelligence aspects of human brain's cognitive abilities. These abilities include slow and steady progress towards myth emotions, creativity, imagination,

dreams, higher philosophy and ultimate consciousness. But though these utopian abilities are long term, currently the progresses are being made toward achieving these goals. The methodologies include cybernetics & brain simulation, symbolic intelligence, machine learning, cognitive simulations, logic programming, knowledge based computing, embodies computing, computational intelligence, machine learning or self-learning systems and other forms of intelligent computing. Now the question arises how to achieve these ultimate goals. The complex process cognition can be achieved only through integrating different methodologies. The two most common approaches are agent architecture and cognitive architecture. Describing each and every aspect of AI is beyond the scope of this article. But it's better to stand the tools required to implement these methodologies. The tools include machine intelligence to search large database and optimize a solution (search algorithm, mathematical optimization, evolutionary algorithm), logic based programming (automated reasoning, logic based decisions), probabilistic tools (bayesian networks, kalmann filtering, decision theory, utility theory), classifiers (classical mathematics, machine learning, statistical classification), neural networks (Artificial Neural Networks (ANN), connectionism), Deep feed-forward neural networks (deep learning, image processing, computer vision, speech processing, natural language processing), Deep recurrent neural networks and intelligent control system based hierarchy based approach. The aspects of AI tools are shown in Fig. 3.
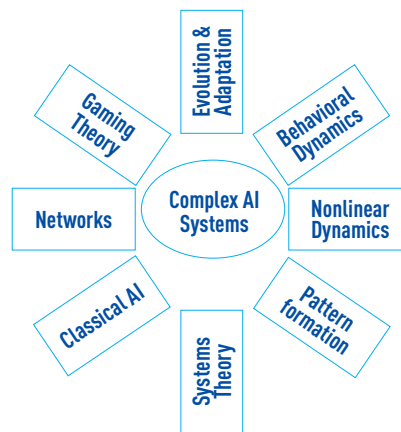
Fig. 3: AI systems

6. Impact of New Media

Impact of new media on human life has become more complicated in recent years. The societal impact and individual personalized impact is beyond questions. As a species the content generated by users conveyed through machines is the norm which has evolutionary impact is debatable. The recent social and political revolutions from Europe, to Middle East, to Africa, to Asia, to Americas are result of new media social networking platforms. The gender equality revolution happening around the world is purely a magic of new media. The chains which couldn't be broken down in male dominated human species evolution especially after dark ages, has been undone by new media in matter of months. New media has directly impacted on financial transactions and commercial activities. This has enabled evolution of infrastructure-less banking systems which is elevating millions out of poverty in Asia, Africa and Americas. The Nation states are more concerned about

security, and social media has been playing a viable role in complicating as well as finding solutions to the new issues. Globalization has been further strengthened by Social media. The transformation being brought by new media between communities, societies and nations is purely based on technological breakthroughs. The detailed study of new media impact on individual human behavior, emotions and aspiration is beyond the scope of this limited space for this topic.

7. Conclusion

In human species evolution new media is one aspect of current progress of technology. Technology progress cannot be stopped, and this will have direct impact of how humans consume, share and communicate data. The current progress in computational platforms will have deeper impact than what happened with Radio, Television and Internet. The wireless world will be more interesting with virtual reality, communicating machines and more importantly emotional and intelligent machines. As an off-shoot of this cognitive technology development new media will give way to intelligent media.

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Artificial Intelligence: A Technical Shift from Individual Brain to Central Brain [Param-Brain], Evolving the Global Diversity of Human Intelligence

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Introduction:

Human Intelligence is a power which proves the mental quality of an individual brain. The quality of a brain defines the ability of marking complex cognitive tasks and to learn from experiences. Human Intelligence enables human to experience, think and react. Human brain possesses the ability of cognizance about learning from the concepts, understand it and apply logical reasoning with the power of recognizing patterns.

Unlikely all human brains are not equally intelligent. To make them adequately intelligent we need to trained them accordingly.

Technology is creating the machine more and more intelligent like a human.

The human brain gradually develops with the experiential learning and also need to take assistance of other experienced brain. We never say about a brain that is saturated or grownup human brain, because it may possible that a particular brain may not reacts intelligently for a never ever faced problem [4].

Artificial Intelligence (AI) is a created intelligence by computing machines. The objective is to simplify the human lives [3]. AI helps to achieve the success with respect to the defined problem which notified under any parameters.

It moves beyond the experiences of the human and provide the long lasting knowledge for future problems.

The Param-Brain

As we always connect the people to take advice/guidance for a particular problem, when an individual is not able to solve or able to take action due to lack of knowledge about the defined problem.

A particular problem some time may be solved by the interaction of other people's brain or many times it requires more persons advice to solve it.

Consider a situation when pools of brain are required to solve a critical problem of the humans. In other ways a master brain who has an extreme knowledge bank and able to solve any problem any openly available to all any time. Such philosophical concept of brain is required to develop for the future generations. In this article such large, unified, domain independent artificial brain assumes as Param-Brain.

The spectrum of AI is moving beyond the areas like Robotics, Biosciences, Natural Language Understanding, Machine Learning Algorithms and Techniques, Computer system for machine learning, Music and Art generation, People and Artificial Intelligence Research (PAIR).

Google is handling various AI projects, and Google-Brain (GB) is one of them. GB is trying hard to achieve intelligent machines to improve the human lives [1].

Machine Learning:

Machine Learning (ML) efforts are to improves the ability of the machine's listening and watching power. The deep learning system will definitely help to build the machines which naturally interact with humans. The outcome ideas may apply to real applications. The ultimate goal is to create the perception of human to be a seamlessly integrated component of future software. These may be useful for mobile devices, robotic equipment and for healthcare system.

The **Google Brain** is mainly focusing on the fundamental research for advancement in the domain of machine intelligence and also creates better theoretical apprehensions of deep learning.

The success of the deep learning model is depending on informative real-world corpuses and also required enough computational resources to actually train the large, powerful models on these corpuses.

To accelerate the machine learning research we need to have rapid turnaround time on the system of machine learning experiments. Then implement them for real world applications.

Natural Language Processing

The Natural Language Processing (NLP) focusing on the development of learning algorithms. These algorithms would be capable of understanding natural languages. It will enable machines to translate the text [2], answering the asked questions and also summarize the documents.

In the advanced form, we may presume that machines can conversationally interact with humans.

People and AI Research

The human-centric research and the design of Artificial Intelligence enabled modules will be more productive, enjoyable and fair.

Deep learning models are dominating now days on **Robotics.** Now the machine learning agents interact with its environment that requires the true unsupervised learning. Such applications are also well

connected with skill acquisition, active learning, environment exploration and reinforcement. These are fundamental ingredients of human learning. Human learning is still not well understood. It must be exploited through the supervised approaches of machine learning that will dominate the deep learning.

Healthcare and Biosciences

One of the prominent areas where Artificial Intelligence is successively moving to transform the impact of medicines and providing assistance to pharmacology. It helps to discovering new combination of drugs. It may become an assistive technology that will empower doctors to provide better treatment to serve their patients having some critical diseases.

Machine learning has the tremendous possibilities of application areas. Machine Learning tools and assistive symptomatic services will drastically improve the availability and the accuracy of the medical services for the common person.

Conclusion

This article is written to drag the attention of the readers. The Artificial Intelligence (AI), would be the assistive model for the human lives. The individual brain will create the super brain (Param-Brain) which will facilitate the human lives worldwide as openly available resources. Definitely it will create a differently abled mental resource for all of us.

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Fourth Coming Issues : February 2019 : **NANO TECHNOLOGY**

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The articles should be authored in as original text. Plagiarism is strictly prohibited.

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Issued on the behalf of Editorial Board, CSI Communications.

Prof. (Dr.) S. S. Agrawal
Chief Editor

Artificial Intelligence (AI) Software in Your Everyday Life

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The term "Artificial Intelligence" for many people may sound like intimidating to some-one or something, but it is more than one might imagine. Many of us are already using artificial intelligence software in day-to-day life for some or other needs. Every time you talk to someone from your smartphone, perform a web search or write a message on a social media, you're interacting with artificial intelligence. We are likely to encounter AI techniques use; every time you do some online shopping as well. Main aim of this work is to summarize; how Artificial Intelligence is impacting real life in day-to-day activities. Numerous discussions and consultations were carried out from various people, academic researchers, and journal articles for the study.

In this article, we intend to put forth important artificial intelligent software used in day to day activities. Most AI software are helping to perform few mundane tasks like understanding our natural language, identifying moving objects, tagging of faces in pictures, online shopping recommendations and getting quick answers to common questions. Specific features of artificial intelligence and related technologies in using a smartphone for online shopping are explained in this paper. This article also describes the consequences of artificial intelligence in shaping our future.

Introduction:

Unknowingly, artificial intelligence play a vital role in assisting in every part of our lives, whether we're reading our daily e-newspapers, checking electronic mails, getting directions to our destination or start a new business. Many a times we are unaware that artificial intelligence tools and techniques are used in all these activities. Most likely; everyone may have used online shopping and would have experience recommendations automatically. The main goal of any recommendation system is to increase their product sales by accurately predicting additional items that a customer will probably buy, but has not considered in their online shopping session. Some companies, such as Amazon, consider the efficiency of their recommendation systems a critical competitive advantage[1]. Artificial intelligence has changed the business as we know it traditionally, but what many people don't understand or realize - is how AI is also impacting our lives outside the office. Today's famous artificial intelligence is in Apple's Siri, a learning lady that assists the Apple iPhone owners [2]. Google also came with Android version of artificial intelligence called CEYD-A ; produced by a Turkish software developer. Many vehicles like Tesla ; with partially or fully automated driving capabilities are already in the market[3]. We can find applications of artificial intelligence everywhere from smart cars to chat bots.

AI Software in Your Everyday Life:

As stated earlier that artificial intelligence is controlling our life unnoticeably, here we refer to the fact in more details.

▪ **Facial Recognition in social media:** This feature is widely used in our smartphone cameras in Facebook; face tagging applications. When you upload a photo on Facebook; it will automatically highlight faces and suggests friends to tag; who

Fig. 1: Face Tagging

Fig 2: Photo Review

appears within the user's social graph. Fig. 1 depicts automatic face tagging once the new image is uploaded. Whereas in Fig 2, you are recommended a photo review to tag yourself once someone uploads a photo which is matching with your face.

▪ **Composing mail and suggestions:** Writing mail has become more and more efficient due to its new artificial intelligence tools being used. Most prominently; spam filtering, auto reply, suggesting addresses and auto composition of mails. New feature of smartly composing a mail will suggest completing sentences of an email as you are writing. Phrase pops up once Gmail detect the appropriate suggestions, just hit tab to select that word or phrase. Not only will this help save time when writing emails but also avoids spelling mistakes. AI and machine learning tools are learning your writing habits and suggest you phrases you might want to type accordingly [4] as shown in Fig 3.

Fig 3: Smart Compose of Gmail

Fig 4: Suggesting Emails IDs

Gmail also provides email addresses and names when you start typing in the "To" box of an email. This feature is called as "auto-complete" and the matching emails and names are displayed by the frequency of use. They also suggest the names of similar group of people; if you have mailed them earlier. In Fig 4 it is seen that three new addresses are suggested by Gmail since similar mail was composed earlier.

▪ **Virtual Personal Assistance:** All of us would love if most of the machines would talk to us in natural language. Most of the companies have used the Natural Language for developing a dialogue systems technology to establish various kinds of Virtual Personal Assistants (VPAs) based on their applications and areas, such as Apple's Siri, Microsoft's Cortana, Google Assistant and Amazon Alexa [5]. Most of these devices help user to play their favorite music, creating to-do list, setting up alarms and providing weather updates etc.

▪ **Transportation Services in City:** Today Ola and Uber mobile apps

have changed the life of many people travelling in cities. Such apps use machine learning algorithms to suggest optimal pickup, provide efficient ride-sharing, identify suspicious or fraudulent accounts and even ensure passenger safety. Ola is trying with real-time monitoring system to strengthen customers ride safety and being launched as a pilot in few metro cities. This artificial intelligence based systems would analyze route deviations, unexpected and mid-way stops to identify potential unsafe rides. Uber introduced Bayesian neural network architecture to accurately estimate trip growth and real-time features prediction system. Their ML-as-a-service platform, Michelangelo, supporting Uber's mission of developing reliable transportation solutions for everyone, everywhere [6] .

▪ **Smartphone:** Artificial Intelligence is being used in different ways in today's mobile communications; starting from imaging and photography like smart selfie, to power efficiency, to security services. Apple uses front-facing camera to create a 3D map of a user's face to identify the person to log into the device and further authenticate for many services. Android and iOS platforms are integrating Artificial Intelligence and Machine Learning algorithms in various apps for improving their existing services. Object detection from camera images like food, landscape, fireworks helps in performing real-time processing.

▪ **Implementing Law and order:** This new technology will help the traffic police to issue an e-challan to the violators on the roads. Mostly people indulge in jumping or breaking the signal, over-speeding or not wearing helmet are getting tracked using their vehicle number plates. Many companies are using Computer Vision algorithms which is a sub branch of artificial intelligence that can see and understand images. This integrated traffic systems

using artificial intelligence and computer vision processed; traffic authorities can search surveillance videos and specific plate numbers from the images or videos.

Conclusion:

Artificial intelligence is gearing up rapidly from new technologically areas to impacting every industry in the world and our daily life. Here we presented overview of most day-to-day activities where artificial intelligence and its aligned technologies are used. In this article, we In this article, we have only discussed a very few areas of our life where AI is making impact. Everyone is finding out various possibilities of deploying AI within their own organizations for various services.

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Date	Event Details & Contact Information
FEBRUARY 25-28, 2019	**Second International Conference on Advanced Computational and Communication Paradigms (ICACCP-2019)** International Symposium on Computer Vision and Machine Intelligence in Medical Image Analysis (ISCMM) http://symposium.icaccpa.in/ Venue: Sikkim Manipal Institute of Technology **Convener :** Prof. Debanjan Konar, Sikkim Manipal Inst. of Technology, Sikkim, India **Co-Convener :** Prof. Chinmoy Kar, Sikkim Manipal Institute of Technology, Sikkim, India
MARCH 01-02, 2019	**2019 International Conference on Data Science and Communication (IconDSC)** in technical association with IEEE-Bangalore Section, IEEE-ComSoc, Bangalore Section and CSI Division IV, Communication. Submission Deadline: 10 November'18, https://christuniversity.in/icondsc/ Contact : Dr. Samiksha Shukla, 9880462311 samiksha.shukla@christuniversity.in
MARCH 13-15, 2019	**INDIACom-2019 (IEEE Conference ID: 46181 | SCOPUS Indexed)** 13th INDIACom; 2019 6th IEEE International Conference on "Computing for Sustainable Global Development" Contact : Prof. M. N. Hoda, General Chair, INDIACom-2019, Director, Bharati Vidyapeeth's Institute of Computer Applications and Management (BVICAM) E-mails: conference@bvicam.ac.in, indiacom2019@gmail.com Tel.: 011-25275055 TeleFax: 011-25255056, Mobile : 09212022066

Advancement of Agent Technology for Business Intelligence

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In business intelligence the agent based negotiation play a very important role for automatic E-commerce. There are different types of model have been developed by the different researchers which are rooted on the agent based negotiation for deployed in the automatic E-commerce. In this article our focus is to represent different types of negotiation models which are used in the different agent based negotiation.

Keywords : Business, model, intelligence, automatic, agent.

Introduction:

Negotiation : In business intelligence the negotiation is the process whose aim to provide interaction between the buyer and seller by which they are reached at the profitable state in business. Many number of standard as well as modern intelligent computing methods such as knowledge based systems (KBS), case based reasoning (CBR), artificial neural nets (ANN) and genetic algorithm (GA) have been arranged to implement the (MAS) buyer and seller have been represented as agents and broker represented as a coordinator agent. The buyer agent restrictions are associated with price, quality, quantity, brand, payment mode etc. The seller agent restrictions are associated with the price and quality (Jennings 2003). The negotiation process have implemented by only limited numbers of researchers. They have focused to the cognitive parameter such as preference, desire, intention, commitment, capability, trust etc. as cognitive parameters for the negotiation of buyer and seller agents. In the literature several different methodologies for the negotiation based selection of buyer agent have been reported. These methodologies differ in procedures, technologies and methods. In this work the aim of the model is to stable the interaction between the sellers and buyers through the third party (broker agent) to appreciate

the sellers agent which provide the help for negotiation. In this type of negotiation field the aim of the sellers agent to satisfies the requirements of buyers agents through the negotiation mechanism.

2. Business Negotiation Models used in various literature
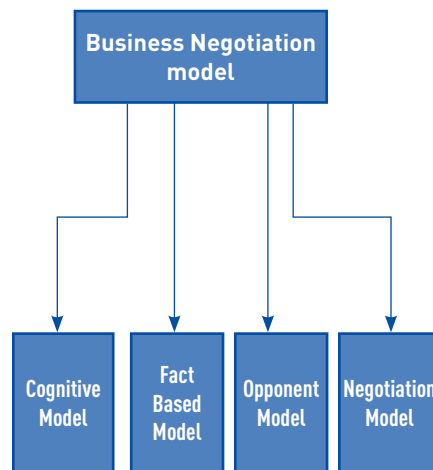
2.1 Cognitive model

Mukun cao et al recommends an idea of goal oriented agents which are fully loaded with multi-strategy selection model that help automated negotiation between one end to another end. The cognitive model describes the two major approaches which provide help to design the negotiation strategy.

They are given as follows.

1. Heuristic based Approach:

The heuristic-based approach which is almost based on some specific mutually agreed and predefined conditions are fulfilled to get the clarity amongst the available options between buyers and sellers e.g. to optimise the rate of functional cost considering the options [17, 37, 23]. Therefore, under the heuristic approach these experimental results are compared with the standard benchmark which helps this model to get fast result in future ultimately based on higher rate of success through a rigorous action for negotiation.

2. Machine Learning approach:

The machine learning approach, on the other hand, mainly based on ultramodern prospective features that come only after a concrete and successful negotiation. Generally, the machine learning approach is mainly focused on past (historical) data which comes after a long series of experiments and thus it paves the ways of success that automatically generates and leads to future prediction [14, 2].

2.2 Fact-Based E-Negotiation Model

Hasan and Al-Sakran implemented the Fact-based E-negotiation model. This model individually assign both buyer and seller a weightage based on functional attributes and then selects the concessional strategy (i.e.

apprehensive, cautious, or desirous type [30]), and try to get the final outcome in the form of decision. Therefore, concession systems and characteristic loads of each side are set for future result.

Here in each round, seller agent will evaluate the purchaser's aim matching with their objectives and scale–up their chances for better result through negotiations.

Here it may be noted that Dealer must exercise its own capacity, with fruitful activities to decide and review its parameters.

In each transaction round, expert from both i.e. purchaser or seller who gets an adverse offer analyse the event and try to match with their own desire and finally decides to acknowledge the i.e. to reject or to accept with the arrangement.

When seller's agent offers to buyer and after rejection a modification takes place through supporting characteristics. Here, process continues till the attributable values reach to a balance to accept the proposal.

2.3 Opponent Model

Some competitive negotiation based on utility is to get win –win situation likely to be agreed.

In a competitive environment agent keep a side their own strategy to reach an agreement using secret action without the knowledge of opponents' negotiation parameters. Problems inbuilt can be reduced only with certain approaches. Here agents of both play an important role to reach a useful solution of problems. Here, Agent's bargaining power conforming to the strategies to reach at a solution point which comes only after attaining an integrated application. In-fact here these prediction approaches are integrated with negotiable strategies of agents to draw a conclusion. Majorly here main issue is concerned with negotiation of multi-issue, one of the most important negotiating parameters are preferences of several issues.

Preferences always taken a side in the interest of utility based gains where success depends upon these real utility based activity.

Thus, it can be said that problems can be solved with due weightage

assigned depending on proper utilisation capacity.

A high weighted issue will definitely depend on more utility Sometimes exercises also try to minimise the losses on part of opponent's utility.

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About the Guest Editor

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2nd Asia Afria ICT and Development Summit, Expo & Awards 2018

Participants: Malaysia, Ghana, Zimbabwe, Uganda, South Sudan, Rwanda, Japan, Bangladesh and many more

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Sustainable Peace and Development. Council is Promoting/Supporting and Working in line with United Nations guidelines and policies in relation with Sustainable Peace and Development. Council is Authorized and Endorsed during India Africa ICT Summit 2017, During General Assembly Delegate from USA, Rwanda, Uganda, South Sudan, Ghana, United Kingdom, United Arab Emirate and Indian States and Government of India. Council is Ministry of Corporate Affairs Approved and Authorized Companies license Under Section 8(1) of the Companies Acts , 2013. Council is ICT Excellence Awardees 2017 for the Promotion of Sustainable Peace and Development and on process to established overseas office at USA, Rwanda, Uganda, South Sudan, Ghana, United Kingdom, and United Arab Emirate. Council Jointly Organized Innovative Activities with Innovation Society India (Nation WIDE society of Likeminded People to innovate Infrastructure) and Computer Society, India for the Promotion of Sustainable Innovation for the Betterment of Global Society and establishing Multipurpose Centers at USA, Rwanda, Uganda, South Sudan, Ghana, United Kingdom, United Arab Emirate and Indian States to Promote

i)   Science and Technology
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iv)   Food Security and Agriculture Development
v)   Clean and affordable Energy
vi)   Tourism and Cultural Exchange
vii)   Health Care and Gender Equality
viii) Quality Educational
ix)   Sustainable countries
x)   Infrastructure development
xi)   Economic Growth & cooperation.
xii)   Information & Communication Technology (ICT) implementation
xiii) Assists activities towards Sustainable Peace and Development.

Council Initiated Global Convention /Professional Excellency/Certification/ Accreditation/ Young International Internship Programme (YIIP) / Startup Mentoring/ Student/ Cultural Exchange Programme, Fellowships For the standardizing Commerce/ Trade/ Culture for thrust areas. UNSDG 2030: The Sustainable Development Goals are the blueprint to achieve a better and more sustainable future for all. They address the global challenges we face, including those related to poverty, inequality, climate, environmental degradation, prosperity, and peace and justice. The Goals interconnect and in order to leave no one behind, it ís important that we achieve each Goal and target by 2030.

In Line With UNSDG 2030 for the Promotion of Awareness This Year Council Jointly with Innovation Society of India organized 2nd Asia Africa ICT and Development Summit, Expo and Awards 2018 on the Theme of ICT Attainment of UNSDG 2030 in Asia and Africa: Opportunities, Challenges and Waysforword.This Information and Communication Technology knowledge sharing Mega function which was attended by dignitaries from countries like Malaysia, Ghana, Zimbabwe, Uganda, South Sudan, Rwanda, Japan, Bangladesh and many more was held at NCRD's Sterling Institute of Management Studies, Nerul, Navi Mumbai.

Hon. Prof. Ripu Ranjan Sinha (Director General, Asia Africa Development Council), Prof. K. S. Charak (Chaiman, 2018 Asia –Africa ICT Summit), Mr. Ashish C. Swami (Director, Council For Sustainable Peace and Development), Hon. Haresh Tank (Founder Director– Innovation Society, India) Hon. Ms. Poorva Walse Patil was Chief Guest, Mr. Zainal Azlan M. Nadzir (Consulate General of Malaysia) , Mr. John Yatta, Cosmas Lokun Chairman SIF Tech. Ltd. (South Sudan) were guest of honor and Mr. Abdul Diwale Mohmmed (Executive President, Global South Economic Forum), Dr. Satish Sharma (Director General, Maharaja Group of Colleges), Dr. E. B. Khedkar (Vice Chancellor, Ajinkya D.Y. Patil University, Pune.), Shri. Avinash Shinde- Treasurer NCRD, Dr.Ashok Patil –Trustee NCRD were dignitaries on dais. The event started with the tradition of lightning of lamp, followed by video glimpses of IT goals of suitable development that are aimed to be followed by India-Africa ICT Summit. The Director General Asia Africa Development Council and On Directive Dr.Prashant Gundawar, addressed the audience with his welcome speech and all dignitaries on dais did unveiling of Novelties Directory. Asia Africa Development Council and Innovation Society (India) has Recognized Professional Excellency by Release of Annual ICT and Development Excellence Awards 2018 in different sectors of Education and Industry who has worked and Working for the Betterment and Promotion of Humanities development through Information and Communication Technologies. All participants were enthralled by speeches and panel discussions of expertise in ICT. Council received award nomination by the nominator and organization and as per the required information and based on the parameter of Innovation , development for the betterment of mankind. Our three members jury of award search and selection committee identified and selected for the awards in Individuals (47) and organizational category (24) Council has Formed in 2017, The India-Africa ICT knowledge consortium (www.indiafrica.org) to smoothly facilitate networking among ICT leaders and providers as well as consultants from Asian and African countries. It paves the way for business liaison between both regions through information sharing and generating ideas that conquer ICT challenges. It provides a powerful impetus to mobilize Indian investors to invest strategically in the ICT sectors of African countries. The objective of the consortium was to promote research, enable networking and expedite all activities that will support transformation of the ICT sectors of Asian and African countries, whilst fighting cyber crimes and supporting Asia-African ICT exchange program. Different experts including scientists, researchers and entrepreneurs the area of information and communication technology pledged their support to the development of African Countries as per the charter

of UNSDG towards the achievement of the 2030 Agenda for Sustainable Development. It was decided that different sectors and actors working together in an integrated manner by pooling financial resources, knowledge and expertise. In the new development era with 17 intertwined Sustainable Development Goals and 169 associated targets as a blue-print for achieving the sustainable future the requirement is cross sectorial and innovative multi-stakeholder partnerships, which will play a crucial role for developing the African Nations. In Relation and Slogan "EAK WORLD ! SHRESTA WORLD" | "EAK EARTH ! SHRESTA EARTH" Council worried on the Intention and Establishment of Human Security not only National Security or Personal Security. ICT is acting indispensable part for the same, The ICT sector has established to be a strong driver of GDP growth in nations across the globe. From developing countries, to developed nations, The ICT sector has contributed to the success of each of these country's economies, the development of its people's skills and potential and positioning the country as a place for international organization to more efficiently do business. The expansion of information and communications technology and worldwide connectivity has huge possibility to speed up human growth, to connect the digital divide and to develop knowledge societies. ICT is competent for boosting the means of execution of long term development goals by nurturing global collaboration and coordination, encouragement of technology transfer and capacity building, strengthening multi-stakeholder partnerships, facilitating data monitoring and accountability. ICT provides a vital role in attaining the sustainable development, particularly in rising information and knowledge societies. ICT are open access to academic research, clearness in making informed decisions, and platforms for online partnership for co-creation, learning and work. By increasing access to information and knowledge, ICT minimizes difference within and among nation. This makes possible social and economic progress, even to disadvantaged part of society, such as persons with disabilities. There is no doubt that access to developed technologies has grown so fast and yet the remarkable gains are still in weak position by existing gap in ICT access between and within countries, between urban and rural settings, among men and women, and boys and girls. A major digital divide is still in place, with more people offline than online and particularly poor access in vulnerable developing nations. The challenge now is to bring the rest of the world online and ensuring that no one is left behind. Advanced computing technologies are the future. It is mandate to understand the base and challenges. During this SUMMIT certain key issues shall be addressed such as

Panel 1: Socio Economic Transformation of Africa through ICT
Panel 2: Peace and Security through ICT
Panel 3: role of ICT in attaining Sustainable Development Goals
Panel 4: Investment Opportunities and way forward.
Panel 5: pan African E – Network and Cyber challenges
Panel 6: Virtual Education Network of Universities and Higher Education
Panel 7: effective ICT implementation in Transport management
Panel 8: Opportunities for the Asia in Development of Africa

Panel 9: E-Trade platform for Africa and Asia
Panel 10: Implementation of ICT in Growth of African Tourism Industry
Panel 11: ICT Today and Beyond for Global Communities
Sub Theme : Network Infrastructure, Artificial Intelligence, Cloud Computing, Augmented /Reality, Virtual Reality, FinTech, BI/Big Data/ Analytics, Connected World, Information Security, Internet of Everything, Healthcare, Embedded Technologies, Tele Communication.

Interview Session by the Correspondent ADCO News:
On and After Panel Discussion , Board Correspondents had Recorded Interviews of Each Participants, Panelist and Contributors and aware the Goals of United Nation and Council taken Pledge for the Contribution and Support of UNSDG 2030 agenda achievement in strategic Manner. All Awardees contributed lots for the betterment of global Communities with earned and Learned Skills and Experience. Dr.Ripu Ranjan Sinha Originators and Executors proposed the vote of thanks and expressed his satisfaction that several important decisions were taken in this 2018 summit in relation with MAKE THE WORLD SUSTANABLE and he also endorsement to overwhelming response and endorsement to South Sudan Vice President James Wani Igga and given video thanks to them. Along with the Council Sustainability he assure that Council , Society, Consortium people is ready to take a challenge for the Holistic Development of South Sudan and he is very much sure within the decade upto 2030 South Sudan Shall be self-sustainable and shall be able to march together rest of world through energy, education , health , fast learning and overall development. He also planned to take and ready to bring investor, promoter and other business areas for the holistic development of Countries in association with SIF Technologies, South Sudan.

Important Resolution passed
(i) ICT SUMMIT 2019 shall be Organized in Pune under the chairmanship of Prof.(Dr.) Kuldip S. Charak, Director-NavyaShyadri Group of Institution, Pune
(ii) Council is Inviting South Sudan vice President and Requested to Assign task to council for the Holistic Development of South Sudan
(iii) Council shall execute certificate and Diploma Programme in association with University, College, NGO for the Promotion and Support of UNSDG-2030

Report of CSI Student Chapter Inauguration, RJIT

Opening of CCSI Student Branch at RJIT, Tekanpur

Report by R.K. Vishwakarma
Chairman, CSI Gwalior Chapter, Gwalior (MP)

CSI Gwalior Student Branch have been inaugurated on 26th November 2018 at the Rustam Jee Institute of Technology, Jhansi Road, Gwalior. The inauguration programme was attended by Commandant of the BSF academy & Director RJIT, Tekanpur, Shri Pavan Kumar Dubey, Chief administrator of RJIT, Mr. Mahabir Prasad and Principal of the RJIT, Dr. Arvind Kumar Jain. In this opening ceremony, Engg. R. K. Vishwakarma, Chairman CSI Gwalior Chapter, Mr. Jayant S. Bhide, Immediate past Chairman, Engg R. K. Khetan, Past Chairman, Secretary Mr. Dilip Hayanran, Treasurer Mr. R. S. Gadkari and a guest speaker and fellow of CSI, Dr. P. K. Arya (Dept. of Telecom, New Delhi) were also present during this occasion. All dignitaries lighted the lamp and garlanded the idol of goddess Saraswati Devi. The welcome speech given by Chief Administration of the college Shri Mahabir Prasad (Deputy Commandant of BSF, academy), thereafter Director of RJIT Mr. P. K. Dubey, has spoken about various academic activities done and the achievement of the RJIT during last 4-5 years. While addressing the gathering and students, Engg. R. K. Vishwakarma has highlighted the necessity and the advantage, to becomes the member of student chapter of computer society of the India. Fellow CSI and keynote speaker Dr. P. K. Arya delivered his talk on recent trends in communication technologies.

Total more than 150 students of the computer science and electronics engineering branches has becomes the member of this student branch of CSI, RJIT, Tekanpuer, Gwalior (MP). In this occasion all the head of the departments of the various branches, lecturers and other teaching staff was present during this occasion. The vote of thanks was delivered given by Prof. Soni, Head, Computer Science and Engineering.

Computer Day-2018

Report by Gautam Hajra

The CSI, Kolkata Chapter celebrated the **Computer Day-2018** with great enthusiasm and overwhelming participation of students on 15th December 2018 at CSI, Kolkata Conference Hall. Almost 60 students from well known 11 schools of Kolkata, few teachers and guardians were present in that event apart from many Chapter patrons and Life members of CSI.

Mr. Sourav Chakraborty, Chapter Secretary gave the welcome address. He welcomed Mr. Parijat Chakraborty, mentor – Birla Industrial & Technological Museum, Dr. Subhabrata Roychoudury, Advisor – Maulana Abul Kalam Azad University of Technology (MAKAUT), West Bengal and Prof. Utpal Kumar Mitra, Jadavpur University with a bouquet and introduced them to the participants.

Mr. Gautam Hajra, Vice Chairman of CSI Kolkata Chapter also gave a brief about the history and role of Computer Society of India .

Dr. Subhabrata Roychoudury nicely pointed out the need of Computer day and role of Science Association of Bengal who are Joint organizer of this event.

Amal Roy Memorial Lecture was given by Mr. Parijat Chakraborty on the topic 'Getting Ready for Industry 4.0: An Interactive Session on STEM curriculum to align with Industry", followed by hands-on Session on Automation. Thereafter, he interacted with students and solved their queries.

Vote of thanks was delivered by Mr. Aniruddha Nag, Convenor of Computer day-2018.

The session further proceeded with one hour Debate competition to judge the debating skills of the students. Followed by one hour extempore Competition. One eye-catching aspect of this event was how students of all ages participated with equal enthusiasm and zeal.

After a short lunch break, there was an interactive Quiz Competition, participated by 10 well known schools of Kolkata. Quiz Competition was conducted by Mr. Snehasis Banerjee, MC member of Kolkata chapter .

Prof Saikat Mitra was the Judge for all the three events who was supported by Mr. Snehasis Banerjee, Dr. Madhumita Sengupta Treasurer, Mr. Gurudas Nag, Mr. Chandan Pal, Mr. Ranjoy kumar Ghosh, Mr. D.P.Sinha, Ms. Sharmila Ghosh and Mr. Sib Daspal.

Mr. Aniruddha Nag, Convenor of Computer Day-2018 , conducted the whole program.

The event ended with the prize distribution ceremony . Prizes are handed over to winners by all members of CSI, Kolkata Chapter who were present there.

The list of winners is:

Position	School Name	Name
First	B. E. College Model School	Purbak Sengupta Tridib Dalui Mayukh Pandit
Second	Birla High School	Ayush Tanna Anuj Chopra Tejas Asija
Third	THE BGES SCHOOL	Rupesh Das Smit Koradia Sujal Roy

Extempore

Position	School Name	Name
First	B. E. College Model School	Debopriya Ballabh
Second	Hariyana Vidya Mandir (Day)	Tuneer Saha
Third	The Bhawanipur Gujarati Education Society School (ISC)	Bhavya M.Modi

Debate

Position	School Name	Name
First	The BGES School	Smit Koradia
Second	Shri Shikshayatan School	Soumili Bishi
Third	BIRLA HIGH SCHOOL	Rayan Chakrabarti

Special Session on "Information Technology & Development" in the Conference on "Mathematical Sciences And Development"

Conducted by Department of Mathematics, Dr. Bhimrao Ambedkar University, Agra, U.P. in association with Computer Society of India, Agra Chapter on 24th December 2018

Prof. (Dr.) B. B. S. Parihar
Chairman, CSI Agra Chapter

Dr. Sanjeev Kumar
Vice Chairman CSI Agra Chapter

Dr. K.K. Goyal
Secretary, CSI Agra Chapter

Prof. Hariom, Prof. Vilas Karat, Prof. Sunder Lal and Prof. D.S. Hoodasharing the dais in the special session of the conference at Department of Mathematics, Dr. Bhimrao Ambedkar University, Agra

A special session on "Information Technology & Development" was organized by Department of Mathematics, Dr. Bhimrao Ambedkar University, Agra (U.P.) on the third day of the conference on "Mathematical Sciences And Development" in association with CSI, Agra Chapter on 24thDecember 2018. Prof. D.S.Hooda, (Former Vice Chancellor, Kurukshetra University, Kurukshetra) was the Chairperson and Prof. (Dr.) Sunder Lal, (Former Vice Chancellor, Veer Bahadur Singh Purvanchal University, Jaunpur) was the chief guest of the session. Prof. Vilas Karat, Head Department of Computer Science, Pune University and Prof. Hariom, Department of Computer Science, I.I.T. Dhanbaad were the speakers of the session. Prof. (Dr.) B.B.S. Parihar, Director, R.B.S. Management Technical Campus, Agra and Chairman, Computer Society of India, Agra Chapter, Dr. SanjeevKumar, Director, Community Radio, Dr. Bhimrao Ambedkar University, Agra and Vice Chairman, Computer Society of India, Agra Chapter and Dr. K.K. Goyal, Dean, Faculty of Computer Application, R.B.S. Management Technical Campus, Agra and Secretary, Computer Society of India, Agra Chapter share the dais with the guests.

The session was started at 10:00 am with the welcome of guests of the session. Dr. K.K. Goyal delivered introductory talk of the session. Prof. D. S. Hooda motivated participants to actively participate in conferences & workshops. Prof. Sunder Lalanswered the questions of participants about the latest developments in IT sector. Prof. (Dr.) B.B.S. Parihar addressed the gathering and introduced participants about CSI, Agra chapter and events conducted by the chapter till date. Dr. Sanjeev Kumar expressed his views on the role and importance of mathematics in the development of IT sector. After that Prof. Vilas Karat delivered his talk on "Fuzzy Sets and Fuzzy Logic : Application in Gynaecology" and Prof. Hariom expressed his views on "Quantum Computing and Cryptographic Analysis". Prof. Vinita Singh, Department of Statistics, Dr. Bhimrao Ambedkar University, Agra, U.P. and Prof. Manoj Kumar, Harish Chandra Research Institute, Pragraj, were also present in the session. At the end, Dr. K. K. Goyal presented the vote of thanks.

Prof. (Dr.) B. B. S. Parihar addressing the audience in the session

Dr. Sanjeev Kumar expressing his views in the session

Prof. D.S. Hoods presenting memento as token of thanks to Prof. Vilas Karat

DIAL - 2018
One Day National Conference
Digital India – Altering Lives
Smart Governance – Impact and Implementation Challenges

On 8th December, 2018

Organized by CSI Lucknow Chapter

Report by - Dr. Nilu Singh
Chairperson, Souvenir and Media Committee

The Lucknow Chapter following their annual activities calendar, organized one day National Conference "DIAL-2018" (Digital India- Altering Lives) on 8th December 2018 at PNBIIT, Lucknow on the theme 'Smart Governance Impact & Implementation Challenges'.

Prof. Anil K. Shukla, Hon'ble Vice Chancellor, MJP Rohilkhand University, Bareilly was the Chief Guest of the Inaugural Function and the Keynote address was delivered by Mr. Jayant Krishna, CEO, ED & COO of National Skill Development Corporation, New Delhi.

Invocation by Mr. Arvind Sharma, Regional Vice President, Region-I, CSI, Mumbai

The conference started with the invocation by Mr. Arvind Sharma, Regional Vice President of Region-I of Computer Society of India. He said that the sutra of CSI is "Sarve Bhavantu Sukhinah" and so is the objective of ICT which is trying hard to take all the facilities, knowledge and well being to the each and every person in our country living even at the remotest place. Mr. Rakesh Puri, Chairman of Lucknow Chapter welcomed all the guests, delegates and members present. Mr. Rakesh Puri and other OBs of the Chapter presented bouquets to the Guests sharing the Dias. He also introduced the audience with the theme and objectives of the Conference and invited the guests to light the lamp.

Release of Souvenir (L–R) Mr. Rakesh Puri, Mr. Sameep Agarwal, Prof. Anil K. Shukla, Mr. Jayant Krishna & Mr. Maneesh Dubey.

After lighting of the lamp, the representatives of the companies which sponsored the event were presented with the mementos by the Chief Guest to mark the gratitude for their help.

A souvenir including the proceedings was also published and the Guests present on Dias were requested to release the Souvenir. To encourage the students and researchers some selected research article were also published in this conference proceeding with ISBN number.

Mr. Maneesh Dubey, the Director of PNBIIT, (which has been our venue partner for last few years), in his address detailed the changes which are visible in the Banking Sector after the introduction of e-banking. He also presented many fact and figures indicating the involvement of crores of citizens with the operations of the banking industry.

In his Key Note Address Mr. Jayant Krishna stressed on the role of ICT in the fast development and growth of the country. He also said that e-Governance is going through positive changes and gradually the people are able to use the services made available through technological advancements.

Mr. Sameep Agarwal from Mahindra Special Service group, representing Lt. Cmdr. Jasbir Singh Solanki (who could not attend the conference because of some unavoidable reasons), detailed a road map to a safe and secure system.

In his address Prof. Anil Kumar Shukla, Hon'ble Vice Chancellor of MJP Rohilkhand University, Bareilly emphasized on the need of maintaining the balance between the technological advancement and human science. He said the technology should be able to add value to the human well being and the social values should be protected so that we are able to create a society which fulfils – Sarve bhavantu sukhinah, sarve santu niramaya.

Mr.R.A.S. Tyagi (last year awarded Chapter Patron) presenting memento to the Chief Guest Hon'ble Prof. Anil K. Shukla.

Shri G.P. Singh, Vice Chairman cum Chairman elect offered the vote of thanks to the Guests and the members, who spared their valuable time to grace the Inaugural Session of the Conference.

The Session-1 was chaired by Prof. D.S. Yadav, Depatrment of Computer Science, IET, Lucknow. The speakers were Mr. Sukrit Thareja (Open Source Technology), Ms. Aparna Mishra (Women Enterprenureship and online incubation centre) and Mr. Vikas Budhiraja (Leveraging the flexibility, ability and cost effectiveness offered by cloud technologies).

The second session was chaired by Mr. T.N. Shukla, Chief General Manager Telecom, BSNL. Mr. Atul Sharma, General Manager, (NWP-CFA) BSNL detailed the initiatives taken by BSNL towards Digital India. Mr. Amit Sengupta presented the details on

Echo-communicator and Mr. Aditya Kadiyan spoke on Secutity Fabric.

The third Session belonged to Dr. Rakesh Verma, Special Secretary of IT & Electronics, GoUP who presented the details of the initiatives being taken by the UP Govt. to implement the Digital India Mission of the Central Government.

In the fourth session Mr. A.K. Gupta, Addl. Director of Regional Centre for Urban and Environment Studies presented an overview of the Smart Cities in Uttar Pradesh and Mr. R.N. Rastogi, CM(IT), State Bank of India shared the Digital Banking initiatives undertaken by the Banking Sector.

After this Session RVP-I requested the Session Chair Mr. A.K. Gupta to present the mementoes to the volunteers Ms. Shivanshi Puri, Ms. Swati Singh and Ms. Kamakshi Puri

to express our honour and gratitude towards their services and help.

Offering the Vote of Thanks, Mr. Arvind Sharma, RVP-I expressed his gratitude and respect for all the Guests, Speakers and delegates who made the Conference a grand success. He also expressed his gratefulness to the Sponsors VMWare, SISL, Sophos, Red Hat and AMD who helped the conduct of such an event at such a grand magnitude. Special thanks were expressed for the efforts put in by the Organizing Committee members with a special mention of Mr. G.P. Singh, Shri Deepak Sharma, Dr. (Ms.) Nilu Singh, Mr. H.C. Gupta, Mr. Nfisul Hasan Kidwai and Ms. Shivanshi Puri for putting in extra efforts in making this conference successful.

In the end Mr. Sharma congratulated extending special thanks to Mr. Rakesh Puri, Chairman Lucknow Chapter, for the organization of such a successful event.

The RVP-I also informed the house that a Chapter in Agra has already become functional and a Chapter in Solan/ Shimla is also to be formally inaugurated by March, 2019.

Proceedings of the Faculty Development Programme on Data Science and Analytics

Aurora's Technological and Research Institute
Parvathapur, Uppal, Hyderabad – 500 098

The department of Computer Science and Engineering and Department Information Technology has organized a five day Faculty Development Programme on "Data Science and Analytics " from 30th June to 3rd july, 2018.

Dr. S. Venkatesan is the Resource person. The Programme was inaugurated in the morning by the Director Mr. J. Srikanth and he addressed the gathering.

In welcome speech, Head of the Department shared her views with the faculty participants, that the new Emerging Technologies like Data Science and Analytics will be very helpful in the real time applications, Academic Curriculum and for Research.

She thanked Dr.S.Venkatesan for accepting her invitation to conduct Faculty Development Programme

Ms. D. Sandeep, Asst. Professor, CSE Dept. introduced about speaker. Ms. N. Nirmalajyothi, convenor of this program welcomed the gathering and briefed about the scope of the workshop.

Technical Sessions:

1st Day (28/06/18) Session I:
The Actual Session started at 10:00AM with an introduction to Big data characteristics, identifying four business drivers for advanced analytics , and continued with Distinguish the techniques for Business Intelligence from Data Science and role of the Data Scientist within the new big data ecosystem

1st Day (28/06/18) Session II :
After the lunch break the second session started at 2:00PM with a practice of R-Programming. Faculty gets trained with Vectors and data frames and matrix operations. Thus first day programme ended by 4:00PM

2nd Day (29/06/18) Session I:
Second day FDP in the morning session ,Data Analytics life cycle to a case study scenario is discussed followed by a tea break and the session continued with identifying main deliverables in an analytics project

2nd Day (29/06/18) Session II (Hands on Session):
After the lunch break second session started with again practical session of   R-Programming. Faculty learned how to work with control statement, creating and defining functions, working with date and time and string manipulation functions.

3rd Day (30/06/18) Session I:
On Third day session the speaker covered the topics

Usage of basic analytics methods such as distributions, statistical tests and summary operations to investigate a data set, Use the R package as a tool to perform basic data analytics, reporting, and apply basic data visualization techniques to your data, Apply basic analytics methods such as distributions, statistical tests and summary operations, and differentiate between results that are statistically sound vs. statistically significant, Identify a model for your data and define the null and alternative hypothesis

3rd Day (30/06/18) Session II(Hands on Session):
In the afternoon session the participants enjoyed the session by plotting different graphs using R-Programming.

4th Day (02/07/18) Session I:
Fourth day of FDP started with a session on Advanced Analysis concepts. In the morning session speaker well explained the data mining concepts clustering, classification, Association Rule mining and Time series Analysis.

4th Day (02/07/18) Session II(Hands on Session):
In the afternoon session the faculty experienced k-means algorithm usage and time series analysis using R-Programming tool.

5th Day (03/07/18) Session I:
In the last day of Faculty Development Programme, Articulating the tasks needed for an analytics project was discussed along with common deliverables of to operationalize an analytics project an analytics lifecycle project meet the needs of key stakeholders. Faculty had interactively participated with the resource person on discussion of Applications on Data Analysis

Finally in the afternoon the 5 day Programme is ended with a valedictory function

Valedictory Session

Director Mr. Srikanth Jatla, Head of the Department CSE, IT and the resource person were present on the dais. Highlights of the Programme were presented by N.Nirmalajyothi, Associate professor, CSE Dept. As a token of appreciation Director presented, momento to Resource person Dr.S.Venkatesan, Professor, CSE Dept, ATRI.

Finally certificates were distributed to the participants and were asked to come on to dais to share their experience and learning of the whole program. Feedback was collected from the participants. The program was ended with vote of thanks by N. sNirmalajyothi, Associate professor, CSE Dept. The program was concluded with happy note from everyone.

Internet of Things

Aurora's Technological and Research Institute held 3-day workshop on **Internet of Things** is conducted to create awareness on new technologies that are evolving in market, held on 31-07-2018 to 02-08-18 at 9:00 a.m. - 4:00 p.m. with 220 participants in association with CSI. As IOT is one such technology that is boosting the market now a days and much research is going on in this area.

Overview on IOT is given to Students like background/ history of IOT, what is IOT and future of IOT.

1. During 1970's Theodore G. Paraskevakos conceptualizes and patented the idea of a device which combined with both telephony and computing capabilities and these are now known as smart phones. Today many devices apart from smart phones and computers have the capability to connect and communicate through internet.

2. The interconnection of these uniquely identifiable computing devices within the existing internet infrastructure can be termed as internet of things (IOT).

3. The IOT is expected to offer unprecedented connectivity of the things. This kind of interconnection would create a platform to automate and connect for almost all the fields and industry. According to Gartner and Cisco there would be around 50 billion devices that will be interconnected by the end of 2020, while the population forecast for 2020 is 7.6 billion. That makes it 6.6 devices for each person on the planet. So, to conclude IOT is a long-standing area.

Schedule of the workshop was explained which is as follows:

Day1 - Session 1 - Introduction to Computer Networks by Mr. C. Chaitanya
Session 2 - Wireless Sensors and technologies by Dr. K. Madhuri

Day2 - session1 - Introduction to IOT, devices and C programming
session2 - practical (beginning with IOT programming)

Day3 - Session 1 - practical's (programming to connecting sensors)
Session 2 - practical's (to measure temperature with sensors)

CSE and IT HOD Ms. A. Durga Pavani madam wished all best to the students, and requested to gain the knowledge through these sessions.

Mr. C. Chaitanya explained about the different layers in OSI and TCP/IP, their functions, and also gave overview on different protocols like ARP , ARP spoofing. He gave many real time examples while explaining.

Dr. K.Madhuri thought different sensors , their purpose in project building. She also gave many explains while explaining about MANETS.

Smart Bridge team trained students to work with sensors. In the session students learnt how to connect different sensing devices and control them with programming. Some of them are like turning on LED bulb,

Measuring temperature, humidity etc.

On the last day of the event feedback is take from the students about the session, overall impression and suggestions. Finally, certificates are distributed to all the participants.

Poster Presentation Competition

Department of CSE & IT in association with CSI had conducted Poster Presentation Competition for all the final year students of CSE & IT on 28-7-2018 in Room No. C106 from 12:00 pm onwards. The idea behind this competition was to make the students understand that the impact of professional Flex-Poster Presentation in evaluation process. A count of 6 groups each with a maximum 2 members in each had participated and show-cased their creative talent. Professors of the department are invited to judge the presentation skills of participants. The entire program is well organized and coordinated by Ms. S. Anuradha, Assoc. Prof., CSE with the support of Ms. B. Malathi, Assoc. Prof., CSE.

Poster Presentation

Aurora's Technological and Research Institute held 3-day workshop on **Internet of Things** is conducted to create awareness on new technologies that are evolving in market, held on 31-07-2018 to 02-08-18 at 9:00 a.m. - 4:00 p.m. with 220 participants in association with CSI.

The objective of conducting this activity was to improve the presentation and communication skills of students. In this competition four topics were given for preparing posters ie, 1. China's Artificial Lunar Project, 2. Technologies Behind Space Station, 3. Gadget's Used by Secret Agents and 4. Crypto Currency Technologies. Students could select any one topic based on their area of interest. In this competition 12 groups participated with each group consisting of

Technical Talk

Chennai Chapter organized a Technical talk on Current Tech Trends : A Valley Perspective by Mr Rajkumar Madhuram, CTO at C1X Inc.Santa Clara, California on 30th October 2018. He started his talk by showing the origin of Silicon Valley which is also called the Mecca of Tech. It is the focal point - geographically and ideologically, from which World changing innovations spring forth and spread all over. What makes the Valley such a great place? Is it the people, the culture, weather, access to capital or anything else? What are the current hot trends in the valley? Is it possible to emulate the Valley in our State and Country? Answers to all these questions have been dealt in his talk by taking us on a fun journey through the landscape of

- AI, ML, Big Data
- Mixed Reality (AR, VR)
- Maker Movement - DIY, 3D printing
- IoT
- Drones
- Voice Assistants
- Blockchain & Cryptocurrency
- Digital Transformation (blending physical & digital) Self Driving Cars.

He gives insight on where are we in all these? What does it take to grow and nurture innovation?

three members. Students from different branches like Electronics, Computer Science, Information Technology and Mechanical engineering participated. The event started as the students placed the posters in the assigned slots and judges evaluated the posters for 50 marks based on different parameters like impact at first glance, design, presentation and innovation.

Ms. G.Alekya, Ms. M. Malleswari, Ms. S.Navya of CSE-IIIA were the winners and Ms. Ramadevi ,Mr. Harsh Nandwani of CSE-IIIB were the runner up teams.

Tek-Query

Aurora's Technological and Research Institute held workshop on **Tek-Query** is conducted to create awareness on new technologies that are evolving in market, held on 28-07-2018 & 28-09-2018 at 12:00 p.m. to 01:00 p.m. with 93 participants in association with CSI.

The objective of conducting this activity was to encourage students to participate in technical activities and train them for placements in technical rounds. Tek-query was a written quiz competition, which is planned for two rounds. In round one, 93 students participated out of which 52 were CSI registered and 41 others from I-IV years. The quiz was planned in such a way that it covers subjects like Mathematics, Operating systems, Computer Networks, FLAT and Basics of Programming . Students were required to answer 30 questions in 1 hour. 34 students qualified for the second round. In round 2, 15 questions were given with a time limit of one hour. Questions framed were mostly from programming languages like C and Java. Most of their answers were either outputs or debugging. Mr. Harsh Nandwani of CSE-IIIB was the winner and Mr. B. Dileep Kumar of CSE-IVA was the runner up.

INTERNET BASED MARKETING: TRENDS ISSUES AND CHALLENGES FOR DIGITAL MARKETING & WEB BASED ADVERTISING

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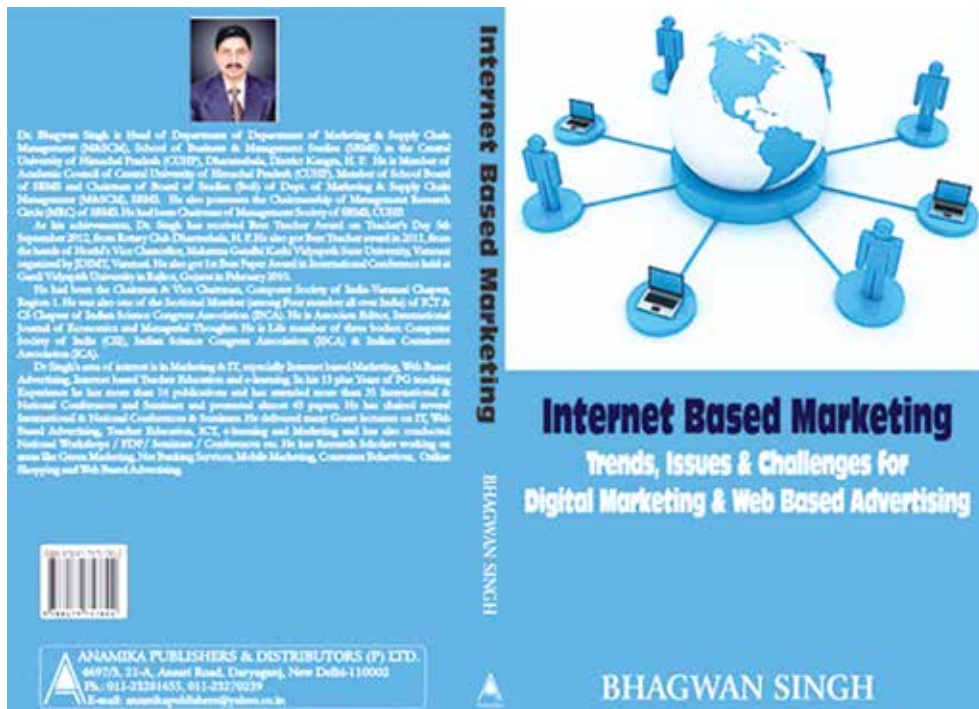   Dharamshala, Himachal Pradesh - 176 215

Dr Bhagwan Singh, author of the book is Head of Department (HoD) of Marketing and Supply Chain Management, School of Business and Management Studies in Central University of Himachal Pradesh, Dharmshala, Dist. Kangra, H. P. He has rich experience of more than 15 years in the field of Internet Based Marketing as from his profile it is depicted that he has his Ph D on this area. This book was published in 2015 as first Edition and came in limelight gradually when demands for digital marketing and web based advertising and online business were searched for overview.

The book comprises of six chapters, staring from introducing Internet Based Marketing (IBM), followed by abbreviations used while using IBM. Thereafter, the explanation about digital marketing and further the book defines Web Based Advertising and about its know-how. In this book the language is simple to understand and the mode of explanation is in pictorial form which helps to understand advertising via internet.

The reader centric approach of the book also clears misconceptions for web based advertising models. It is now the truth that today's youth and public are connected to internet for business. Many websites are 24 X 7 engaged to help customers for this. Thus book gives an overview for those readers who are interested in doing purchase, sale or advertisements through websites or even want to develop websites.

This book will be definitely be useful CAGS i.e. Corporate, Academia, Government and Society for know-how about Internet Based Marketing as an overview for trend, issues and challenges for digital marketing and web based advertising.

Computer Society of India ™

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Form – II
Version 2.4
w.e.f. 01st July. 2017

Application Form for Individual / Life Membership

I, hereby, apply for new membership. On approval of Membership, I shall abide by the Constitution & Byelaws of the Society and the Code of Ethics. Please send a good quality minimum 300 x 300 pixels / passport size photograph to swapnil@csi-india.org to be used for making your CSI Membership Card (photo required only for Life Members) along with a copy of Voter ID / Aadhar Card / PAN Card / Driving Licence

I.   Select the membership type

Indian ☐   International ☐

Please tick for Membership period

One Year ☐   Two Years ☐   Three Years ☐   Four Years ☐   Life ☐

Paste your (recent) one passport size photograph here.

II.   Personal Information:

Please fill in your personal information so that we can serve you better

Title of the applicant Mr. ☐   Miss ☐   Mrs. ☐   Dr. ☐   Prof. ☐

First Name _____   Middle Name _____   Last Name _____

Name you would like to be printed on CSI ID card _____

Date of Birth [D][D] [M][M] [Y][Y][Y][Y]   Gender [M] [F]

Primary Email ID _____   Secondary Email ID _____

Phone No. (Residence)

STD Code [ ][ ][ ][ ]   Phone [ ][ ][ ][ ][ ][ ][ ][ ][ ][ ]

Mobile (Mandatory for domestic membership)   [ ][ ][ ][ ][ ][ ][ ][ ][ ][ ]

Highest Academic Qualification: [ ][ ][ ][ ]   Year of Passing: [ ][ ][ ][ ]
(Copy of certificate should be attached along with the form)

University/Institute: _____

Total work experience in years: [ ]

Current Employment & Designation: _____

CSI Communications: Hard Copy ☐   Soft copy ☐
(Please tick)

Computer Society of India ™

Samruddhi Venture Park, Unit No.3, 4ᵗʰ Floor, MIDC,
Andheri (E), Mumbai-400 093 Maharashtra, INDIA.
Phone : 022-2926 1700 **Fax :** 022-2830 2133
Email : sonalicsi28@gmail.com / swapnil@csi-india.org **Website :** www.csi-india.org

Form – II
Version 2.4
w.e.f. 01st July. 2017

III. Mailing address (BLOCK LETTERS):

Address line 1

Address line 2

Address line 3

Pin Code

City   State   Country

(City, State and Country to be filled in only for international address)

Name of the Chapter to be attached

IV. Payment details:

Please specify mode of payment: [Online Payment / Demand Draft]

If payment made through Online Payment Gateway*: Transaction ID

Date of transaction _____ for _____ (Rupees _____)

(*Please email copy of payment response page along with Application Form)

If payment made through Demand Draft DD / Cheque payable at par at Mumbai should be drawn in favour of "Computer Society of India".

Cheque ☐   DD ☐   Cash ☐   (Please tick as applicable)

Amount Paid in ₹ / $

Cheque / DD No. [   ][   ][   ][   ][   ]   Dated [D][D] [M][M] [Y][Y][Y][Y]

Drawn on Bank Name   Branch Name

Please fill following details if it is deposit in Axis Bank.

Date of Deposit [D][D] [M][M] [Y][Y][Y][Y]

Mode of Deposit [CHEQUE] [DD] [CASH] (Please tick as applicable)

Axis Deposit branch name

Bank Details
A/c Name: Computer Society of India
Bank Name: Axis Bank Ltd.
A/c type: Saving
A/c No.: 060010100082439
IFSC code: UTIB0000060
Bank Address: Aman Chembers Ground Floor, Opposite New Passport Office, Veer Savarkar Marg Worli, Mumbai 400 025
GSTIN - 27AAATC1710F1ZC
SAC - 9995

Computer Society of India™

Samruddhi Venture Park, Unit No.3, 4ᵗʰ Floor, MIDC,
Andheri (E), Mumbai-400 093 Maharashtra, INDIA.
Phone : 022-2926 1700 **Fax :** 022-2830 2133
Email : sonalicsi28@gmail.com / swapnil@csi-india.org **Website :** www.csi-india.org

Form – II
Version 2.4
w.e.f. 01st July. 2017

Attach photocopy of Pay-in-slip with application form and write your Name, Contact no. on the reverse side of the Cheque / DD / Pay-in-Slip.

III.   Mailing address (BLOCK LETTERS):

I affirm that as a CSI member, I shall abide by the Code of Ethics of the Computer Society of India (CSI). I, further, undertake that I shall uphold the fair name of the Computer Society of India by maintaining high standards of integrity and professionalism. I was not a member of CSI earlier. I am aware that my breach of the Code of Ethics may lead to disciplinary action against me under the Byelaws and rules of the CSI. I, hereby, confirm that I shall be bound by any decision taken by the CSI in such matters. Further, I hereby convey my consent to receive the CSI publications in soft copy form and any other information about the activities of the society by email or by SMS on my Mobile number, from time to time, by the society or the members of the society.

Date: /   /

Place: Signature : _____

FOR OFFICE USE ONLY

Application received date : _____   Received by : _____

Application processed by : _____

Membership No. ⬜⬜⬜⬜⬜⬜⬜

**(Membership subscription fee details for the information of the applicant,
not to be attached with the Application Form to be sent to CSI)**

VI.   Membership Subscription Fees:

1.   **Individual Membership Fee:**

(The membership Period is on Rolling Year basis)

Membership Category	One Year	Two Year	Three Year	Four Year
Within India	₹ 1000 + 18% GST = ₹ 1,180.00	₹ 1800 + 18% GST = ₹ 2,124.00	₹ 2600 + 18% GST = ₹ 3,068.00	₹ 3400 + 18% GST = ₹ 4,012.00
Outside India	$60	$110	$150	$180

2.   **Life Membership Fee (irrespective of the age of the applicant)**

(The membership Period is on Rolling Year basis)

Nationality	Regular Life Membership Fees (in instalments)
Within India	₹ 10,000 + 18% GST = ₹ **11,800.00** Can be paid in 4 equal instalments spread over 4 years*:- Each year ₹ 2,500.00 + 18% GST = ₹ **2,950.00** ***Note:** i. Three PDCs of the amount ₹ 2,950.00 are to be given in the first year itself, along with the Membership Application Form. ii. Membership shall be terminated with immediate effect, if the PDCs are not realized. iii. Additional liability, on account of any subsequent changes in the GST rule will need to be paid by the member.
Outside India	USD $ 650

One Day Seminar on Big Data Analytics & Business Intelligence

Prof. Dr. U K Singh, Chief Gest, inagurating the function along with Prof. A K Nayak, VP, CSI, Prof. Abhilash Nayak, RD, IGNOU, Pro. M N Hoda, Director BVICAM along with others.

A one day National Seminar on the theme "Big Data Analytics & Business Intelligence" was organised on 24th November 2018 by Indian Institute of Business Management Patna with Technical collaboration of Computer society of India Patna Chapter and Co-sponsored by Indira Gandhi National Open University Patna Regional Centre and Patna Management Association. The Function was inaugurated by Prof. (Dr.) U. K. Singh, Director General, IIBM & Dr. Zakir Hussain Group of Institution & Fellow and life Time Achievement awardee of CSI in the presence of Prof. (Dr.) A. K. Nayak vice president cum president elect. of computer society of India, Dr. Abhilash Nayak, Regional Director, IGNOU, Prof. M. N. Hoda, Director Bharati Vidyapeeth Institute of Computer Applications & Management, New Delhi.

The function was started with the, presentation of bouquet & lighting of Lamp followed by the welcome Address by Md. Shams Raza, Chairman programme committee & past Chairman CSI Patna Chapter.

The Theme Presentation of the seminar was made by Professor A. K. Nayak vice president & president elect of CSI. He discussed about the changing trends of information & communication technology by explaining the latest technologies and the importance of Big Data & Business Analytics. Prof. Nayak also explained about the changing nature of data in terms of volumes varieties with the strength of cloud computing opened the platform to deal with big data with it's analysis which leads to optimise the business factions by using the business Intelligence.

In this key note Address Prof. (Dr.) M. N. Hoda, Director, Bharati Vidyapeeth Institute of Computer Applications & Management New Delhi pointed about the applications of Big Data Technology in Business, Industry & Service sectors become an integrated part for caring the activities smoothly & effectively. He further said that the emerging technologies IOT & IOE will make the exponential growth in size & volume of data for which the field of data management may face the challenges if it is not properly addressed.

Speaking on this occasion, the Chief Guest of the function Prof. (Dr.) U. K. Singh, Fellow & life time achievement awardee of CSI highlighted about the various activities & development in the field of Computer applications & information technology. He said every activities of the society in general & human fife in particular are impacted & effected by the use of ICT by covering the different fields like e-governance, health, research, environment, population control, industries, communications & services in it's domain.

The seminar was witnesses a series of Invited lectures, Research papers presentation. Industry presentation & student paper presentation.

Mr. Shailesh K. Shrivastava, the senior Technical Director of National Informatics Centre & Head, Digital Govt. Research Centre, Govt. Of India spoke about the use of big data & business intelligence in different e-governance projects. Dr. Sunil Pandey, Director of Institute of Technology & Science, Ghaziabad explained about the wide application of the big data with several Case Studies. Dr. Subhash Chandra Yadav, Head, Department of Computer Science & Technology, Central University of Jharkhand described about the importance of Business Intelligence for managing the modern Business.

Others who presented their research papers were Md. Shams Raza of VKS university, Mr Rajaram Dutta of Birla Institute of Technology, Mr Asit Mohapatra, Mr. Rahul Kumar, Prof. Ganesh Pandey, Dy Director, IIBM,Prof. Alok Kumar, Dean Indian Institute of Business Management, Mr. Manoj Kumar, Vice President, Global HRD, Ms. Sadhana Jha of Magadh University, Ms. Yotsna Kumari of IIBM & many more. All together 30 research papers & 12 student papers were presented in parallel sessions. More than 200 delegates attended in the seminar.

At last the Vote of thanks was proposed by Prof. Ganesh Panday, Chairman Organising Committee of the seminar.

Theme presentation by Prof. A K Nayak, Keynote address by Prof. M N Hoda, Souvenir released by Guests and Felecitation of Prof. A K Nayak

REGION-I	REGION-II
Shri Ram Murti Smarak College of Engg. & Tech., Bareilly	**Elitte Institute of Engineering and Management, Kolkata**

9-10-2018 – Techfest on COMPTECH 2018

24-11-2018 – Steganographic Techniques in Transform Domain for Colour Images & Technical Quiz Contest

REGION-III
Sagar Institute of Science & Technology, Bhopal

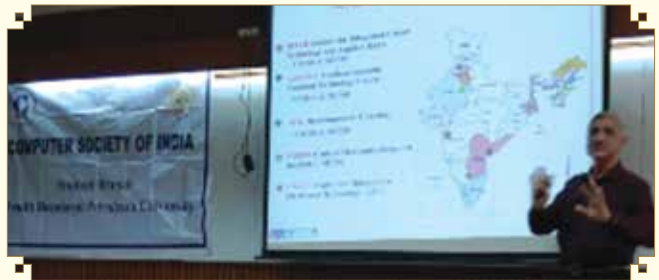26-7-2018 - Expert Lecture on Cloud Infrastructure

15-9-2018 - Quiz Competition

Pandit Deendayal Petroleum University, Gandhinagar

30-10-2018 - Expert talk on Blockchain Technology

7-12-2018 - Expert talk on RF and Microwave Education – Current and Future Trends by Dr Siban K Koul

REGION-III	REGION-V
Devang Patel Inst. of Advance Tech. and Research, Anand	**Sasi Institute of Technology & Engineering, Tadepalligudem**

3-12-2018 to 8-12-2018 - STTP on Machine Learning & Deep Learning for Data Science and Analytics using NVIDIA Graphics card & GPU Cloud

27-11-2018 - Workshop on Cognitive Cloud

REGION-V	
G. Pullaiah College of Engineering & Technology, Kurnool	**B.N.M. Institute of Technology, Bangalore**

20-11-2018 to 21-11-2018 - Workshop on Sales Force Application Development

2-11-2018 & 3-11-2018 – Workshop on Circuit Prototyping

K.S. Institute of Technology, Bangalore

13-11-2018 & 14-11-18 - Workshop on VMware Virtualization and Cloud Essentials

17-11-2018 - Workshop on Artificial Intelligence

New Horizon College of Engineering, Bangalore

1-9-2018 – Guest Lectures by the Distinguished Alumni on various topics i.e. Innovations, Placement Requirements for VMware & Techno-fashion

7-12-2018 – FDP on Artificial Intelligence and Machine Learning by Mr Sachin Mudholkar

Amrita School of Engineering, Bangalore

17-9-2018 & 18-9-2018 – Event on Blind Coding

25-10-2018 - Workshop on Introduction to Machine Learning with Python

▶ FROM STUDENT BRANCHES ▶▶▶▶

REGION-VII	
S.A. Engineering College, Chennai	**Hindusthan College of Engg. and Tech., Coimbatore**

10-12-2018 to 12-12-2018 – FDP on Wireless Sensor Network and the internet of things - A research perspective

15-12-2018 - National Level Workshop on Redhat Academy - Linux

Nandha College of Technology, Erode

15-9-2018 – National Level Technical Symposium on CRYOSAT'18

22-9-2018 - Hands-on Workshop on Grid & Cloud Computing

Valliammai Engineering College, Kattankulathur

16-11-2018 - Workshop on Programming with Python for Tamil Computing Process by Mr. T. Shreenivasan

29-11-2018 to 4-12-2018 – FDP Artificial Intelligence, Machine learning, Cloud Computing and their Applications

Viswajyothi College of Engg. and Technology, Ernakulam

3-12-2018 to 10-12-2018 - SES- International Symposium on Databases

Student branches are requested to send their report to
admn.officer@csi-india.org

with a copy to **mgsekaran1962@gmail.com**

Kindly send **High Resolution Photograph** with the report.