



CSI Communications

Knowledge Digest for IT Community

VOLUME NO. 43 | ISSUE NO. 10 | JANUARY 2020

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COMPUTER ASSISTED EDUCATION



INVITED ARTICLE

Titbit from the History of Computing-6 **08**

COVER STORY

An effective way of Teaching and Learning in higher education using Computer Assisted Education **10**

SECURITY CORNER

Enhancement of Education with Wearable Computing Device **18**

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From the Desk of Chairman, Publication Committee



Dear Fellow Members,
Greetings.

I am happy to inform you that **CSI Journal of Computing** will be released during the **53rd Annual Convention** of CSI scheduled for 16-18th January, 2020. I would urge the CSI professionals to contribute quality articles/research papers for publication. Quality articles enhance the reputation of the Journal. The intended papers will be reviewed before publishing. I earnest request for the cooperation of all.

Dr. Deshmukh, Editor-in-Chief for this journal and his team are doing a good job. It is interesting to mention here that Mr. Sundar Pichai whom most of us have heard of, will soon take over as the CEO of world's cash rich companies, Alphabet the parent company search engine giant Google.

While paying compliments to Mr Sundar Pichai CEO Google and Sathya Nadendla CEO, Microsoft, the two intellectual icons in IT, Shri Nandan Nilekani, another intellectual and Cofounder& Chairman of Infosys says that he first met Mr Sundar Pichai in 2013 along with Larry Page and others at Mountain View, Google Head Quarters. He was very much impressed with Mr Sundar. Sundar had very calm

demeanor and very humble. "What I liked in both Sundar and Sathya Nadendla (Microsoft CEO) is that both wear their jobs very lightly. They are not 'big ego guys' That is the kind of leadership that is required in the current tech world where lots of people are very talented and many a time, temperamental and you need to carry all of them along. Sundar has done a terrific job of that.... He will make a very good CEO of Alphabet. Over the years Alphabet has taken on a very diverse portfolio: autonomous cars, Google X, Verily etc."

"In a move that marks the end of an era **Larry Page and Sergey Brin** who cofounded Google in 1998 are stepping down from their executive roles at alphabet. They say "Sundar brings humility and a deep passion for technology to our users... There is no one that we have relied on more since Alphabet was founded and no better person to lead Google and Alphabet into the future (*Times of India, Dec. 5, 2019*). With these encomiums pouring all around, CSI sends greetings to these two gentlemen and wishing them to achieve more and more laurels.

Wishing you all A Very Happy New Year 2020.

Dr. D. D. Sarma
Chief Scientist (R), CSIR-NGRI, Hyderabad.



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Chief Editor: S. S. Agrawal



President's Desk

From : President, Computer Society of India

Date : 01 January, 2020

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The Computer is used as part of an education system to assist in learning and to control the process of education is known as computer-assisted education. The three major & essential components involved are (a) Computer hardware (b) Computer software and (c) Learning systems. The system provides continuous interaction with the student and the computer with the aim of establishing such interactions is to discover whether some of the critical functions of the teacher may be accomplished by the machine for advancing the individual & group learning. The computer may sometimes be given the role of a teaching machine. Computer is better than mere conventional teaching machines in two main aspects i.e. it can store large data and hold different courses at the same time and it can handle a great number of analysis and decisions easily and more quickly than other arrangements.

The computer assisted education is always methodological because computer analyses the learner characteristics and his reaction, then it supplies the feedback to his comment, new information and new response request.

The theme of this issue of CSI communication Computer Assisted Education is of great importance as it will focus on technology innovation and trend setting initiatives in Academic, Research, Training & Development & other related issues of Education domains for the world in general & the people of India in particular. The future will experience the contribution of this great technology and the benefits of the same for the mass education in India.

Annual Convention at Bhubaneswar

The 53rd annual convention of Computer Society of India is being held at KIIT University, Bhubaneswar, Odisha from 16th to 18th January 2020, I on behalf of the Executive Committee of the Society extend the invitation to all concerned to participate & grace the occasion.

The CSI Annual Convention is composed of different kinds of programmes such as Inauguration, Key Note Address, Panel Discussion, Industry Presentation, Invited Lectures, e-Governance Awards to best Govt. Projects, Young IT Professional Awards, IT Excellence Awards, National Programming Contest Awards, Life Time Achievement Awards, Hony. Fellowship and Fellowship Awards, Service Awards and Academic Awards, Best Ph.D Thesis Awards, Research paper and poster presentation along with the most prestigious e-Ratna Award and many more.

The CSI Annual Convention with the theme "**Digital Democracy-IT for Change**" for which the dedicated & devoted Members of the Bhubaneswar Chapter are making their best efforts to make the convention effective, productive scale of excellence. The Proceeding of the Convention with selected papers shall be published by Springer CCIS. I also express my sincere thanks to the Authorities of KIIT university for providing the venue & other support for this great cause. I request all the concerned for their kind participation & presence for enhancing the strength, efficiency, visibility, productivity & effectivity of CSI.

CSI Election

The elections for the Executive Committee of Computer Society of India for the period 2020-2021/2022 for various posts is in progress.



My best wishes to all the contesting candidates.

I congratulate the Nomination Committee Chair Sri Arvind Mohan Nayak and members Mr. Deepak Sharma & Dr. Ratnadeep R. Deshmukh for their great effort to conduct the election process in a very transparent way within the time schedule. My sincere request to all the voting members for their larger participation in the democratic process to elect the most suitable & able candidates for the respective positions.

Momentum in Chapter & Student Branch activities

Most of our Chapters & Student Branches are quite dynamic & vibrant in organizing quality activities from local level, state level, national level to international level seminars/workshops/conferences. Many of them have conducted good & quality activities. I congratulate all the respective Organisers & members for their tireless effort & significant contribution. It is special to mention that the Northern Regional Convention organised by the Lucknow Chapter on 14th December, 2019 as the parts of revival of Regional Convention series which was stopped from last few years. The convention was excellent and I want to express my sincere thanks and congratulate Dr. Arvind Sharma, RVP-I and his team members for their sincere efforts and able leadership.

CSI is going to witness a record number events in the month of January, February & March 2020. The organization of National Convention at Bhubaneswar, Regional Student Conventions, National Student Convention, Regional Conventions, National & International conferences at different locations of the Country. Many more activities are also conducted by different Chapters, Student Branches & SIGs which reports are not coming to the notice of CSI Communication & to the Members also. I congratulate & sincerely thanks to all fellow brothers & sisters and request them for communicating the reports of all activities so that the same can be published in CSI Communication.

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.

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

Thanking you & looking forward to your continued cooperation & support for the all round development of CSI.

With warm regards,

Akshaya Nayak

Prof. Akshaya Nayak
President, CSI



HAPPY NEW YEAR

Editorial



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



Dr. Ritika Wason
Editor

Dear Readers

"Technology will not replace great teachers but technology in the hands of great teachers can be transformational."
– George Couros

The above quote by George Couros, an innovative teaching, learning and leadership consultant describes the current situation in academia. Computer Assisted Education is not only becoming an assistive tool but has also taken the form of an alternative mechanism for providing education to one and all.

Wishing our readers a very happy new year, we begin this New Year 2020 by dedicating the first issue of this year to understanding and appreciating the various tools and applications of Computer Assisted Education. Continuing with our invited series Titbits from the History of Computing –VI by the legendary Prof. V. Rajaraman, this issue discloses, "**Who Invented Email?**" This article traces the invention of email, a revolutionary mechanism of sharing digital information. The first article, "An Effective Way of Teaching and Learning in Higher Education Using Computer Assisted Education" by S. Balakrishnan discusses computer assisted learning as an alternative mechanism of providing education to all. The second article, "Computer Assisted Education: An Informative Approach" by M. Senthilkumar et.al. discusses how computer assisted education is playing a dominating role in upgrading the conventional education system. The next story entitled, "Computer Assisted Education" by A. R. Revathi and P. Rajalakshmi gives a brief overview of computer assisted education. The security corner elaborates how computer assisted education is transforming education through the article "Enhancement of Education by Wearable Computing Device" by Kajal Chatterjee et. al. The next article, "A Guide to Encourage Seclusion of Data Online" by Avinash Sharma and Sakshi Anand warns of online identity theft and mechanisms to protect oneself from one. The next article, " Smart Trap for Smartphone Users" by Manish Kumar raises awareness regarding the various techniques used by fraudsters to attack smartphone users.

The technical trends section discusses how intelligent tutoring systems are being implemented in the article, "Intelligent Tutoring Systems" by D. Evangeline. This section also reports how computer assisted learning enabled classrooms are also being implemented in reality. The article,

"Saksham Kaksha" by Sarika Jain et. al. reports the same.

The research front section showcases how computer assisted education has made learning fun. The first article "Smart & Innovative Tools for Smart and Fun Learning" by Ka. Selvaradjou and Gulshan Soni reviews the various tools enabling smart learning in the present times. The last article "Breast Cancer Detection through IDC using CNN" by Prerna Arya et. al. introduces how varied strategies for robotized discovery of IDC remain a challenge for human health. The last article, "One Step Ahead of Cloud Computing with IoT services" by Anupama Pankaj elaborates the integration of cloud computing with IoT services.

The issue also reports important activities, events, collaborations done by various institutions and chapters of CSI and CSI congratulates them for conducting such activities. Various student branch inaugurations and activities have also been highlighted. The issue also reports the Northern regional convention along with other workshops. We also look forward to large participation from computing professionals and experts in upcoming annual CSI convention, CSI2020 at KIIT, Bhubaneswar.

We are extremely thankful to all our contributors as well as readers. Original, plagiarism-free, unpublished articles are solicited throughout the year from CSI members as well as non-members. Our sincere gratitude to the CSI publication committee members, editorial board members, authors and reviewers for their great contribution and support in realising this issue.

Our special thanks to Prof. A. K. Nayak, President, CSI for his constant encouragement, support and guidance in publication of January, 2020 issue.

We look forward to receive constructive feedback and suggestions from our esteemed members and readers at csic@csi-india.org

With kind regards,

Prof. (Dr.) S. S. Agrawal

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Computer Society of India™

CSI STPI YITP AWARD 2020



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The National competition for young IT professionals is an event conducted annually instituted by CSI in the year 1999 to encourage Researchers, IT professionals, Academicians, Consultants, Entrepreneurs and IT Practitioners in an Organization or as individuals in service / support / training function in the field of Information Technology. The competition aims at involving young IT professionals in the quest of innovation in IT and provides them an opportunity to demonstrate their knowledge, professional prowess and excellence in their profession.

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Titbit from the History of Computing – 6

Who invented email?

► **V. Rajaraman**

Emeritus Professor in the Supercomputer Education and Research Centre, Indian Institute of Science, Bangalore. Email: rajaraman.v37@gmail.com

“History has its truth; and so has legend” - Victor Hugo

The Cambridge dictionary meaning of titbit is “A small and particularly interesting item of gossip or information”.

Prologue

The Oxford dictionary gives the meaning of email as “Messages distributed by electronic means from one computer user to one or more recipients via a network”.

The Cambridge dictionary gives the meaning of email as: “the system for using computers to send messages over the internet”.

Observe the significant difference. The word internet is not used by the Oxford dictionary.

I asked the question “Who invented email” to Google. On October 2, 2019 I got the reply given below:

Google search results for "who invented email". The snippet reads:

Shiva Ayyadurai
Ray Tomlinson is universally credited as the creator of email as part of a program for ARPANET in 1971. Meanwhile in 1978, a 14-year-old boy, Shiva Ayyadurai began his work on an email system for the University of Medicine and Dentistry of New Jersey. Mar 15, 2016

Screen shot from Google

(I have omitted the irrelevant part of the answer in the above screen shot. The picture on the left is that of Ayyadurai and the one next to him is that of Tomlinson)

I repeated the question on October 3, 2019 to Google. It gave the following answer:

Ray Tomlinson

Here, he gives his version of how he **invented** the **email**. Ray Tomlinson is universally credited as the creator of **email** as part of a program for ARPANET in 1971. Meanwhile in 1978, a 14-year-old boy, Shiva Ayyadurai began his work on an **email** system for the University of Medicine and Dentistry of New Jersey. Mar 15, 2016

(I have omitted the pictures of Ayyadurai and Tomlinson to save space)

I was puzzled and I dug into history to find the answer. I present what I found in what follows. It is for you to decide who invented email.

was already in it. In other words, your mail is sent and written in the recipient's mailbox but you cannot read or delete what is already

in his or her mailbox. He remembered that he had worked on an experimental file transfer program called CPYNET that was used to transfer files between computers connected to a network. It occurred to him that SNDMSG could incorporate code from CPYNET to send material to a mailbox file in a remote computer connected to a network in addition to sending mail to mailboxes in local computers. He added CPYNET code with some modifications to the protocol with SNDMSG code so that messages could be sent to remote computers. To address a recipient in a remote computer, he placed @ sign between the receiver's (login) name and her host computer's name. It would be something like naomi @ comp_abc. The first message he sent was between two computers located literally side by side that were connected by ARPANET. The message was from him to self. When the mail program worked, he released it to colleagues who started using it to send messages to their colleagues connected to the ARPANET. The first set of messages were sent in 1971. The next release of TENEX OS in 1972 included SNDMG program with network mail capability. CPYNET protocol was later replaced with a better File Transfer Protocol having mail transfer features. Continuous improvements in mail transfer protocol were made after that.

Ayyadurai's Claim [2]

Shiva Ayyadurai was a gifted high school student and was given an opportunity to learn computer programming at the Courant Institute of Mathematical Sciences in New York while he was attending a high school in New Jersey. In the summer of 1978 Shiva Ayyadurai, when he was 14 years old, was recruited by the University of Medicine and Dentistry of New Jersey (UMDNJ) computer centre as a summer research student on the request of his mother Meenakshi who was working as a mathematician in the university. When he joined, he was given the challenging task to develop an inter-office mail system to be used by doctors, secretaries, office

workers, and medical students who were not computer savvy by Les Michelson who was in-charge of the computer facilities at UMDNJ. The interoffice mail system had the following interlocked parts (as explained by Robert Field in [2]): Inbox, the Memo ("To:", "From:", "Date:", "Subject:", "Body:", "Cc:", "Bcc:"), Forwarding, Composing, Drafts, Edit, Reply, Delete, Priorities, Outbox, Folders, Archive, Attachments, Return Receipt, Carbon Copies (including Blind Carbon Copies), Sorting, Address Book, Groups, and Bulk Distribution. Ayyadurai designed and developed (during 1978 and 1979) a computer program that replicated all the functions of UMDNJ's existing inter-office paper-based mailing system. He called the system he developed EMAIL. The name EMAIL was chosen for his system as it emulated electronically the existing paper-based mailing system. Another reason was that FORTRAN IV which he used to write the program allowed only uppercase letters for names and the OS he used allowed only 5 characters for program names. The EMAIL program had 50,000 lines of FORTRAN IV code. His inter-office mail emulation system used HP IMAGE/1000 database system. The university had a variety of computers connected to a wide-area network and an email could be sent from any computer to any other computer in the network. The EMAIL system developed by Ayyadurai was extensively used by the staff of UMDNJ for inter-office communication as it was easy to use and reliable. In 1982 Ayyadurai obtained a copyright for his program, as well as the users' manual. (Software patenting laws were not there in 1982). ARPANET existed in 1978 but UMDNJ was not connected to

Copyright certificate issued for the email program written by Shiva Ayyadurai

it. As a high school student, Ayyadurai was probably not even aware of ARPANET. He submitted his work to Westinghouse Science Contest for high school students as "a High Reliability Network-wide, Electronic Mail System" and won an award.

Epilogue [3]

Ray Tomlinson developed in 1971 a messaging system that allowed messages to be sent between any two computers connected to the Internet. He was also the first person to introduce the symbol @ used in email addressing. On the other hand, a complete email system that emulates a manual office mailing system was developed by Shiva Ayyadurai in 1978. This system, however, was only capable of sending and

receiving email in a private wide area network of UMDNJ. The two together constitute the email system that all of us use today.

Acknowledgment

I thank Dr. S. Ramani for reading this article and his comments that improved this article.

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- [2] University of Medicine and Dentistry of New Jersey, Computer group: www.historyofemail.com
- [3] Discussion in Quora www.quora.com/who-invented-email ■

About the Author



Prof. V. Rajaraman (CSI Fellow), Ph.D. (Wisconsin), is Emeritus Professor in the Supercomputer Education and Research Centre, Indian Institute of Science, Bangalore. Earlier Prof. Rajaraman was Professor of Computer Science and Electrical Engineering at IIT, Kanpur (1963-1982), Professor of Computer Science, and Chairman, Supercomputer Education and Research Centre, Indian Institute of Science, Bangalore (1982-1994) and IBM Professor of Information Technology, Jawaharlal Nehru Centre for Advanced Scientific Research (1994-2001).

A pioneer in Computer Science, education and research in India, Prof. Rajaraman was awarded the Shanti Swarup Bhatnagar Prize in 1976. He is also the recipient of Homi Bhabha Prize by U.G.C., Om Prakash Bhawani award, ISTE award for excellence in teaching computer engineering, Rustam Choksi award, Zaheer Medal by the Indian National Science Academy, Padma Bhushan by the President of India in 1998, and lifetime contribution award by the Indian National Academy of Engineering and Computer Society of India. He was awarded DSc (h.c.) by IIT, Kanpur and by Bengal Engineering and Science University, Shibpur. An author of several well established and highly successful computer books, Prof. Rajaraman has published a large number of research papers in reputed national and international journals. (A detailed biodata may be found in en.wikipedia.org/wiki/Vaidyeswaran_Rajaraman).

Computer Assisted Education

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“We need technology in every classroom and in every student and teacher’s hand, because it is the pen and paper of our time, and it is the lens through which we experience much of our world”.

– David Warlick, Educator and Public Speaker

Introduction:

Gone are the days when one has to pack up bags and wear uniforms to go to school to learn. As we know that the world is changing day by day with evolving technology. From kids to adults each and every one has a purpose on the computer. The education system has completely changed. Nowadays, in every classroom we can see a smart board. Notebooks and textbooks are replaced with smart devices as represented in Figure 1.

Computer Assisted Education otherwise called as Computer Assisted Learning (CAL) is simply the use of computer in education as said in [1]. Computer is a device that is present in every house these days. Students get many benefits by learning through computer.

In this way teaching and learning has become easier for both students and teachers. As usual, here too we can find both negative and positive facts by learning this way.

There are multiple methods through which learning is possible. They help the students in some way to gain knowledge. This is the best technique for those who enjoy self-learning. There are even online teaching sites available for those who need

guidance from teachers.

Need for Computer Assisted Education

As technology is developing faster we must also get adopted to that. The need for change in the education system is becoming necessary as confirmed in [2]. The need for such a system is represented in Figure 2.

- This type of learning method helps the teachers to store the data safely.
- The students can take tests and improve their capability level.
- The results of each assessment of every single student can be stored properly.



Figure 2: Need for Computer Assisted Education



Figure 1: Transformation of classroom

- Though the cost required to implement a CAL classroom is expensive but it is worth for the student's education.
- Any latest information about that subject is known very faster.

Types of Computer Assisted Education

The types of Computer Assisted Learning can be classified into many categories such as in [3] which shown in Figure 3.

a. Quiz

Conducting quizzes for the students and teaching them in that manner will be very helpful. The concepts can never be forgotten and in this way they will not repeat the same mistakes again. Participation in groups will make the students more interactive in learning new things.

b. Game

Game is something that everyone likes to play. Learning when combined with gaming is more interesting and who wouldn't like it that way. Though it can become a great addiction still it is a good technique to gain knowledge. There are application and numerous websites that guide the students to learn the concepts in a gripping way. They can be any crossword puzzle or scrabble.

c. Online Test

Tests are the best technique through which one can know their ability. It helps one to correct their mistakes after their scores are shown. This will improve their assessment quality. They can start to take up more tests according to their test results. The students also get motivated well by taking tests.

d. Online Videos

Videos can help students to visualize what they read in their books. They can grab the concepts in detail. In this way it is easy for them to understand and the concepts will

stand till the end. It may get them distracted if they are not focused. Still this is the method that is often used in schools.

e. Electronic Books

These books are available to study for free. All books can be purchased but the cost is less compared to original books. We can read them whenever we want to read. They provide extra knowledge. Books from authors all over the world can be read. Some may not be available in stores but they can be acquired.

Applications

Let us take a look at a few computer applications that helps the students to learn and gain knowledge on their interested topics as described in Figure 4

1. Dragon Box: It is a game that was launched on May 2012. This is used by students studying from first grade to 12th grade. They help the students to learn basic concepts like addition, subtraction and others. Concepts like algebra, geometry and more fundamental topics are learnt easily. They have been awarded with many awards as the 'Best Educational Game'.

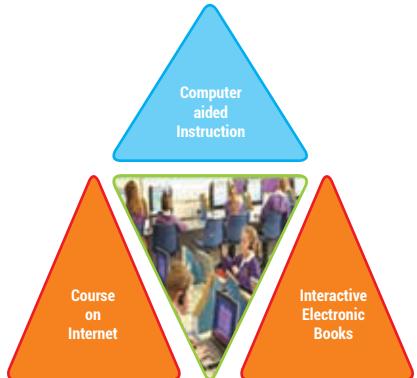


Figure 3: Computer educating methods

2. Spelling Stage: Every student faces difficulty in spelling big words. To overcome this problem of the students this app is used often to practise and learn the spelling of words. The game is popular not only among school students but also used by college students and adults too. There are many levels that make the game even more interesting.

3. World Geography: It is a famous quiz game that helps to learn about different countries. In this way their knowledge on geography will be good. They can

easily identify every country location. In addition to that they can learn about a country's history, culture etc. They are available in various languages and have a number of options for playing and learning.

4. QuizUp: This is a game that everyone likes to play and learn. The general knowledge of the students is tested and their mistakes are rounded to them.

In this, they can gain points by winning each level and get special bonus. Even adults play this game and its known worldwide.

5. Amazon Kindle: Amazon Kindle is the India's number one e-book store. More than thousands of books are available for free. Any genre books can be purchased. Books of authors from different corners of the world are accessible. Once they have bought, it can be used anytime.

6. YouTube: There are millions of videos available in YouTube. The concepts are elaborated well with visual so that the students can easily capture them. They also recommend videos for better experience. There are many educational channels to learn difficult concepts.

7. BYJU'S: This is another leading application that assists millions of students. It has online interactive classes in which the students can clarify their doubts with the faculty



Figure 4: Few commonly used applications

members. Students from standard one till twelve can go through any topic they are weak in. They make all the subjects easier and understandable to learn so that they stand in their mind forever.

Merits

The features of CAL are a vast list as specified in [4]. These benefits make it popular. Here are a handful merits as shown in Figure 5.

- ✓ They can be used at any time that is convenient for us.
- ✓ More information can be grabbed about any topic.
- ✓ Some books can be purchased for free.
- ✓ They are used in a simpler and easier way.
- ✓ We can learn whatever topic we are interested to learn.



ADVANTAGES

- Quick feedback on performance
- Useful for self-assessment.
- Submitting the assessment from remote places
- Efficient use of staff time

DISADVANTAGES

- Mostly limited to objective questions.
- Tend to test the knowledge, not understanding.
- Question of student's authentication.
- Security issues.

Figure 5: Pros and Cons

- ✓ Recent trends about a particular subject are known faster.
- ✓ It is easy to take away the software materials.
- ✓ They can easily understand using 3D visuals and diagrams.

Demerits

Though there exist huge benefits of this method of education there are a few challenges. Some disadvantages of Computer Assisted Education are

- ✓ It is quite expensive to purchase the computer.
- ✓ Students may easily get distracted.
- ✓ Teachers and students may get separated.
- ✓ Sometimes the computer may not work properly.
- ✓ The health may be affected in many

- ways.
- ✓ Students will get distant from the real world.

Conclusion

To sum up we can say that Computer Assisted Education eases the learning process. Computers assist the students to gain more knowledge instead of reading only the books. They have plenty of opportunities to learn in multiple ways like online tests, quizzes, games and online videos. Each method has its own pros and cons. Students will be able to visualize what they learn and some topics can be elaborated by viewing 3D diagrams. The notes can be carried easily in disks, pen drives and other handy devices easily. Thus, this is the how the education system and the classrooms have changed all these years.

The teachers and students too have changed the way they teach and learn the subjects.

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An effective way of Teaching and Learning in higher education using Computer Assisted Education

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Logical and innovative advancements began another period called "Data Age". In this period data creation has picked up significance contrasted with merchandise and administration by utilizing data advancements significantly. PCs which are a significant piece of our day by day life and which are fundamental for some individuals, organizations and foundations and furthermore which are utilized in instruction impressively, are significant apparatuses for schools. PCs have become the premise of information handling innovations utilized in acknowledging data generation, controlling, putting away, sharing and conveying forms. Since they address to more detect contrasted with other mechanical apparatuses and make dynamic and confused ideas concrete carefully as a result of their broad sight and sound properties, they are one of the most significant innovative devices which are utilized in instructive and instructional procedure. Computer Assisted Teaching (CAT) is moving instructional substance and exercises to understudies through PCs. Here, PCs are apparatuses which finish and fortify the framework; they are not choices which supplant instructors in educating process. In PC helped instructing, PCs are utilized to help training and guidance. Study hall educator is the principle instructor that shows the subject, and decided targets and mentalities. In CAT strategy, an educator can utilize PCs in various periods, spots and ways while instructing as indicated by equipment and programming offices she/he claims, qualities of the understudies and the subjects she/he will instruct and encouraging goals decided.

1. Introduction

Computer Assisted Learning (CAL) has "frequently been utilized to depict the advancement and utilization of instructive innovation for an assortment of conditions". From the "mid-1980s until the mid 1990s the term CAL was regularly used to allude to the improvement of either a solitary PC program or a progression of projects which supplanted the more customary strategies for guidance, specifically the lecture". Mifflin stated that "Technology Assisted Learning or Technology Aided Learning is defined as learning through computers with subject wise learning packages/materials". Computer Aided Learning (CAL) or Technology Assisted learning can be "characterized as learning or encouraging subjects like arithmetic, Science, Geography, and so on., through programming projects or digital books with subject shrewd learning bundles/materials".

- It is said to be: "Pedagogy empowered by digital technology".

Traditional Model	Alternative Model	CAL Implications
Classroom lectures	Individual exploration	Network PCs with access to information
Passive absorption	Apprenticeship	Requires skills development and simulations
Individual work	Team learning	Benefits from collaborative tools and e-mail
Omniscient work	Academic as guide	Relies on access to experts over the network
Stable content	Fast changing content	Requires networks and publishing tools
Homogeneity	Diversity	Requires a variety of access tools and methods

Fig. 1 : Comparison between CAL and traditional teaching methods in Higher education

- In broader sense, "it may be considered as a part of E-Learning".

2. Role of technology in higher education

Innovation (Technology) is changing

the scene of advanced education. Instructors are utilizing everything from innovation in the study hall, to "massive open online courses (MOOCs)", to flipped homerooms to discover better approaches to upgrade get to and the understudy understanding.

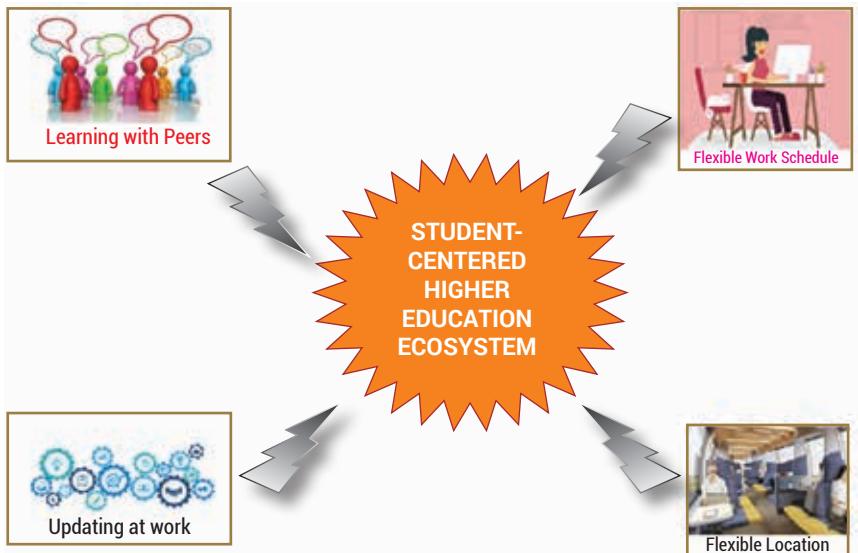


Fig. 2 : Student-Centered Higher Education Ecosystem

Mobile learning apps, which are steadily on the rise, have seen some of the greatest investments internationally from countries such as China, Brazil and India. Considering the likeliness that 100% of students would own a mobile, perhaps mobile learning apps are the next big place for investment in technology in higher education.

3. Types of Educational Software

The various kinds of Software utilized for Computer Assisted Learning are:

- Tutorials
- Drill-and-practice
- Games
- Problem solving
- Simulations
- Discovery
- Tool Software
- Computer Programming

3.1 Tutorials

Tutorial programming presents "ideas or aptitudes and afterward offers understudies the chance to rehearse them when contrasted with Drill and practice programming which does exclude an educating segment". Instructional exercises might be straight (understudies must go from p. 1 to p. 2, etc) or non-straight (where they can fan out in one of a few bearings dependent on intrigue or need). More established programming is bound to be straight in nature. Instructional exercises are regularly extremely intelligent.

3.2 Drill-and-Practice

Drill and practice programming is

commonly utilized a similar way that "worksheets or flash cards" are utilized in study halls. It gives rehashed introduction to actualities or data, frequently in an inquiry or game-type design.

Eg: "Math Munchers, Reader Rabbit, Accelerated Reader".

Drill and practice programming was the most predominant kind of PC application for a long time, since instructors were not exactly sure by what other means PCs could be utilized. Drill and practice programming "additionally fit pleasantly into a social way to deal with educating and learning since it estimated understudy execution". Drill and practice programming manages lower-request thinking aptitudes. Drill and practice applications don't use the full intensity of PCs.

3.3 Games

Games are described by rules, have amusement esteem, and ordinarily include rivalry. Understudies can go up against time requirements, for focuses, or with different understudies. Numerous games are accessible on the web. A few games enable understudies to finish drill-and-practice works out, frequently inside the setting of winning a score. These games bolster low-level subjective exercises and aptitude obtaining and many stress execution objectives over learning objectives, yet the presentation objectives can be aimed at rivalry with one's self as opposed to with others.

3.4 Problem Solving

Problem solving software enables students to see the aftereffects of their responses to different occasions. Students control factors, and criticism is given dependent on these controls. Problem solving software doesn't really use sensible situations.

3.5 Simulations

A simulation is a "portrayal or model of a genuine occasion, article, or marvel where students can see the aftereffects of their activities". Once in a while it isn't viable or possible to do the genuine article, so a reenactment is utilized to give encounters that generally would be denied. The contrast between reproduction programming and critical thinking programming is that reenactment programming manages sensible circumstances. This is an exceptionally amazing utilization of PCs and the instructive network can benefit from this sort of programming.

3.6 Discovery

Discovery approach "provides a large database of information specific to a course or content area and challenges the learner to analyze, compare, infer and evaluate based on their explorations of the data".

3.7 Tool Software

Tool Software is the "most predominant PC application utilized in instruction at the present time". It envelops all products that can be utilized as a device for understudy learning. The product itself isn't the center, yet rather the understudy is utilizing it to assist them with communicating their musings and show their comprehension. Thus, Tool Software isn't attached to a particular evaluation or substance zone. Tool Software causes "understudies and educators to oversee data". The utilization of "hardware programming in the educational plan is just as powerful as the movement that the educator creates".

Eg: "Word processors, desktop publishing packages, spreadsheets, data bases, graphics programs, telecommunications software, and multimedia software are samples of tool software".

Tool Software is "financially savvy since it tends to be obtained for a wide scope of evaluation levels and substance territories". The two understudies and educators can utilize the product.

Eg: Inspiration, Neighborhood Map Machine, Print Shop.

3.8 Computer Programming

It is a "programming language that isn't utilized outside of training". This used to be a "major class of PC use in the schools, yet the accentuation on programming aptitudes has diminished altogether". Numerous schools never again much offer programming classes, yet rather is training understudies to utilize interactive media and other PC

instruments.

Eg: Logo, BASIC, and Pascal. "Logo is still taught, especially for its value in helping students understand mathematics".

4. Conclusion

Computer assisted education facilitates the way toward learning. An existence without PCs would appear to be practically unfathomable for some individual utilizing PCs every day. The roles of PCs in education might be outlined as

pursues: It will be additionally intriguing and appealing to utilize a vivid programming with movements than perusing a book, Computer training module can help understudies profoundly comprehend the substance with charts, pictures and film cuts when required, Software are anything but difficult to convey, duplicate and disseminate, Instruction manual, Decrease of work, Chance of sharing individual experience, thoughts and new techniques lastly Chance of looking in a flash.

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Prof. A. K. Nayak

Publisher



Computer Assisted Education – An informative approach

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Introduction:

Computer assisted education plays a leading aspect in upgrading the education system. This provides an easy way of understanding and teaching. Understanding and learning becomes easier once the information is given as sound, words and pictures at the same time. This is known as computer assisted education. As NDTV quoted that in Andhra Pradesh, only 1% secondary schools have computer lab facility as per the report, which was released by NITI Aayog on September 30. Thus, computerized platform and categories to educate students were discussed below.

Educational technology:

In Computer assisted education (CAE), the educational technology is the curriculum of learning and teaching process. The attractive environment created by this technology which involves huge number of students can be the cogent reason for effective use of educational technology. The time required for reaching the ultimate target of the teacher and student can be reduced. Joy of understanding can be obtained only by getting qualitative learning. The cost of the computer assisted education can be reduced as compared with the traditional method of learning and it also increases the speed of learning.

Learning through computerized platform:

The usage of computers in the education system is a modernization technique which helps in the development of learning methods and techniques. The expanded intricacy in science exceeds the capacity of human brain. Due to this human's face complication in approaching problems

that engage large volume of data or linked structures. In this world of developed technology, it is feasible to handle knowledge overload using various methods. They are

- Visualization
- Virtual Reality
- Symbol system

Visualization:

To overcome the ramification and maximum limit of written words, visualization and computer graphics are used. It is very critical to explain complex concepts in terms of words, static pictures, graphs and equations whereas visualization helps in better understanding of concepts using computer graphics. In order to ease the processing of human perception system, the computer restructures the problem in an alternate manner.

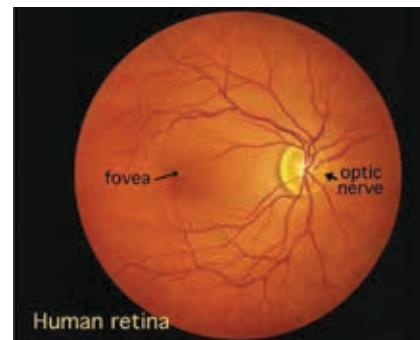


Fig.1: Human Retina

Virtual Reality:

The computer technology which is used to construct virtual world is known as virtual reality. VR enables us to reach out the 3D worlds instead of viewing a screen. Virtual reality helps to create a web-based

learning platform using computers and internet. Virtual reality facilitates the people to reach out artificially created surroundings which helps to flourish preliminary wisdom. In imaginary environment, the learner is able to understand the object's action as they take an imagined expedition through the human circulatory system.



Fig.2: Virtual Reality

Symbol Systems:

In earlier days, roman numerals have been used. Later Arabic numerals came into existence which is very useful for numbering the large numbers. Using this system it is very useful to maintain spreadsheets for large quantity of data of business applications. It helps in maintaining the database for easy representation and manipulation of data.

Categories of Computer-Assisted Education

Drill and practices:

Drill and practices are good for fundamental mastery. It is a software which works like flashcards or charts and worksheets on class rooms due to the fact that teachers on those days were unable to make sure in what else ways that the computers can aid their teaching. Drill and

practices are primarily used for handling low-order thinking skills.



Fig.2: Virtual Reality

Tutorial:

Tutorial software is bilateral. It is highly interactive. Students who missed the classes due to certain issues can be benefited by this software. Students who need remediation are also enhanced with this development in the field of learning.

Problem Solving:

To use problem solving software in the classrooms requires more power as it neither goes with the academic syllabus nor with the curriculum. It is an imaginative experience of solving problem and arriving at a solution as a result.

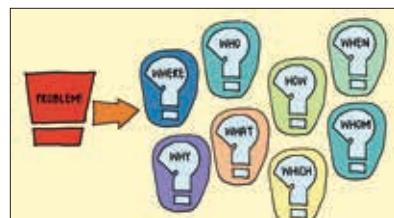


Fig.4: Problem Solving

Simulation:

Simulation software gives the realistic experience by viewing their actions results. Students are physically able to handle various situations that are similar to real life and make decisions accordingly provided they can also view the results of the decision at once.



Fig.4: Problem Solving

Tools software:

Some cost-effective software like spreadsheets, DB, multimedia and telecommunication software, word processors are samples of tool software. Presently, these tools software are widely spread over in computer education.

Conclusion:

Computer assisted education favors a different learning platform for the students. This facilitates students as well as trainers to grasp the concepts through real world examples and gain prudent experience. The techniques used in CAE provides guidance to figure out a problem in various perspective.

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Enhancement of Education with Wearable Computing Device

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In the present day, education is not restricted within the four walls of a classroom. Researchers and professionals in this field are trying to diversify the types of education. The main motive is to provide education to all and make education more interesting. The advent of computers has changed the perception of almost every profession. Previously, there was a notion that computers and education can't go hand in hand. Over the years, with improvement in educational techniques and computation devices, presently computational devices are playing an integral role in shaping the present and future generation of education. This article focuses on the usage of wearable computational devices as an assisting medium for education.

Introduction:

Wearable computing devices refer to the electronic computational devices that can be worn with clothing, including clothing, watches or other accessories. Miniaturization and lightweight are some of the signature characteristics of a wearable computing device.

Wearable computers are one of the pioneers of ubiquitous learning as well as affective computing. Wearable technology falls under the broader category of IoT (Internet of Things) that plays an inevitable role in shaping Industry 4.0.

According to Bass L. (Wearable Symposium, 1997) the five characteristics of wearable devices which makes its special and different from other computing devices are:

- The wearer can use the device while in motion.
- Only the wearer must have authority over the control of the device.
- The service provided by the device must be constantly available.
- The wearer must be able to use the device even if both of his hands are occupied.
- Not only these devices should adhere to the body but they also eventually, should start to exist as an essential part of the wearer's life.

Advantages of wearable computing devices:

- Wearable computing devices allows people to stay connected to the internet

constantly.

- These devices are not only portable but also can be used even if both the hands are not free.
- Wearable computing devices are available all the time unlike other devices like Smartphone, laptop or tablet which are handheld, or need to be kept in bags or pockets.

Importance of Computer's Assistance in education:

The main objective of using computers for education is to teach students digital literacy and improve the quality of education^[1]. Generally, the course plan for any educational course focuses on mid-tier students. The main goal behind using technology is to bring the students of the weak category at par with the students of the mid-tier category by increasing the learning capability. In recent years, computers have a major impact on the educational sector. Students find it more convenient to study from the internet rather than the textbooks. The internet provides a broader spectrum of information compared to that of the textbooks. Distance Education has been a boom for quite a long time. With the advent of the internet, physically distant locations have come closer. Online Education platforms are revolutionising the education industry. Students sitting at one end of the world can access educational resources, communicate with teachers from the other end of the world. These online platforms allow students to learn topics beyond their educational

requirements. E-education is one of the noble solutions for the trouble regarding the skill gap, a nationwide hassle. This method of education is letting students focus on being more job-market ready in addition to guiding them to find out their interests in an efficient manner. This is a promising field that will provide better education to students. Moreover, e-education is proving that quality-education should not always be a costly affair. It is envisioned that within the next few years, this technique of education goes to end up mainstream. Computers provide better audio and visual aid than the conventional chalkboard method. Therefore, it adds a fun element to the learning process as well as makes it a lot more interactive and more interesting. Thus, teachers can teach difficult topics in a much simpler way. Plagiarism is considered an academic crime. With the advent of the internet, students can check the level of plagiarism in their academic work, thus promoting originality to the contents.

Benefits of Wearable Computing Devices in Education:

- Wearable gadgets can add to the creativity of the learning process.
- Students will be more aware of this technology and thus take an interest in increasing their digital literacy level.
- Learning new topics through wearable computing devices might help in utilising Leisure time more efficiently.
- Student's progress report might be availed efficiently and quickly as

these can help in monitoring different students' activities.

Different Applications of Wearable Computing Devices in Education:

Wearable computing devices are becoming popular in the educational sector. Researchers claim that these devices are fruitful in developing students' interactivity and engagement in educational activities. The advanced application of this growing technology is particularly beneficial for higher education because of its features and facilities. Following are some of the ways by which wearable devices can be used for education:

1. Brain sensing headbands are used to track the mental state of the wearer. Implementation of this wearable device might help the teachers to understand the student's requirement for a better focus on studies.
2. Muse is a popular wireless brain-sensing headband manufactured by Interaxon. This device uses 4 EEG sensors to track brain activity. The device has a corresponding mobile application that converts the received EEG signal into appropriate audio feedback. It uses the sound of tweeting birds to represent a calm state of mind and sound of the storm to represent heavy brain activity. The details of the brain activity are available to the wearer via the Smartphone linked to the device. The device connects to its corresponding Smartphone pair via Bluetooth. The device is worn over the ears and uses the mechanism of biofeedback to collect data. Some other devices of the same criteria are Thync.
3. Virtual Reality technology is a crucial technology for Industry 4.0. This technology can be a powerful tool in enhancing the quality of education especially for medical students and school going students. This technology can improve student learning and student engagement. This is because VR technology allows the students to interact with the objects of a particular environment. They get a better idea than what they get from conventional chalk-board teaching or even maybe PowerPoint presentations. Being a universal technology, its inculcation can give a boost to wearable computing devices and allow the technology to be easily available to the society.
4. Application of virtual reality technology-aided wearables to support people on the autism spectrum is an area of innovation and research that has evolved since some time back. The main motive is to increase their personal, social, functional and vocational skills. These devices may be useful to educate them effectively. Subject like History, Civics which student often find boring can be made taught in an interesting way by using virtual reality headband.
5. Exercising is very important for leading a healthy lifestyle. Therefore, physical education is a crucial part of the educational curriculum. Activity trackers can be used for Physical education which helps in calculating no. of steps, tracking the heart rate, exercise rate, etc. Nutrition is important for a student's physical and mental development. Some of these activity trackers also calculate the number of calories consumed. The data collected from these activity trackers can also be used to monitor their nutritional needs.
6. Teachers can be aided with the Optical Head Mounted Display that can help them to recognize the emotional conditions of the students. For example, Google Glass can be used to recognise and measure emotions in such a classroom environment. These glasses help the instructors to see the impact of their teaching immediately on the students.
7. Depression is one of the common problems among students, especially higher education students. Wearable devices can be used to recognise the emotion of wearer thus helping students in fighting depression. There are several commercial wearable devices available for this purpose. For example, Affectiva^[3], a wearable device recognises emotions by measuring electrodermal activity, surface temperature, and acceleration.
8. Students mostly studying Journalism, Communication and television production can use wearable audio-video recorder for recording purpose as a substitute to hand held devices like Smartphone for better convenience.
9. Augmented reality aided wearable computing devices can also be used for making the teaching process interesting. For example, these devices can be used to give the students an idea about town planning in the pre-historic age.
10. Wearable devices worn by students might be linked to the Smartphone or smart watch of the teacher. The GPS of the student's wearable device is going to help the teacher in keeping track of them during a field trip as well as help them in monitoring the student's daily class activity.
11. E-education and remote tutoring can be done more efficiently^[4]. This approach will be helpful for those students who cannot attend the classes directly, like the specially-abled students.

Challenges of the wearable computing device in education:

1) Harmful radiations:

Generally, wearable computing devices use simple and wireless networking protocols for their communication purpose. Wireless networking technologies like Wi-Fi, NFC are used for establishing communication. Therefore, like other electronic devices, these devices also produce radiations and have to undergo testing to ensure that they are safe for using purpose. Radiations like EMF (Electromagnetic Frequency) are radiated from these devices. Thus, daily usage might be harmful to health, especially for children.

2) Privacy and security concerns:

Privacy is a very important issue in most of the electronic devices. Data loss and data theft are some of the common security problems in electronic devices. Wearable devices should be secured properly especially if the intended users are children and students.

3) May not be stand-alone devices:

Many wearable computing devices need to be connected to other pre-existing

smart devices like smart phones since their processors are smaller and can't perform every operation by themselves. Overall, these wearable devices might prove to be very expensive thus increasing the educational expenditure. The usage of too many devices simultaneously may distract students in the class.

4) Battery Charging mechanism:

The battery charging mechanisms of wearable devices might be tricky as well as the battery life of the devices might also be less. This might lead to hampering in education, moreover, every type of charging facility might not be available.

Conclusion:

Education is a crucial part of our life. E-learning is gaining popularity exponentially and at the same time, several commercial vendors are coming up with economical and powerful wearable computing devices. Computer-assisted education is not only helping in improving the quality of education but also is helping in making it more interesting. Wearable technology is a coming-of-age technology that will soon become an integral part of people's life. Education with the aid of wearable technology will not only make education more interesting but

shape up a new approach toward education. This technology may pave new forms of educating techniques as well as give rise to new professions. This technology will also be very helpful in educating the specially-abled students.

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A guide to encourage seclusion of Data Online

► **Avinash Sharma**

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These days more than 90 percent of people have moved online and started using Internet for their daily works. Starting from merely browsing the Internet to moving their businesses online, the list is interminable. Individuals are getting more and more inclined towards Internet because of the facilities that are on offer. Fast speed surfing, enabling long distance communication in microseconds, ease of accessing Internet from a distant location for a lot of things like shopping, banking, bookings etc., facility of smart phones, Internet of Things (IoT) etc. Not only from a personal aspect people have also started incorporating the power of Internet commercially in the field of education, agriculture, transportation, banking etc. Automation is the next big thing and IoT has pushed the world into a whole new era.

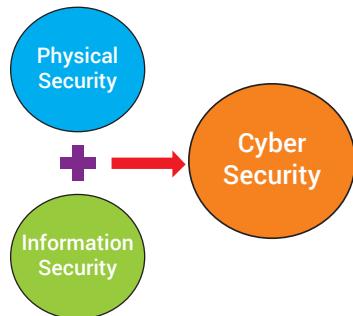


Figure 1: Cyber Security

The most important thing to discuss here is that with the increased demand and charms of the Internet one major factor has continuously been ignored, the "security" that includes prevention from both information attacks and physical attacks (Figure 1). As more and more people are switching to Internet so are the modes of theft. Shady people have found new ways to steal data from individuals. And not only stealing, with the mightiness of Internet, people have found ways to molest, harm, attack and destroy a person even conduced to death. The security of all the devices and systems that are connected to Internet along with data, software and hardware is covered under

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cyber security. This term is by standard used to denote the protection against wrongful accession to everything associated with the Internet.

Prevention achieved through cyber security

Some of the common parameters that can be attained through cyber security are integrity, confidentiality, authorization, availability of data and authentication.



Figure 2: The CIA Triad

In more detail it can be said that the main purpose of cyber security is to minimize the risk that can occur on an enterprise or an individual. The risk can be a breach of information, theft of identity, ransom ware, phishing, denial of service etc. The main task is to develop an impregnable incident response strategy for an organization making it almost impossible for an attacker to defeat it. In simple term the CIA Triad is achieved through cyber security (Figure 2).

Ways to contribute towards online privacy

Though achieving cyber security can become a bit expensive at times as one needs to buy fully functional security software's, and even needs help from various IT security companies but individuals can definitely follow some basic tips to boost the privacy of their data while working online.

Ignoring the "About Me" section on Social Media is a good thing – a good way of communicating these days is through social media with Twitter, Instagram and Facebook being on the top amongst others. People tend to provide a lot of information on

these platforms. While creating a profile one should not add much detail under "About Me" section. As apart from identity thieves no one is really interested in knowing one's maiden name, year of birth, city of birth and such personal details. For most people this might sound like a no big deal but in reality this private information can actually lead to theft of identity or even financial data. An attacker can literally use these details to change passwords of various financial accounts of a person as these can answer some of the security questions asked while changing passwords. Some other things that can be kept in mind while using social media are

- Keeping a strong password
- Digging into several privacy settings
- Limiting the people who can view the post
- Timely following updates

Prefer Incognito mode while browsing – While this might not be the ultimate solution to protect one from online attacks but talking about the physical attacks to a system, working in Incognito Mode or InPrivate Browsing can do wonders. The major benefit of using private mode is that history of browsing is not saved nor is the temporary file or cookies. This really prevents an attacker from knowing the list of websites visited. Also if a person is operating from a public PC, doing work in private mode is a must especially while accessing finance related websites and email accounts where one has to provide personal details. As an added benefit of using this mode one can easily outsmart the websites that offer a limited content for free (mostly a limit of 10 to 15 articles) and hide the most behind pay walls. As no cookies are kept on the PC whenever a person visits such website, he's like a new visitant with fresh article limit.

Encourage using of Anonymous Search Engine – Most of the people all over the world use Google and Yahoo as their search engine and very little use Bing or other search engines. But people are incognizant to the fact that the famed search engines like Google are projected to spy on the users as a part of their standard business model so as

to provide the most likely and pointed advert to them. While searching, data like Query Search Term, Date and Time of Query, Cookie ID and IP Address of a user gets noted. This can be prevented by just switching to various private search engines that not only promises not to collect and store the search queries and IP addresses but also proxies search requests.

The magic of Virtual Private Network (VPN) – Confidentiality and privacy of data of an individual can be attained to a great extend by using a Virtual Private Network. A VPN basically encrypts a person's connection to the Internet making it hacker proof. The major benefits of employing a Virtual Private Network are as follows

- The data is encrypted and hence secured
- Data can be easily shared over VPN
- One can easily go around Internet filters and blocked websites
- Information can be accessed remotely
- Efficiency and bandwidth of network is increased and maintenance cost is reduced

The power of wrong Click – One should literally think twice before clicking a link to a webpage or website while surfing over the Internet. The most common attack that can be made on a person's financial profile and bank accounts is phishing. Here a gouger will send an email to a person claiming it to be from his bank or financial institution where

that person has to log in and verify his details to prevent the account from getting closed or frozen. This is a phishing link, upon clicking it gets redirected to a fudged webpage that looks exactly like the original webpage of the bank. When a person fills his personal details, all the data becomes available to that scammer who initiated that phishing attempt. One of the possible solutions is to call the bank through the customer care numbers mentioned in one of the bank's statements every time such an email is received. This way one can be double sure and prevent oneself from falling into the phishing trap. ■

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Smart Trap for Smartphone Users

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Mobile phone penetration in India is set to rise to 85-90% by 2020 from the current levels of 65-75%. It's a good news but analysis also shows that the first half of 2019 saw 50% increase in attacks on mobile compared to 2018.

In India, mobile is a very much large attack center. Normally the fraudster attack the victim for some gain and obviously financial gain is most popular choice for them but not always. Sometime the objective is to hack email accounts, social media account etc. In coming days these attacks will become more sophisticated and effective. There are various techniques used by fraudster to trap the smartphone users. Let us look at some of the common techniques and approach used by fraudster to attack on their target and be aware about it. Because awareness is the most important to protect yourself from cyber-attack and fraud.



Trap for UPI and Banking Apps

Every month volume of UPI and other Mobile Apps based transactions are breaking all the records. No doubt it strengthens the cash-less economy but sharp rise in cyber fraud using UPI and Banking Apps is a matter of concern. Most of the time victims are common man who are not aware about the tricks used by the fraudster and fall in their smart trap very easily. The simplest approach used by fraudster is to pretend to be a bank representative. In most of the cases fraudster provides a convincing reason for calling the customer and gives a false sense of security to win victim's trust. The caller tricks the victim to follow the steps to complete their KYC or other mandatory process, convincing them as its need to be done very urgently. Actually the fraudster traps the victim in very smart way to disclose their Card Detail, OTP, Verification SMS and get control over the victim's UPI and Bank Apps. Figure 1 shows the common modus operandi used by fraudster to hack the UPI and Banking Apps.

Generally these attacks are done by fraudster on multiple victims in a short-spam of time and the amount from all the victim's accounts are transacted to a money mule's account. Money mules are intermediaries who transport fraudulently gained money to fraudsters. The use of intermediaries makes it difficult to figure out the identity

of the fraudster. Normally these amounts are transacted in multiple bank accounts in very short-spam of time to make the tracing complex and time consuming. It gives enough time to the fraudster to escape. The money mule generally opens the account on fake identity and close the account immediately after withdrawing the amount.

Typically, the mule is paid for services with a small part of the money transferred.



Trap for SIM Port/Swap

It may not be so easy for the fraudster to convince all the victim to share Credit/Debit Card details or OTP as described

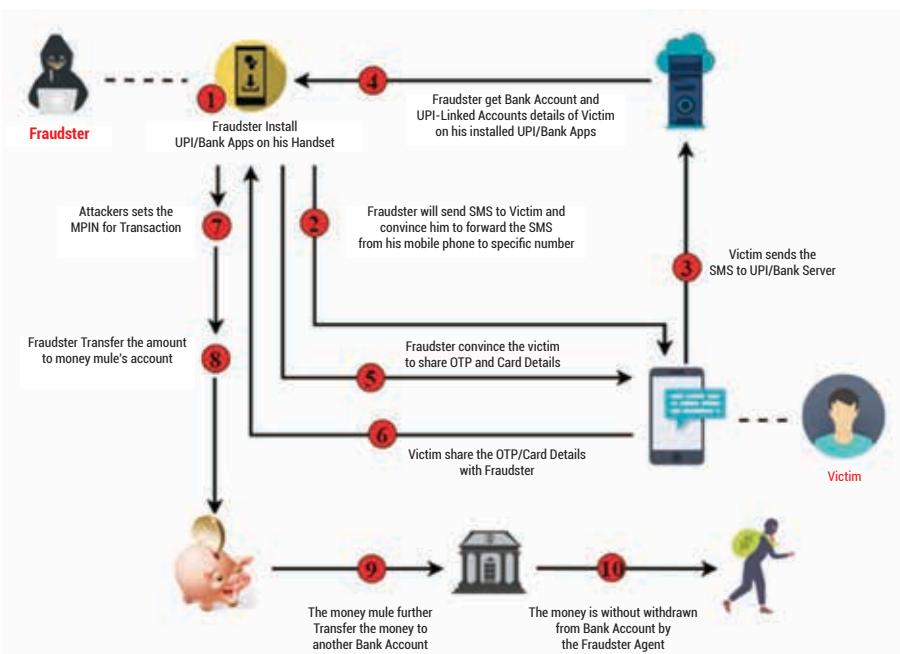


Fig. 1 : UPI/Bank Apps Hacking

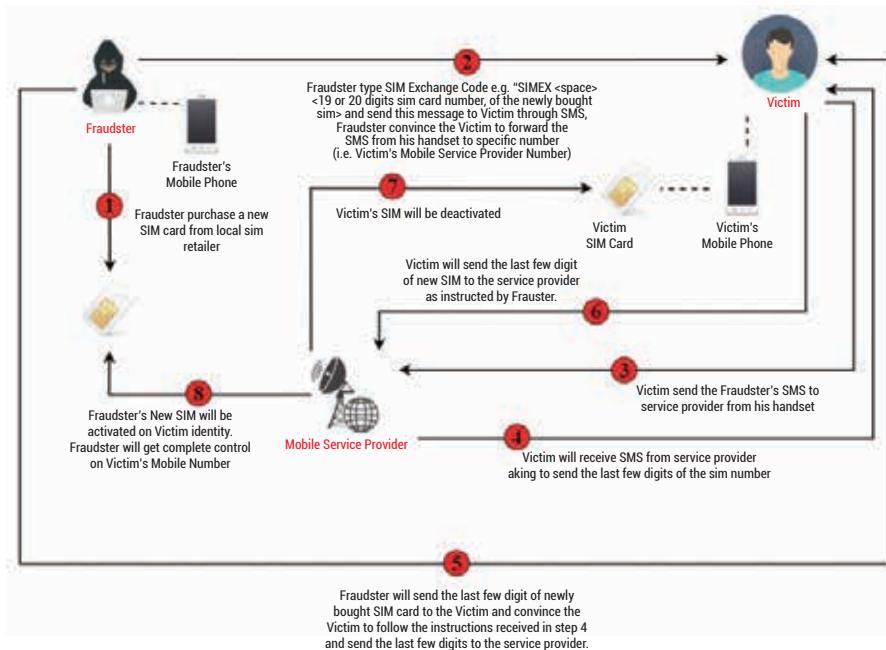


Fig 2 : SIM Port/Swap using SIM Exchange Request

in earlier scenario. So the fraudster use different approach and try to get control on victim's SIM card. Once the fraudster gets control over victim's SIM card, he can easily reset the MPIN and can receive all the OTP for transactions. Fraudster generally use two common techniques to accomplish this task.

SIM Port/Swap using SIM Exchange Request:

Many time customer change the handset and need to change the SIM card e.g. SIM Card to Micro SIM card, Nano SIM Card or 3G to 4G SIM Card etc. To do this customer need to purchase a new SIM card from any local retailer and send SIM card number to service provider from his mobile phone. Customer need to follow some steps. Once all the steps are successfully done, the old SIM will be deactivated and the new SIM card will be activated. Fraudster exploit these steps. They purchase the new SIM card and target the specific victim. This time fraudster may call the victim pretending as Bank Representative, Mobile Service Provider Representative or Representative of some e-Commerce giant with some big lottery and offers. They convince the victim to follow some steps to avail the lottery amount and offers. As shown in figure 2, In this modus operandi fraudster actually trap the victim to initiate the SIM exchange process form

victim's mobile phone and activate the new SIM card on-behalf of victim. Once the new SIM card is activated, fraudster can easily do the reset of MPIN for UPI/Banking Apps of Victim and do the transactions.

SIM Port/Swap using Fake ID Proof:

Financial gain is one major objective of the fraudster but not always. Sometime the attacker may be interested to gain access on victim's primary email address and social media handler for various other reasons and benefits. As it's common that many time customer lose their handset or SIM card get corrupted for some technical reason. In such case customer need to request for new SIM card from his service provider. Now in this modus operandi fraudster impersonate as Victim and pretend that he has lost his mobile phone. He requests for issuing a new SIM card using fake Xerox copy of AADHAR Card, PAN Card, Driving License etc. Fraudster new SIM card get activated and Victim's SIM card will be deactivated. Now the fraudster have control on victim's SIM card. As shown in Figure 3, fraudster initiate the password reset request for Victim's primary email. Since the victim's SIM card is in fraudster controls, so fraudster receive the verification code for resetting the email password on his mobile phone. Fraudster can now reset the victims email password. Having control on primary email and mobile number of victim's, credential for all the other social media account and bank account can be reset by fraudster.

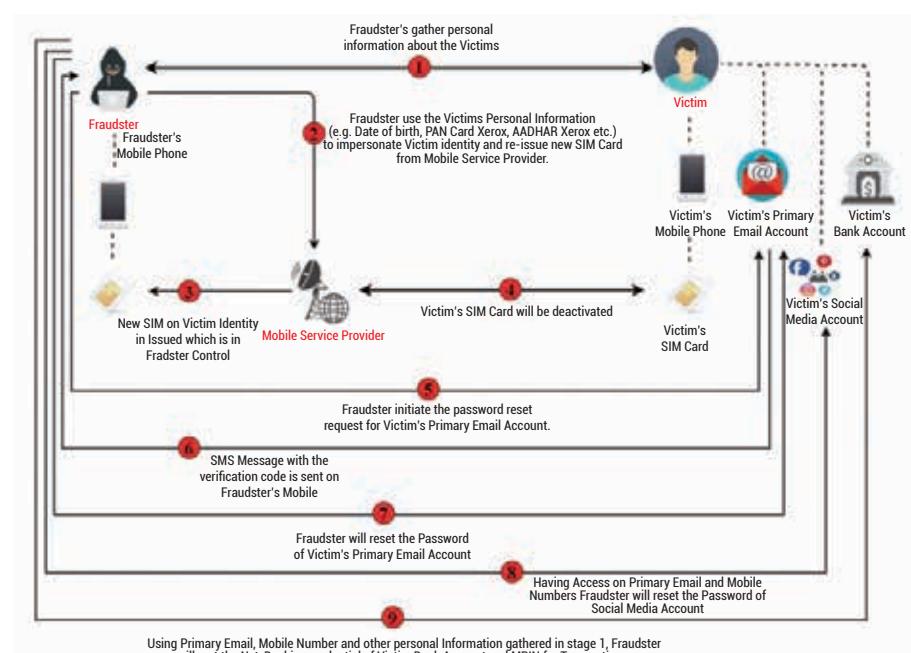


Fig. 3: SIM Port/Swap using Fake ID Proof

Contd. on page 38

Intelligent Tutoring Systems

► D. Evangeline

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Since the past decade, there is tremendous rise in the field of Computer Assisted Education owing to the impact of technology on the current generation. Intelligent Tutoring Systems (ITS) [1] are computer systems designed to instruct individual learners by providing them customized feedback without human intervention. These systems can be used in the field of education and corporate training. These systems are composed of four models [5]:

1. Domain model that contains knowledge of the subject matter with which all problems given to the students can be assessed.
2. Student model focuses on the cognitive state of the student
3. Tutoring model chooses tutoring strategies and actions
4. User interface model integrates knowledge about interpretation patterns, knowledge for communicating intent and content.

Student model is the heart of ITS. In a student model, cognitive issues and characteristics of a student is considered [2]. One of the challenges in designing student model lies in employing the student characteristics which may be static like sex, nationality, mother tongue, contact details that are set in the beginning session of the course or dynamic that changes while the student takes the course.

The different roles of a student model [7] are as mentioned below:

1. Corrective – Removes students' misconceptions on the domain
2. Elaborative – Completes students' incomplete knowledge on the domain
3. Strategic – Focuses on tutorial strategies
4. Diagnostic - Corrects students' misconceptions on the domain
5. Predictive – Determines students' response to tutorials
6. Evaluative – Assesses students' performance

Some of the student modeling

approaches [2] is tabulated below:

In modern ITS, every individual learner is given context-specific comments and user interface is designed to enhance specific content visibility [4]. Some of the modern ITS

are Autotutor, Cognitive BBN, Algebra Tutor, Dynamic Bayesian Network (DBN) modeler, etc.,

HotPotatoes – An ITS Authoring Tool

HotPotatoes [6] is an ITS authoring tool

Model	Description	Role
Overlay	Based on correct and incomplete understanding of the domain by the student	Corrective, Elaborative
Stereotyping	Students with similar characteristics are placed in clusters called stereotypes	Diagnostic
Perturbation	Based on students' misconceptions. Helps in taking remediation measures.	Corrective, Strategic
Cognitive theories	Focuses on human behavior during the learning process	Strategic
Constraint-based	Based on subject matter representation using a set of constraints [3]	Strategic
Fuzzy	Based on fuzzy logic that measures uncertainty in problems	Diagnostic, Strategic
Bayesian networks	Based on representation of uncertainty measurement using probability	Diagnostic, Strategic
Ontology-based	Students' characteristics are put forth in ontology	Predictive
Machine – learning techniques	Based on students' behavior, future actions can be predicted using machine learning algorithms	Predictive, Evaluative

Table 1 Student Modeling Approaches

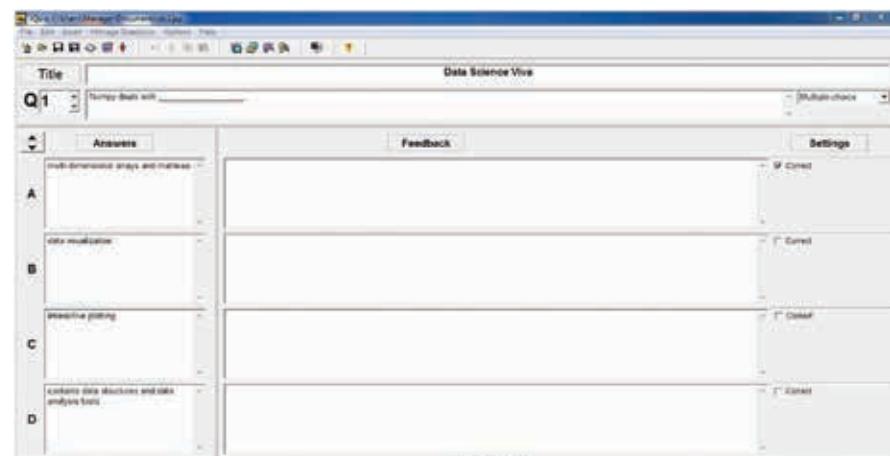


Fig. 1 : Quiz creation using JQuiz

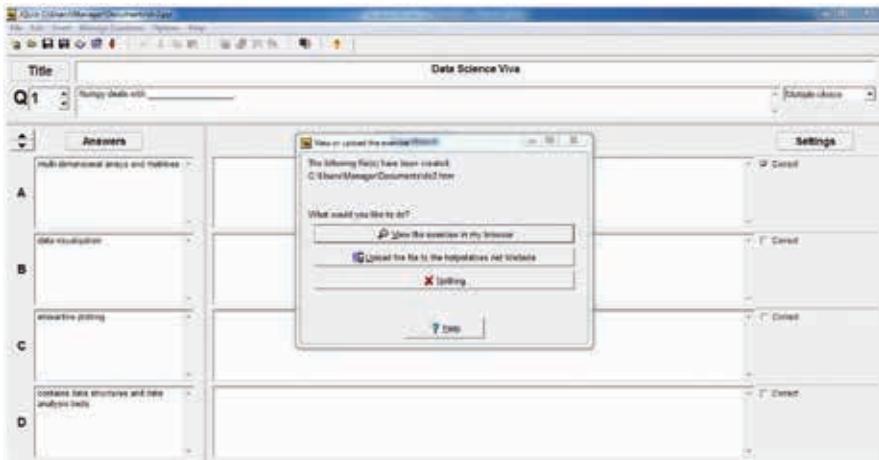


Fig. 2 : Viewing quiz on browser

which is a freeware developed by HalfBaked Software and University of Victoria Humanities and Computing Media Centre. This tool has six applications to create multiple choice questions (JQuiz), short answers (TheMasher), jumbled sentences (JMix), crosswords (JCross), matching (JMatch) and gap-fill exercises. (JCloze). The latest version is HotPotatoes 7.0.1.0. Any kind of exercise can be created for students and the same can be viewed in browser or integrated in Moodle. No knowledge of HTML is required as one needs to just fill the questions and options and mark the correct option.

Now, let us look into steps for creating Multiple-Choice Questions Quiz using JQuiz. After installation, one can see an empty page with question number on left, title at the center, options below the question, checkbox for selecting the correct option at the right. One can add more questions by clicking on the upward button in question number box.

This is illustrated in Figure 1. After adding all the questions, the same quiz can be saved. It is saved with the extension ".jqz". It can be viewed in a web browser by clicking File>Create Web Page. One can see the button 'View the exercise in my browser' as shown in Figure 2. In the same way, other exercises can also be created using HotPotatoes. Just like HotPotatoes, there are many freeware authoring tools available for teachers to conduct assessments for their students.

Though Intelligent Tutoring Systems emerged in 1990s, it is still in its infancy because they were designed with the notion of replacing human teachers who are supposed to be experts in their domain and capable of giving customized instructions to individual learners [8]. Many challenges like thorough understanding of learner's domain knowledge, learning levels of different learners, scalability of inclusion of multiple domains, adopting suitable tutoring strategies after assessments, different

student groups learning in different time spans, updation of domain knowledge, etc., need to be addressed in near future. Significant research in these directions will bridge the gap between the current ITS and the expected one.

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Introduction

There has always been a huge difference between the government and the private schools in India. Whether it is the quality of education or infrastructure, private schools are always considered to be ahead of the government schools. This is mainly because government schools suffer from various problems like teacher absenteeism, unavailability of books, a lesser number of teachers, etc. In 2014, only 40 per cent of all students in elementary in the government schools were reported to be grade-level competent in Haryana. Not only the quality of education in government schools is bad, but the parents living in the village areas also are not that educated that they can teach their children.

Nowadays, with the advent of technology, these problems can be tackled. Various technologies like smart classroom tools have been adopted in the private schools. But the government schools still lack in such initiatives as these tools are quite expensive. An effective and inexpensive solution is required to help teachers in government schools. Such a solution can help students in understanding the concepts better by providing them access to educational content on the internet. This will also be a very helpful resource for the parents through which they can learn and teach their children. This solution will fulfil all the requirements.

Development of Saksham Kaksha

App:

The Saksham Kaksha app is for Android users. The app comprises of contents from textbooks of the Board of School Education, Haryana. The content includes questions from chapters of various books used in the curriculum. It also has different

competencies for Saksham module. There are various practice modules present in the app, these modules are created by different school in different cities.

The Saksham Kaksha app is built based on the Spiral Model. The app is developed using Java and XML, Java for Android backend and XML for designing. The web services are created using PHP and the data sharing between app and web service is done by JSON.

Application Interface:

We have proposed a solution in which there is an app which gives the parents as well as teachers an interactive method to teach their children. The app contains the Multiple-Choice Question (MCQ) type questions of the textbook chapters. Teachers while teaching in the school and parents while teaching their child at home can make use of these MCQs to make their wards learn the chapters. The Course tutorial tab consists of questions from various chapters of various books for class 1st to class 12th. While selecting the chapters, the user is given an option to watch the videos related to that chapter that are present on YouTube for a better understanding of the concepts. Users can easily open the video by clicking on the button while selecting a chapter. Some books have an associated video playlist with them.

Even some questions have a video for better understanding of the concepts related to those particular questions. The user also has an option to click on the pdf button and download the pdf corresponding to that chapter. The number of rights and wrongs done by Parent/Student users are collected and used to perform the analysis. Based on this result, the user will have a ranking

among all the other users. The names of the top 5 students of each class will be shown on the home page of the user. While doing the practice, the user also has an option to report for error in the question, if he doubts any question. The size of the text of the question can also be changed using the plus-minus button below the question box.

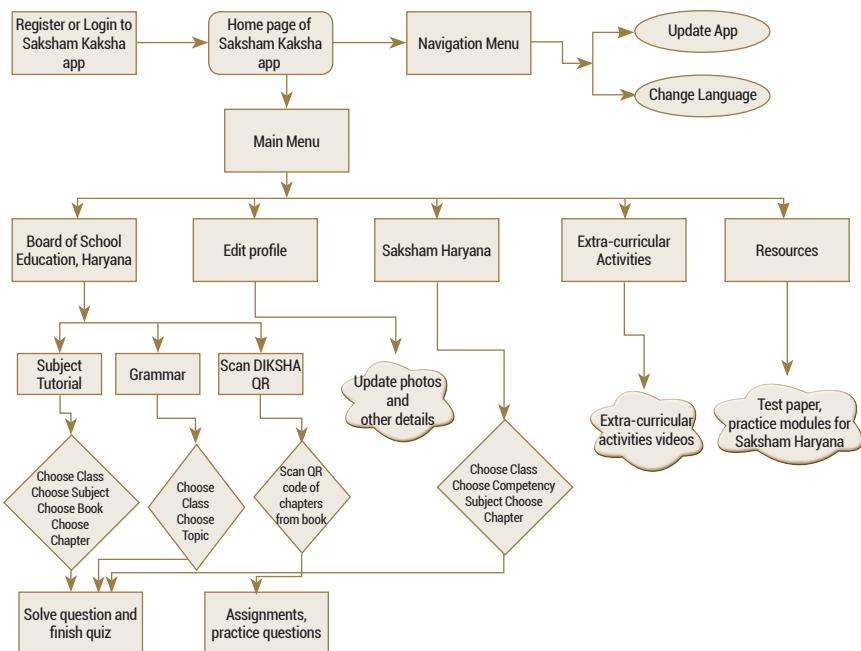
The app also has a module for Saksham Haryana to check the grade level competency of the students of government schools. It consists of questions of various topics of English, Hindi, Maths, Social Science for classes 3rd to 8th. According to the programme initiated by the Haryana Government, students of class 3rd, 5th and 7th who can do the competencies of class 2nd, 4th and 6th are considered as Saksham and students of class 4th, 6th and 8th who can do the English competencies of class 3rd, 5th and 7th are considered as Saksham Plus.

The app has a module for the Grammar section. It consists of various topics of English Grammar, Hindi Grammar, Punjabi Grammar and Sanskrit Grammar. Users can use this section to practice on various topics of grammar such as tense, verbs in English grammar and sangya, sarvnam in Hindi grammar. The users can watch videos of these topics by clicking the video button while selecting the topics.

The app has a section for learning extra-curricular activities. It contains various YouTube links for subjects such as career guidance, engineering concepts and latest smart technology. Also, this section has links of videos for helping students build skill sets such as writing skills, drawing skills, craft skills, knowing technical science facts and inventions. There are videos for teaching moral values, motivational and inspirational

TECHNICAL TRENDS

Flow Chart:



stories. This module of the app is very important considering that it will help to build the overall personality of the students. Learning all these skills will help in the proper grooming of the personalities of these students and will make them able to compete

with the students of private students.

There is a resource tab in the app in which various model papers from various cities are present. Teachers can view these papers and teach the students accordingly.

Users can also scan DIKSHA QR code

present in their textbook and can read their books online. People often like to read books online, in such a case they can easily do that using our app. We have also given users the option to update their profile, from where they can update their various details such as first name, last name, school name, etc. We are also giving users the options to upload their profile photos.

Conclusion:

The purpose of Saksham Kaksha app is to make the parents capable and provide teachers with proper material so that they can educate their children/students properly and direct them towards an enlightened future. The Saksham Kaksha app can be used easily with an Internet connection and without Internet connection too. The user can easily download the content of the app and practice them even when offline. The app is widely used by the parents and teachers in the city of Kurukshetra and nearby regions.

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Smart & Innovative tools for Smart and Fun Learning

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Introduction:

The trends in information and communication technology (ICT) have revolutionized civilization tremendously in the recent past. The lifestyle of the people in the world has been transformed into newer heights with the advent of the technological revolutions. It makes the world very smart in terms of smart marketing, effective administration, e-governance, online banking, etc., Government of India has envisioned setting up of smart cities across the nation in various states and union territories and the mission becomes reality as witnessed by the implementation of smart operations in various public and private sectors.

Teaching and learning is a continuous process for every human being in the world. Traditional way of Gurukul methods of teaching got transformed in the past such that schools and colleges were instituted by the Government and Non-Government organizations wherein the people are educated in a systematic way since their childhood. Until the advent of ICT, it was the 'classrooms' at where the teaching and learning have happened in a time-bound manner. The 'teachers' teach the 'students' in the time slot assigned to them and evaluate the student's performance by way of several assessment practices. Most of the time, it was the 'blackboards' (or whiteboards, now-a-days) on which the teachers typically write and explain or demonstrate on a particular subject. Well, several institutions now-a-days witness a phenomenal revolution with the modernization of the conventional classrooms to 'smart classrooms'. Such smart classrooms help the teachers enrich their quality of teaching with multimedia objects on the screen making the students to understand the concepts and applications better.

This article aims at throwing light on some of the interesting tools and applications available in the World Wide Web for effective teaching and learning

'beyond the classrooms'. The teachers and the students could remain connected beyond their presence in the classrooms in an effective manner. The performance assessment of the students could be far better from the traditional approaches making the 'learning' a fun for the students' community, despite their age.

Google Classroom

It is common that everyone in the world have their personal accounts from Google which provides email services. Such free accounts facilitate the user not only send/receive emails, but also give a bundle of other interesting apps such as Calendar, Docs, Drives, Sheets, Slides, Meet, Google+, Sites, and Hangouts. Among these, the Google Docs, Sheets and Slides are effective online tools which help the teachers and students to collaborate with each other in creating, editing and reviewing of the documents. Being an online application, they let the users to collaborate in an asynchronous manner. The teachers can create Google sheets with data pertinent to the continuous assessment of the students' performance on a particular subject and share the same to all the students with permissions to view and/or post the comments. By this way, it becomes

a completely transparent and cost effective system without the need for any need for specific cloud infrastructure owned by the institutions.

The Google Inc., grants the Google Apps exclusively for the institutions worldwide such that the email ids of the students and staff members could have the domain email id of the respective institutions such as username@institutename.edu.in but services provided by the Google Inc., completely free of cost. The administrators of the institutions can contact the Google Inc., to avail this facility and grant unlimited accounts to their students, faculty and staff members. Many leading institutions in our country have already availed this feature. The admin control panel provided by the Google Inc., helps to create and manage the user accounts in an effective manner. The attractive feature of this facility is that the user accounts can remain active even after an individual graduates out of the institution and can continue using the account provided the administrator grants the permission. Unlike the free user accounts with Google Inc., there is no limit imposed on the storage capacity of the mail boxes is another attractive feature.

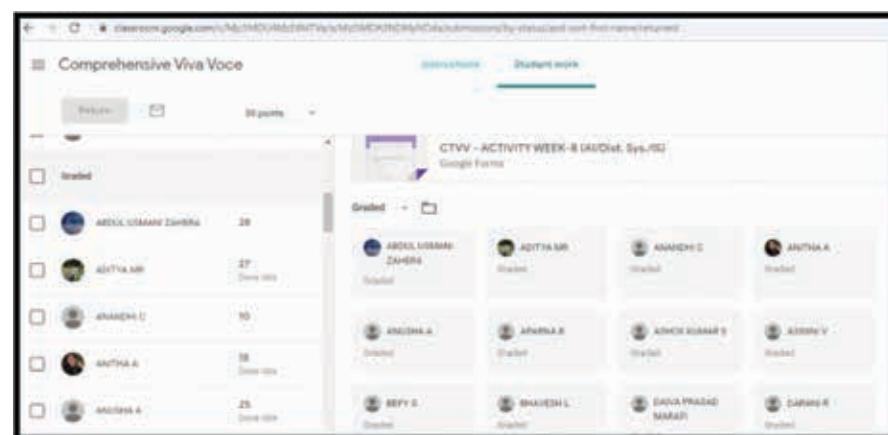


Figure 1. Google Classroom – a sample view of assessment summary.

Through classroom.google.com [1] the teacher(s) can create virtual classrooms in which he/she may assign student(s) to join. The dashboard helps the teachers to post articles, ppt slides and lecture notes relevant to the topic of discussion which the students can access through their Google account. The teachers can post assignment questions and/or objective type quizzes for which the students can post their answers in the given time slots as decided by the teachers. The multiple choice questions are evaluated automatically with the answer key provided by the teacher, thus relieving the teachers from their time and effort required to evaluate. The teachers can easily generate the report cards and analyze the students' performance on the given test as shown in Fig.1.

Plickers

Conducting quizzes inside the classrooms can't be more funny and interesting than this innovative tool. The teachers can create account with plickers.com and create classrooms [2]. A set of students can be created and assigned to the classrooms on specific topics. This technology relies on the integration of world wide web, a mobile app installed in the smart phone of the teachers and its camera sensors to capture/recognize the choices of the answers from the students. As shown in the Figure 2, the plicker cards (patterns) are created by the Plickers which can be downloaded, printed and hardcopy handed over to the respective students. The cards have four sides labelled A through D in tiny letters such that they are visible only to the student holding it. When the teacher starts the quiz, the questions are streamed one after another on the LED/LCD projector mounted in the classroom along with four choices of answers. The students, in response can show up their choices with the plicker card in their hand which will be captured by the class teacher in just one scan. The app running in the mobile phone captures the name of the students and their choices (but, does not reveal it immediately). The students can see on the screen whether their answers have been recognized by the camera sensor of the teacher's mobile phone. At the end of the quiz, or at the end of every question, the teacher can opt to reveal the answer(s) to the students with statistics of how many a students have given correct and incorrect answers, thus permitting the



Fig. 2 : Students showing plicker cards with their choice of answer which is captured by teacher.



Fig. 3 : Kahoot – Create Quizzes and host live to the participants.

teachers to clarify the doubts immediately in the classroom. The application also helps the teachers generating the report cards to the individual students. This kind of conducting quizzes (or seeking opinion polls) inside the classrooms will be really funny not only at the school level but also in higher education.

Kahoot

Kahoot (Fig.3) is a web and mobile app based tool similar to the Plickers which help teachers to create quizzes [3]. But unlike the Plickers, Kahoot lets the students or the participants of the quizzes to use their smart phones (Android/iOS) as a gadget to answer their choices which is synchronized with the server streaming the questions. The end user or a student willing to participate will be issued an auto generated PIN for authentication. The teacher can host the questions on a big screen inside a classroom or choose to host on a server where the participants can participate from their work places or from homes. In fact, the Kahoot calls this platform as a gaming tool rather than as a formative test assesment mainly because it lets the creators to build question base on any subject matters.

It is reportedly mentioned in the literature that Kahoot has recorded more than 1 trillion players a year. This app also

helps the creators in disseminating the timely reports to the participants and performs data analytics. This app is most preferred by professional trainers as they find it makes the training sessions live, interactive and entertaining the participants.

ClassFlow

Using ClassFlow [4], lessons can be presented that will engage the students on any brand of interactive display such as Promethean, Smart, Epson, HiteVision, CleverTouch, LegaMaster and more. The teachers can create instant polls, quizzes and other activities and send them to the broad range of student devicecs such as laptops, ChromeBooks, tablets, smart phones, learner response clickers. The official site of ClassFlow claims that as much as 4.5 billion teachers and students belonging to 125,000+ universities/colleges from 150+ countries around the world are using this tool.

Triventy [5]

This is another popular application designed to host collaborative quizzes in the classrooms. The teachers can create set of questions or otherwise stream the already available set of questions contributed by other teachers. The students can be invited to join and answer the questions.

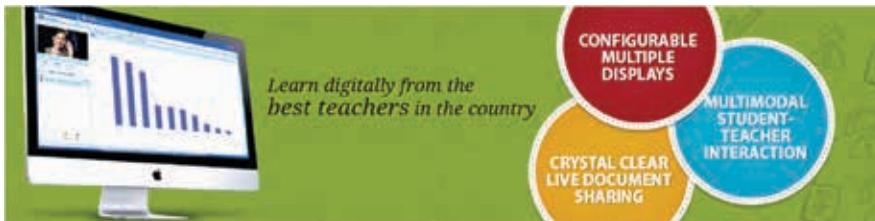


Fig. 4 : A-VIEW – An Interactive classroom platform by MHRD, Govt. of India

A-VIEW classrooms

Virtual Interactive E-Learning World [6] developed by Amrita University (Fig.4) in collaboration with MHRD and IIT Bombay is a rich interactive social environment for e-learning. It is simple, user friendly video conferencing software using which the teachers can create classrooms and invite the students from various institute. The classes are handled in real-time, that is, the students participating in the classes can post textual messages to the teacher and/or interact through real-time audio/video. It also facilitates the teachers to host quizzes to the students and assessments disseminated autonomously. IIT Madras has utilized this platform for its MHRD funded Quality Enhancement in Engineering Education

(QEEE) since 2014 and reached at most 200 engineering colleges across the nation. NITTTR, Chandigarh is one among the many institutions to use this platform effectively for their remote centres.

Conclusion

Teaching is a passion and not a profession for the true teachers. Transformation of knowledge in the classroom to the students must adopt the trends in the technologies at its best. Traditional way of teaching through blackboards in classrooms is being replaced with smart classrooms at large. Assessment of the understanding by students is a crucial requirement for performance evaluation. This article has given a brief summary of the most popular and widely used ICT

tools through which effective teaching and learning could be experienced by both the teachers and students. There is a lengthier list of such tools are available in the web such as ClassKick, Recap, SeeSaw, Quizlet, Amimoto, AnswerGarden, Answer Pad, Coggle [7,8] which the teachers can explore to use in their classrooms to make the learning a funny experience for the students/ learners.

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Themes for CSI Communications

2020

Month & Year	Theme	Month & Year	Theme	Month & Year	Theme
January, 2020	Computer Assisted Education	March, 2020	Big Data Analytics	May, 2020	Semantic Web
February, 2020	Green Computing	April, 2020	IoT	June, 2020	Quantum Computing

Breast Cancer detection through IDC using CNN

► Prerna Arya, Puru Raj Singh, Reetika Gupta, Rishabh Chandok
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Creating successful strategies for the robotized discovery of IDC stays a difficult issue for bosom malignant growth finding. As of late, Cruz and his colleagues proposed an AI approach for discovery of invasive ductal carcinoma (IDC) from entire picture slides containing bosom malignant growth cells. Their work has the capability of reforming malignant growth identification, advancing further innovative work in this energizing heading. We extend this idea and explore different CNN models for computerized recognition of bosom malignant growth and we will detect IDC tumor by isolating and analyzing malignant tumor tissue from whole slide images, because manual isolation by professionally trained pathologists often requires a large amount of time and carries with it bias, an automated methodology for detecting malignant tissue is beneficial for the medical industry as a whole. We will execute a standard CNN, and after that all-encompassing it to four distinct models. All designs will be prepared over a huge dataset of roughly 275,000, 50x50 RGB picture patches. Estimation of quantitative outcomes will be done through a worldwide normal of 10-Fold Cross Validation tests. Every procedure utilize the presentation measures, F-Measure (F1), and Balanced Accuracy (BAC).

Index Terms – IDC breast cancer, automated detection, Convolutional Neural Networks, deep learning

I. Introduction

Invasive ductal carcinoma (IDC) is the most common phenotype of all the phenotypes of breast cancer, consist of nearly 80% of all diagnoses. By using a multitude of methods of visual analysis such cases are identified by professionally trained pathologists. By focusing specifically on the infected regions, pathologists can determine the disease aggressiveness - a process also known as tumor grading - to both predict patient outcome and suggest routes of possible treatment tumor grading is used. This is most commonly done through the Bloom Richardson and Nottingham grade schemes. Hence, one of the prerequisite steps in categorizing the aggressiveness of IDC lies in the detection and isolation of malignant tumor infected regions from benign regions. This process is normally time consuming, highly tedious, and subject to bias since it often requires visual analysis of large swaths of cells from each patient.

By surface characterization through layout coordinating and division, recently inquired about techniques for robotized

bosom malignant growth recognition frequently depended on. By utilizing area explicit surface maps ,high quality, past strategies split pictures into histologic natives (extricating explicit highlights, for example, cores) and afterward algorithmically using those highlights to decide if cells were benevolent or harmful and to perform further order of tumors. Naik et al. looked into a strategy which collect a huge dataset of highlight maps via naturally separated atomic and glandular structures. His group depended on the interpretation from lower level pixel maps to higher level structures compared with space explicit information and details. These highlights were then depended to a help vector machine for preparing, which yielded a 80% precision pace of characterization when tried on a little pre-chosen test of 21 pictures. Doyle et al., who additionally used a help vector machine, had the option to remove textural and atomic based highlights through a gabor channel for further investigation. Balazsi et al. as of late proposed a technique for distinguishing

locales that communicated IDC in entire slide pictures. By actualizing an irregular woodland classifier, their framework looked to decide if explicit locales had malignant growth or not. Niwas et al. utilized a log-gabor wavelets-based bosom carcinoma order framework that used least square help vector machines. Through centers of core needle biopsy tests, Niwas' group explicitly prepared and characterized malignancies. Albeit a large number of these techniques frequently yielded around 70-80% recognition exactness, they depended intensely on carefully assembled highlight maps which requires an enormous greatness of preprocessing and hands-on improvement.

With the ongoing proceeded with promotion of profound learning, PCs can, with expanding precision, both order protests in pictures and perceive human voice in sound accounts. These new strategies for human-like insight dodge the methodology of division and manual high quality highlight choice; rather they require preparing utilizing huge sets of information. These equivalent

techniques for picture investigation have the capability of being utilized to identify, with astounding precision, locales of IDC positive threatening tumors. Additionally, in an endeavor to connect the important hole between computerized recognition furthermore, computerized highlight map age, scientists as of late proposed summed up models and complex learning calculations. Cruz's method utilized a completely gain from- information approach that did not require the utilization of handmade highlights, because of computational limitations, their system structure was generally easier contrasted with the cutting edge complex design of neural systems. Bejnordi et al. conceived a setting mindful stacked CNN yielding a general exactness of 81% on a dataset containing 221 entire slide pictures. Rezaeilouyeh et al. managing both robotized prostate and bosom disease location, contrived a 5 layered multi-input CNN that inputted both RGB pictures and stage shearlet coefficients for further preparing, getting an noteworthy precision pace of 88% for another dataset. These techniques progressively improved by and large arrangement exactness rate with mostly a solitary sort of profound learning engineering the Convolutional Neural Network. In this paper, we will research the precision execution of various CNN models dependent on Cruz and his group's work. Our objectives in this exploration are twofold. To start with, we present a mechanized apparatus dependent on AI to recognize IDC, to accomplish precise outcomes that could decrease the human mix-up factor in the finding procedure. Second, we need to see the effect of CNN engineering changes and information increase on the assignment embraced. We will concentrate on an investigation of these methods on an IDC dataset.

Although there are numerous architectures and structures that utilize the theory of machine learning and deep learning, Convolutional Neural Networks (CNNs) are extremely effective for image analysis. Just as feed forward neural networks rely on interconnected neurons, CNNs also have locally connected neurons with weights and biases and other parameters. The basic structure of a one-layer CNN includes a Convolution (sub-) Layer, an Activation(sub-) Layer and a Max Pooling (sub-) Layer. In addition, a Fully-Connected Layer and a

Softmax Layer are followed for classification. Figure 1 shows an example of a generic one-layer CNN.

The Convolution Layer performs the dot product of the neuron inputs and weights and then adds a bias. By utilizing a sliding window of configurable size, the layer is able to detect higher level structures from groups of lower level pixel groups. Other configurations and hyper parameters of the layer define how the sliding window behaves. Afterwards, an activation function is used to convert the output of the Convolution Layer into a usable input for the next hidden layers. Such activation functions include the sigmoid function, hyperbolic tangent, and ReLu. The ReLu function works by retaining all positive values and converting negative values to 0; i.e. $f(x) = \max(0, x)$. Equation 1 shows the fully condensed neuron behavior in sigma notation where $f(x)$ represents the activation function. The Max Pooling Layer is used to down-sample the computational dimension of the dataset, ensuring that it is less than that of the previous layer. As the number of filters and neurons increases, it is imperative to down sample to retain efficiency. The Fully-Connected Layer calculates the classification or output whilst performing back propagation to update the weights based on the newly inputted data.

Although the majority of all CNNs are structured similarly, the input specifications, number of layers, and number of filters can greatly influence the final outcome of the neural network.

II. Methodology

A. Dataset Description

Our dataset, comprises of 162 entire slide pictures that were hand marked by expert pathologists and split up in numerous non-overlapping RGB picture patches. These picture patches were gotten from

histopathology slides from 162 ladies determined to have IDC at the Hospital of the University of Pennsylvania and The Cancer Institute of New Jersey. Cruz utilized non-overlapping picture patches of 100x100, while our group used picture patches of 50x50 taking into account a bigger dataset and along these lines further arrange. Each picture fix was named as either IDC negative or IDC positive. Initially there were 277,524 RGB patches (198,738 IDC negative and 78,786 IDC positive). In any case, because of the idea of the entire slide pictures, there were numerous inconsistencies with the fragmenting. For instance, there were various documents that were not 50x50 and must be expelled (the edges of the pictures since the first picture measurements were not distinct by 50). Additionally, our group burrowed through the dataset and expelled all pictures that either contained 90% void area or 90% dark space. The presence of such repetitive information is not out of the ordinary; in any case, as every entire slide picture isn't rectangular fit as a fiddle, evacuating edge cases is fundamental to making an agent dataset for IDC characterization preparing. At the finish of our picture parsing, 275,001 all out patches of 50x50 RGB pictures were utilized for the test study (196,234 IDC negative and 78,767 IDC positive).

1. Dataset Augmentation: Data augmentation is an effective tool for creating additional data to use in networks. By training our architecture with additional data created through data augmentation, we can increase the robustness of the system. Augmentation in the data-space is more effective than augmentation in the feature-space, we augmented in the data-space using affine transformations such as rotations, reflections, scaling, and translation. We used these augmentations to synthetically create

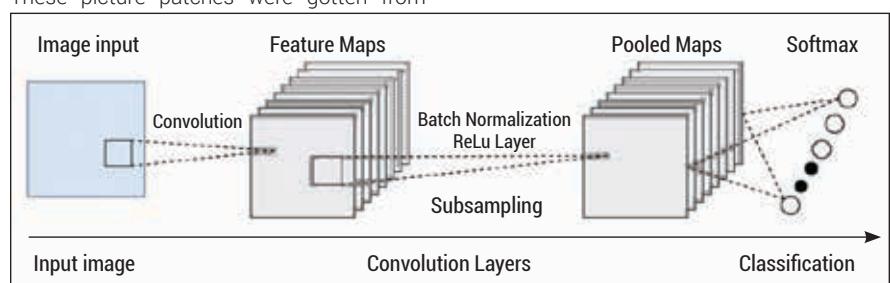


Fig. 1. Generic architecture of a Convolutional Neural Network (CNN).[7]

data in the hope that the features of cancer would not be lost. The addition of the synthetically created data not only gives our architecture more data to train with, but also helps reduce overfitting.

Through randomized rotation, reflection, and translation, our augmented dataset increased by a factor of 3, increasing the total number of 50x50 images patches to be 825,003 (588,702 IDC negative and 236,301 IDC positive). Our networks were trained with post augmentation, meaning that when the dataset was split for training and validation, augmentation proceeded afterwards ensuring that only the training set included augmented image patches. This meant that for each training session in a 10-Fold Cross Validation test, our network was trained on approximately 742,500 augmented images and tested on approximately 27,500 non augmented images. This procedure is repeated 10 times until all samples are tested once.

B. Experimental Procedure

In this paper we'll show the examination of a huge number of setups of CNN for computerized IDC bosom malignant growth discovery. All models were prepared and tried with the datasets point by point in the previous subsection. The quantity of layers of the structures was in total changed until the framework started to deteriorate or over-fit to the dataset.

- CNN Architecture:** As past research has been done on shallow CNNs with programmed IDC identification, we chose to demonstrate a pattern 4-layer CNN utilizing roughly a similar number of neurons. The base CNN configuration uses a 4- layer structure with 3 layers of convolution and a last Fully Connected Layer with 32, 64, 64, and 81 neurons separately. At first, we structured the system with diminishing convolution windows as it traveled through the system from a 5x5 window on the main convolution, a 3x3 window on the second, lastly to a 2x2 window on the last convolution. In any case, after exhaustive testing with a huge number of hyper parameters, we found that the window size was to a great extent superfluous as long as they remained generally little. Since our info information was just 50x50, little windows of convolution guaranteed

that we were not superfluously losing information. Essentially for consistency, we chose to run the system with our underlying window sizes. To guarantee negligible loss of information, yet hold quick sub-sampling and hence framework proficiency, all sub-sampling windows were held consistent at 5x5 despite the fact that the walk expanded from a factor of 1 at first, to a factor of 5. We found that expanding the walk factor expanded system proficiency and diminished preparing time without having quite a bit of an impact on the last outcomes. After the convolution layers produced its component maps, making an interpretation of from highlight maps to sub-sampled layers, a Batch Normalization Layer and a ReLu Activation Function Layer served to redress non-linearity. Our framework ideally adjusted among dropout and proficiency, sub-sampling the first 50x50 picture fix to an unimportant 7x7 arrangement of highlight maps.

After the three layers of convolution, there was one progressively set of Batch Normalization and ReLu before the information was funneled into an ordinary feed-forward neural system comprising of a neuron Fully Connected Layer and last Softmax Classification Layer.

From here, we included a few distinct mixes of layers to the engineering to attempt to exploit the information increase. Since information growth makes more information and decreases overfitting, it as a rule permits the utilization of more profound systems which may bring about a progressively precise and vigorous frameworks. We hence took a stab at including an additional Convolution Layer, Dropout Layer, and Fully Connected Layer.

C. Performance Measures

Each image patch was classified as either IDC positive or IDC negative with the labels 1 and 0, respectively. By a 10-Fold Cross Validation test, the accuracy and performance measures were determined of the following neural networks. Through the calculations of true positives, false positives, true negatives, and false negatives, we calculated the precision (P_r), sensitivity (Sn), and specificity(Sp). These values were necessary for the performance evaluation of the algorithms. F1 and BAC, the main performance measures, are defined respectively as a harmonic mean and an arithmetic mean:

$$F_1 = \frac{2}{\frac{1}{P_r} + \frac{1}{Sn}} \quad \dots\dots\dots(2)$$

$$BAC = \frac{Sn+Sp}{2} \quad \dots\dots\dots(3)$$

III. Conclusion

Since the initial step of tumor reviewing includes the segregation of dangerous tumors, an exact model of IDC location is basic to determination and treatment of bosom malignant growth. Developing powerful strategies for the computerized discovery of IDC stays a difficult issue for bosom malignancy finding.

Cruz and his associates structured a CNN-based framework for bosom malignant growth recognition from pictures. Like all profound learning ways to deal with picture investigation, their methodology did not depend on carefully assembled highlights of space explicit information. This simple entry has the capability of upsetting disease recognition, advancing further innovative work in this energizing bearing. Our exploration increased Cruz's work with a suite of CNN engineering plans dependent on his underlying system structure. We

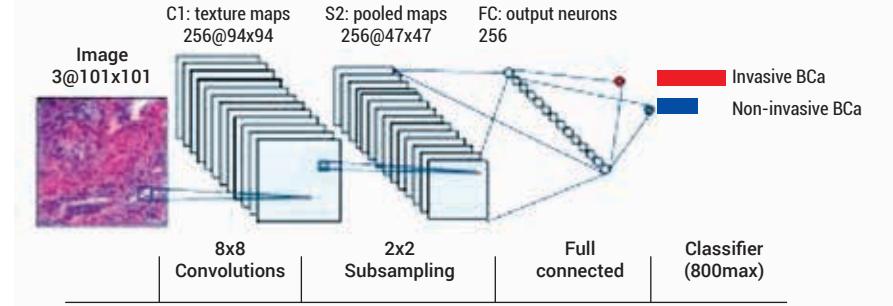


Fig. 2 : Base CNN Architecture.[8]

likewise discovered through this examination that information enlargement was not powerful in programmed identification of bosom malignancies with the given dataset. Through researching the viability of a large number of different structures of CNNs, we comprehend that one test in applying profound figuring out how to a particular field is the choice of a reasonable model design from a wide cluster of system designs. We guess that a composite model that uses more than one engineering might most likely create preferable exactness execution over any particular design. Further research may concentrate on building up a deliberate strategy for model determination and actualizing a multi-model profound learning approach that works off a combining procedure.

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KIND ATTENTION !

Prospective Contributors of CSI Communications

Fourth Coming Issues : February 2020 : **Green Computing**

Please note that Cover Theme for **February 2020 issue is Green Computing**. Articles may be submitted in the categories such as: Cover Story, Research Front, Technical Trends, Security Corner and Article. Please send your contributions by 20th January, 2019.

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

Please note that CSI Communications is a magazine for members at large and not a research journal for publishing full-fledged research papers. Therefore, we expect articles written at the level of general audience of varied member categories. Equations and mathematical expressions within articles are not recommended and, if absolutely necessary, should be minimum. Include a brief biography of four to six lines, indicating CSI Membership no., for each author with high resolution author photograph.

Please send your article in MS-Word format to Chief Editor, **Prof. (Dr.) S. S. Agrawal** in the email ids csic@csi-india.org with copies to the Publisher **Prof. A. K. Nayak**, in the email id : aknayak@iibm.in and Editor **Ritika Wason**, Associate Professor Bharati Vidyapeeth's Inst. of Computer Applications and Management (BVICAM) in the email id : rit_2282@yahoo.co.in

Issued on the behalf of Editorial Board, CSI Communications.

Prof. (Dr.) S S Agrawal
Chief Editor

One step ahead of Cloud Computing with IoT Services

► Anupama Pankaj

Associate Professor, MRIIRS, Faridabad, India. Email: anupma.fca@mriu.edu.in

In this research paper, the authors have discussed cloud computing objectives and challenges and its future goals with the new cutting-edge IoT technologies. Also its architecture, operations and how IoT is reducing and filling the gaps of cloud computing is discussed. Cloud computing has certain limitations attached to it despite its several advantages. This paper also discusses the problems related to cloud computing and suggests solutions to them. IoT is the future and in this paper, the authors have discussed how IT industries can design various products as per customer needs via using IoT and cloud computing techniques.

Keywords : Cloud Computing, IoT, Future of Cloud

1. Introduction

Cloud Computing – “Cloud” is a metaphor which is used to hold large data and their expandability nature while phrase cloud computing means that services like servers, storage, security, platform to test your computer code, or give infrastructure as per demand. It provides a structure for on-demand network and provides access to a shared pool. Cloud computing architecture keeps on changing by providing services to the world and providing services to the client. It provides high end resources to their consumer as per their need. So that they can perform their task without investing capital on it. Cloud Computing creates or provide virtual external facility with the help of internet to the customer's use. It is portable and be rented on multiple devices (phones, desktop, tablet, etc.) Cloud computing create multiple copies of the same file or and stores on multiple servers, so the data can be retrieved from other server if one server is giving error. Up scaling & Maintenance can be done with the help of cloud architecture and provide additional features on their services.

Data is increasing day by day and to handle this data, organization started to create their own network and servers. This setup requires setup and money has to be invested. To overcome this, organizations started tie up with cloud computing service

providers. Earlier all data &services were centralized using client /server model & then distributed model came with cloud computing model where multiple users to the same servers can share their resources as per their need. Once, John

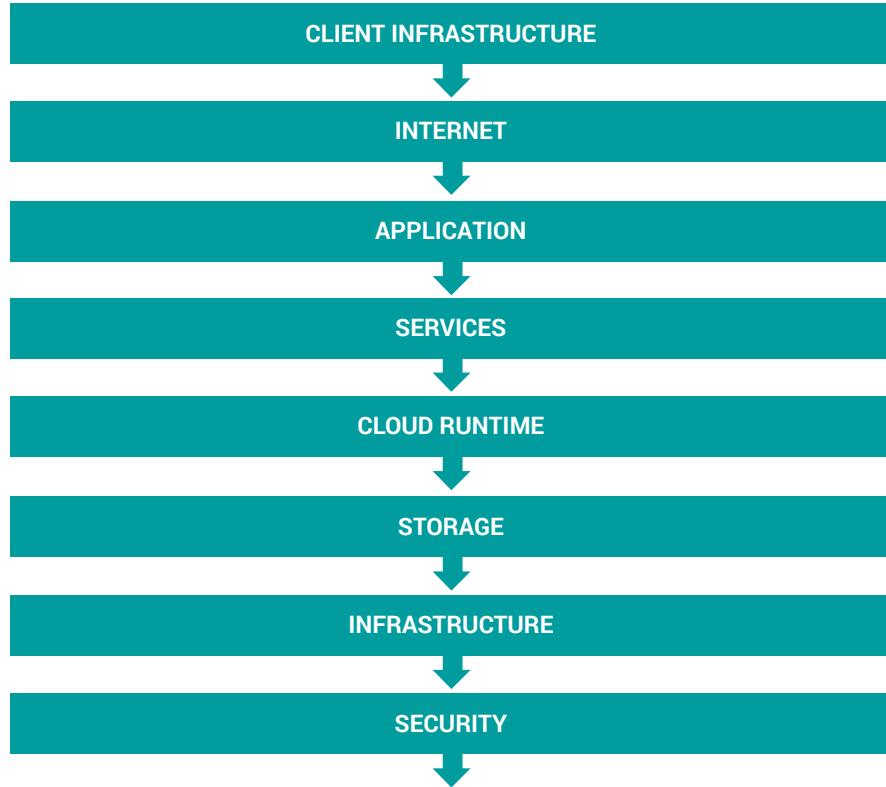


Fig. 2.1 : Cloud Computing Architecture

McCarthy suggested in their speech at MIT that "computing "can be sold like a utility, just like water or electricity. The need of computing power is not static and cloud computing understands this need. This is done by allocating one node (computer) in the network as master who keeps a check on the other nodes acting as slave to it. The slave node is allocated or freed from a task depending on the requirement of the user. In this research paper, the cloud computing architecture, its advantages along with its constraints, the future of cloud computing and its merger with IoT is discussed.

2. Cloud Computing Architecture

While using cloud computing services, an organization IS not required to spend their capitals on access storage, bandwidth, huge skill force or hardware requirement. An organization can take or use such services by using pay – and –use policy and can rent services via application or data storage from cloud vendor, So, it helps small or large enterprises to run their purpose so they can focus on their goals to achieve as shown in Fig. 2.1.

3. Cloud Service Models

There are three service models provided by cloud:

- I SAAS (Software as a Service)
- II PAAS(Platform as a Service)
- III IAAS (Infrastructure as a Service)

SAAS - This service model of cloud provides services as per customization for example As per customer requirement it provides software to perform the operation according to the need. In, this services model overall control, maintenance and configuration are managed by vendor end or the provider of services.

PAAS - Platform services model provides services for testing, finding bugs and error and report or check output operations performance. It is known as middle level services. The customer can work over internet and text or check program by using this service. The customer is not required to install any software to work or check one code.

IAAS - It provides embedded combination of hardware and software support over the network. which can be used for the operation .It creates a virtual environment external on a screen to use, so user can access the feature directly from the server and use as per their need. The

purpose to use such platform is because user requirements keep on changing with time so, this platform provide flexibility infrastructure to the user for example Amazon Web Services such services are mostly used by IT Professionals for intense operation.

4. Physiognomies of Cloud Computing

1. Services Fetching

Cloud computing encourages the computing companies to produce services to multiple customers. The customers are provided with different physical and virtual resources which are allocated and deallocated depending on requirements of the user.

2. Use as per Need Services

This feature makes the user to pay for the services which they have used. As the needs of the user changes and hence the resources required by him. This way the payment made by the user will also change.

3. Straight forward Repairs

Now a days, servers are being maintained and the response time from the server is expected to be as low as possible by the customer. Cloud computing provides the facility of maintaining the servers plus the upgradation of servers. The user is free from this burden of maintenance and can focus more on his work..

4. Accessibility

Cloud computing also gives an extraordinary feature of guiding the customer of the future requirements. It is done by analyzing the user requirements for a period of time. The user is then suggested various other upgradations and new services offered.

5. Automation

The user is regularly updated of the usage and the bill to be paid. This way the user is informed of the resources used and can cut down in the future if not required.

6. Pocket Friendly

By using cloud services, the company or an individual is free from all the hassles of the maintenance. Especially when the storage is provided by the cloud. All the data is secure and an be retrieved anytime and anywhere.

7. Security

Provide additional layer of security by using Onion encryption model and data transferring using cryptography technique.

4.1 Challenges of Cloud Computing:

- I. Security & Privacy
- II. Ability & movability
- III. Reliable and versatile
- IV. Cost
- V. Downtime
- VI. Lack of resources
- VII. Management of Multi-Cloud setting

I. Security and Privacy of Cloud

The data stored within the cloud should be secure and supply full confidentiality. The customers depend on the cloud supplier such a lot. This way the cloud supplier becomes responsible for all the issues related to data security. Hacking and malware are one among the most important issues because it will influence multiple customers. Hacking will result in loss of knowledge, may affect the encrypted scheme and plenty of alternative issues.

II. Ability and Movability

The client should not be bound any particular cloud. There ought to be no bond amount because it amy set a hindrance among the customers. The cloud provides services on the customers' premises and this becomes a challenge of providing the services remotely and securely also.

III. Reliable and Versatile

Reliability and suppleness are one among one in the challenges of cloud customers and it will eliminate in an approach that the information offered to the cloud mustn't leak and therefore the host ought to provide the dependability to the shoppers. To eliminate this challenge the services provided by the third party ought to be monitored and supervising should be done on performance, hardiness and business dependency.

IV. Cost

Cloud computing is cheap however modifying the cloud to the customer's demand are often generally big-ticket. Moreover, it will cause hindrance to the small-scale organization as modifying the cloud as per their demand can generally be value additional. Additionally, transferring of knowledge from the cloud to the premises can even generally be expensive.

V. Downtime

Downtime is that the common challenge of cloud computing as no cloud supplier guarantee a platform that's free from period. Web affiliation conjointly plays

a crucial role as if a corporation has a dishonorable internet connection then there could also be a controversy as they'll face period.

VI. Lack of Resources

Lack of resources and experience is additionally one among the most important challenges faced by the cloud trade and plenty of corporations hope to beat this challenge by hiring additional employees. These employees won't solely facilitate to eliminate the challenges of the businesses however conjointly they're going to train existing staff to learn the corporate. Nowadays several IT employees are operating to spice up the cloud computing experience and chief executive officer of the corporate is finding it troublesome because the workers don't seem to be abundant virtuoso. It is believed that employees with data of the newest development will make the technologies associated with it more valuable in business.

VII. Management of Multi-Cloud

Companies these days don't use one cloud instead they're victimizing multiple clouds. On an average, company is victimization four. The use of multi-cloud leads to a large number of complexities for IT department. This Cloud challenge can be dealt with the following approaches: coaching the staff, utilization of correct tools and doing analysis.

4.2 Future of Cloud Computing

No one will tell the long run, however we are able to predict it, by analyzing the present trends and usage. The future trends in cloud is predicted as follows:

I. Increase Storage capability

Today, data is generated everywhere and at fast pace. This has become a challenge to store this data safely. Storing data securely has become the need of every business. Most of these businesses are opting for cloud to make their data secure. This increase in demand for cloud has increases the competition making the providers to offer cloud services at lower rates.

II. Increased Performance of Net

The assistance of Web can increase the performance of cloud. All users want services provided should not only be of high-quality but should be fast also. The support of good network will deliver the knowledge fast and will help in quick and correct

decision making.

III. Standard Code is Priority

The software are becoming complex with increase in demand for the knowledge required for correct data analysis. The concept of modular programming has enabled us to keep the parts of software on servers of various cloud services. This will also cut back the price of code as putting parts of the program on totally different storage is economical.

IV. Net of Things together with Cloud Computing

The cloud computing services will make a remarkable difference if clubbed with The Internet of Things (IoT). IoT is one of the leading technologies as its applications in real life have made the life so comfortable. IoT will generate a lot of data and cloud will provide services to keep and analyse the data.

V. Security

The need of the hour is not only to keep the data but also to make it secure. In future it is required that all the corporations providing cloud services should also make them secure against cyberattacks.

VI. Standard Code

Companies are exploitation a lot of code. This results in the very fact that cloud computing needs changed code, which is able to offer higher security and facilities. These codes are easy and versatile to use.

VII. Economic

The cloud computing will make the businesses more economical as a part of the data or software can be kept on cloud. This will reduce the cost of the hardware drastically. If cloud services continue to evolve, the data stored on the cloud can be analyzed with the assistance of a software that too on the cloud and may be it does not require any human help.

5. FUTURE OF CLOUD COMPUTING

There are several technologies that are associated with clouds like cloud shared infrastructure, containerization and server less design. These technologies are improving day by day and providing many advantages.

"What's next once cloud computing". These evolving technologies are mentioned below-

- Edge Computing
- Growth of complexity
- Specialized Clouds

- Totally different Patterns of Technology
- Distributed Ledger
- Cryptocurrency
- Supporting Analytics

Ahead of all these techniques is to use IoT for cloud computing services.

5.1 IoT Architecture

The internet of things is a system which doesn't required human interaction for processing the data and perform the operation. Anything which is connected to the internet and managed via network such as phones, PC, smart watches, surveillance of cameras called is called IoT.

IoT architecture is the combination of multiple sensors, data protocols, actuators, cloud services, and layers.

Basically, there are three IoT architecture layers:

1. Sensors and actuators
2. Internet getaways and Data Acquisition Systems
3. Edge IT
4. Data center and cloud.

The internet of things is a system which doesn't required human interaction for processing the data and perform the operation. Anything which is connected to the internet and managed via network such as phones, PC, smart watches, surveillance of cameras called is called IoT. IoT uses various sensors for the work done. IoT can be used with cloud, for example: - Air Conditioner is managed by application and manages user data and transfer to cloud to make data backup on the server. Smart home, smart city, smart car, smart appliances redefined our lifestyle and transform the way we interact with technologies, cars are connected to GPS and if some mis happening occurs, the message can be sent to the police station or hospital to save lives.

Internet of Things has many advantages:

- Monitoring business environment by creating automation structure
- Increased user experience
- Increased efficiency
- Better decisions making
- Helps in achieving business goals

The idea of using IoT with cloud seems to be very promising but is too complicated to implement. The inclusion of IoT will increase the number of devices thus making the software more complicated. Thus, arises the need of establishing a reliable architecture of Internet of Things.

6. Conclusion

To eliminate the challenges of cloud, we need to facilitate with correct management and virtuoso professionals. There are many tools like cloud value management solutions, automation, containers, auto-scaling options, and plenty of alternative tools that facilitate to cut back the challenges of cloud computing. A correct team of virtuoso employees can even facilitate and supply

profit. The virtuoso professionals can even offer coaching to the present workers which can facilitate to nurture their skills within the field of technology.

One of the challenges of cloud is the victimization multi-cloud setting will cause. Some solutions to this challenge can be doing analysis, managing marketer relationships, and re-thinking method and tooling.

We are living in a digital world and are

connected to each other using cloud. So we need changed and new cloud services which are more versatile and will offer security and management over knowledge center. Cloud has several options that make its future brighter within the IT sector and one among these is the use of IoT with cloud. IoT is the upcoming future on which a device works and process the day to day operations by using several sensors which make life easier and processes the data via cloud source.

About the Authors



Dr. Anupama Pankaj is working as Associate Professor in the Department of Computer Applications, MRIIRS, Faridabad, India. She has experience in Research, Academics and Software development. She has many publications in International, National Journals and Conferences. She has authored chapters for various books. Also she has authored one book in the field of data mining. Her area of interest include data mining, big data and software engineering. She is reviewer member of several International Journals.

SECURITY CORNER

...Contd. from page 22



Simjacking Attack

Simjacking Attack is advanced and stealthy attack. In this attack fraudster need not call victim for any information or OTP. Fraudster can exploit the victim's mobile phone just using a SMS. The simjacker attack mainly involves an SMS containing a specific type of spyware-like code being sent to avitvim's mobile phone, which then instructs the SIM Card within the phone to 'take over' the mobile phone to retrieve and perform sensitive commands. During the attack, the victim is completely unaware that they received the attack, that information was retrieved, and that it was successfully

exfiltrated.

Smartphone security is growing concern. It do not matter which make, model or brands of mobile phone you are using. Lack of awareness can always make you to fall in trap.



- Be Aware! No Bank or Bank representatives ask customers to share OTP, Card Details or any SMS.
- Never share your Bank Account Number, Date of Birth, PAN Card Number, AADHAR Number on Social Media website.
- Be cautious while giving Xerox of PAN

Card Number, AADHAR Card or Driving License documents to anybody.

- Do not follow instructions of any remote caller for installing UPI/Banking Apps or any other Apps on your mobile phones.
- Do not follow instructions of any remote caller for forwarding or sharing any SMS from your mobile phone.
- Try to avoid linking all the Bank Accounts with UPI or Mobile Banking Apps.
- Contact your mobile service provider, if you feel some unusual scenario and your mobile is suddenly showing "NO SERVICE" for more than hour.

About the Author



Dr. Manish Kumar holds a PhD in Computer Science from Bangalore University, Bangalore. He is working as an Assistant Professor in the Department of Computer Applications, M S Ramaiah Institute of Technology, Bangalore, India. His area of specialization is Information Security and Digital Forensics. He has many research papers on his credit published in reputed conferences and Journals. Apart from academia, he is actively involved in Research and Consultancy. He regularly delivers hands-on workshop, technical talks and training for Engineering Institutions, Researchers, Faculty Members, Law Enforcement Agency and Judiciary. He is life member of Computer Society of India (CSI), The Indian Society for Technical Education (ISTE), Indian Science Congress Association (ISCA) and Member of International Associations of Engineers (IAE), IEEE and ACM.

RVP-6 – Chapters visit

Reported by **Mr. Pradeep Rathi**, Regional Vice-President (Region-6)

AURANGABAD CHAPTER

Visit to PES College of Engineering, Aurangabad



(L to R) Dr. Sangeeta Kakarwal (HOD-CSE), Shri. Pradeep Rathi, Dr. Abhijeet Wadekar (Principal) and Prof. Dr. Ratnadeep Deshmukh

Summary of the event:

On 14th December 2019, a meeting of management committee of Chapter has been conducted under the esteemed guidance of Shri. Pradeep Rathi – Regional Vice-President (Region-6) and Prof. Dr. Ratnadeep Deshmukh (National Council Member) at Department of Comp. Sc. & IT, Dr. Babasaheb Ambedkar Marathwada University, Aurangabad.

During this meet, various points have been discussed such as to gear-up the activities of student's chapter, to conduct the meetings at regular intervals so as to take the feedback of activities going on, to elect the interim management committee for Chapter, etc.

After this meeting, Shri. Pradeep Rathi and Prof. Dr. Ratnadeep Deshmukh visited some of the institutes across Aurangabad. Firstly, they visited to PES college of engineering where Dr. Abhijeet Wadekar (Principal) welcome them. And then, they visited Deogiri Inst. of Engg. and Mgmt. Studies where Mr. Shaikh Sakim Shaikh Ahmed (Vice-President, MSP Mandal) and Dr. Ulhas Shurkar (Director) felicitated them. During this visit, Shri. Pradeep Rathi and Prof. Dr. Ratnadeep Deshmukh have observed the different facilities at the institute and interacted with their faculties. They appealed to all the faculties to accelerate the activities of student's chapter.

Lastly, they went to CSMSS Chh. Shahu College of Engineering where Dr. Ulhas Shinde (Principal) felicitated them. Here also, Shri. Pradeep Rathi and Prof. Dr. Ratnadeep Deshmukh had an interaction with the faculty members and thrown some light on different activities of CSI and how these activities are helpful for progress of students and faculties too. They motivated to start a student chapter at CSMSS Chh. Shahu College of Engineering. Also, they told about young IT professional award, CSI publication, Alibaba training courses, etc.

AMRAVATI CHAPTER

Mr. Pradeep Rathi, CSI's Regional Vice President (Region 6) was the Key Note Speaker and Guest of Honor to inaugurate the 5 days "Faculty Development Program on Data Science" organized by MHRD, Government of India at SIPNA College of Engineering, Amravati, for all Universities, Colleges and Institutes of Higher Education of Vidarbha Region of Maharashtra. Mr. Pradeep Rathi shared his views on Data Science and its future to an audience of Deans, Professors and Faculty coming from universities and colleges in Vidarbha Region. The event was also wide covered by press in Vidarbha Region.

After inaugurating the FDP Mr. Pradeep Rathi, RVP-6 visited the Student Chapter at Ram Meghe Institute (MITRA), Amravati and

had met with their Principal and various HODs. He had an excellent interaction with MITRA faculty and agreed to increase CSI presence at MITRA Campus.



Group photo with the participants of the FDP program

SIG EVENT AT IIT BOMBAY



Group photo with the participants of the FDP program

CSI's SIG on Entrepreneurship & Innovation is Knowledge Partner to IIT Bombay's Eureka! 2020 a flagship startup event of IIT Bombay on entrepreneurship organized by its e-Cell. Mr. Pradeep Rathi, Regional Vice President (Region-6), who is also National Convenor of the CSI's SIG on Entrepreneurship & Innovation took lecture and session on networking and entrepreneurship.

As CSI's SIG on Entrepreneurship & Innovation's belief is that innovation and entrepreneurship are the wheels that steer the world into a brighter future. Great ideas result in great undertakings which pave the way for glaring success. Therefore, to facilitate this vision, CSI SIG on Entrepreneurship & Innovation provides a platform for potential ideas and early-stage startups to evaluate their plan in the risk-free environment. CSI SIG on Entrepreneurship & Innovation aim is to bridge the gap between ideas and the realization of an enterprise. Eureka! is Asia's largest business model competition accredited independently by CNN and Thomson Reuters. This year for Eureka! 2020 over 10,000 budding entrepreneurs have applied and participated from all over the world.

Eureka! Not only fosters the spirit of entrepreneurship and business acumen among people all around the world, but also fast-tracks the journey from an innovative idea to a commercial success. Eureka! enables startup entrepreneurs experience a 360 degree, holistic experience in the 5 months period that it spans. Eureka! enables entrepreneurs acknowledge their idea has a potential, to drafting a B-Model and pitching in front of an esteemed panel of investors, this platform has it all!

Northern Regional Convention 2019 (NRC-19)

Digital India: Genesis, Perspective and Prospective

Reported by **Dr. Puneet Mishra**, Chairman, Souvenir, Publicity and Media Committee



Prof. A. K. Nayak, President, CSI along with Hon'ble Minister of UP Govt. Mr. Brajesh Pathak while inaugurating the function.



Prof. A. K. Nayak, President, CSI while felicitating the Hon'ble Minister



The dignitaries on the dais while releasing the souvenir



Organisers of NRP 2019 with President, VP & Secretary of CSI

The Northern Regional Convention-2019, Theme Digital India: Genesis Perspective and Prospective, was organized on 14th December 2019 at the Geological Survey of India, Auditorium, Lucknow. It was organised jointly by of CSI Region-I and CSI Lucknow chapter. The Inaugural Session started with the lighting of the lamp and Saraswati Vandana. Mr. Arvind Sharma Convenor of the Convention & Regional Vice President of Region-1 of CSI presented a brief introduction about the event 'NRC-19' and informed that it is an effort for revival of CSI's old tradition of organizing Regional Conventions which for more than a decade has been ignored. He also said the motto of CSI is "Sarve Bhavantu Sukhinah" and the Govt. Of India's "Digital India" programme also aims at the well being of Indian citizen. Chairman of Lucknow Chapter

Mr. G. P. Singh welcomed the Hon'ble Guests and august gathering. The event was graced by the presence of Hon'ble Mr. Brajesh Pathak, Minister of Law and Justice, Government of Uttar Pradesh as a Chief Guest and Hon'ble Prof. Rana Krishna Pal Singh, Vice-chancellor, Dr. Shakuntala Mishra National Rehabilitation University, Lucknow as the Guest of Honour. The Chief Guest Hon'ble Mr. Brajesh Pathak congratulated the gathering of esteemed IT professionals and academicians on their participation and laid emphasis on the importance of digitalisation from the perspective of new India. He also congratulated the CSI Lucknow Chapter for organizing this convention and encouraged the Chapter for organizing such activities in future also and assured to extend all the help from his end as a part of UP Government.

The Keynote Address was delivered by Prof. A. K. Nayak, CSI President. Prof. Nayak began his lecture with "Vasudhaiva Kutumbakam" and described the Digital India project of Hon'ble Prime

Minister of India. He also provided information about the Seven Pillars of Digital India programme and how it can help in the upliftment of India.

The Guest of Honour of the event Prof. Rana Krishna Pal Singh, Hon'ble Vice Chancellor, Dr. Shakuntala Mishra National Rehabilitation University (DSMNRU) motivated the IT professionals and emphasised on working towards the issues of handicapped persons in collaboration with the University towards their rehabilitation as their needs can be addressed by effective implementation of hardware and software.

Mr. R. K. Vyas, Vice President cum President-Elect, Computer Society of India, who presided over the Inaugural Session, shared his views about digital transformations. The audience was also addressed by Dr. S. K. Yadav, Hon. Secretary, CSI; who provided the detailed information about Digital India by elaborating the contribution of the members of Computer Society of India.

The Conference Proceedings of NRC-19 were released by the esteemed guests. In Various sessions different technological and developmental aspects were discussed. The distinguished speakers in the convention who delivered lectures were Mr. C.V. Singh ji, Fellow Member of CSI, Mr. Mohit Puri, Mr. Avinash Kumar, IAS, Dr. Akhilesh Singh, Ms. Charu Bhargava, Mr. Rohan Gaur, Dr. D. S. Yadav, Mr. Milind Raj, named as "Drone Man" by late President of India Dr. A.P.J. Abdul Kalam, Mr. Ajai Gopal, Dr. Vinay Kumar and Mr. G. P. Singh.

The event was over after Valedictory Session which was presided over by Dr. S. K. Yadav, CSI Hon. Secretary . All the members of Organizing Committee were felicitated by the CSI OBs. Immediate Past Chairman of Lucknow Chapter Mr. Rakesh Puri offered the Vote of Thanks.



One-day Workshops in various reputed schools and colleges of Agra conducted by CSI Agra Chapter

In association with Faculty of Computer Application, R.B.S. Management Technical Campus, Agra, U.P. in the month of November, 2019

Reported by Prof. (Dr.) B.B.S. Parihar, Chairman, CSI Agra Chapter and Dr. K. K. Goyal, Secretary, CSI Agra Chapter.



Ratan Muni Jain Inter College on "Cyber Security and Data Privacy" on 20th Nov. 2019.



St. Peter's College on "Cyber Security and Ethical Hacking" on 21st Nov. 2019.



Saraswati Bal Vidya Mandir on "Cyber Security" on 26th Nov. 2019.



Queen Victoria Girls' Inter College on "Cyber Security and Data Privacy" on 28th Nov. 2019.



St. Anthony Girls Inter College on "Cyber Security" on 28th Nov. 2019.



Baikumthi Devi Kanya Mahavidyalaya on "Basics of Cyber Security" on 29th Nov. 2019.

Computer Society of India, Agra chapter in association with R.B.S. Management Technical Campus, Agra conducted one-day workshops for Intermediate and graduate students to make them aware about cyber-crimes at different schools and colleges of Agra in the month of November, 2019. Dr. K. K. Goyal was the keynote speaker of these workshops.

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SMART TECHNOLOGIES FOR
Digital India
Power To Empower

A One-Day Hands-on Workshop to Secure Computational Devices with Security Measures

Reported by Prof. J. Jerald Inico, Chennai Chapter Secretary



CSI Chennai Chapter in association with Dept. of Data Science, Loyola College co-sponsored by Jeyachandran Textiles, Pallikaranai, Chennai organized a One-Day Hands-on Workshop To Secure Computational Devices with Security Measures, on Saturday, November 30, 2019 in MCA block, Loyola College, Chennai Coordinated by Prof. J. Jerald Inico, Hon. Chapter Secretary and Dr. E. Iniya Nehru, Chairman CSI Chennai Chapter. The function started with huge expectations from participants on the Security measures to secure computational devices. In addition to it, the welcome speech delivered by Prof. P. V. Subramanian, Vice-chairman. The opening remarks by Dr. C. Muthu, Head, Dept. of Data science, Loyola College, stirred up the enthusiasm of the participants.

The key resource person of the workshop Dr. A. Francis Saviour Devaraj, Professor and Head, Dept. of CS and Engg., Kalasalingam Academy of Research and Education took the hands-on with the different Ethical hacking techniques and gave an opportunity for the participants perform them.

There were around 50 participants from various institutions and industries from Tamilnadu and nearby states. The Workshop started with a small inauguration organized by Prof. J. Jerald Inico.

A live demonstration of different hacking techniques are performed by key resources person in a secure lab environment and the security measures that need to be adopted overcome or prevent such attacks enlightened the participants.

At the first session the participants learned about the tools used in the process such as Kali Linux and Metasploitable and learned how that is to be implemented in virtual Box. Kali Linux is a Debian-based Linux distribution which contains several hundred tools which are geared towards various information security tasks, such as Penetration Testing, Security research, Computer Forensics and Reverse Engineering. The Metasploit Framework contains a suite of tools that you can use to test security vulnerabilities, enumerate

networks, execute attacks, and evade detection.

The exercises are designed in a professional manner to meet the current trending cyber attack. The resource person made the participant to practice these exercise in individual lab system and made them do like a walk in the park.

At the second session the resource person teaches the participants about website cloning and demonstrated it. And then each participants asked to clone various websites on their own using the algorithms. After the session a delicious lunch was provided for all the participants. The third session started at 2 pm and the session was about part of ethical hacking i.e. how to enter into a stranger's server without the authorization of the particular server holder using Kali Linux and participants worked on it using some demo servers. As in final sessions participants were taught about password hacking using metasploitable in virtual lab. After all the sessions the resource person gave a small recap of the workshop. Finally certificates for participants were issued by Treasurer of Computer Society of India, Chennai Chapter – Mr. Anantha Padhanabhan and delivered the vote of thanks.

Overall event was a great success as it achieved the agenda to literate the participants, with enough knowledge to overcome security threats and modern day hacking techniques and to Secure Computational Devices with Security Measures.

CSI Chennai Chapter's Diary 2019



The first Management Committee (MC) meeting for the year 2019-2020 was held on May 03, 2019 with the aim of inducting new MC members and understand the roles and responsibilities of the team, planning out the programs and undertakings. The chapter secretary Prof. J. Jerald Inico, welcomed the members present for the meeting. The Nomination Committee chair Mr. Baskaran introduced the MC members with their credentials. Chairman Dr. E. Iniya Nehru, Vice Chairman Prof. P.V. Subramanian, Secretary Prof. J. Jerald Inico, Treasurer Mr. Ananada Padmanaban, and MC members

Dr. Prema Kirubakaran, Dr. S. Sreesubha, Mr. N. Raajaram, Mr. Praveen Kumar, Dr. K. Manivannan, Dr. C. Aravindan, Mr. B. Gurumrthy, Mr. A. V. S. Prabhakar and the nomination committee 2019-2020 Mr. A. Chandrasekaran, Dr. U. Karthikeyan and Mrs. Mythili Prakash assumed their roles for CSI-Chennai Chapter. The MC approved all the plans and permitted office bearers to organize the proposed programs.

The second MC Meeting was held on July 27, 2019 at 5 pm to review the monthly meetings and to plan out for the modalities of future programs to increase visibility and to get more participation.

The third MC Meeting was held on August 31, 2019 at 11.30 am to review the monthly meetings held and to plan out for the future workshops. The primary focus was on School model examination and AGM. The committee also discussed how to support award winners to attend CSI annual convention.

The next MC meeting was held on Nov. 16 2019 at 11.30 am to plan out to hold AGM on 07-12-2019, to get more participation for

School Model examination on 07-01-2020, to support CSI Annual Convention at the chapter level, to know the financial status, to organize chapter election and new initiatives for Chennai Chapter.

The next MC meeting was held on Nov. 30, 2019 at 11 am to get update of AGM preparation, to plan out for a brainstorm session to organize Regional meeting, to plan out of CSI day, to improve CSI membership and participation with senior CSI leader Mr. JRK.

The chapter members also witnessed an EGM to present the audited accounts of 2017-18 on April 29, 2019 at 5 pm.

49th Annual General Body Meeting of CSI, Chennai Chapter was held on December 07, 2019 at 6 p.m. with the aim of presenting annual report 2018-'19, presentation of audited accounts 2018-'19, Nomination committee report on election 2019-2020, and Information about the new committee 2019-2020. The senior members of CSI-Chennai chapter witnessed the AGM with courage and enthusiasm and encouraged the mc members for the efforts to bring out innovations.

CSI Telangana State Student Convention 2019

Reported by **Dr. K. Madhavi**, Professor, Computer Science & Engg. Dept., Gokaraju Rangaraju Institute of Engg. & Tech., Bachupally, Hyderabad



The Premiere

December 12th 2019, CSI student branch of Gokaraju Rangaraju Institute of Engineering and Technology, Telangana, Hyderabad organised the prestigious State Student Convention of Telangana on the theme - A.I. Driven Human life, addressing the latest advancements in the field of Artificial Intelligence and discussing its further potential.

The programme commenced with a prayer song-Saraswati Vandana and the traditional lamp lighting ceremony by the dignitaries present. And then proceeded with short talks and introductions by the delegates and visiting guests:

Director GRIET- Dr.Jandhyala N Murthy, Principal GRIET - Dr. J. Praveen, Chief Guest-University of Hyderabad, School of Computer and information sciences - Prof. C . Raghevendra Rao, CSI Regional Vice President Region 8 - Mr. K. Mohan Naidu, CSI Regional Vice President Region 5 - Retd. Prof. M.S. Prasad Babu CSI Regional Student Coordinator Region 5 - Dr. Salman Abdul Moiz CSI Telangana State Student Coordinator - Dr. K. Madhavi

The words that were shared on this momentous occasion were eye-opening and mesmerized the student population to the new world that can be opened up by A.I..

After the endearing words by the honorable guests the commencement of the convention was announced by the Director of GRIET- Dr. Jandhyala N Murthy.

The State Student Counselor, HOD of CSE-GRIET, introduced the event, and a keynote address was delivered by Prof. C. Raghevendra Rao, on the implementations of A.I. in everyday life. Followed by a second keynote address by Dr. M. S. Prasad babu, whose talk dived deeper into how A.I. was developed, and its incorporation in various industries, and its potential for growth.

A vote of thanks was proposed by Dr. A. Sai Hanuman - Dean GRIET, expressing his gratitude to the honourable guests and the visiting participants. He wished luck and shared his high spirits to the organizers and the participants, and announced the commencement of the competitions.

Various student activities and competitions were organised in this convention including - Poster Making, Project Expo, Code Debugging, and Web Design.

Around 250 students from more than 15 colleges of Telangana and Andhra Pradesh, participated in this convention.

The valedictory session marked the conclusion of the convention, was held during the second half of the day, with prize distribution to the participants, and felicitation of the visiting guests.

The winners of the competitions were awarded certificates, mementos and cash prizes. The participants and delegates, when presented with an opportunity to express their opinions on the events, shared valuable input. They expressed their immense satisfaction with the event and how they were impressed by the professionalism and handling of the convention.

GHAZIABAD CHAPTER



CSI Ghaziabad Chapter along with JIMS Engineering Management Technical Campus Gr. Noida organized one Week National Seminar on the topic "Machine Learning and IOT" during Dec 9-13, 2019. More than 70 personnel from across India participated the event. The Industry and Academic experts were invited to interact with participants on various topics, including live execution of methods/models and algorithms, which was followed by hands on practice session. Successful participants were awarded with certificates.



KANCHEEPURAM CHAPTER



CSI Kancheepuram Chapter in association Hindustan Institute of Technology and Science organised the Five days winter school programme on Data Analytics and Machine Learning using R and Python on 25th November 2019 at Hindustan Institute of Technology and Science campus. This winter school programme was inaugurated by Mr. Solai murugan, Principal Engineer, CDAC, Ministry of Electronics and Information Technology. Dr. Rajeswari Mukesh, Vice Chairman, CSI Kancheepuram Chapter welcomed the gathering. Dr. P. N. Renjith, one of the convenor of this programme introduced the chief guest. The senior Member of Kancheepuram

Chapter Dr. K. M. Mehata Presided over the Event.

Students, research scholars, faculty members and industry professionals were participated in this programme all over from Tamil Nadu. The programme has been designed for Engineering Students, Researchers and Working Professionals in industries which help them to grab job opportunities such as Business Analyst, Product Analyst, Machine Learning Engineers, and Data Scientist. Each session of this programme has more case studies, assignments, Practical Hands-on Workshop in Data Analytics using R and Python as the resource persons are invited from reputed organizations such as C-DAC, CISCO, NITTTR and Top MNC such as AMTEX Ltd. Dr. J. Thangakumar, the other convenor of this winter school program briefed about the objective of the programme and delivered vote of Thanks. About 70 participants from different cities were participated.



CSI Kancheepuram chapter in association with Sri Sairam Institute of Technology organized the two days Faculty Development Program (FDP) on Machine Learning using Python. The programme was inaugurated on 12th December 2019 by Dr. K. Palanikumar,, Principal, SIT. Dr. B. Sreedevi, HOD / CSE and Guests of Honor Mr. M. Shabarinath Premlal, Founder Chairman Respro Labs, Chennai, Dr.Rajeswari Mukesh, Chapter Vice Chairman. Dr. M. Senthil Kumar, Hon. Secretary, Kancheepuram Chapter presided over the event. In Inaugural address, Prof Dr. K. Palanikumar stressed upon the paradigm changes from black board based teaching to modern ICT based teaching and the importance of using online tools for teaching and evaluation in present days. He created the curiosity on pedagogical approach in teaching among the participants. Dr.Rajeswari Mukesh,Vice Chairman, CSI Kancheepuram Chapter addressed the participants. She elaborated on the activities of CSI and the importance of CSI membership.

In the Inaugural speech, Mr. M. Shabarinath Premlal shared his views on faculty development. He further added that this programme will provide special benefits to faculty members. During session, he started his discussion with basic idea of Python Programming.

He shared his knowledge with knowledge with participant using by power point presentation and various technique like giving examples etc.

On the second day, 13th December 2019, the trainer highlighted the importance of Machine Learning. Then he discussed about how to create, design the machine to accept our instruction and acted accordingly. In the afternoon session he gave some assignment to faculty members who have participated. Every faculty members gave good response to this assignment work and explained their idea in detail one by one. The FDP programme ended with vote of thanks by Dr. B. Sreedevi.

Totally 46 Life Members of CSI were benefited in this event. The Event was organized under the guidance of Dr. B. Chidambararajan, Chairman, Kancheepuram Chapter.



KOLKATA CHAPTER



The CSI Kolkata Chapter celebrated **Computer Day-2019** with great enthusiasm and overwhelming participation of students of renowned schools of Kolkata on 14th December 2019 at CSI. Almost 60 students from well known schools of Kolkata, few teachers and guardians were also present in that event apart from Office bearers, Chapter patrons and Life members of CSI. Total ten schools participated in Computer Day. Students from well-known schools of Kolkata like St James School, Modern High School For Girls , Techno Model School Salt Lake, B E college Model School, Shri Aurobindo Institute of Education, Shri Shikshayatan School, Lakshmiपत Singhania Academy, Hariyana Vidya Mandir Day, Hariyana Vidya Mandir Morning and The Bhawanipore Gujarati Education Society School participated in this flagship event.

Mr. Gautam Hajra, Chairman & Patron, CSI Kolkata Chapter gave the welcome address. He welcomed Mr. Samir Mukherjee, Prof. Maulana Abul Kalam Azad Univ. of Tech. (MAKAUT), Dr. Subhabrata Roychoudury, Advisor – Maulana Abul Kalam Azad University of Technology (MAKAUT), West Bengal and Mr. Harjinder Singh,

Zonal Business Manager (East), Acer India Pvt. Ltd. with a bouquet and introduced them to the participants. Mr. Sourav Chakraborty, Secretary & Patron of CSI Kolkata Chapter also gave a brief about the history of Computer Society of India.

Dr. Subhabrata Roychoudury nicely pointed out the need of Computer day to students and why CSI celebrates Computer day for such a long time and the role of CSI. Amal Roy Memorial Lecture was given by Prof Samir Mukherjee of MAKAUT on the topic 'Virtual Reality'. As event organizers, CSI, Kolkata are constantly searching for new creative subjects and faculties that will wow our audience. CSI, Kolkata wants to bring our participants a powerful and engaging learning experience so the abovementioned topic gave students opportunity of an Interactive Session which was enjoyed by students as well as teachers of different schools.



Vote of thanks was given by Dr. Aniruddha Nag, Vice Chairman of CSI Kolkata Chapter and elucidated the different Promotional Activities taken by chapter for Students.

The session further proceeded with one-hour Extempore competition where 9 students of different schools participated and showed their art of speaking on a chosen topic, especially in a formal and eloquent manner. Prof Utpal Mitra, Mr. D P Sinha & Mr. Sourav Chakraborty were the judges of Extempore Competition.

After a short lunch break, Debate Competition was started, 15 students of different schools participated in Debate competition. One eye-catching aspect of this event was how students of different ages participated with equal enthusiasm and zeal. Prof (Dr) Subhabrata Roychoudury of Science Association of Bengal(SAB), Ms. Sharmila Ghosh, Life Member, Dr. Aniruddha Nag, Vice Chairman of CSI Kolkata Chapter and Prof Utpal Mitra were the judges of Extempore Competition. Finally, there was an interactive Quiz Competition, participated by 10 well known schools of Kolkata. Quiz Competition was conducted by Mr. D.P.Sinha, Fellow CSI & Dr. Aniruddha Nag, Vice Chairman,CSI Kolkata Chapter and Ms Sharmila Ghosh, MC member.

Mr. Subimal Kundu, Fellow CSI ,Mr. Rajat Kanti Chatterjee, Dr. Madhumita Sengupta,Past Treasurer , Mr. Gurudas Nag, Mr.Sibdas Pal , Mr. D. P. Sinha and Ms. Sharmila Ghosh were actively involved in Computer Day-2019 .

Prof. (Dr.) Subhabrata Roychoudury of SAB & Mr. Gautam Hajra, Chairman & Patron, CSI Kolkata Chapter conducted the whole program.

The event ended with the prize distribution ceremony with tremendous energy and zeal shown by participants as well as organizers.

FROM CSI STUDENT BRANCHES

REGION-III

Vivekananda Institute of Technology, Jaipur



1-10-2019 - Workshop on Amazon Web Services



3-10-2019 - Seminar cum Guest Lecture on Java

REGION-V

CMR Technical Campus, Hyderabad



2-12-2019 to 6-12-2019 - FDP on Python Programming



9-12-2019 to 13-12-2019 - FDP on Deep Learning Applications

NBKR Institute of Science and Technology (Autonomous), Nellore



4-12-2019 - Think Smart Gain Mark



11-12-2019 – Event on Knock Your Minds

Santhiram Engineering College, Nandyal



23-11-2019 to 29-11-2019 - Certification Program on Web UI Design using HTML/CSS

Chalapathi Institute of Engineering and Technology, Guntur



2-12-2019 to 6-12-2019 – STTP on Problem Based Learning

REGION-V

Usha Rama College of Engineering & Technology, Telaprolu



29-11-2019 - Career Oriented Awareness Program on **Cyber Security**



2-12-2019 - Awareness Program on Digital Marketing

Srinivas Institute of Technology, Mangalore



8-11-2019 - Workshop on Wireshark Network Packet Analyzer



15-11-2019 - Online Quiz

JSS Academy of Technical Education, Bangalore



8-11-2019 & 11-11-2019 - Event on ANVESHAN-2019



23-11-2019 - Seminar on Artificial Intelligence and Dotnet Applications

Sir M. Visvesvaraya Institute of Technology, Bangalore



22-11-2019 - Seminar on Devops



2-8-2019 - Workshop on Innovation and Creativity in Computer Science and Application

REGION-V

New Horizon College of Engineering, Bangalore



5-11-2019 - Workshop on Unlock Big Data with Vertica



12-11-2019 - Cyber Security Awareness Workshop

REGION-V

RNS Institute of Technology, Bangalore



19-12-2019 & 20-12-2019 - International Conference on Data Engineering and Communication Systems



26-8-2019 to 28-8-2019 - Workshop on Machine Learning

REGION-VI

Vidyavardhini College of Engineering and Technology, Vasai



5-10-2019 – Workshop on Android App Development



21-9-2019 - Intercollegiate Coding Competition (Code Mania-2K19)

REGION-VII

SRM Valliammai Engineering College, Kattankulathur



1-11-2019 to 30-11-2019 - Women Entrepreneurship Development Programme (WEDP)



19-12-19 Motivational Talk by Dr R Arunprakash

REGION-VII

Panimalar Institute of Technology, Chennai



19-12-2019 - Motivational Program by Mr. T. G SANTHOSH, Head, Ashok Leyland



19-12-2019 - Awareness Program on Kavalan Mobile Application Development Installation & Demonstration to female student

Marthandam College of Engineering & Technology, Marthandam



27-09-2019 - Seminar on Machine Learning Techniques and its Applications



4-10-2019 - National Level Technical Symposium INFION 2K19

IFET College of Engineering, Villupuram



10-12-2019 & 12-12-2019 – Hands-on Workshop on MATLAB



12-12-2019 - Workshop on Hands on MySQL

Student branches are requested to send their report to

sb-activities@csi-india.org

Chapters are requested to send their activity report to

chapter-activities@csi-india.org

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





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15th January 2020

@KiiT, Bhubaneswar

@IIIT, Bhubaneswar

@Sri Sri University, Cuttack

Host: Bhubaneswar and
Cuttack Chapter

16-18
JAN 2020

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Odisha