



Celebrating 25 years of Excellence in Education

Keshav Mahavidyalaya

NAAC Accredited 'A' Grade
University of Delhi



e-Blitzine '19

Issue-III

Department of Computer Science

About Department of Computer Science

Keshav Mahavidyalaya has always been a pre-eminent institute for imparting knowledge of Computer Science because of its diligent and intellectual faculty members and ambitious students. The Department houses exceptionally brilliant staff members whose utmost concern is for the betterment of the students and development in their skills keeping technology hand in hand. Students are always motivated by the teachers to bring out the best version of themselves achieving great heights in the field of technology.

About e-Blitzine

The Department of Computer Science, Keshav Mahavidyalaya has always been in fast pace with the technology and providing facts into the ever changing field of technology. For this purpose, the department took a commendable initiative to start the annual magazine, “e-Blitzine” in the year 2017.

e-Blitzine holds a plethora of educational and informative articles about the latest technological trends which are presented in an interactive manner in order to engage the readers as a whole.

Mission Statement

The mission of the magazine is to make its readers aware of the technological evolution so that they can be a part of the changes taking place. The magazine aims to revolutionize the minds of young readers to make them adapt the new techniques so as to enable them to create a new, better and informed tomorrow for the nation.

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From the Principal's Desk



Dear Readers,

“The highest education is that which does not merely give us information but makes our life in harmony with all existence.”

~Rabindranath Tagore

The dimension of education is changing rapidly with the advancement in technology and the students at Keshav Mahavidyalaya strive to build their minds while keeping themselves updated with ongoing trends in Computer Science. The Computer Science department aims to imbibe and expose the students to the modern-day technology keeping in mind their holistic development.

This is the third edition in the e-magazine series since its inception in the year 2017 which received loads of appreciation. Continuing the legacy of adopting environment friendly methods, this year also the department is launching its e-magazine, “e-Blitzine”. The college feels proud to follow the Go-green initiative while delivering this magazine which indeed is a specimen of exuberance of blossoming minds and nurtured curiosity.

Putting together and presenting the thoughts to bring the ideology and necessity of technology in our life has been very well evoked in the magazine. I would also like to congratulate the students for their contribution, the editorial team and the faculty members for working dedicatedly throughout the development of “e-Blitzine”. I would also like to extend my wishes to the readers that would surely enjoy and benefit from the magazine while broadening their horizons.

**With Warm Regards,
Dr. Madhu Pruthi**

From The Convener's Desk (Blitz Society)



The Computer Science Department of Keshav Mahavidyalaya brings you the third edition of its annual e-Magazine, "e-Blitzine 2019".

I sense extreme pride in presenting the issue which has a lot to unfold and explore. The magazine is an initiate towards preserving the nature and providing the students a guide to the advancements and development in the computing industry.

This edition also contains articles penned down by the students to provide the readers a perspective of the growing computing world.

The issue not only provides the readers with platter of articles but also serves a glimpse of the department since its inception. This magazine also contains the initiatives taken by the department in organizing various workshops and seminars round the year. The magazine is a forum which could appositely be used for recording events, student achievements and ingenious writings. I am sure that this magazine will be informative and resourceful.

I would like to extend my wishes to the editorial team and the faculty for their valuable support and contribution to the magazine. I would also like to congratulate the entire Computer Science Department and contributors for adding to the pages of "E-Blitzine".

Happy Reading.

Regards,
Dr. Anjali Thukral

From The Editorial Board



“Logic will take you from A to B, but imagination will take you everywhere” - Albert Einstein

Dear Readers,

Writing is an art of penning down thoughts and reflections- funny and poignant, personal and universal. The e-Blitzine acts as a platform for the students to speak out their ideas socially and spread among other young nurturing minds. This online magazine initiative is a launch pad for student’s creativity to blossom technically and naturally.

The issue of the annual magazine holds writings, paintings as well as a saga of success of the students of Keshav Mahavidyalaya. It also certifies and testifies the activities, workshops envisioned for the progress of the students and the college providing each and every thought a platform to surface into something substantial and thereby giving a canvas to those who love to paint their imagination to reality is what e-Blitzine is.

And that’s what we’ve got to say, “Do have the courage to hold the canvas in your hand.”

Enjoy Reading

Regards,

The E-Blitzine Team

About Team Blitz



Brilliant Information Technology Zealots (Blitz), a society, formed by the first batch of B. Sc. (Hons.) Computer Science with a feeling to promote innovative thinking and professional growth has come a long way since its inception.

Blitzkreig for us was not only an event but a journey to define ourselves, find our ways and most importantly to take back something from it as a team. Under the guidance of our respected Principal, Dr. Madhu Pruthi and faculty members, the society has been constantly growing and coming up with innovative ideas to provide students a gist of the fast pacing changes in the tech-environment.

Our vision was to let this event take the shape of a platform where the students, the faculty and the participants could interact and lay down the start of a much stronger tie. Blitz team is full of dedicated students filled with enthusiasm and avidity to do par excellence.

Lastly, we would like to extend thanks to every member of Blitz (L-R: Sidharth Sharma, Prashant Arora, Namit Kapoor, Mohit Uniyal, Muskan Aggarwal, Nirnay Mittal, Basant Verma, Ishu Goel, Samriddhi Agrawal, Aditi Gupta, Radhika Chhabra; Center L-R: Dr. Anjali Thukral, Dr. Vinita Jindal, Dr. Priti Sehgal), the Editorial team (E-Blitzine), the faculty and the students for being a part of this astounding journey.

**Cordially,
Team Blitz**

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Blitzkrieg' 18



It is an immense pleasure for Blitz, the Computer Science society of Keshav Mahavidyalaya to be back yet again with Blitzkrieg'19 and that too better than ever.

Being one of the best tech-fest of Delhi University, it grabbed many eye balls last year which was evident by the number of footfall for many events from different non DU colleges also. The amount of hard work and dedication each member of the society, faculty members and other volunteers had put in the event, it definitely paid off by being the most talked about technical fest of DU.

The fest had not so conventional events, as they were moulded in such a way that it didn't seem typical but creatively enjoyable. Blitzkrieg'18 started off with the launch of its second edition of the e-magazine, "e-Blitzine". After the magazine, the events kick started and the zeal could be seen among the students.



There were various events that were planned which are as follows:

A coding event, **CODAPT** was organized to test the logical and coding capabilities of the students. Keeping in mind the need for some brain teasing questions, **LOGICAL AMBUSH**, a quiz was planned. When we talk about browser, it is actually the designing of the HTML pages that make the experience of searching fun. Taking into consideration the need for webpage designing, **WEBTYLES** was organized for the students to showcase their designing skills. Even **BREAKIN** was placed on the list that tested the hacking ability of the participants.

Tech-fest is not only about having events related to computers. The society even organized some fun events that required a little technology related knowledge but required your aptitude to win. **TECHAD** and **THINK..BID..WIN**, two major attraction of the fest. In tech-ad the teams presented and tried to sell the tech product via a short ad. Bidding event was all about assembling a best computer which definitely required a good knowledge about the computers and the participants were supposed to bid for the best part to win.

The society made sure the fest is for all the students and not just for the students with computer science background. The most liked and greatest footfall was for the events, **TECHVENTURE**, which was a treasure hunt, **HOWZZAT**, being the cricket event and lastly **WORTH A SHOT**, which was related to photography.

The fest was very well occupied with numerous participants trying to give a shot and get their hand on the amazing prizes. The fest was a grand success and in a nutshell was a complete package of fun, knowledge and implementation. Hoping for an even greater success of Blitzkreig'19 with everything better, bigger and beneficial for every person involved with it.

Workshop on Github



Blitz- the Computer Science society of our college, Keshav Mahavidyalaya, organised a workshop on Git/Github. The main objective of the workshop was to let students go in depth of technology and expand their horizons in the field of computer science. The workshop described us about Github's **version control** system that protects source code from both catastrophe and the casual degradation of human error and unintended consequences. If a mistake is made, developers can turn back the clock and compare earlier versions of the code to help fix the mistake while minimizing disruption to all files.

Many enthusiastic students of Computer Science, Mathematical Sciences and Physical Sciences attended the workshop with a great zeal. All the team members ensured that the workshop wouldn't clash with the regular classes, hence it was organized after the classes.

The workshop was conducted by one of the third year student of the college, Mohit Uniyal, who was also a member of the Blitz society. He demonstrated each concept with such an ease that we all were bound till the end of the workshop. Since he was the student of the college himself, the attendees felt comfortable in sharing their doubts with him. Moreover, not only the students but teachers also attended the workshop and praised the efforts made by Mohit and the Blitz society.



The workshop proved to be quite fruitful for the students. Mohit elaborated the significance of Github and he further explained how people use it to share open source code. All the attendees learnt about the "version control" system. Moreover, he taught us how to design a "version control" and how one can work as a developer to contribute the Github community with one's own version of a given code. One of the major benefit of using Github is that one is not supposed to store the entire full project on it. Rather, only the small changes made on frequent basis are kept on Github. As a result, it saves one's effort, time and storage space.

Github offers a series of actions to be performed by a user while working on a stored project on it. These actions include - (1). Content Writing, (2). Request modifications, (3). Opening new files; and (4). Saving things repeatedly.

GitHub is a remote/ central repository where Git is a version control tool through which repositories can be created and any further changes can be updated. Features such as parallel development and syncing of repositories are also provided by GitHub. Git is an open source, distributed, fast and economic way of creating a local repository.

Overall, the workshop was fantastic that was meticulously organized by the Blitz team in a fabulous and disciplined way. Every possible arrangement for the students was made in order to avoid any kind of nuisance. It was a great learning experience for all the attendees.

Workshop on IoT



The Computer Science Society, Blitz of Keshav Mahavidyalaya organized a one-day workshop on "Internet of Things".

The workshop was organized on January 16, 2019. The event was graced by Prof. D.P. Vidyarthi of School of Computer and System Science, JNU. Keeping in mind the practical usage of IoT, a hands-on session was organized where Mr. Anand from Keshav Mahavidyalaya gave students a deeper insight and conducted a project building activity.

The event started with a discussion on the importance of internet and its application in the real world. The professor gave us a perception about how IoT works and how we are trying to make humans the objects over internet. The main focus was laid in the future of IoT where the 8 tech tipping points for 2030 were discussed. For Internet to take over the things, there is need for sensors. The reports show that there will be approximately, one trillion sensors by 2022. With rising demand and application of internet, the need for security has also increased. Since sensors will be taking over the world, the identity of a person needs to be tracked and hidden from intruders. Many technologies are being developed to be able to cope with the enormous amount of data being generated by sensors. The Big data, Cloud computation and various other technologies have gained interest in the market.



IoT is a network of physical objects and network connectivity. The sensors are the medium for exchanging and collecting the data. As Prof. D.P. Vidyarthi said, many organizations have already started to implement IoT, but there is an immediate need to shift to better and faster technologies that can handle and manipulate the enormous amount of data. IoT has various names around the globe, for instance, Internet of Everything, Skynet etc. The speaker also said that, "Sensors are the magic of IoT".

The talk was followed by a hands-on session. Mr. Anand facilitated the second half where the students got a chance to work with NODE MCU. A detailed explanation about the kit was given and NODE MCU was described as an open source IoT platform based on the Espressif ESP8266-12E Wifi system-on-chip.

For students to be able to operate the NODE MCU, an insight about the technical and hardware specifications was also discussed. After delivering the required details the procedure for loading and testing the MicroPython firmware was initiated. The students were provided with individual kits and even the teaching faculty participated in the session.

Several activities were planned for instance, 'Let's play with LED', 'DHTII sensor', 'Relay for Real World' and 'RGBLED'. The session was well appreciated and the students could be seen with a gleam of happiness after attending the workshop.

Coding Competition



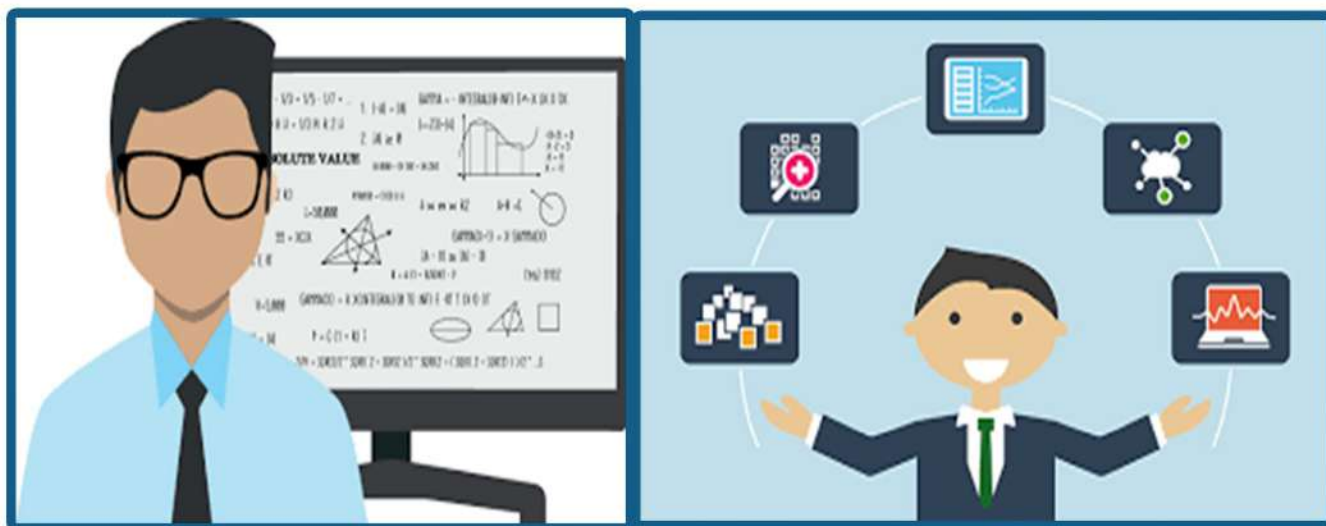
The in-house coding competition organised by BLITZ, held on February 4, 2019, saw great participation from students with great enthusiasm. The department focuses on developing the coding and practical abilities beyond the textual and descriptive content. It was the first initiative in the field of online coding competition taken by the Department of Computer Science.

The competition proved favourable for students as it provided a platform to test and sharpen their coding skills. The competition was organised with an intention to expose the students to the real world usage of the programming languages. The platform chosen for the event was HackerRank where challenging questions were provided, with varying difficulty levels.

The college took initiative in providing the laboratories for conducting the event. There were 10 questions and each question had its own test cases and the students were marked on the basis of number of test cases they solved and submitted. Freedom of choosing the language was provided to everyone. The team worked with dedication for the entire duration of the event. This online competition continued for two hours, participants worked on the questions with utter focus and patience. Competition level was very high, with leaderboard changing every second.

The BLITZ team had put in great efforts by working diligently along with the faculty's support. This event added another golden feather to the cap of BLITZ team. The teams were appreciated and the top two participants were presented with certificate of appreciation. The coding event ended with a saga of success.

Archetypes in Data Science



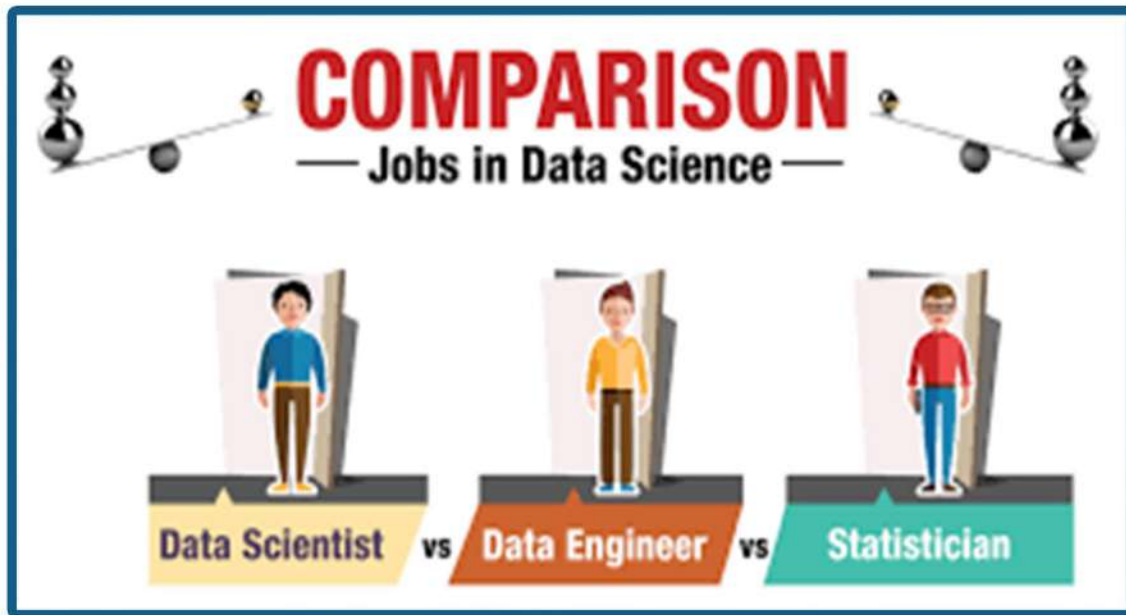
(Courtesy: xuehua.us)_

Many of you are wondering that what am I going to discuss in the article: “Selecting Career as Data Scientist”? Before moving into the details of this article, let me first discuss a term of Archetype with you which is quite significantly used in the Data Science stream. An archetype means that “most typical example of a particular kind of person”. So when one says archetype of data science, it simply implies a formal reusable model of a domain or a concept. Being an archetype of data scientist is not just a job, it's a career.

Although a lot is known to us on how to make a career as a data scientist, we are still unaware of the types of data scientist one can get in the Industry. It is very difficult to find the most demanding professional to envisage a **full stack data scientist**, as most of the data scientists are usually specialized in one type or another. However, they are not full stack data scientists. As I was reading a Brandon Rohrer article, I came to know that what actually data scientist archetypes are? And so, I now want to explain you different type of archetypes of the data scientist in this article that could prove to be beneficial to you.

Types of Archetypes in Data Science

- **Generalist:** As we know that data science is a wide field. It is thus categorized into three phases: data analysis, data modelling and data engineering. As these areas are all distinct, they require an archetype (i.e. a data scientist with the domain specific knowledge) for its management, so a generalist is appointed for this purpose. A generalist should interact well with specialists and researchers in a team. He should be capable enough to clinch top technical leadership roles in an organization.
- **Detective:** They put more emphasis on data analysis. They are expert in getting to the right data and insights, that's why they are called a detective.



(Courtesy: pinterest.com)

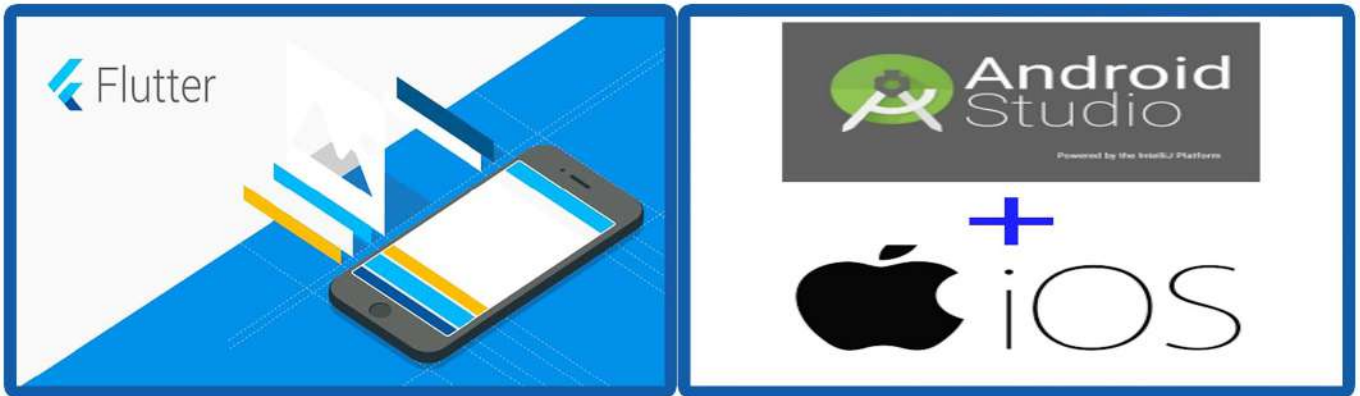
- **DiVA:** The word DiVA acronyms for data insights, visualisation and analytics. It is meant to cover a variety of functions like data, bioinformatics, analytics, visualisation and data science. These archetypes out sources small tasks and avoids grunt work such as Data Munging (preparing your data for dedicated purpose).
- **Oracle:** A person who has mastered the machine learning and data modelling skills, is supposed to lead this position of the data scientist in an organization. An oracle is supposed to have a great experience in engineering and data modelling using specific tools & methods of analysis.
- **Maker:** A maker is an expert in data engineering field who leads the data science team to let the organization's project go smoothly and helps the team to complete projects quickly. In order to achieve this, a maker in data science is required. They tend to put more emphasis on data engineering and architecture. They are capable enough to transform good ideas into concrete machinery in an organization.
- **Unicorn:** The team leader of the data science team is known as unicorn. A unicorn is backbone of a data science team, who bears the knowledge of every aspect of data science tooling and is basically the mixture or combination of all other archetype of data science.

I hope the above discussion will definitely make you fall in love with data science career as an archetype.

By **Ridhima Arora**

B.Sc. Physical Science Computer Science 3rd Year

Are you still Using Android Studio without Flutter?



Android Application developers are having an edge over others because of the growing demand in the market. Developing apps require expertise in programming languages like Java and XML for designing the User Interface (UI). After acquiring the skills that are required for the development of an application, An Android OS based application can be created, but its usage will only be restricted to certain devices (excluding iOS). To overcome the problem, Google launched the “Flutter” feature on May 2017, which is an open-source framework based on the DART (general-purpose programming language), that is used to build mobile apps for Android as well as iOS.

Flutter Framework will provide the same code to run on both the platforms that is Android OS and iOS. Flutter comes with an expressive and beautiful User Interface along with platform awareness with a smooth natural scrolling. Whenever the content of UI needs to be updated; only the variables need updating and accordingly, it will accommodate the changes which make Flutter a reactive framework.

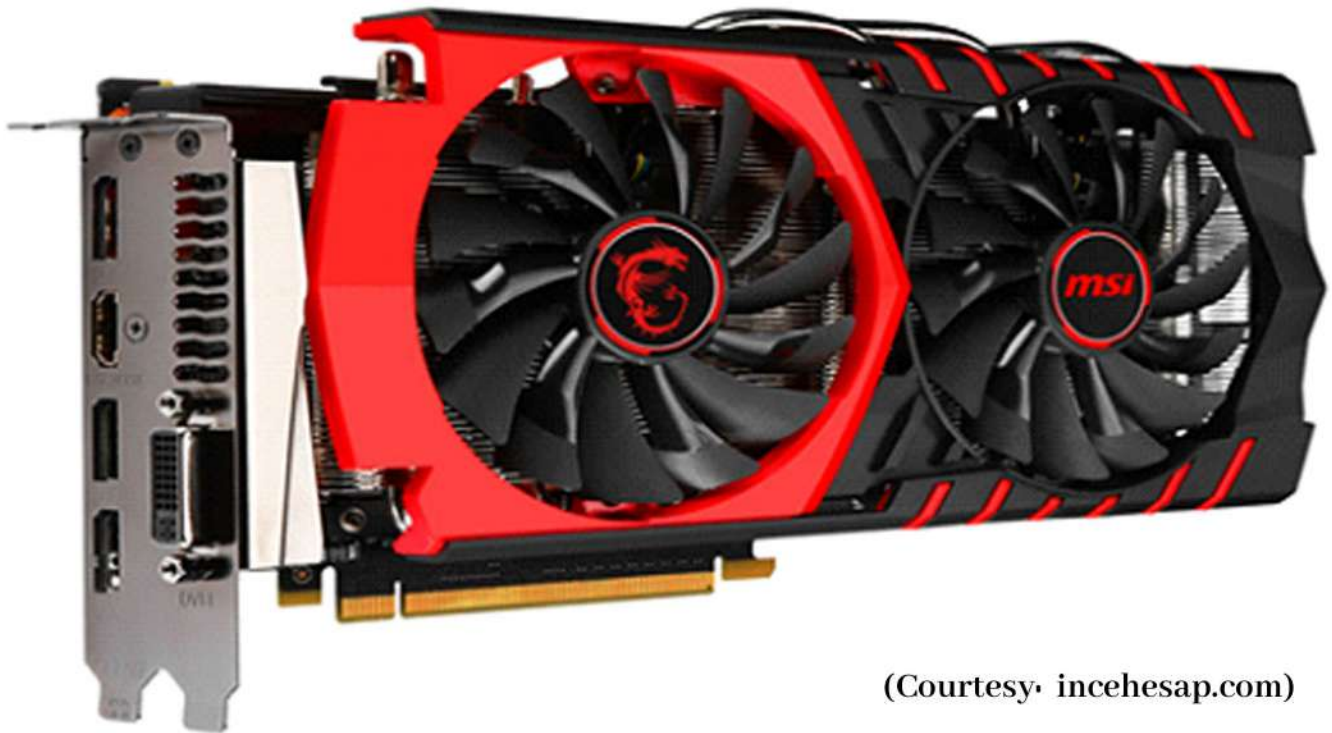
Android Studio requires a high-end machine to develop apps, that is, a minimum requirement of 4GB RAM in the system. The idea of working on this platform is dropped by the majority of programmers because of affordability issues. Therefore, Google has resolved this issue by launching Flutter as it can also work on a low-end machine efficiently, that is, even a 2GB RAM system would work smoothly.

As everything has its limitations, so does Flutter, because of the difficulty faced by beginners in learning Dart programming, but every dark cloud has a silver lining which means the only difficulty is in learning Dart programming. After getting hold of Dart programming, Flutter can be used with ease and is also responsive in mobile app development using the “Hot Reload” feature which is faster than the instant run in Android Studio.

Thus Flutter proves to be a blessing in disguise in the field of mobile - app development.

By Dharm Vashisth
B.Sc.(Hons.) Computer Science 3rd Year

A Supreme Guide to Purchase a Worn Graphics Card

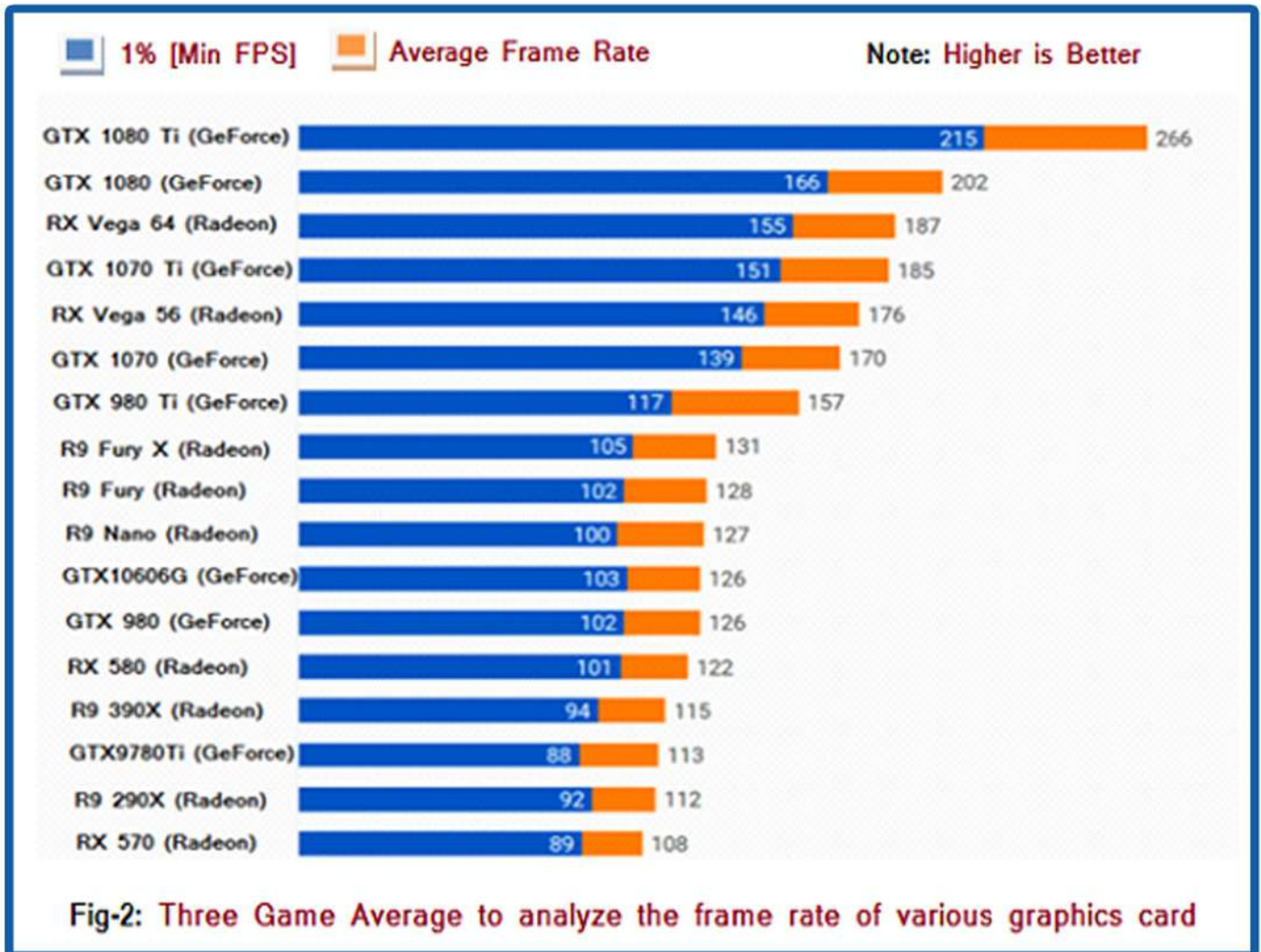


(Courtesy: incehesap.com)

Fig-1: MSI GTX 960 GAMING Overclocked Edition 2GB GDDR5 128Bit 1024 Cuda Cores DX12 Graphics Card

When it comes to purchasing a worn graphics card, many people would ask why to do so? One of the reasons for doing such thing is, obviously, the savings. The price rate of graphics card has seen a sharp decline due to their ample stock available in the market today. Moreover, the expected life cycle of past generation GPUs (Graphics Processing Unit) has been quite longer as a result of which they are relatively operational even after longer use.

After viewing the possible prices of worn graphics card online for quite some time, this article is written to list out a series of GPUs with all desired information that one may need while purchasing a GPU of reasonable price. Further, this article provides the mean retail price of all such GPUs after doing a thorough analysis for chiliad sales made online on eBay, Amazon and Alibaba. One can use that price to compute frame rate for the given GPU.



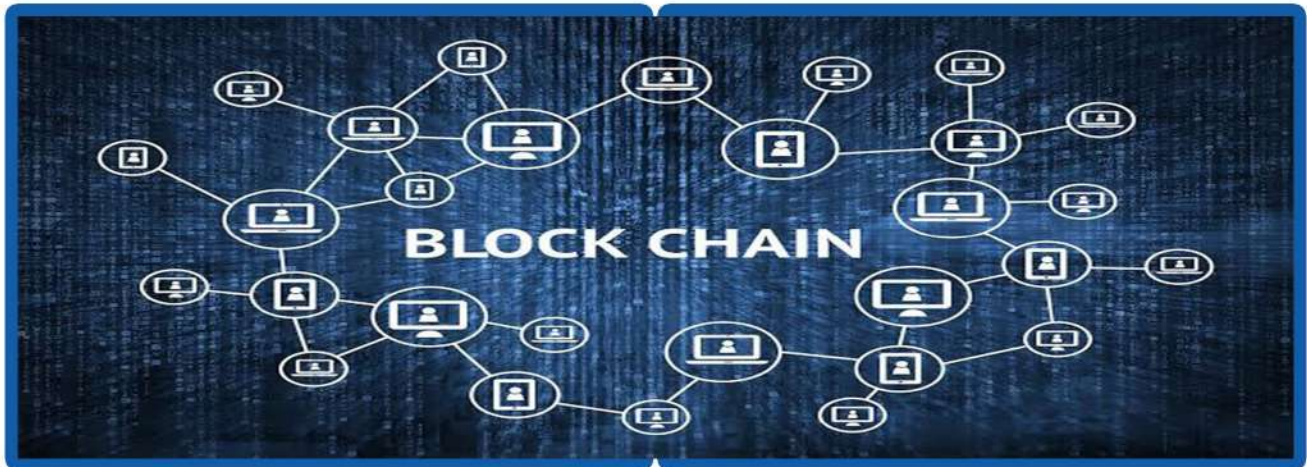
One of the parameter to measure the performance of graphics card is the frame rate that is basically computed in terms of FPS (frame per second). The value of frame rate simply determines the number of absolute image displayed by the graphics card in one second. For instance, the frame rate of human eye is 25 FPS whereas 60 FPS is supposedly required to enable a fast-action game to dispense sleek animation and scrolling. As the delivery rate of RX 580 and GTX 1060 together with Vega 56 and GTX 1070 are same. They work well with the games like Rise of the Tomb Raider, F1 2017 and Battlefield 1 with the moderate grade stipulation at 1080p.

Graphic cards are not used only for good graphics but also for generating revenue. So if you're planning to have an excellent graphics or generating revenue by running expensive data mining techniques then a good knowledge about the best graphics card available is surely needed.

By Mukul Wadhwa

B.Sc. Physical Science Computer Science 3rd Year

Blockchain: Beyond Cryptocurrency



(Courtesy: shutterstock.com)

On the day of **26 December, 2014** when the ESPN sports channel announced the selling of a sport event's tickets through Bitcoin, sports fans were wonderstruck what the channel was talking about? Since the Bitcoin concept was new at that time, the amazement for the fans was natural. But today we have come far apart. Today a lot of work has been done in the Bitcoin technology through a much talked concept of **Blockchain**. In the past few years, Blockchain is used extensively to make the transaction through cryptocurrency like Bitcoin in trustworthy manner. As a result, today Bitcoin is regarded as a synonym of Blockchain. But, the time has come when we should think Blockchain beyond the spectacle of Bitcoin because it is a much promising technology to do transaction of digital assets effectively online. In this article, we want to discuss briefly how promising Blockchain technology is in other areas of application other than cryptocurrency.

Application #1: Voting During Elections

Elections are crucial for the smooth functioning of a democracy. After every fixed period of time, a democratic country undergoes the process of election in which its citizens do vote and elect a government to run the country. But many political parties raised the issue of unfair electronic voting done in past, the Blockchain technology is an ultimate solution. In March 2018, Sierra Leone, country of Western Africa became the world's first nation to conduct general election through a Blockchain-based technique called **Agora**. It conducted transparent and tinker-proof elections there. Let's hope the other countries may go on the footsteps of Sierre Leone to conduct elections through Blockchain-based technology in future.

Application #2: Copyright Infringement

The illegal way of downloading the creative works of various artists including movies, music and books raised the need for Blockchain like technology to curb the issue of copyright infringement. **Imogen Heap**, a Grammy award winner, became the world's first artist to use Blockchain to record his song on Ethereum. As a result, his song automatically got connected with his digital wallet due to which he is got all sort of compensation from listeners. It prohibited users to copy and distribute his work without his consent.

Application #3: To Control Border

The issue of immigration has taken a political turn in many parts of the world including the US, Britain and South-Asian countries like India where the respective governments are trying to find out the measures to check the citizenship of the people living there. Several projects of Blockchain are underway that ensures safe and quick way to check people's citizenship without revealing data to public access. The mechanism used in Blockchain based project to do citizenship check involves the combined technology of "smart" contract and immutable ledger (keeping the biometric information) that can be used by a government while altering its policies on immigration.

Application #4: Gaming

Gaming is not far from the influence of Blockchain. CryptoKitties works on Ethereum that features digital kittens. Further, Blockchain technology cuts the cost of gambling platforms and casinos to make it secure and safe for users. FunFair is a Blockchain project in this regard that runs on Ethereum to provide users smart contracts.

Application #5: Education

Blockchain technology can prove to be a major breakthrough in the education field because of its ability to ensure secure, immutable and not so economic way of safeguarding records. A US engineering school, named **San Francisco Holberton School**, becomes the world's first school to grant Blockchain technology certificate to its students. Besides record-safeguarding, Blockchain offers decentralized platform of education which can be quite beneficial for students and lecturers as it provides smart contracts to them while exchanging an educational course online.

Application #6: Healthcare

Many countries across globe used Blockchain to curb the issue of Medical fraud by securely storing medical records of patients and later verifying it without engaging any third party. **MedRec** is a MIT run Blockchain project that is meant to offer Blockchain powered technological aid to medical field in coming years.

Application #7: Donations for charity

The donors faces quandary many times while making donation - they wonder what penny of their donations are reaching out to the needed person. Several cases of fraud came out in public in past where the charitable trusts found involved in mishandling of the donated money. The organizations like WFP (World Food Programme) of the United Nations and the 'Game - Chaingers Group' of the UNICEF have adopted the Blockchain technology to carry out the process of donation in a transparent and secured manner.

By Ankit Singh, Manoj Dhangar
B.Sc.(Hons.) Computer Science 3rd Year

Courses and Placements

Tim Fargo once said, "Who you are tomorrow begins with what you do today".

The students of Keshav Mahavidyalaya have left no stone unturned in bringing glory to the college. Throughout the year, participating in various extra curricular activities to securing placements in reputed companies and colleges, our students stood as achievers in every domain due to their constant and committed hardwork. These students from the Department of Computer Science have set a benchmark for the batches to come. Following is the list of Achievers of Computer Science Department.

Post Graduation Pursued At	
Student's Name	Course Name
Muskaan Mittal	IGDTU M.C.A.
Swati Gautam	DU M.Sc. C.S.
Smriti Sharma	DU M.Sc. C.S.
Sakshi Arya	IIC M.Sc. Informatics
Saket Taneja	DU PGDCSL
Darshika Singh	DU M.Sc. O.R.
Divesh Bhagat	DU M.Sc. C.S.
Ausaf Ahmad Ansari	IIC M.Sc. Informatics
Hemant Saini	DU M.C.A.
Tanya Goyal	IP M.C.A.
Aditya Alok	DU M.Sc. O.R.
Abhinav Kumar	DU M.Sc.
Shaunaq Narindra	University of Melbourne M.I.S

Placed At	
Vanshu Batra	ZS Associates
Sarthak Garg	ZS Associates
Saksham Hans	Deloitte
Shikha Bisen	Deloitte

Dark Web: A Boon or A Bane



(Courtesy: twgram.me)

The internet that a normal user accesses, is less than 10% of the whole Internet and it is technically termed as the Surface Web. So, if we go deeper into the internet, we will find that the modern day Internet is sliced up into three distinct layers – (1). the first one is the **Surface Web** which we have just discussed, (2). the second one is the **Deep Web** that contains Legal Documents, Financial Records, Government Reports, Paid Information etc, and (3). the third one is the **Dark Web**, which is, probably, the most unsafe and risky zone of the Internet.

Dark Web, as it is named, is really as dark and dorky as it sounds. The Dark Web is a term alluding to sites and systems that are vigorously encrypted and "hidden" from the normal web client. There are a lot of reasons individuals to do this. However, the Dark Web has earned an implication as a kind of enormous underground markets related to drugs, weaponry, pornography, hacking and schemes.

Dark web is loaded up with a series of unlawful and illegal substances, for example,

1. Illegal porn (child abuse, animal abuse, rape scenes etc.);
2. Drugs and Illegal weaponry;
3. Crypto-currency scams;
4. Hacking;
5. Illegal software and substantially, and many more...

A tor browser simply hides one's original IP address by applying a number of VPNs on it. So, it becomes comparatively difficult to trace a user on the Dark Web. Although it requires arduous effort to trace a user in Dark web but still, it is possible. It's like you are wearing a number of masks but there is still a chance of someone shredding them all off, one after another and there is a big possibility of user being hacked. That is why it is highly recommended not to access Dark web.

So, use Proxy before entering Dark web or say **Hi to Police...**

By Prashant Rai

B.Sc. Mathematical Science 1st Year

Deciphering The Concept of ROI

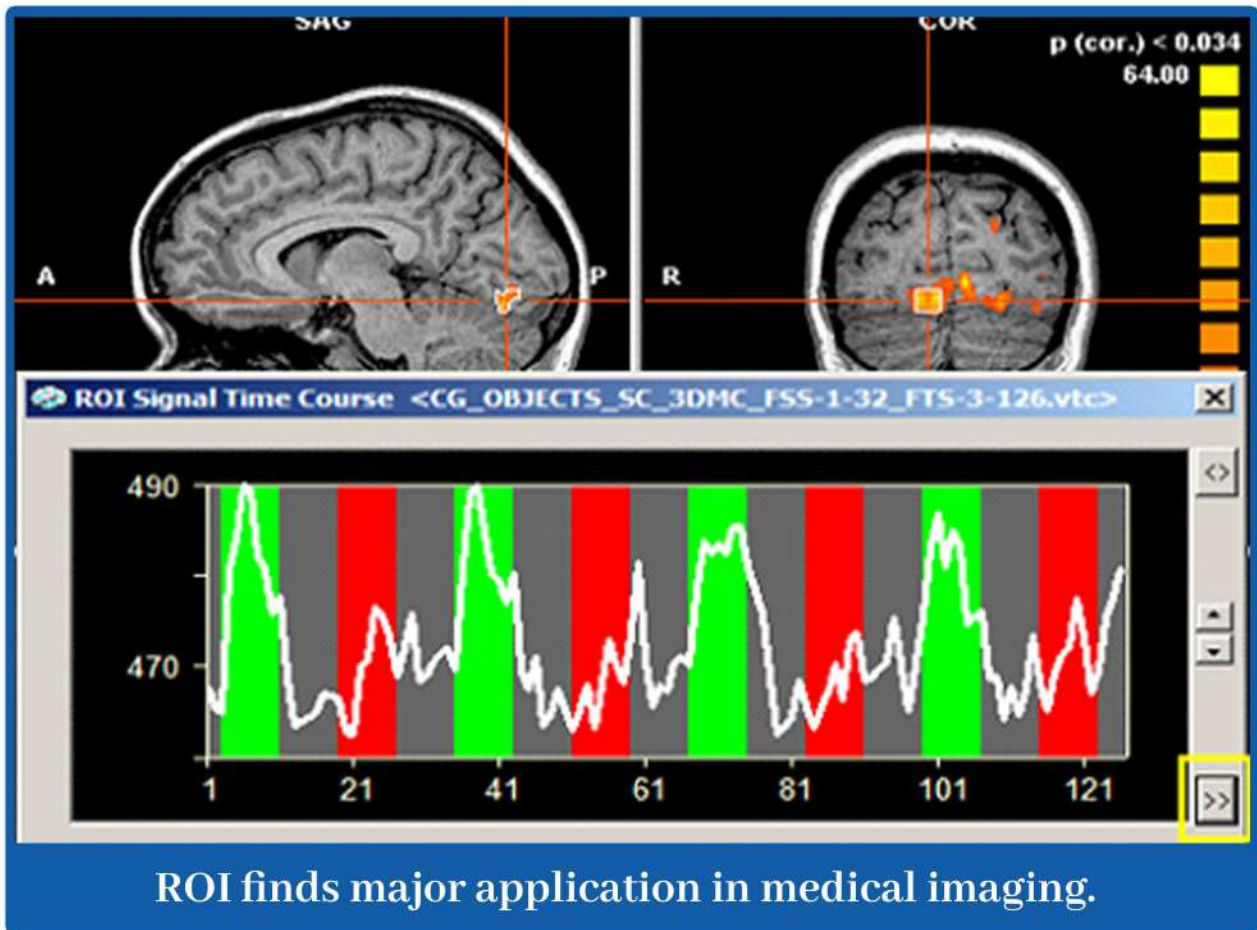


A ROI is acronym for **Region-of-Interest**. It can be understood as data set samples that are recognized for a specific task. It finds application in several areas. For instance, pathologists use MRI scan of brain where the concept of ROI is employed to concentrate on a particular part of brain to trace out the brain ailment of any kind. The geologists employ the ROI in the form of polygon excerpt through the 2D mapping. The experts of OCR (Optical character Reader) and computer vision use ROI to expound the regions of an object under study. In myriad applications, textual/symbolic labels are augmented to ROI in order to characterize its content in a more precise way. Remember, each ROI consists of discrete **POIs (Points of Interest)**.

Types of ROI and related examples

A ROI can be understood as a kind of notation that is generally related with absolute or measurable statistics (for instance, quantitative terms such as mean intensity or volume), expressed in a structured form or as symbol. On the basis of this, ROI is broadly categorized into **four types**:

- i). 1D dataset: which includes the measurements like frequency or time interval on a waveform,
- (ii). 2D dataset: which includes the regions of an image's object,
- (iii). 3D dataset: which includes the statistical units like surface outlining (or contours) of an object,
- (iv). 4D dataset: which includes the object's outlining at or while a specific time period of a time-volume curve.



(Courtesy: brainvoyager.de)

Encoding means of ROI

ROI can be encoded fundamentally through the following **three means**:

- (i). Through an **intrinsic segment** of a data set sample, comprising a distinct or concealed value that may or may not surface the standard range of commonly appearing values and that can be used to tag discrete data cells.
- (ii). Through a distinct, absolutely **graphical information**, like rasterized (bitmap or vector) graphics elements, maybe some unstructured format of data itself.
- (iii). Through a distinct **structured connotation information**, like coded data value type containing temporal and/or spatial coordinates set.

We hope the readers will further explore the concept of ROI to know more about it. Further, we suggest them to study ROI's role in data analytics and measurement.

By Anurag Pandey & Niyati Hirani
B.Sc. Mathematical Science 1st Year

Extra Curricular Achievements

NAME	COURSE	YEAR	ACHIEVEMENTS
1. Dharm Vashisth	B.Sc.(Hons.) Computer Science	III	Runner up rank in Blind Coding Competition at IMS Ghaziabad
2. Aanandita	B.Sc.(Hons.) Computer Science	III	President of Indian Dance Society : Nrityaang. 3rd position in group Classical dance competition at Pulse the annual fest of AIIMS.
3. Himansh Pandey	B.Sc.(Hons.) Computer Science	III	Received the prestigious The Shri Netar Kapur Scholarship to attend an international music camp Ethno at Cambodia, where musicians from 10 countries were invited to teach their music and perform across Cambodia. Bagged the third position at IIT Kanpur with Anhad - The Music Society of Keshav Mahavidyalaya in the Battle of Bands competition. Directed, produced and composed his first song "Shabbat", with 12 artists from Israel, India and UK. Performed at various stages such as The Hard Rock Cafe, Taj Hotel, Le Meridien across India with multiple bands. President at Anhad - Music Society of KMV
4. Mohit Uniyal	B.Sc.(Hons.) Computer Science	III	2nd Position in Web Development at GBPEC

NAME	COURSE	YEAR	ACHIEVEMENTS
5. Nirnay Mittal	B.Sc.(Hons.) Computer Science	III	2nd prize winner in Coding at SRCAS. 2nd prize winner in Coding at CVS. 2nd prize winner in Coding at BCAS. 2nd prize winner in Code Review at BCAS.
6. Samridhi Agrawal	B.Sc. Physical Sciences Computer Science	III	Hastashilp-Newspaper Dressing Competition, Gargi College -1st Prize Winner
7. Abhishek Sharma	B.Sc.(Hons.) Computer Science	III	6th position in Grand Finale of IMS Young Achiever Hunt 2018 at IMS Ghaziabad
8. Pranjal Mishra	B.Sc. Physical Sciences with Computer Science	III	1st Prize Winner in DBMS Competition in the Department of Computer Science, DU - Sankalan 2018
9. Varun Mangla	B.Sc. Physical Sciences with Computer Science	III	1st Prize in DBMS Competition in the Department of Computer Science, DU Sankalan 2018

Facebook Backlash



Social media have truly controlled everybody's nerves, be it Facebook, Twitter or Instagram, the list is never ending. But recently, Facebook has involved itself into a controversial debate that proves to be a major trust issue.

Today, Facebook's co-founder is facing the toughest time of his life while directing and saving his million dollar company that broke all its data-privacy conditions, which has not only angered its users, but also led investors to withdraw from such an unreliable company.

Facebook took many years to build people's trust but it took a second to lose it, which is absolutely correct to say in this controversial debate. According to New York Times, it was reported that nearly 150 business partners could access personal data of Facebook users including their private messages, well that's a great shock! we must say. Moreover, Cambridge Analytica obtained the profile data of millions of users without their consent, but claimed that everything was done under the norms and conditions of Facebook privacy. Facing this wrath of public and disheartened users,

Facebook leaders have promised that they will be providing more transparency between their privacy policies and users and totally block out various fake and malicious accounts. But what's lost is lost, the dignity, the fame and fortune which made Zuckerberg an overnight star, is now on the verge of losing the company which he started with his hardwork and dedication. In order to restore trust of the people, more concrete rules and regulations on data privacy should be taken by the management. The power should not only remain in the hands of a single person to govern but also with the shareholders. Other social media handles that are under Facebook (like WhatsApp), are also facing criticism over its privacy policies and data sharing, which, in turn, is making people more concerned about their data and losing their faith on such companies. If certain measures are not taken by Facebook and Mark Zuckerberg, then of course, a big downfall is inevitable.

By Yukti Kaushik

B.Sc.(Hons.) Computer Science 3rd Year

From Reel to Real: Is Our Data Really Safe?

'Watchdogs' is a game about a young group of hackers looking to take down huge corporations that exploit citizens with their personal data. It's a lot more serious than that sounds. This tackles heavy issues with its tongue firmly in cheek, making height of the excesses of Silicon Valley and the technical industry. In the game series, CTOS is Chicago's Central Operating System which regulates all manner of electronics within the city, from surveillance cameras to traffic lights. It is run by major private companies who use it for their own gains. It records and stores every part of a person's life and in turn figure out how one thinks.

Data breach is not just limited to games or movies, but also in real life. Recently there has been a huge revelation about Aadhar Card data leak where someone's bank account details and other personal data was just a search away. The linking of phone numbers with Aadhar card was the reason behind such a breach of privacy policy. Irrespective of facing such an outcome it is mandatory to link every detail to one's Aadhar card without even providing the type of security that needs to be implemented for one of the largest databases in India.

A report from a year ago implied that several parties illegally tried to store the biometric data and conduct multiple transactions using the same fingerprint. The story is not over about the misuse of Aadhar as the organisations suspended the E-KYC license of Bharti Airtel's- 'Airtel Payments Bank' after they violated the Aadhar Act which barred the company from opening bank accounts of their customers without undertaking any informed consent from them.

Thus what can be concluded from these incidences is that we need to be more aware of our data as an individual and provide advanced security features in order to stop such kind of events happening in the future as data breach is one of the major threatening issues to IT world. We need to keep our real life away from the reel life because its not all about the games and movies we watch but to gather and implement the positive outcomes from them and ignoring the negative ones.

By Rallapalli Nagarjun
B.Sc.(Hons.) Computer Science 3rd Year



Hacked or Cryptojacked ?



Cybercrimes takes place every second somewhere in the world hidden from the victim's knowledge. With well advancement in technology and in bid of making the world accessible to the Internet, the hackers also known as **cryptojackers** are taking shape in various forms and causing harm and danger to this world full of exploration.

Cyber thieves are always on the dark side to generate revenue for themselves. These are the usual suspects - spammy ads, unsolicited clicks, sneaky adware and malware infections. Now, with the crypto currency explosion, there's a new kind of profit-generating practice that's spreading. While it is a legal way to create crypto currencies, the way some sites are pulling it off is actually highly questionable.

Cryptomining is the technique that is widely used to contribute to the massive computational horsepower and energy needed to maintain and validate a crypto currency's transaction network. Let us take the example of the actual money we have in our bank accounts. The money is under regulation by a governing body and we feel safe about our money in the bank. Well, frauds have even found their way to get their dirty brains in action to get hard earned money of people. The spam calls and messages, people calling to ask about the personal pin and even suspicious emails contribute to the fear.

When crypto currency came into action and was made legal, people got attracted towards investing their money into digital currency. But this form of money is not regulated by the government and there is no such body that takes care and issues standards for monitoring the money. With the involvement of this amazing idea, came the danger of losing it. The hackers have already started to formulate strategies to target money that is invested through crypto currency.



(Courtesy: coinpedia.org)

The cryptojackers have found a way to utilize personal resources via browsers. A script is installed in the background that eventually will load the system with the code that will start to use one's personal resources and the person is unaware about it. It will use computer cycle, electricity resources and there will be no clue until it is actually known. These hackers use hidden software that are sneaking into a system through a website or ads and it's all done. They even try to get through certain Wi-Fi networks to affect many machines all at once. A similar incidence took place in a Starbucks cafe in Buenos Aires.

To prevent your computer from getting cryptojacked, one can always use ad-blocking software or disable browser's JavaScript altogether. Also, look out for "typosquatters". These are domains that have mistyped URLs of popular websites. Always double check the URL of websites you are visiting and watch out for mistyped words or extra characters.

Be safe while exploring the world, some "people" might be watching you and you'll never know.

By Arshdeep Singh

B.Sc.(Hons.) Computer Science 3rd Year

Machine Learning

Shattering the Hype Around the Biggest Buzz Word

Machine learning (ML) has become such a 'cool' buzz word that it tends to alienate most people. A quick Google search of the phrase leads to 1.8 billion results in the blink of an eye. What most people fail to realize that the Google search itself has a very sophisticated form of clustering algorithm built into it, that scores the results based on the true context of the search phrase itself.

We are surrounded by softwares that continually rely on some manifestation of ML. The most trivial ML algorithm is linear regression that we use every-time we fit a curve through a bunch of experimental observations in Microsoft Excel and calculate the accuracy of the predicted curve itself by its R2 value. We are exposed to Facebook's facial recognition software that gives us the option to tag your friend in a recent picture that we may have posted on the internet. Since ML bridges the realms of computer science and statistics, it encompasses a multitude of subfields, from general-purpose areas such as perception and logical reasoning, to specific tasks such as playing chess, proving mathematical theorems, writing poetry and diagnosing diseases.

Once you have identified the problem you want to predict a solution based on data accumulated over previous experiments – for example, a real estate agent want to predict the cost of a new property for sale then he has to look at the parameters such as the size of the house, location of the house, infrastructure and amenities of the apartment complex etc. and finally the selling price of the houses he/she has previously sold. All this data becomes the 'training set' on which he/she can develop a regression model and use that to predict the cost of his 'test sets', that is, any new house he/she wants to sell. Implementing this regression model can be done almost effortlessly using software packages like Sci-kit learn.

The reason why ML is hyped a lot these days is that, it can be used to solve big problems from different walks of life by harnessing a handful of powerful key concepts. ML has already revolutionized the way we perceive the world, making it accessible to more people and helping people look beyond the buzzword will lead to more feats of wonder in non-traditional domains.

ML Designed AlphaGo Beats A World Champion Player

AlphaGo is the first computer program to defeat a professional human Go player, the first program to defeat a Go world champion, and arguably the strongest Go player in history. AlphaGo is trained solely by self-play reinforcement learning, starting from random play, without any supervision or use of human data.



Rallapalli Nagarjun

B.Sc.(Hons.) Computer Science 3rd Year

M.Sc. in Computer Science

Computer Science is one of the most beneficial and challenging streams to opt for as a career option demanding a lot of hardwork and brilliance at the same time. There is a lot of scope along with various opportunities in terms of education and jobs as well. Various Universities in India offer post graduate courses after under graduation which enhance technical skills in the students. Some of the Colleges providing PG courses in India are:

1. Tata Institute of Fundamental Research(School of Technology and Computer Science)

Course offered by TIFR STCS is integrated M.Sc. Ph.D. for which the admissions are through entrance examination followed by an interview. It has a renowned program where students can explore research areas and reach new heights in the field of technology.

2. Institute of Mathematical Sciences, Chennai

IMSc provides Integrated M.Sc. with Ph.D. course for which JEST entrance test takes place at various centres followed by an interview for the final selection. The main focus of this program is theoretical computer science including algorithms, automata theory, combinatorics etc.

3. University of Delhi

Department of Computer Science, DU provides M.Sc. in Computer Science for which 50% admissions are merit based and 50% are through entrance examination. Faculty members along with infrastructure is best suited for students and have great opportunities to expand their horizon in this field.

4. National Institute of Technology, Trichy

Course offered by NIT Trichy is M.Sc. in Computer Science in which students are admitted through entrance test with no interview. The test needs to be given at Trichy campus only. They provide a sound program having great faculty members. Their major aim is to "Create innovators of Technology".

5. Pune University

Course offered is M.Sc. in Computer Science taking admissions through entrance test only in various centres. To meet the growing demands of technology, labs and infrastructure is upto date along with hard working teachers working for the betterment of students.

6. University of Kerala

This course has been started in order to acknowledge the growing demand from students for a Master's level course in Computer Science. This two year course is being offered at the UIT centres of Alapuzha and Kollam building with sound infrastructure and facilities required.

7. Osmania University (Hyderabad)

Students are required to clear the OUCET(Osmania University Common Entrance Test) exam in order to secure a seat for the two year Master's program in Computer Science. Admissions are only through entrance test for this program.

8. Chennai Mathematical Institute, Chennai

The M.Sc. program proposed by this college makes students more advanced in Mathematics, Computer Science and Data Science. The course structure is adequate and designed to meet expectations of students so that they can lay a strong foundation for pursuing their skills, while also acquiring advanced knowledge that will enhance their growth rate for future oppurtunities.

By Yukti Kaushik
B.Sc.(Hons.) Computer Science 3rd Year



Negative Effects of Playing PUBG

Why You Need to Uninstall it Right Away!!



(Courtesy: [pinterest.com](https://www.pinterest.com))

Most of the readers who have come across this article, I guess, would have played or heard about the game – PUBG (Player Unknown's Battlegrounds) before. The recent success of the PUBG has drawn the masses towards itself so much that many of them might have tried to play it once. The readers, who have played this game already might find the subtitle of this article quite inappropriate and would be well prepared to ask me why I suggest here to uninstall this game. Well... I must say them to go through this article thoroughly to get the answer of this question.

Brendan Greene, a young gaming professional of PUBG Corporation, designed and developed an online multiplayer combat imperial game in the year 2017 with the name of PUBG. PUBG is an ancillary of Bluehole Company. Bluehole is a leading video game company in South Korea. PUBG is an enhanced version of Brendan's other games plus the deep insight of the movie "Battle Royale".



Fig: A study was found that PUBG increases aggression and anxiety among teen players

Bluehole partnered with Microsoft Windows to release its first version of PUBG in March 2017. Later, the game was released for Xbox One by Microsoft Studio in September 2018. Further, the game was developed and released for Playstation4 port and then for iOS and Android as mobile versions. By June 2018, PUBG became the bestselling game of all time after the selling of 51 billion copies for various platforms.

Gaming industry has taken a great leap and PUBG holds the ground strong for a few years. Despite of its undisputed popularity across the globe, parents of many teens have raised objections about the intense violent features of the game. As a result, the Republic of China has put ban on the game. Many psychological experts have compared the people's addiction for PUBG equivalent to that of drugs. This is definitely a serious matter of concern. The addiction has not only affected the mental well being but also the emotional and social life of an individual. It is the addiction that is not toxic to health directly but certainly its adverse effects can be seen in years to come.

A current study has shown that the people playing this game addictively have given themselves a pair of spectacles, bad eyesight, fatigue and lack of confidence in social events. If this article wasn't enough you can try searching the web, it has a lot of stories that one might want to unfold.

We leave it up for the readers to question themselves, "am I addicted to this game?"

By Abhishek Biswas

B.Sc.(Hons.) Computer Science 2nd Year

Password Manager: Boon or Bane



(Courtesy: crowdresearchpartners.com)

Computer software results in multiple processes to start performing different tasks. For instance, when one looks for a password manager, one has to consider two things - one is a password vault and the other is an extension for an internet browser. Once if the password manager is initiated, both the password vault and the corresponding extension of the browser run as distinct processes on the same computer.

The two of the above discussed processes often incorporates the mechanism of inter-process communication (IPC) in order to exchange data. Moreover, the entire mechanism takes place within the confines of the computer so that no information is sent out to an outside network. That's why IPC is traditionally considered to be sound and secure.

One of the major concern related to the password manager is its inability to ensure the protection of the IPC channel. As a result, the processes related to other users that are running on a shareable computer have the chances to access the communication channel and to steal the credentials of the users in a potential manner. This research was done by Thanh Bui, an Aalto University's doctoral student.

Moreover, researchers of the University of Helsinki and Aalto University established that over ten applications of security-critical nature were found that had vulnerability to insider attacks. Amazingly, the vulnerabilities found during the research belonged mainly to password managers which were used by over millions of users to make space for their login credentials. Various applications susceptible to such kinds of security breaches have been observed among the computers supported by Windows, Linux and macOS operating systems too.

Though personnel computers (PCs) are meant for one's personal usage, they have been quite often accessed by several users many times. The situation gets worse in case of large companies that maintain a centralized identity and a centralized access management for each PC that allow users to log into any PC of the company. In all such cases, it becomes easy for anyone to launch attacks on PC. Further, an attacker can log into a PC as a guest or connect itself remotely in order to access it, if these features of PC are enabled.



A post-doctoral researcher at the University of Helsinki, Markku Antikainen, says - 'It has been observed through several vulnerable applications that the security problems related to IPC are often overlooked by software developers. It is because the security properties of myriad IPC methods might not be understood by them, or a lot of trust is made by them on software and applications running locally on the system. Whatever may be the reason, both of the above explanations are quite gruesome.'

Web-based password managers, which run inside the browser of the user, are particularly fraught with pitfalls. A detailed study using several password managers uncovered the following possible flaws inside web-based password managers

(A). **User Interface flaws:** Some password managers will ask the user to log in through an iframe. This can present a security risk because it trains the user to fill in their password while the URL displayed by the browser is not the one of the password manager. A phisher can abuse this by creating a fake iframe and capturing the user's credentials. A more secure approach may be to open a new tab where users can login to the password manager.

(B). **Authorization flaws:** Another possible problem is mistaking authentication with authorization. The researcher found that several web-based password managers had, at one point in time, such flaws. These issues were in particular present in password managers which allowed users to share credentials with other users.

(C). **Web flaws:** Classic web vulnerabilities can also be present in web-based password managers. In particular, XSS and CSRF vulnerabilities may be exploited by hackers to obtain a user's password.

(D). **Bookmarklet flaws:** Web-based password managers commonly rely on Bookmarklets for signing in users. However, if improperly implemented, a malicious website can abuse this to steal a user's password. The main cause of such vulnerabilities is that the JavaScript environment of a malicious website cannot be trusted.

Mr. Manish Kumar Singh
Assistant Professor
Department of Computer Science
Keshav Mahavidyalaya

Post Graduate Diploma in Cyber Security and Law

This is a higher Penetration Testing & Information Security Training Engineering Program. The training under the course will empower an individual with realistic knowledge in a simple and understandable manner. The ways hackers smash into systems, networks, mobiles and websites so as to make them aware of the loopholes which are possible and therefore, make them expert in reverse penetration. Thus, students can make a virtual wall amid company's data and the hackers. Attacking and defensive methodologies will be taught to the students which will help an organization to guard and review safety.

Admission Process

Post Graduate Diploma in Cyber Security and Law considers graduates or above in Science (Physics & Chemistry), Mathematics, Information Technology, Engineering in Technology (Computer science/ Electronics/Electronics and Communication, Information Technology), BCA, MCA, M.Tech or any additional degree equivalent for the admission.

The admission process shall be following:

- The merit list will be prepared according to the marks in graduation or the equivalent qualifying examination.
- The candidates then shall be called for PI based on the merit.
- The final merit will be prepared based on 85% of Stage 1 and 15% of Stage 2. The final merit shall be considered for admission.

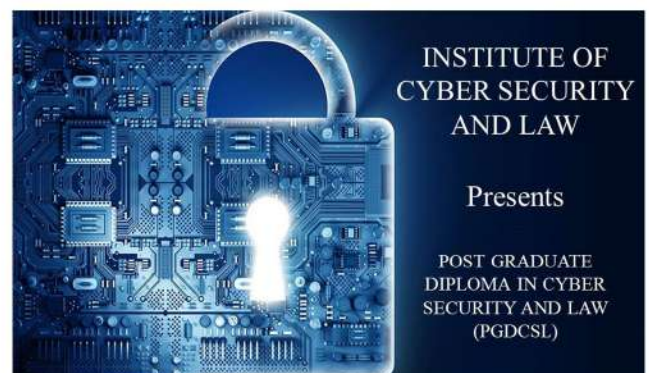
There are 50 seats for admission in the course. Reserved Seats are according to the Government rules. This is a 42 Week Course in total.

Curriculum

The course will be divided in two semesters. Fundamentals of Computer Security, Networking, Web Designing, Cryptography, Clouding, Mobile Eco System Security, and Internet of things Security, SCADA, Cyber Law, and Information Security Compliance Management will be under the curriculum of the course. Two Projects and one Internship will also have to be completed under the course. The fees is divided into two semesters particularly Rs 34,900 and Rs 30,500 for semester one and two respectively.

For more information, visit <http://icsl.du.ac.in/about.html>

By Mohit Sethi
B.Sc.(Hons.) Computer Science 3rd Year



Social Engineering

Social Engineering refers to a variety of malevolent activities which are accomplished all the way through human interactions. Psychological manipulations are used to trick users to give away security information or commit a security mistake. A perpetrator first investigates the proposed victim to gather necessary environment information, such as potential points of access and frail security protocols, needed to advance with the attack. Then, the attacker moves to put on the victim's trust and provide stimuli for following actions that break security practices, such as enlightening sensitive information or surrendering access to serious resources.

Attack Techniques

● Baiting

Baiting refers to using victims's greed to advantage of the attacker. Physically, attacker places infected flash drives in conspicuous areas with useful labels so that victim picks it up and uses in his/her own computer. Online baiting uses links to navigate to malicious sites which downloads unwanted software.

● Scareware

Scareware is a technique which prompts users to disinfect their systems (which might already be disinfected) by using a software(which may be the malicious software).

● Pretexting

Pretexting is a clever technique which involves perpetrator pretending to need sensitive information to perform a task. A series of information is being asked so as to perform a task and confirm user's identity and ultimately, security information is being retrieved.

● Phishing

Phishing scams are email and text message campaigns intended at creating a sense of necessity, inquisitiveness or fear in victims. It then prods them into enlightening receptive information, clicking on links to malevolent websites, or opening attachments that hold malware.

Prevention Techniques

● Do not open emails and attachments from doubtful sender

Unknown and unwanted emails and attachments should not be opened. If they are from a known sender and have suspicious information, confirm from other sources before opening it as emails are spoofed nowadays.

● Use Multifactor verification

One of the most precious pieces of information attackers search for is user credentials. Using multifactor verification helps guarantee your account's protection in the occurrence of system compromise.

● Be cautious of tempting offers

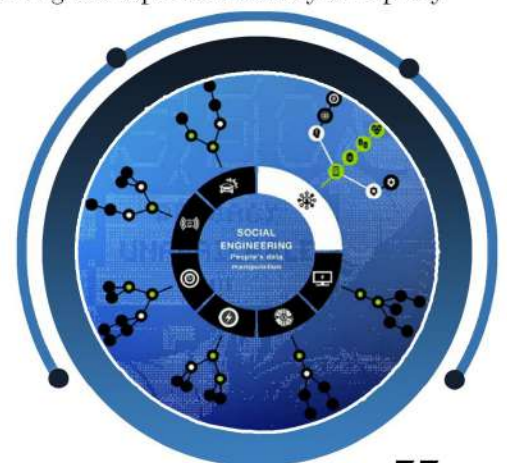
If an offer sounds too tempting, think twice before accepting it as fact. Searching the topic can assist you rapidly determine whether you're dealing with a genuine offer or a trap.

● Always Keep your Antivirus updated

It is important so that updated malicious software can be detected too.

By Mohit Sethi

B.Sc.(Hons.) Computer Science 3rd Year



Software Defined Networking (SDN)

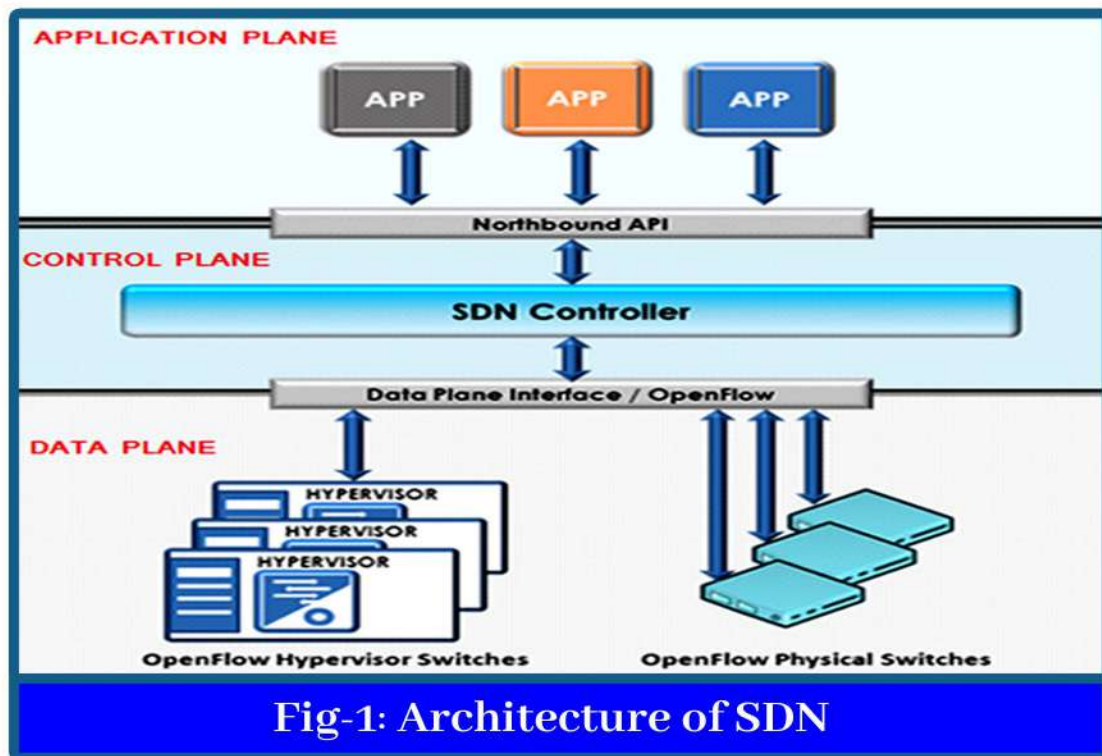


Fig-1: Architecture of SDN

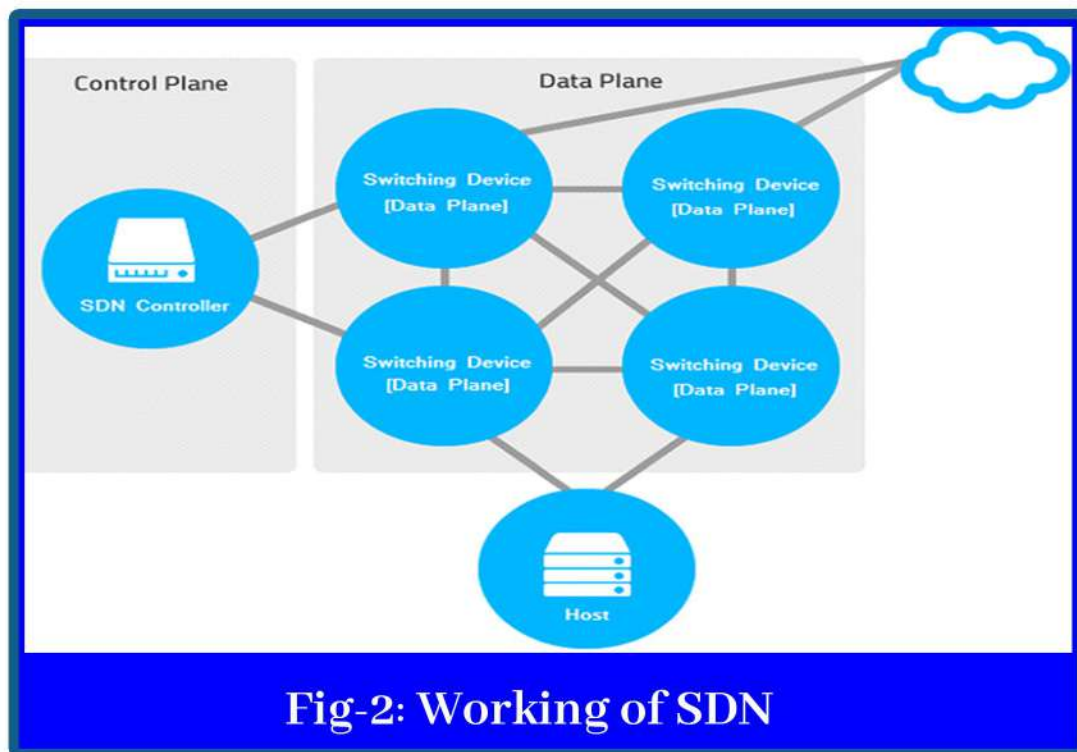
Network, a simple word that developed over the time and now has connected us to the globe. We all are connected via the network and with the growing technology, network has also grown enormously. Due to this rapid growth, came a need to redefine and the design the network.

Software Defined Networking (or SDN) is a technology, which is about transforming the existing networking structure. It is designed to overcome the limitations of traditional networks by simplifying and improving the network management activities with high flexibility. In the previous network generation we were working on static IP's and network but with evolution we now have moved to dynamic network.

Any software that manages a network of dynamically assigned addresses is utilizing some variety of SDN. Any evolutionary technology which has been developed in the 21st century including cloud computing, 4G-Wireless Communication and virtual network technology, all such become possible by some manner of Software Defined Networking (SDN). Its development started in year 2006 and with rapid growth and development in year 2011 Open Networking Foundation was established, and the first Open Networking Summit was organised.

SDN is needed because the traditional network is difficult to manage. Secondly, traditional network is hard to evolve and centralized control is also not feasible in current network.

The development of SDN is very different from the earlier network. The SDN has divided the whole networking architecture into three planes that is the Application plane, Control plane and Data plane.



The basic idea behind SDN is just to separate the control plane from the data plane. The notion of SDN is made possible due to the process of **NFV (Network Function Virtualization)**. Security, Routing and Traffic Engineering were placed into action for the development of SDN. The OpenFlow protocol is commonly placed between the control plane and the data plane.

Moreover, the APIs are divided into two types – one is the Northbound API (which lies in between the Application plane & the Control plane) and the other is Southbound API (which lies in between the Control plane & the Data plane).

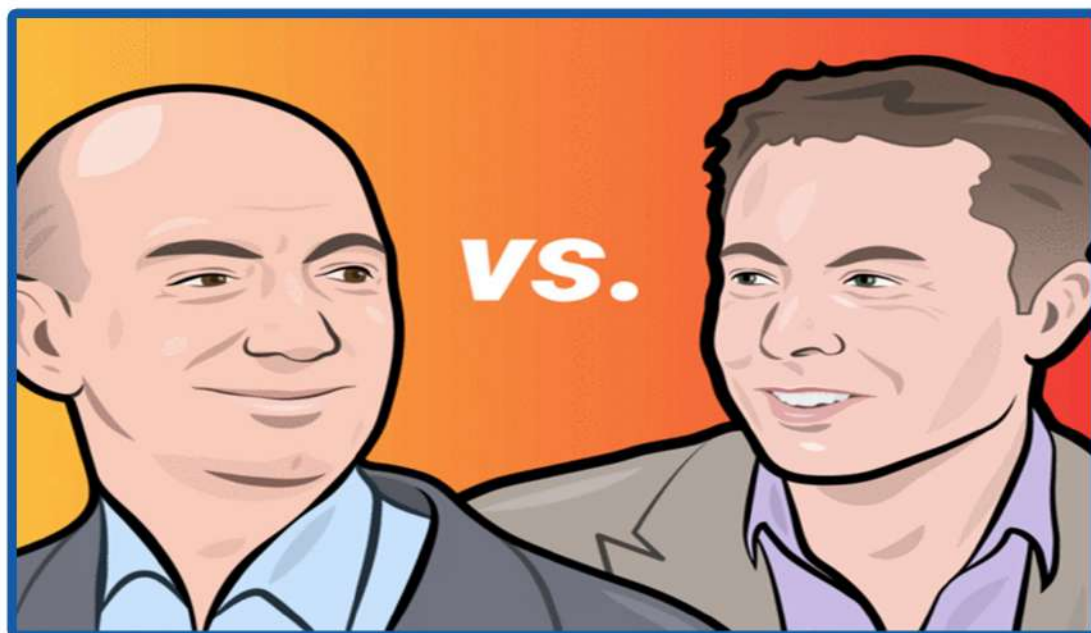
The servers of earlier era used to host software in order to discrete their operations and were networked through a gateway. In contrast to this, today SDN is developed to remove the middleman, making software a thing that is networked. SDN is designed to resolve the problem of network programmability by creating virtual appliances that can perform the same role as the physical components.

By Dev Tomar

B.Sc. Mathematical Science 1st Year

Star Wars: Jeff Bezos vs. Elon Musk

Battle of Brains Between Great Personalities of Science



Jeff Bezos and Elon Musk need no introduction today. Today, they are well known business tycoons in their respective fields and both have made a huge investment in the revolutionary projects of modern science. While Bezos founded an online retailer company, 'Amazon', in 1994 in the Washington city of Seattle (USA), to sell books and went on to become the world's first trillion-dollar company whereas, Musk founded two eminent companies – the first one is a private American aerospace manufacturer and space transportation services company, 'SpaceX', and the another one is an American automotive and energy company, 'Tesla Inc.' to reform transportation on Earth and in Space.

Jeff Bezos and Elon Musk achieved much in their respective fields, capturing the eyeballs of the entire world in that process. Most importantly, both of them share extraordinary visions of what the future holds. Let's compare the two modern day industry magnets across a number of categories - including their companies' health, their net worth, their leadership qualities, their philanthropic activities, and their future visions, to decide the leading techno-industrialist out of the two.

SpaceX and Tesla might eventually rock the way to be cavalcade, however Amazon has hitherto seized the entire globe

Today, Amazon is undoubtedly one of the most powerful tech giants, however, it actually had a pretty rocky start. Earlier, it had a huge number of challengers among conventional booksellers, and astonished Wall Street by recommending growth over financial gains. Amazon has seen some tumultuous time over the years. But the “juggernaut” of Amazon has its stock price now multiplied nearly 500 times since 1997. As per CNN report, the market capitalization of this business firm currently has the value of \$689.93 billion and around 541,900 people are employed in it worldwide. Bezos’ company has incorporated major progress in the retail sector last year after taking over the ‘Whole Foods’ company and is set to build a second headquarter in a still-to-be-decided city of North America.

The story of Tesla is not different. It has also undergone some turbulence since its initial period of becoming public in 2010 to the present day. This automaker company’s present market capital is \$58.4 billion. As per the reports of Markets Insider, a few people along with Musk himself, have cried it’s stock overrated over the years. However, the stock of Tesla has rallied in the recent times and is now trading at over \$300 a share. According to the analysis of the ‘Fortune’, around 32,300 people are currently employed in Tesla, after 700 people were fired by it in November last year. In one of the reports of ‘USA Today’, the affirmation of Musk to make SpaceX public is published with reasons, that his heavy investment made on project of flights to Mars is behind such decision made by Musk.

The Victor: Bezos

Both the CEOs are a big hit among their staff at Tesla, SpaceX and Amazon

Musk and Bezos are big hits among their employees on several fronts.

Musk’s approval ratings by his employees literally variegates somewhat between Tesla and SpaceX. Whilst SpaceX’s 96% employees admire Musk of being CEO and that rating drips to 84% at Tesla. That means Musk get an overall approval rating of 90% after normalizing the approval ratings at Tesla and SpaceX.

On the other hand, 87% of Amazon employees approve of Bezos. Like Musk, Bezos too obtains an overall rating of 90% if one averages the approval ratings at Amazon and Blue Origin (it is the private spaceflight and aerospace company founded by Bezos). However, Bezos is not the CEO of Blue Origin.

The Victor: Musk

Both the business wizards have bestowed to a myriad humanitarian cause, together with AI, catastrophe relief, research grants and cancer research

Both Bezos and Musk have stake in globally renowned foundations. Elon Musk has the 'Musk Foundation' that is well known to aid grants to support STEM education, pediatric medicine and renewable energy. As per reports of the Inside Philanthropy, the Musk foundation donated \$250,000 aftermath the 2011's Fukushima Daiichi nuclear catastrophe to aid Japan rebuild a solar power system. Moreover, Musk bestowed \$10 million on the project, named as Future of Life Institute, in 2015 and dedicated it to benefit humanity through AI. Solar City is a Tesla subsidiary and it also made help in providing solar power systems to Coden, Alabama.

As per reports of the Inside Philanthropy the 'Bezos Family Foundation' had its foundation established by his parents, with Jeff's wife MacKenzie and himself chairing the board of the foundation. The power couple has bestowed several times for various causes, inclusive of \$33 million as a research grant for the project "dreamers," \$15 million to the Princeton University for the study of neural connectivity and \$10 million to immunotherapy cancer research.

The Victor: Bezos

Bezos historically becomes the most affluent person of all time - however the net worth of Musk is ready to rise if he is adept to bolster Tesla.

With the estimate of net worth \$119.4 billion, Forbes declared Jeff Bezos as the wealthiest man in history. Forbes estimated the net worth of Musk as \$20.8 billion. However, if all goes according to Musk's plan, he might overtake Bezos in the near future. As per the reports of the Fortune, Musk's current credit plan reveals that if he's adept to bolster Tesla to \$660 billion in the market capitalization by 2028, he would have \$56.8 billion in stock options.

The Victor: Bezos



Both the business centurions have an exceptional perceptiveness for the future

The love of both Bezos and Musk for space is not hidden from anyone. While Musk is busy in following his dream of making humans “a multi-planetary species” by actively orchestrating Tesla at the same time as SpaceX. Bezos, on other hand, founded Blue Origin in 2000 after following his abiding interest in space since childhood.

As per the reports of Yahoo, Bezos has a belief that humanity should return to the moon and, in the wake of his belief, he envisaged Blue Origin that would function as a cargo service for an ensuing colony. On the other hand, Forbes reported that Musk believes to go further than the moon and he is thus following his dream of establishing a settlement on Mars.

However, both the tycoons do not see space exploration as their sole focus.

Musk hopes that the SpaceX technology will eventually drip Earth’s travel time, too. He is embarking a massive subterranean tunnel project to cut down on LA traffic - and he even uses his new Boring Company venture to sell some flamethrowers in the process in nearby future. On the contrary, Bezos’ Amazon has remodeled retail forever. As per reports of the ‘Recode’, Bezos had once set a singular goal for Amazon to transfer it into the most customer-centric company in the world. Whatsoever business entity set up by any of these two CEOs so far, it has a deep impact on human life. However, the vision of Musk to direct humans out to inhabit other planets will have the most persisting impact.

The Victor: Musk

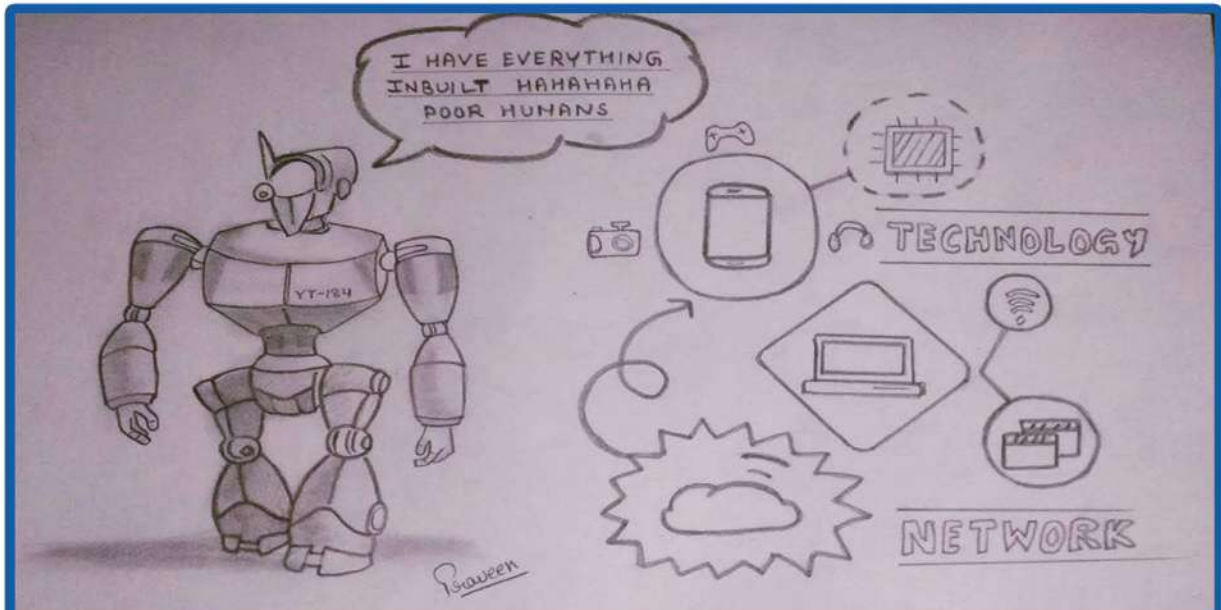
And the winner is...

Since Bezos has three out of our five categories supporting his supremacy in the current scenario, so he's undoubtedly triumphant. Although Musk has the most progressive perceptiveness about the future of mankind, biz world, and technology; Bezos however, is likely to have a win-win moment in terms of what he's achieved so far. Meantime, Jeff Bezos should be undoubtedly considered as the winner over Elon Musk.

[Disclaimer](#) Excerpts of this article have been taken from a business site ‘Business Insider’.

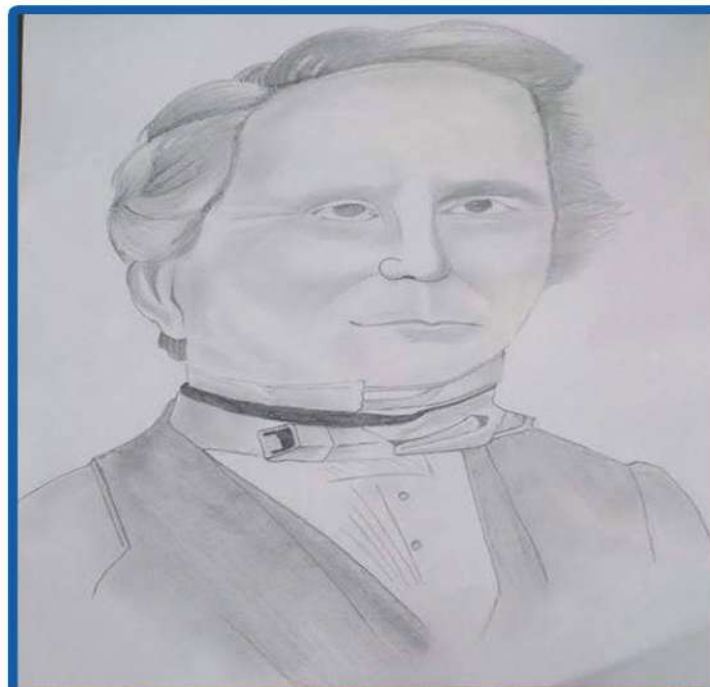
Mr. Manish Kumar Singh
 Assistant Professor
 Department of Computer Science
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Tech-Art



Robo-Domination

By Praveen
B.Sc.(Hons.) Computer Science 3rd Year



Sir Charles Babbage

By Abhishek Biswas
B.Sc.(Hons.) Computer Science 2nd Year

7 Tech Developments of 2019



We have entered into year 2019 with lots of hope and expectation that this year may bring great developments in our techno-world. Due to the heavy influence of modern day technology on present era as well as because of the massive advancements observed in the IT sector in past decade, one can expect similar or more advancement to take place in year 2019 too. This article describes seven of such much anticipated developments that are supposed to take place this year.

#1: 5G Phones to be Surpassed by Foldable Phones

The year 2019 will experience the two major advancements in mobile industry – (i). Smartphones assembled with 5G modems; and (ii). Foldable displays. Due to the impressive pliable screens which enhances the usability of device, phones with foldable display are going to overtake the phones with 5G.

#2: Game Streaming Utilities Supposed to Dominate

The year 2019 will see many biz giants like Disney, Apple, Time Warner and many to enter the market of game streaming that are supposed to bring the video game industry highly competitive and productive too. The project xCloud of Microsoft (inspired from its gaming platform of xBox) will make the video gaming cloud-based.



(Courtesy: techzbyte.com)

#3: Multi-Cloud Standardization in Enterprise Computing

With leading companies in cloud-based industry today including Amazon with AWS, Microsoft with Microsoft Azure, Google with GCP, Oracle, IBM and SAP, the cloud industry is expected to be transformed into multi-cloud. This will enhance the reliability, performance, transportability, security and interoperability of software online.

#4: Device AI to Draw Concern Around Data Privacy

With the rising concern of data privacy over the years besides the AI's advancements in data analytics research at the same time, the current year will put the extensive watch on the AI practices of data handling. The year 2019 will experience many personalized apps do the data analytics task on the device directly without exposing it to be shared by companies. This will become possible due to the availability of hardware and software (based on AI) on such devices.

#5: The US Government to Regularize Tech Industry

The present US regime is in no mood to match the pace with which the tech industry is growing today. The rift aroused between the US tech giants and the present US government over the issue of data sharing (as revealed by the Cambridge Analytica) has put the Government on the backfoot in the US politics. This has motivated the government to regularize the tech industry in the coming days, may be in 2019, irrespective of the tech industry's protest. This could have adverse affect on the global tech world in coming years.



#6: Humanized Robotics to Dominate AI

Many tech giants invested heavily on the development of personal robotics. “Sophia” as first humanoid (or human robot) to receive a country’s citizenship was a great feat achieved in this process. The year 2019 is on verge to introduce the mankind with many such techno-wonders of AI. For instance, Amazon is supposed to launch its new kind of robots with personal assistant capability making use of its own technology of voice-based digital assistant-Alexa. Further, the robot-based platforms configured with hardware and software (for instance, AGX Xavier board as an advanced Jetson of Nvidia) is supposed to accentuate the mechanics of robots to enhance them for consumer as well as commercial applications in the year 2019.

#7: Cloud Services to Replace Operating Systems

At the commercial level, the enhanced capability of desktop and application based tools of virtualization (such as VMWare and Citrix) plus the distribution of Windows desktops by Microsoft from cloud simply implies the ease with which any device can run the business applications of critical nature virtually. Further, the cloud environments at the private, public and hybrid level are supposed to grow three fold in 2019 where the applications of platform-independent based will function from a browser. Due to the less favor of proprietary operating system by the users worldwide, the tech giants are trying hard to switch to cloud based operating of the systems are supposed to become two fold in the year 2019.

By Bhavya Batra

B.Sc. (Hons.) Computer Science 2nd Year

The TOR Browser



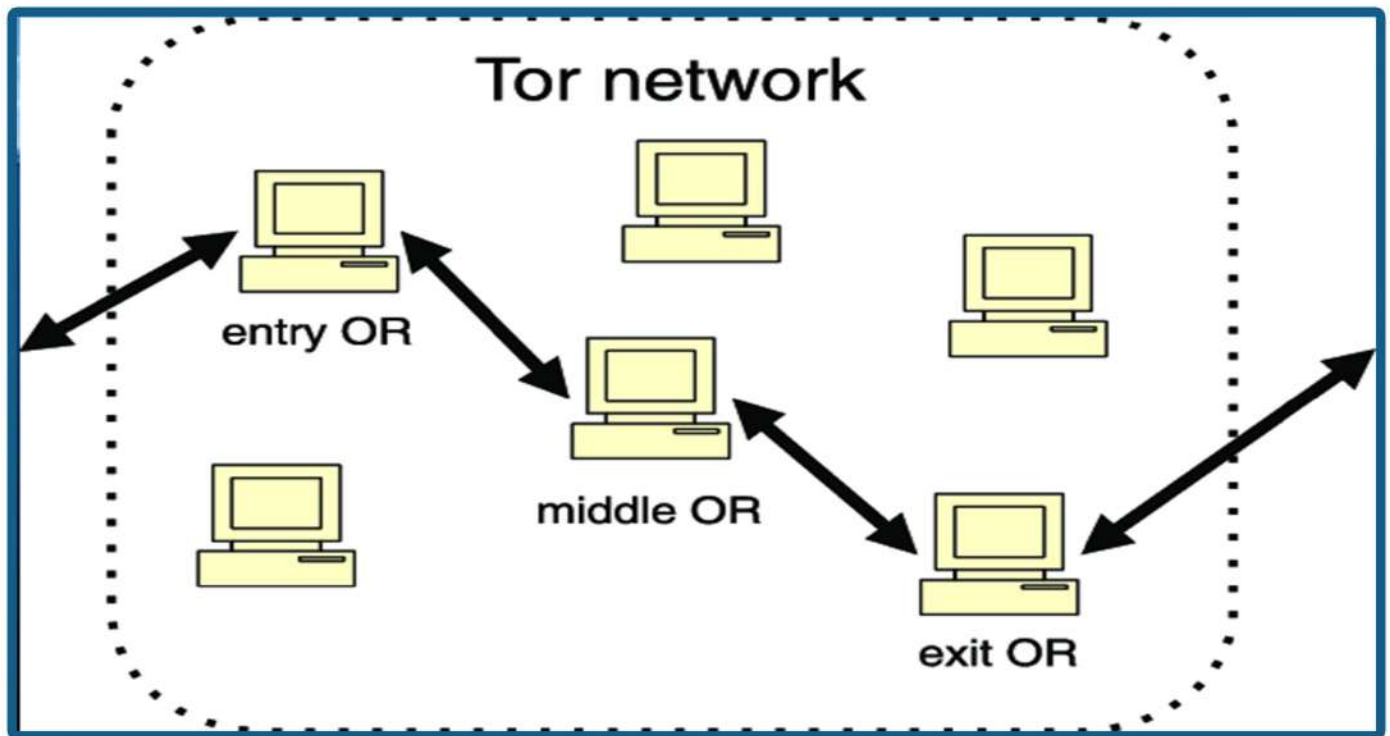
(Courtesy: developers.com)

The concept of **anonymous communication** has become a buzzword these days in the field of social networking. It is generally concerned with a peer-to-peer communication between anonymous participants carried out in a distributed manner. As far as anonymity of participants is concerned, the real location of a participant is hidden from the other participant through particular routing overlay networks known as '**Onion Routing**'.

TOR is widely used to carry out anonymous communication over the Internet. TOR has derived its name from acronym of the project named as "Onion Router". It is generally an open-source plus free software. TOR administers Internet traffic over a free, global, step forward overlay network comprising of around eight thousand relays to tuck away one's usage and location from anyone doing network scrutiny or traffic inspection. Through TOR, internet activity can be hidden from anyone. In other words, TOR simply let a user to protect personal privacy and thus helps to carry communication of confidential nature without coming in contact of any network scrutiny.

The internal mechanism of TOR involves the implementation of Onion Routing through the encryption process taking place at the application layer of the Internet protocol, in nested manner somewhat like that of Onions layers. It then sends data by randomly selecting TOR relays over virtual circuit and directs each relay to carry decryption process of encrypted layers so as to pass encrypted data through it.

The concept of "Onion Routing" originated around mid-1990s during a defense research program of the US Navy to sheath the online communication of US intelligence. The term of "Onion Routing" was coined by a mathematician, named Paul Syverson, who was working as a core researcher in that project. Later, DARPA developed the Onion Router in the year 1997.



Some Important Facts Related to TOR

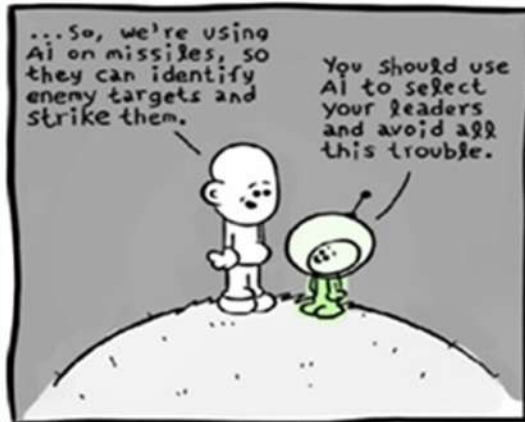
- TOR is quite famous among wide variety of Internet surfers as it enables them to chat and send message instantaneously while keeping them anonymous.
- TOR is significantly used by hackers and cyber law enforcement agencies across various part of the world to carry out their myriad illicit and licit activities respectively.
- The Economist magazine once described TOR as a “webs dark corner” that act as “Silk Road” for Bitcoin and other illegal cyber activities.
- The National Crime Agency of Britain once ran its “Operation Notarise” through TOR to successfully trace the peer-to-peer encrypted VPS access that was carried out by a suspicious group over SSH.
- Even the properly deployed TOR cannot check the digital stalking that is resulted out of pervasiveness of digital media in the present-day “online” life of the people.

Basant Verma

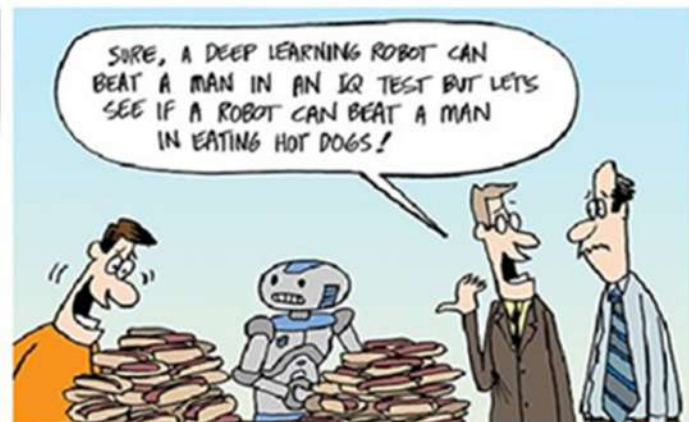
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Viewer's Digest

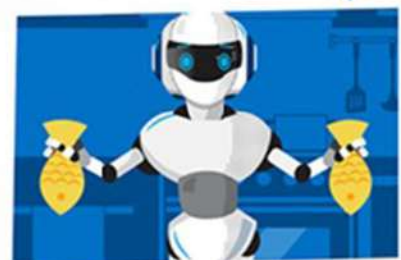
LET'S HAVE FUN WITH AI



Daniel Stori (turneff.us)



ROBOT AND ME: BAKING A CAKE



(By - Team Blitzine)

WPA-3

The Next Generation Wi-Fi Security

The WPA3 - next generation Wi-Fi security standard is launched with the vision to eliminate all the vulnerabilities and wireless attacks that are present in the earlier version WPA2. WPA or Wi-Fi Protected access is a standard designed to authenticate wireless devices using the Advanced Encryption Standard (AES) protocol and is intended to prevent hackers from eavesdropping on your wireless data.

WPA3 security standard will replace the existing WPA2 that has been around for at least 15 years and widely used by billions of devices every day. The new security protocol provides some big improvements for Wi-Fi enabled devices in terms of configuration, authentication, and encryption enhancements, making it harder for hackers to hack your Wi-Fi or eavesdrop on your network. There are two types of the latest security protocol—WPA3-Personal and WPA3-Enterprise—for personal, enterprise, and IoT wireless networks.

Key Features of WPA3

- **Protection Against Brute-Force Attacks-** WPA3 provides enhanced protection against offline brute-force dictionary attacks, making it harder for hackers to crack your Wi-Fi password.
- **WPA3 Forward Secrecy-** WPA3 leverages SAE (Simultaneous Authentication of Equals) handshake to offer forward secrecy, a security feature that prevents attackers from decrypting old captured traffic even if they ever learn the password of a network.
- **Protecting Public/Open Wi-Fi Networks-** WPA3 strengthens user privacy in open networks through individualized data encryption, a feature that encrypts the wireless traffic between your device and the Wi-Fi access point to mitigate the risk of Man-in-the-Middle (MitM) attacks.
- **Strong Encryption for Critical Networks-** Using WPA3 Enterprise, critical Wi-Fi networks handling sensitive information (such as government and industrial organizations) can protect their Wi-Fi connections with 192-bit encryption.

The new WPA-3 standard will be going to roll out in the devices after many years, so the hackers can still have a smile, dealing with the WPA-2.



By Nirnay Mittal
B.Sc.(Hons.) Computer Science 3rd Year

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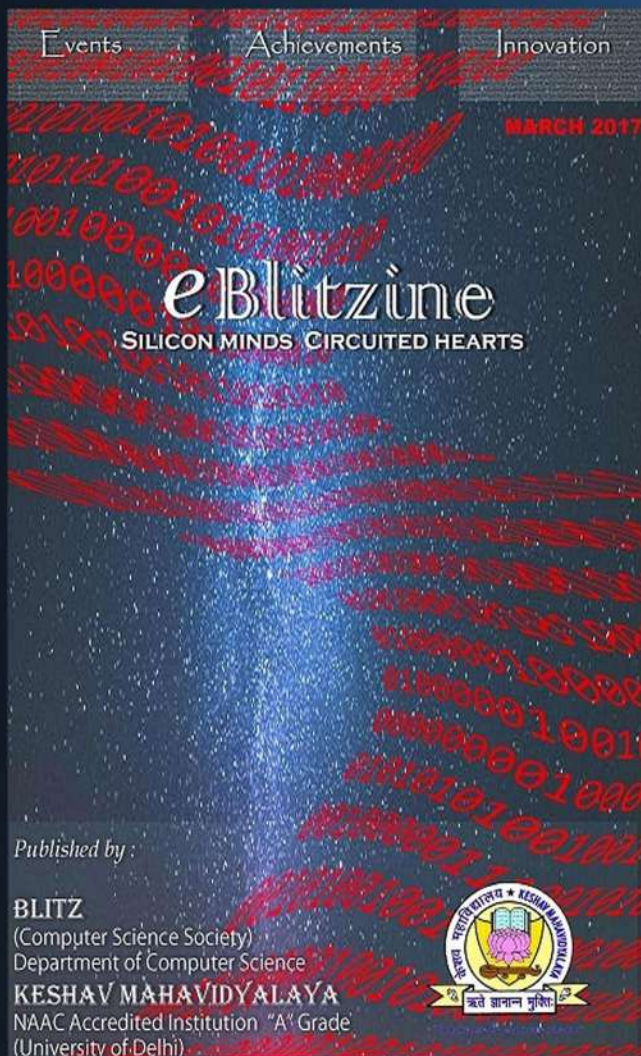


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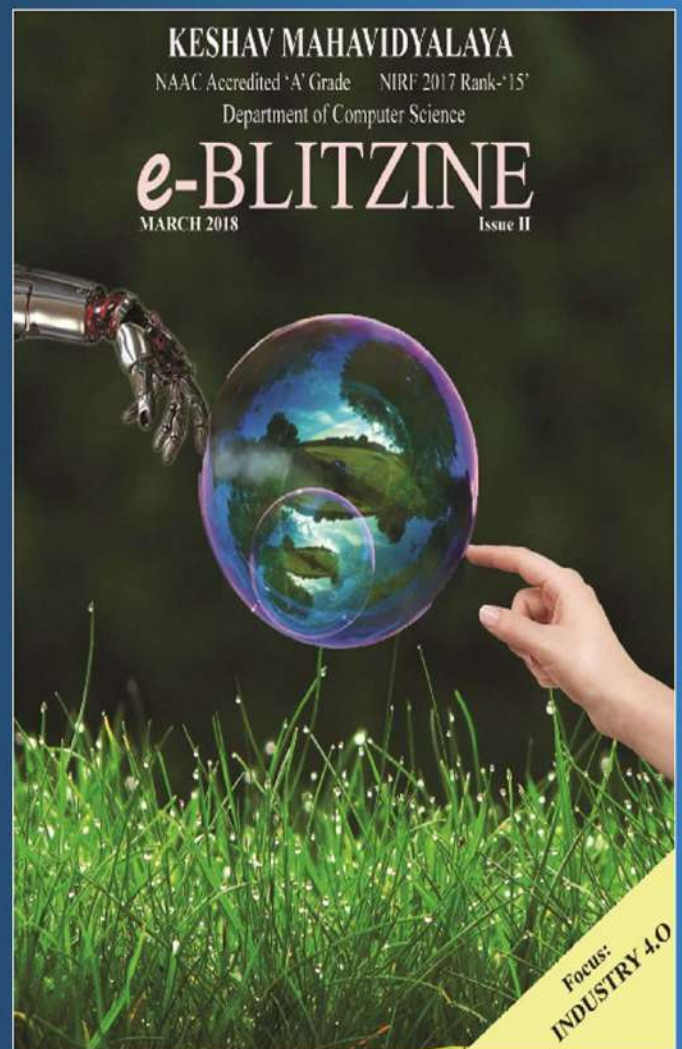
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