2018

A GANAK PATRA ISSUE

Kruptos Digest

Cryptocurency
21st century unicorn or the future of the money

AR&VR with AI
The next BIG thing

FROM OUR CREATIVE WRITERS:
~Humans Again
~If I could tell You..

Zuckerberg says "Sorry"
DIVE IN TO KNOW MORE

android cheat sheet inside

Dept of Computer Science & Engineering

From the HOD's desk …..

-Prof. Dilip K Sen

The famous Greek philosopher Heraclitus (500 B.C.E.) had said *"There is nothing permanent except change." – 'Change' is the only constant thing in the world; everything else is changing.*

So are the days; as today, the terms like education, knowledge, skill, business, industry etc. cannot exist in isolation any more. There is no denying the fact that we all are in the middle of a knowledge industry working in the business of education. Whenever knowledge, or skill is used for a livelihood it is business and the platform is the industry. The role of imparting knowledge & skill and that of the recipient & absorber often toggles. It is the wisdom that we gain in the process lets us be conscious and mindful about the 'fine line' that differentiates between them.

Since our knowledge domain is technology, it is not unexpected that the content of our newsletter is heavily loaded towards it. But again that 'fine line' questions us if we are able to balance between technology and human aspects. Indeed technology has drastically enhanced the 'living' but it is an undeniable fact that it cannot be the 'life' itself. Technology, these days, has infiltrated into every form of art; whether it is literature, cinema, music, dance, painting, photography, theatre and you name it! The debate on 'art for art's sake' of yester years has given place to 'technology for technology's sake today. But has it adversely affected creativity or human values? – I leave it to the reader to decide. Keeping the focus of contemporary issues 'Crypto monetary system' has been the chosen as the theme of the issue. Since there are two sides (values) of a bit and two sides of a coin, may I appeal to the students to see if there is another side of the Bit-Coin also?

I complement the group of students and the faculty mentors who have taken initiative, worked tirelessly against time to bring out yet another issue of Ganak Patra. Once again I would hope for this tradition to continue.

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What's Inside !!

Augmented & Virtual Reality *with* Artificial Intelligence

THE NEXT BIG THING

~Sanath Sunkad

How AI algorithms and augmented reality displays can transform your business. For the enterprise, the combination of virtual reality (VR) and artificial intelligence (AI) might be easily overlooked. VR is an emerging technology that modern businesses are keeping an eye on, but it tends to remain at the lower end of the interest scale. AI, on the other hand, is considered important for advancement by many enterprises. However, the connections between AI and VR are deeper than they appear, and their integration will provide a new range of experiences and opportunities. VR includes both 360-degree graphics and videos such as those for Google Cardboard and augmented reality (AR) displays in which data is overlaid on a view of the outside world. The combination of VR and AI is only now becoming possible due to:

- Recent developments in AI, particularly deep learning, that foster real-time image and speech recognition
- Increased availability and reduced cost of local processing and storage
- Expanding network bandwidth, allowing richer data streams
- Availability of AI in the cloud

Real-World Use Cases

Businesses are beginning to show interest in AI, and AI/AR start-ups are beginning to emerge. Eolian applications use AI technologies to reduce human error rates through AR and VR simulations of dangerous tasks. Virtualitics provides data visualization in VR and AR environments through machine learning and AI. Application of AI to VR enables important possibilities, such as AI-based continuous image recognition reporting results in a VR display. In security, for example, this can be used for identity detection -- to flag images or people for a security guard. If AR displays such as smart glasses become more common, identity detection can enrich everyday conversations by providing details about the individual you are talking to, such as which projects a colleague is working on. Deep learning could also be used to train a system to recognize more complex scenarios or components. A camera's view of parts in an engine, for example, could suggest a repair to a technician, with instructions, tests, and approved tolerances immediately pinpointed on the image. One example is Connectar's MRO.

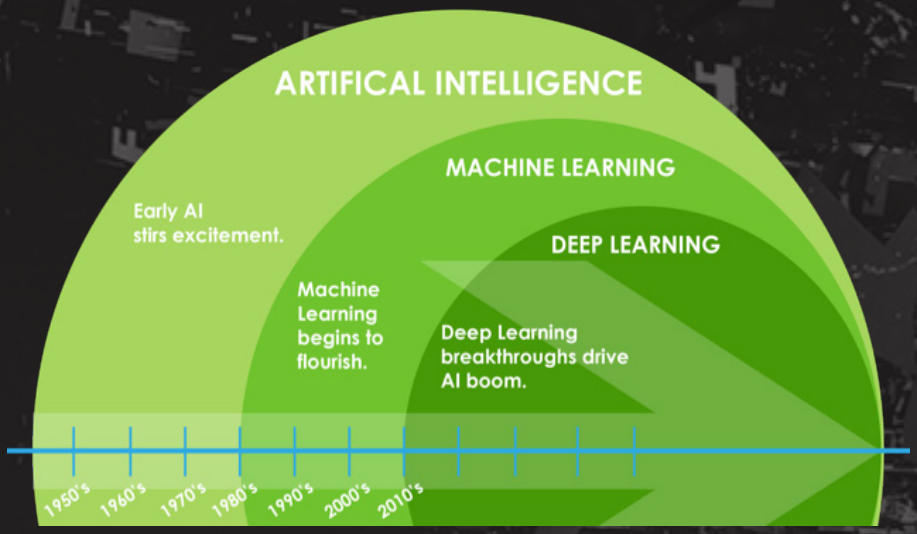
AIR, which provides an AR display that uses AI image recognition to streamline complex maintenance in aviation. Retail provides a number of exciting possibilities for a combined VR/AI approach. Virtual showrooms can provide enhanced product selection while a learning algorithm customizes both products and the buying experience itself. High-tech dressing rooms such as Ralph Lauren's store in NYC provide another example.

Sentiment analysis from social media combined with analysis of customer movement using big data and AI is already linking in-store marketing to customer's smartphones. Additional AR components could allow people to easily locate goods that could be enhanced with promotions such as virtual coupons. Combining an AR interface similar to Pokémon Go with a service such as the IBM Watson-based "Macy's On-Call" in-store virtual assistant is likely to be the next target for retail marketers. Another key business application is to improve videoconferencing. Videoconferencing suffers because telepresence -- the sense of being in the room -- is often missing. Immersive telepresence enhancements will come by adding elements of VR, AR, and AI to improve the collaborative experience. This may include improved camera tracking to naturally focus upon individual speakers or gestures and AR to provide real-time information on subject matter and participants in areas such as emergency response. Funding and expertise is increasing in this area, including a new initiative from MIT. MIT Game Lab is creating Play Labs to accelerate start-ups in AR, VR, and AI. That gaming is an early focus of many of these efforts should surprise no one; gaming has historically been popular for trial runs and inspiration for much of today's technology. The spread of VR/AR is changing the way consumers and employees interact with the world, and AI and machine learning are allowing enterprises to deeply personalize their services. Can AI algorithms and augmented reality displays transform your business?

Telepresence

Deep Learning:
What it is & Why it Matters

-V Rohit Kumar



Deep learning is a type of machine learning that trains a computer to perform human-like tasks, such as recognizing speech, identifying images or making predictions. Instead of organizing data to run through predefined equations, deep learning sets up basic parameters about the data and trains the computer to learn on its own by recognizing patterns using many layers of processing.
It is one of the foundations of artificial intelligence (AI), and the current interest in deep learning is due in part to the buzz surrounding AI. Deep learning techniques have improved the ability to classify, recognize, detect and describe – in one word, understand.

Opportunities and applications

A lot of computational power is needed to solve deep learning problems because of the iterative nature of deep learning algorithms, their complexity as the number of layers increase, and the large volumes of data needed to train the networks.
The dynamic nature of deep learning methods – their ability to continuously improve and adapt to changes in the underlying information pattern – presents a great opportunity to introduce more dynamic behavior into analytics.
Greater personalization of customer analytics is one possibility. Another great opportunity is to improve accuracy and performance in applications where neural networks have been used for a long time. Through better algorithms and more computing power, we can add greater depth.

How is deep learning being used?

Speech Recognition: Xbox, Skype, Google Now and Apple's Siri, to name a

few, are already employing deep learning technologies in their systems to recognize human speech and voice patterns.

Image Recognition: One practical application of image recognition is automatic image captioning and scene description. This could be crucial in law enforcement investigations for identifying criminal activity in thousands of photos submitted by bystanders in a crowded area where a crime has occurred. Self-driving cars will also benefit from image recognition through the use of 360-degree camera technology.

Natural Language Processing: Neural networks, a central component of deep learning, have been used to process and analyze written text for many years. A specialization of text mining, this technique can be used to discover patterns in customer complaints, physician notes or news reports, to name a few.

Recommendation Systems: Amazon and Netflix have popularized the notion of a recommendation system with a good chance of knowing what you might be interested in next, based on past behavior. Deep learning can be used to enhance recommendations in complex environments such as music interests or clothing preferences across multiple platforms.

How deep learning works:

Deep learning changes how you think about representing the problems that you're solving with analytics. It moves from telling the computer how to solve a problem to training the computer to solve the problem itself.

A traditional approach to analytics is to use the data at hand to engineer features to derive new variables, then select an analytic model and finally estimate the parameters of that model. These techniques can yield predictive systems that do not generalize well because completeness and correctness depend on the quality of the model and its features. For example, if you develop a fraud model with feature engineering, you start with a set of variables, and you most likely derive a model from those variables using data transformations. You may end up with 30,000 variables that your model depends on, and then you have to shape the model, figure out which variables are meaningful, which ones are not, and so on. Adding more data requires you to do it all over again.

The new approach with deep learning is to replace the formulation and specification of the model with hierarchical characterizations (or layers) that learn to recognize latent features of the data from the regularities in the layers. The paradigm shift with deep learning is a move from feature engineering to feature representation.

The promise of deep learning is that it can lead to predictive systems that generalize well, adapt well, continuously improve as new data arrives, and are more dynamic than predictive systems built on hard business rules. You no longer fit a model. Instead, you train the task.

Are you giving control to someone ?

-Abhijit Singh

"Freedom means having control over your own life". There is no doubt on the sudden increase in the number of people using computers –sometimes called phone with the use of the internet with them. Non-Free software is controlled by the owner while the user is just a puppet. For example, if you have a bike and imagine what if you required permission from the company or to pay money to paint or change the color of the bike.

It might sound unfair but we freely accept it when it comes to software. However shifting to a much bigger problem today that takes away control from us is Service as a Software Substitute, or SaaSS, which means letting a third party monitor your activity or provide control to them.

SaaSS and non-free software can not only spy on the user but can even shackle and attack the user.

Malware is common in services and proprietary software products because the users don't have control over them.That's the fundamental issue: while non-free software and SaaSS are controlled by some other entity (typically a corporation or a state), free software is controlled by its users.

Why does this control matter?

Because freedom means having control over your own life. The 4 terms that define the control over your software are-

(Rule 0) The freedom to run the program as you wish, for whatever purpose.

(Rule 1) The freedom to study the program's "source code", and change it, so the program does your computing as you wish.

(Rule 2) The freedom to make and distribute exact copies when you wish. (It is not an obligation; doing this is your choice.

(Rule 3) The freedom to make and distribute copies of your modified versions, when you wish.

The last two freedoms are associated generally with a group of users while the first two freedoms are associated with the single user. If the users don't control the program, the program controls the users.

For instance, Windows, mobile phone firmware, and Google Chrome for Windows include a universal backdoor that allows some company to change the program remotely without asking permission. The Amazon Kindle has a backdoor that erases books.

With the goal of ending the injustice of non-free software, the free software movement develops free programs so users can free themselves. In 1984 by developing the free operating system GNU.

With millions of user added after Free Software movement to GNU Linux users where does SaaSS fit in all this?

Service as a Software it does not really mean the server's program are charged (though they often are). SaaSS causes the same injustices as using a non-free program: If we look at SaaSS translation service where now the job of translating is under the control of the server operator rather than the user. The user interacts with the user and sends the text to the server, the server translates (from language A to language B)and sends the translation back to the user. The job is translating is completely in the hands of the server only.

Using a proprietary software or SaaSS gives power to any third party which cannot be justified and it would be difficult for educational institutions and students without free software to explore the capability. It does require the educational institute to give and share knowledge of free software, a democratic value that helps people. Proprietary developers would be harsh towards students who are efficient to share software and curious to change it.

The collaboration and cooperation model involves redistribution exact copies of the program to other users. The modified and changed versions can be also be distributed. Free Software encourages this kind of cooperation while the proprietary software does vice versa. Redistribution of copies is restricted and source code is not available, it blocks them from making changes. SaaSS also has the same problem as your computing is done over the web in someone else's server, by someone else's copy of a program, the computing software is not available for you and hence you cannot see the code or modify it. This eventually makes it impossible to be redistributed.

One might restrict the development process by having proprietary software as it restricts the number of contributors to the software. If we have a world where anyone can contribute, modify the code and redistribute then it would be a much better development and one will get the best software.

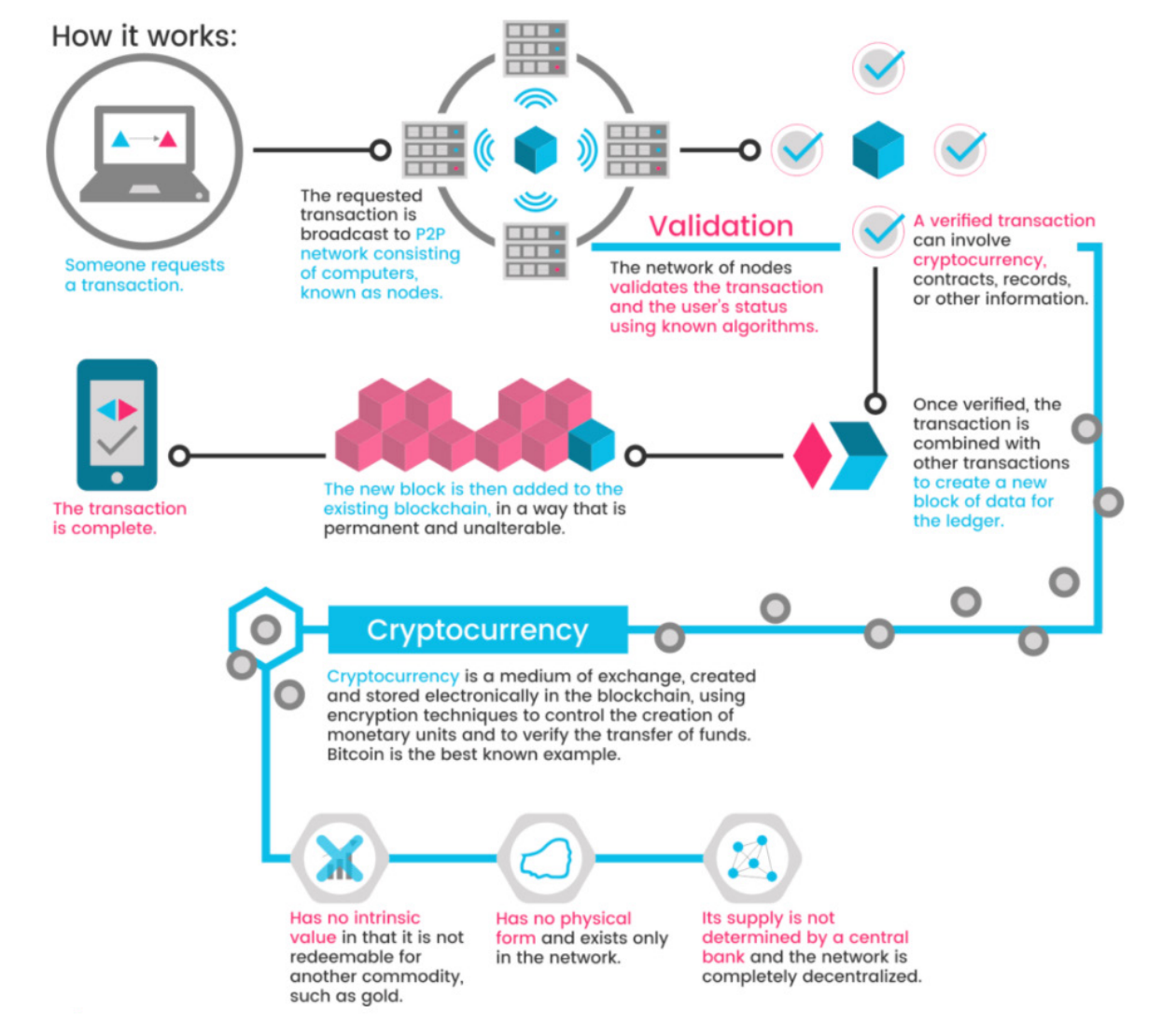
"Without freedom, life is like a eagle chained down and life without free software is nothing less than the same"

Cryptocurrency:
21st-century unicorn or the money of the future?

- V Rohit Kumar

Satoshi Nakamoto, the unknown inventor of Bitcoin, the first and stilmost important cryptocurrency, never intended to invent a currency.
In his announcement of Bitcoin in late 2008, Satoshi said he developed **"A Peer-to-Peer Electronic Cash System."** His goal was to invent something; many people failed to create before digital cash.

Bitcoin, a new electronic cash system that uses a peer-to-peer network to prevent double-spending. It's completely decentralized with no server or central authority.



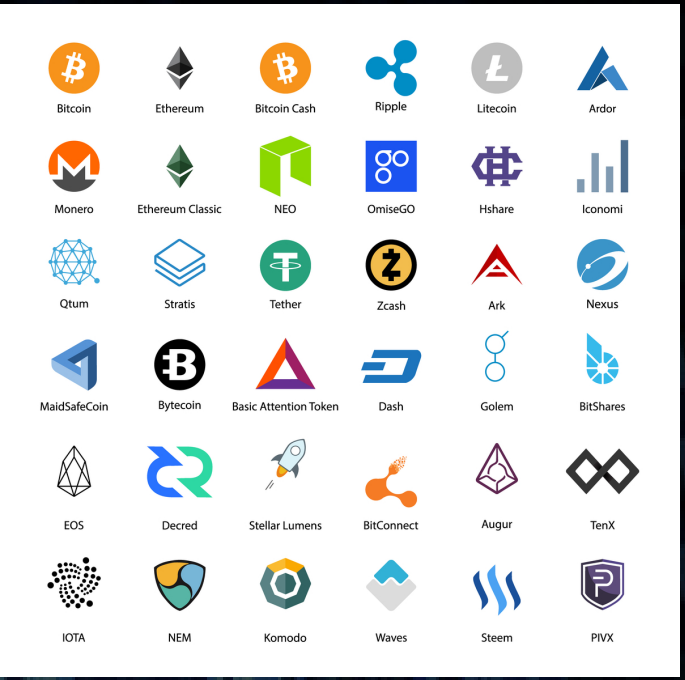
What Cryptocurrency really is:

If you take away all the noise around cryptocurrencies and reduce it to a simple definition, you find it to be just limited entries in a database no one can change

without fulfilling specific conditions. This may seem ordinary, but, believe it or not: this is exactly how you can define a currency. Take the money on your bank account: What is it more than entries in a database that can only be changed under specific conditions? You can even take physical coins and notes: What are they more than limited entries in a public physical database that can only be changed if you match the condition than you physically own the coins and notes? Money is all about a verified entry in some kind of database of accounts, balances, and transactions.

Let's have a look at the mechanism ruling the databases of cryptocurrencies. In this P2P network, every peer has a record of the complete history of all transactions and thus of the balance of every account. A transaction is a file that says, "Bob gives X Bitcoin to Alice" and is signed by Bob's private key. It's basic public key cryptography, nothing special at all. After signed, a transaction is broadcasted in the network, sent from one peer to every other peer. This is basic p2p-technology. Nothing special at all, again.

The transaction is known almost immediately by the whole network. But only after a specific amount of time it gets confirmed. As long as a transaction is unconfirmed, it is pending and can be forged. When a transaction is confirmed, it is set in stone. It is no longer forgeable, it can't be reversed, it is part of an immutable record of historical transactions: of the so-called blockchain. Only miners can confirm transactions.



This is their job in a cryptocurrency-network. They take transactions, stamp them as legit and spread them in the network. After a transaction is confirmed by a miner, every node has to add it to its database. It has become part of the blockchain.

Since a decentralized network has no authority to delegate this task, a cryptocurrency needs some kind of mechanism to prevent one ruling party from abusing it. Imagine someone creates thousands of peers and spreads forged transactions. The system would break immediately.
So, Satoshi set the rule that the miners need to invest some work of their computers to qualify for this task. In fact, they have to find a hash – a product of a cryptographic function – that connects the new block with its predecessor. This is called the Proof-of-Work. In Bitcoin, it is based on the SHA 256 Hash algorithm.

The Rise Of Blockchain

-Syed Mohammed Faiz

Over the past decade, an alternative digital paradigm has slowly been taking shape at the edges of the internet which is none other than the blockchain technology.

When you vote have you ever wondered whether your ballot is actually counted?
If you meet someone how do you know they're who they say they are?
When you buy coffee that's labelled fair trade, what makes you so certain of its origin?

To be really sure about any of those questions you need a system where records can be stored, facts can be verified by anyone, and security is guaranteed at an optimal level. The growth of commerce and trade has created a network of disparate ledger systems vulnerable to errors, fraud and misinterpretation.

Block chains store information across the network of personal computers, making them not just decentralised but distributed. This means no central company or person owns the system, yet everyone can use it and help run it. This is an essential because it makes it difficult for any one person to take down the entire network or even corrupt it.

Each block typically contains a cryptographic hash of the previous block, a timestamp and transaction data. By design, a blockchain is inherently resistant to modification of the data. For any block on the chain, there is only one path to the genesis block. Coming from the genesis block, however, there can be forks.

The people who run the system use their computers to hold bundles of records submitted by others known as "blocks",in a chronological chain. The blockchain uses a form of math called cryptography to ensure that records can't be counterfeited or changed by anyone else.

Current supply chains have to rely on intermediaries every step of the way from government officials to lawyers, accountants, dealers and banks which leads to added time and cost. Frauds can hamper governments from collecting fair export taxes also consumers and retailers face the prospect of facing counterfeits, this is where hyper ledger blockchain technology comes in.

You've probably heard of the block chain's first killer application: a form of digital cash known as Bitcoin. Bitcoin is a cryptocurrency and worldwide payment system. It is the first decentralized digital currency,

The network is peer to peer and transactions take place between users directly, without an intermediary. These transactions are verified by network nodes through the use of cryptography and recorded in a block chain.

"Bitcoin is the beginning of something great, a currency without a government, something necessary and imperative "

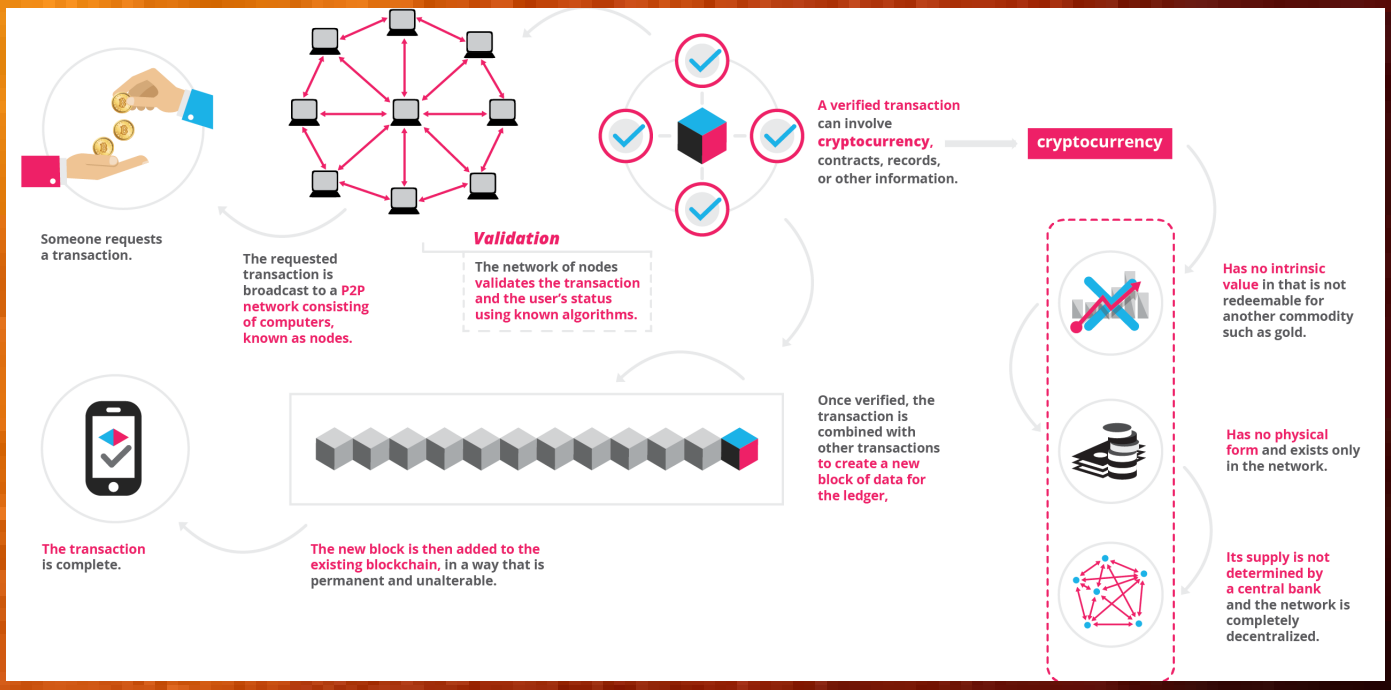
Bitcoin is different from credit cards, PayPal, or other ways of sending money because there isn't a bank or financial middlemen involved. Instead people from all over the world help move the digital money by validating others bitcoin transactions with their personal computers, earning a small fee in the process.

Bitcoin uses the blockchain by tracking records of ownership over the digital cash, so only one person can be the owner at a time and the cash can't be spent twice, like counterfeit money in the physical world can.

But Bitcoin is just the beginning for block chains. In the future block chains that manage and verify online data could enable us to launch companies that are entirely run by algorithms, make self driving cars safer, help us protect our online identities, and even track the billions of devices on the internet of things.

Blockchain technology has the potential to eliminate vulnerabilities with a transparent transaction system. It offers all parties involves in a business network a secure and synchronized record of transactions, new technology is being used to build a radically better financial system.

"I believe that blockchain will do for business what the internet did for communication, create new ways of working and leave more time for creativity and innovation."



SDN - software defined networking

~Sachin Kumar

Software-Defined Networking (SDN) is an emerging architecture that is dynamic, manageable, cost-effective, and adaptable, making it ideal for the high-bandwidth, dynamic nature of today's applications. This architecture decouples the network control and forwarding functions enabling the network control to become directly programmable and the underlying infrastructure to be abstracted for applications and network services. The OpenFlow® protocol is a foundational element for building SDN solutions.

How Does Software-Defined Networking Work?

Software-defined networking providers offer a wide selection of competing architectures, but at its most simple, the Software-Defined Networking method centralizes control of the network by separating the control logic to off-device computer resources. All SDN models have some version of an SDN Controller, as well as southbound APIs and northbound APIs:

• Controllers: The "brains" of the network, SDN Controllers offer a centralized view of the overall network, and enable network administrators to dictate to the underlying systems (like switches and routers) how the forwarding plane should handle network traffic. • Southbound APIs: Software-defined networking uses southbound APIs to relay information to the switches and routers "below." OpenFlow, considered the first standard in SDN, was the original southbound API and remains as one of the most common protocols. Despite some considering OpenFlow and SDN to be one in the same, OpenFlow is merely one piece of the bigger landscape. • Northbound APIs: Software-Defined Networking uses northbound APIs to communicates with the applications and business logic
"above." These help network administrators to programmatically shape traffic and deploy services.

Transformation through innovation

Software-Defined Networking (SDN) helps organizations accelerate application deployment and delivery, dramatically reducing IT costs through policy-enabled workflow automation. SDN technology enables cloud architectures by providing automated, on-demand application delivery and mobility at scale. SDN enhances the benefits of data center virtualization, increasing resource flexibility and utilization and reducing infrastructure costs and overhead.

SDN accomplishes these business objectives by converging the management of network and application services into centralized, extensible orchestration platforms that can automate the provisioning and configuration of the entire infrastructure. Common, centralized IT policies bring together disparate IT groups and work flows. The result is a modern infrastructure that can deliver new applications and services in minutes, rather than the days or weeks required in the past.

SDN delivers speed and agility when deploying new applications and business services. Flexibility, policy, and programmability are the hallmarks of Cisco's SDN solutions, with a platform capable of handling the most demanding networking needs of today and tomorrow.

TextView

Displays text

```
<TextView
    android:id="@+id/title_text_view"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:text="@string/my_photos"
    android:textAppearance="?android:textAppearanceLarge"
    android:textColor="#4689C8"
    android:textStyle="bold" />
```

My Photos

ImageView

Displays Image

```
<ImageView
    android:id="@+id/photo_image_view"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    android:scaleType="centerCrop"
    android:src="@drawable/beach" />
```

Button

Button with text label

```
<Button
    android:id="@+id/next_button"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:text="@string/next" />
```

NEXT

View

Plain rectangle (can be used as a divider)

```
<View
    android:layout_width="match_parent"
    android:layout_height="100dp"
    android:background="#4E4B4F" />
```

EditText

Text field that you can type into

```
<EditText
    android:id="@+id/album_description_view"
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:hint="@string/album_description"
    android:inputType="textMultiLine" />
```

Album Desciption

Spinner

Click on it to show a list of dropdown options

```
<Spinner
    android:id="@+id/sort_by_spinner"
    android:layout_width="match_parent"
    android:layout_height="wrap_content" />
```

Create SpinnerAdapter in Java code to populate the options. See more

Beach

Beach

BBQ

Family dinner

Party

CheckBox

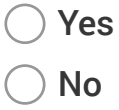
Checkbox with text label

```
<CheckBox
    android:id="@+id/notify_me_checkbox"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:text="@string/notify_me"
    android:textAppearance="?android:textAppearanceMedium" />
```

RadioButton

Radio button (where you can select one out of a group of radio buttons)

```
<RadioGroup
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:orientation="vertical">
    <RadioButton
        android:id="@+id/yes_radio_button"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="@string/yes"
        android:textAppearance="?android:textAppearanceMedium" />
    <RadioButton
        android:id="@+id/no_radio_button"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="@string/no"
        android:textAppearance="?android:textAppearanceMedium" />
</RadioGroup>
```



RatingBar

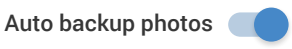
Star rating

```
<RatingBar
    android:id="@+id/rating_bar"
    style="?android:attr/ratingBarStyleSmall"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:numStars="5"
    android:rating="2.5"
    android:stepSize="0.5" />
```

Switch

On / off switch that you can drag right or left (or just tap to toggle the state)

```
<Switch
    android:id="@+id/backup_photos_switch"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:text="@string/auto_backup_photos"
    android:textAppearance="?android:textAppearanceSmall" />
```



SeekBar

Displays progress and allows you to drag the handle anywhere in the bar (i.e. for music or video player)

```
<SeekBar
    android:id="@+id/seek_bar"
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:max="100"
    android:progress="20" />
```

Zuckerberg says "Sorry"

~Sanath Sunkad

Facebook CEO Mark Zuckerberg issued a public apology in an old-school format Sunday — via a full-page newspaper ad in major U.S. and U.K. papers. "We have a responsibility to protect your information. If we can't, we don't deserve it. I'm really sorry that this happened" News broke that Cambridge Analytica, a data firm with ties to President Donald Trump's 2016 campaign, accessed information from 50 million Facebook users without their knowledge, and might have kept that data even after Facebook told the company to delete it. The revelation put Facebook and Zuckerberg under the microscope for their handling of user data and privacy. Zuckerberg addressed the scandal publicly through a Facebook post on 21st March 2018. He wrote that the company made "mistakes" and outlined how it has changed its policies to make sure that user data is protected. "I wish we'd taken those steps earlier," Zuckerberg told on interview. "That is probably the biggest mistake that we made here." In 2014, Facebook changed its platform to limit the amount of data that third-party developers could access. Aleksandr Kogan, the data scientist who passed along data to SCL Group and its affiliate Cambridge Analytica, built a Facebook app that drew data from users and their friends in 2013. He was allowed access to a broad range of data at the time. Though Kogan's data was properly obtained, he breached Facebook's policy when he shared that information with a third party, Facebook has said. When Facebook learned about the information being shared, it asked Cambridge Analytica to destroy the data. Cambridge said it had. But a former contractor, Christopher Wylie, disputes that Cambridge Analytica destroyed the user data. Zuckerberg told that he regrets taking Cambridge Analytica at its word. "This was clearly a mistake," he said. Zuckerberg said Facebook plans to alert everyone whose data was accessed by Cambridge Analytica. But he added that he wishes the company hadn't waited so long to tell people what happened. "That's definitely something that, looking back on this, I regret that we didn't do at the time," "I think we got that wrong." And he said he's made other mistakes along the way. "I started this when I was so young and inexperienced," the 33-year-old Zuckerberg said. "I made technical errors and business errors. I hired the wrong people. I trusted the wrong people," he said. "I've probably launched more products that have failed than most people will in their lifetime."

But ultimately, he said, he's learned from his missteps. "That's the commitment that I try to have inside our company, and for our community." Zuckerberg says that Facebook has "already stopped apps like this from getting so much information. Now we're limiting the data apps get when you sign in using Facebook." Zuckerberg also writes that Facebook will investigate, ban, and inform users about other apps that had access to similarly large amounts of data. Facebook will also provide better privacy protection by reminding users what apps they've granted access to their data. "Thank you for believing in this community," Zuckerberg concludes. "I promise to do better for you."

Facebook
"Betting on HTML5 Was a Mistake"

~Sanath Sunkad

Facebook has decided to go native for mobile content instead of doing HTML5 as it was the plan for a couple of years.

Mark Zuckerberg, CEO of Facebook, has recently declared during an interview for TechCrunch that "the biggest mistake that we made as a company is betting too much on HTML5 as opposed to native because it just wasn't there," and "since we've done the iOS app we've seen double the amount of feeds people consume."

He did not say exactly what was their problem with HTML5, but he suggested the quality of such products was not good enough: "There are mobile experiences out there that are so good, that we need to have the highest quality, and the only way is doing native."

Tobie Langel, a Facebook software engineer and W3C AC Representative, detailed in a post the performance issues encountered by Facebook while building a mobile web presence based on HTML5. The first problem Langel mentioned was the lack of debugging tools:

"The biggest issues we've been facing here are memory related. Given the size of our content, it's not uncommon for our application to exhaust the hardware capabilities of the device, causing crashes. Unfortunately, it's difficult for us to understand exactly what's causing these issues. GPU buffer exhaustion? Reaching resource limits? Something else? Hard to say."

Another issue with HTML5 remarked by Langel was scrolling performance, mostly done with JavaScript because "other options were not fast enough"

"Inconsistent frame rates, UI thread lag (stuttering).

GPU buffer exhaustion due to size of content and number of images.

Native momentum scrolling has a different feel across operating systems. JS implementation ends up being tailored for one OS and feels wrong on other ones. Perf issue with touch events on Android devices (latency, not enough events) which makes JS implementations of scrolling more brittle there."

Big Data and Business Intelligence

-Vaibhav Sabhahit &
Swati Mishra

We are hearing a lot about Big data analytics and the buzz around it. People are easily labelling it as the next big thing. But what exactly is big data analytics? Big data analytics basically involves analysing large amounts of data to make smart decisions.

Well-established enterprises like retailers or manufacturing companies now have an abundance of data at their disposal.

In the world of business, big data analytics is a powerful tool in various ways.

1.Real-time Data to Improve Customer Engagement and Retention:

Customer service is one of the most important areas on which organizations must deliver metrics today. Companies have been using real-time data to offer one-on-one personalized services and solutions to its customers. Kroger uses Big Data to offer customized loyalty programs to its customers. The company utilizes the data collected from about 770 million consumers to generate actionable insights that help the brand in enhancing its customer loyalty and profitability. Kroger claims that 95 percent of its sales are rung up on loyalty cards and has reported 60 percent redemption rates and over $12 billion in incremental revenue. This has helped the company stay profitable even during the global recession

2. Enhance Operational Efficiency:

Today, companies are leveraging data to automate processes, optimize selling strategies, and enhance the overall efficiency of their businesses. For example, Tesla's vehicles are embedded with sensors that collect data and send it to the central servers for analysis. This helps the company improve the performance of their cars.

The company also informs individual vehicle owners about priority repair or servicing. Another good application of Big Data is Tesla's autopilot software. Today, Tesla logs more miles per day than the total miles logged by the Google driverless car program since 2009. It has also generated roadmaps for driverless cars by compiling all this data into the cloud. These roadmaps are considered to be 100 times more accurate than standard navigation systems. The enhanced autopilot software helps match a car's speed to traffic, guide lane changes, and self-parking without the driver's intervention.

3.Increased Capacity Without Extra Investment:

Can you imagine an increase in customer base, without extra resource allocation? Sprint, a telecommunications company, uses Big Data analytics to reduce network errors, optimize resources, and improve customer experience by analysing real-time data. This has helped the brand achieve a 90 percent increase in its delivery rate.

Unfortunately, merely possessing vast amounts of raw data does not lead directly to increased efficiency or the rapid development of new revenue streams. Instead, everyone must now figure out exactly how to make this data work for them.

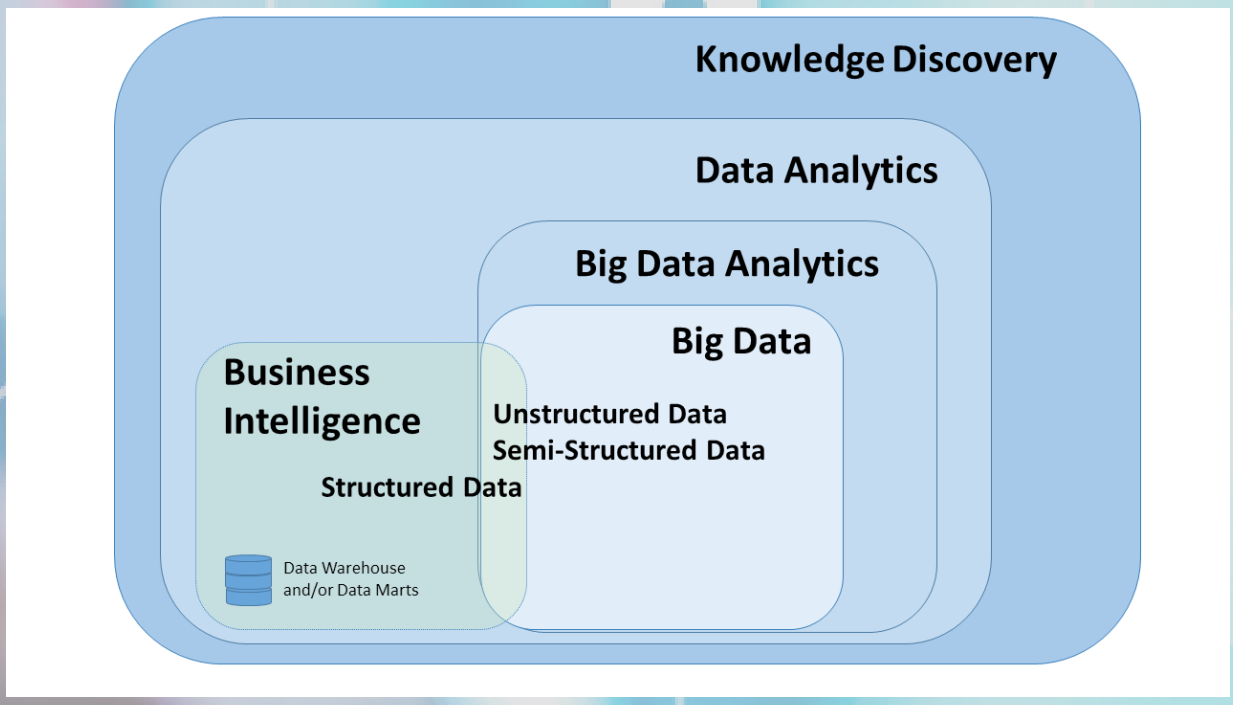
Following in the footsteps of the internet giants – Google, Facebook and others – established enterprises are eager to invest in advanced analytics solutions to capitalise on the opportunities that possessing this data presents.

To address this, an increasing number of businesses are deciding to bring machine learning in-house – introducing new departments and resources to accommodate. Others are choosing to collaborate with external teams to tackle the task.

Regardless of the approach chosen, both bring a new distinct set of challenges to resolve.

To cite one such example: Walmart used Big data analytics when it came to emergency merchandise in preparation for Hurricane Frances in 2004. Executives wanted to know the types of merchandise they should stock before the storm. Their analysts mined records of past purchases from other Walmart stores under similar conditions, sorting a terabyte of customer history to decide which goods to send to Florida (quantitative data).

It turns out that, in times of natural disasters, Americans turn to strawberry Pop-Tarts and beer. Therefore by predicting what's going to happen, instead of waiting for it to happen, trucks filled with toaster pastries and six-packs were soon speeding down Interstate 95 toward Walmarts in the path of Frances. Most of the products that were stocked for the storm sold quickly.



"Who is a Data Scientist?"

Data scientists are big datawranglers. They take an enormous mass of messy datapoints (unstructured and structured) and use their formidable skills in math, statistics and programming to clean, massage and organize them.

"We have lots of data – now what?"

Data science is a multidisciplinary blend of data inference, algorithm development, and technology.

Data is the New Science

- Priyadharshan Sababathi

Data science – discovering data insights:

This aspect of data science is all about uncovering findings from data. A "data product" is a technical asset that utilizes data as input, and processes that data to return algorithmically-generated results. The classic example of a data product is a recommendation engine, which ingests user data, and makes personalized recommendations based on that data.

Here are some examples of data products: Netflix data mines movie viewing patterns to understand what drives user interest, and uses that to make decisions on which Netflix original series to produce. Amazon's recommendation engines suggest items for you to buy, determined by their algorithms.

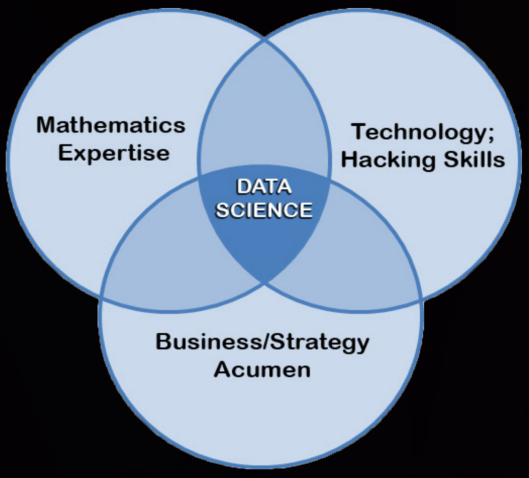
"How do data scientists mine out insights?"

It starts with data exploration. When given a challenging question, data scientists become detectives. They investigate leads and try to understand pattern or characteristics within the data. This requires a big dose of analytical creativity.

"What are Data Scientists made up of?"

Mathematics Expertise:

At the heart of mining data insight and building data product is the ability to view the data through a quantitative lens. There are textures, dimensions, and correlations in data that can be expressed mathematically. Finding solutions utilizing data becomes a brain teaser of heuristics and quantitative technique. Solutions to many business problems involve building analytic models grounded in the hard math, where being able to understand the underlying mechanics of those models is key to success in building them.



Technology and Hacking:

First, let's clarify on that we are not talking about hacking as in breaking into computers. Data scientists need to be able to code — prototype quick solutions, as well as integrate with complex data systems. Core languages associated with data science include SQL, Python, R, and SAS. On the periphery are Java, Scala, Julia, and others.

Strong Business Acumen:

It is important for a data scientist to be a tactical business consultant. Working so closely with data, data scientists are positioned to learn from data in ways no one else can. This means a core competency of data science is using data to cogently tell a story.

"How is Analytics and Machine Learning tied to Data Science?"

Analytics is the "science of analysis" — put another way, the practice of analysis information to make decisions.

Machine Learning, coined by Arthur Samuel in 1959, is a field of computer science that uses statistical techniques to give computer systems the ability to "learn" with data, without being explicitly programmed. The term machine learning is self-explanatory.

It is closely associated with data science. It refers to a broad class of methods that revolve around data modeling to algorithmically make predictions, and algorithmically decipher patterns in data.

Not all machine learning methods fit neatly into the above two categories. For example, collaborative filtering is a type of recommendations algorithm with elements related to both supervised and unsupervised learning. Contextual bandits are a twist on supervised learning where predictions get adaptively modified on-the-fly using live feedback.

Brutally, I would say that Data Science is anything that tries to answer a question using data and ML is one of the many ways to do it.

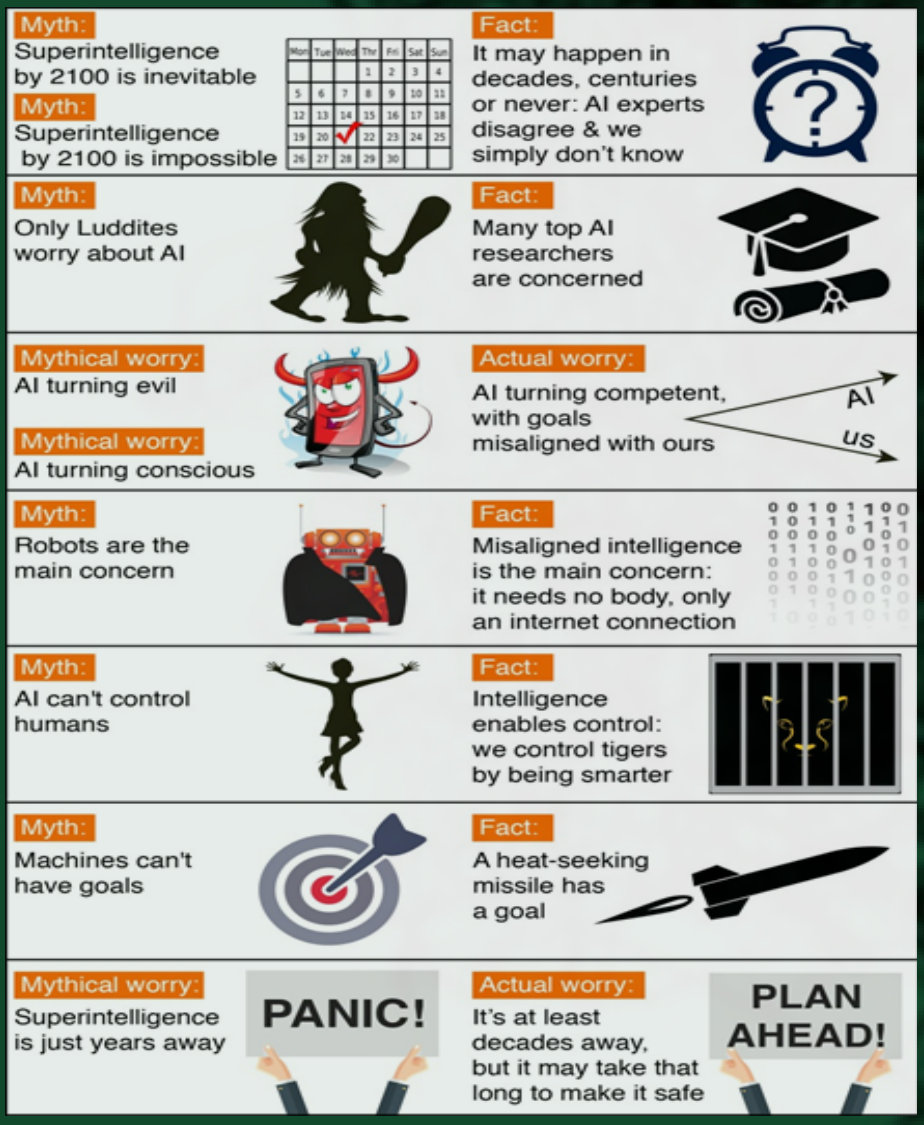
AN AMBIVALENT VIEW ON ARTIFICIAL INTELLIGENCE?

~Manisha K Johnson

AI a tool or a threat. Very common words one imagines on hearing computer science are-machine learning, artificial intelligence, deep learning. For the most part, I am sure we all have some views regarding them. In general: Artificial Intelligence refers to an independent intelligent behavior of software or machines that have a human-like ability to make decisions and to improve learning from experience over time. While machine learning is simply a way of achieving AI. And Deep learning Is one of many approaches to machine learning. Media has recently been widely hyping on a probability of 'Singularity', it is that hypothesis when machines get exponentially smarter than humans. So let's dissect some facts with reference to real and involved people in the field. In 1955, The term AI was first used by John McCarthy, referred also as "the Father of AI". He believed that "every aspect of learning or any other feature of intelligence can in principle be so precisely described that a machine can be made to simulate it.". It has been present for many years, Yet why has AI gained traction recently? - Mostly because of the exponential growth on AI research, all the goals set for the upcoming decade has been reached. Big names i.e. Stephen Hawking (May his Soul RIP), Elon Musk, Bill Gates, Steve Wozniak and many others, have expressed concerns over the risks posed by furthering AI research. Alarmed and anxious, Elon Musk states that AI is probably humanity's biggest existential threat. His stance regarding the topic came from an investment he had made which allowed him to observe the capabilities of AI. Before DeepMind was acquired by google in 2014. Musk had invested in it for observing AI closely and stated "it gave me more visibility into the rate at which things were improving, and I think they're really improving at an accelerating rate, far faster than people realize. Mostly because in everyday life you don't see robots walking around. Maybe your Roomba or something. But Roombas aren't going to take over the world"(Roomba is a robot floor cleaner). Stephan Hawking also shares the views on AI with Elon Musk and stated that "the future with AI is uncertain. Success is creating effective AI, it could be the biggest event in the history of our civilization. Or the worst. We just don't know." He urged the creators of AI "to employ best practice and effective management".

On changing the perspective- do we really know what robotic pioneers think regarding the matter. One among them, is Rodney Brooks. His words regarding AI taking over the world is to "Chill". The fundamental error in the above fears is not being able to distinguish the difference between the very real recent advances in a particular aspect of AI. The enormity in complexity in building an intelligent machine is unscalable. The re-

cent advances are at a point where AI machine do not know about a existence of the world rather has a limited view on getting the output as per specific input(like figuring out if image is a cat or a dog). Anyone wondering- What about Sophia, the Robot? The Chief Scientist Ben Goertzal says that she isn't a complete AI robot. She uses AI methods in face tracking, emotion recognition, and robotic movements generated by deep neural networks. Yet most of her dialogues come from a simple decision tree (same technique used by chatbots when u say X it replies Y). The concerns shown by leaders in tech are unsurprising since it is rightful that we think of the worst possible situations as the uncertainty of our future with AI is quite high. But as of now AI is too primitive unless Doofenshmirtz is trying to take over the universe using existing AI, then just through internet, it is more than plausible. The leaders who are working in the field are sure that the probability in witnessing a superhuman AI machine is quite far-fetched. So as programmers, focus on how to improve AI for the advancement of life. While coding by a proportion of infinity:1 "Think and type". The decision on AI as a tool or a threat is left to you.



Abhikalpana

They say big things often have small beginnings ,same goes with Abhikaplana. It began with a group of 6-7 dreamers, who believed "The willingness to share doesn't make one charitable, it makes one free".

Now, Abhikalpana after its bright first two years ,is a family of about more than 60 enthusiastic volunteers. Abhikalpana stands on 3 Pillars Shine, Smile, Scream.

All these volunteers spend their weekend with the underprivileged kids near the college (Sugatta road). This all began when our seniors got to know that many kids living there don't attend school. As our volunteers started spending their time with kids, they made their parents realize how important schooling is? Now, all the children who are under our NGO go to school regularly.

Spending our weekends with these kids is fun. We teach them the basic english, moral values and ethics. We even help them in extra curricular activities.Our biggest achievement till date is that all the kids are going school regularly and their parents and school teachers are very happy with as their kids are excelling in academics as well as other Co-curricular activities.

Abhikalpana focuses on overall development of children, that is the reason we included art and craft and pata part in our sessions. This helps our children to build up their personalities and to fight against their fear.

Apart from all this ,we conduct various other events too. We had slipper distribution program as we saw many kids walk around barefooted, So we bought slippers and distributed among them and this certainly brought smiles

It's a well known phrase, " Health is Wealth". Generally, people living in slums are more prone to lower immunity. We organised a free medicalcamp for the children where we got a pediatrician, dentist and an eye specialist.

We got all our 50 kids examined and proper medicines wereprovided. We even had outreach programme for the kids. They performed in Kalanjali (The Inter-college fest of our college). This year we had a summer camp with intentions to know the interest of each child and help them excel in it.

To run any organisation successfully,along with dedication or enthusiasm ,money is also a major requirement. Thanks to our College management, CSE department, students, staffs, faculty and every associated member of MVIT who have been a constant support throughout.

We organised Marathon of 2km where all the students and teachers of our college took part. Donation drive and KICK-IT (major inter club football event) which were a grand success in order to raise funds and also helped in our smooth functioning. The money collected is also used in the medical treatment of kids.

You cannot hope to build a better world without improving individual. We all must work for our own improvement and at the same time share a general responsibility for humanity. Abhikalpana, has tried to achieve this in all possible ways. It's been a wonderful journey all throughout. We thank everyone for your immense support and helping us to work towards our pious goals.

" A Better future we Dream of..."

We welcome you all to join and be a part of our magnificent family.

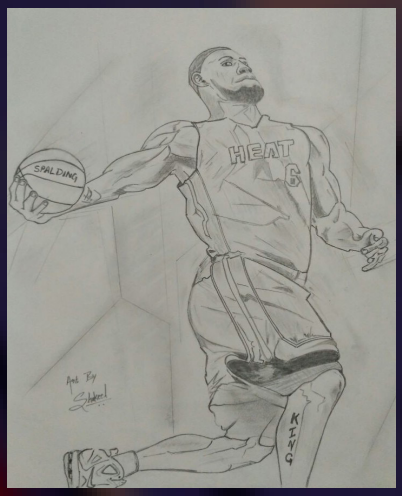
-TEAM ABHIKALPANA

Photography

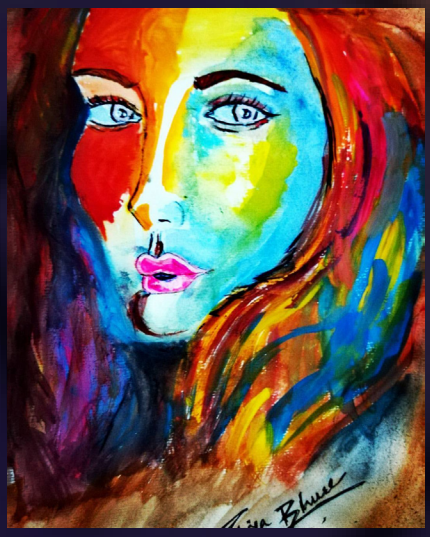
JohnPhotography

Mayuri Rao

sketches



Mohammed Shakeel



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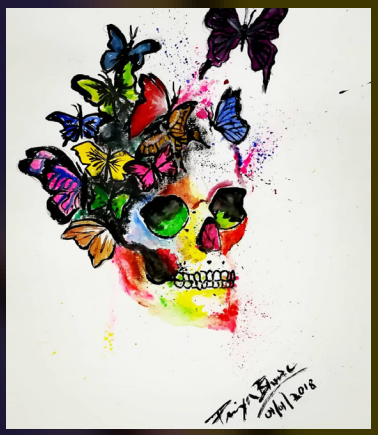
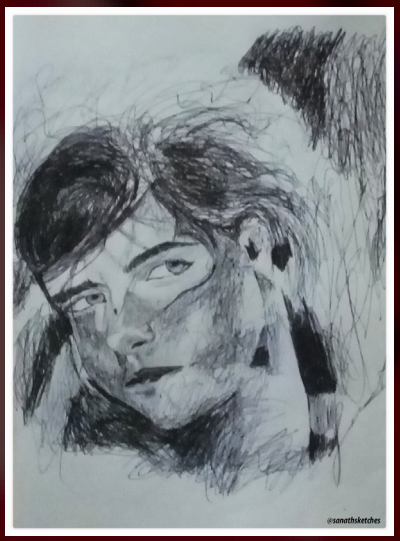
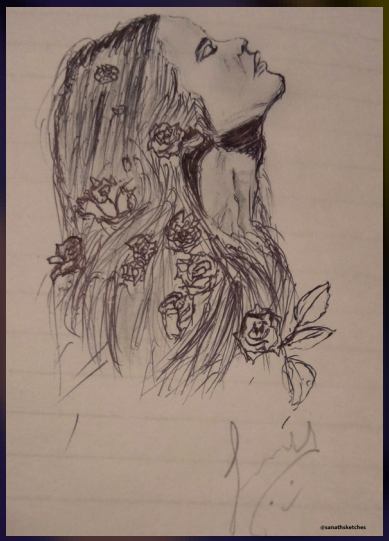




Sanath Sunkad



Human Again

-Nida Shafaath

Life has evolved into a sedentary state.
Convenience and indeligence so dearly pined for
Ergo, human limbs are asleep, waiting to bestir:
Usher in apps for everything from the playstore.

Waking up to phones; folks and pals lost.
Eyes pinned on beaming screens,
Cognate kin covet a conversation and warmth.
Leisure time? Depleted with more idle routines.

Learning made so easy, just Google away-
Has the burning fervour to discover flown?
Facebook and twitter are our windows to the world,
Outdoors-football, tennis and cricket played on phone.

Gadgets embedded with IOT getting smarter,
Handwriting lost to fonts and text,
Human interaction to be optimized by Sophia robots.
Wait. Is this the dream future? Or an irony annexed?

Life was once connected with laughter and cry.
Scrolling, clicking, and tapping in the techno-domain,
Now it is the waves that carry all in the Wi-Fi.
An upgrade required. Time to upgrade to humans again.

If I could tell you...

- CH Ravi Raj

If I could tell you, my friend,
The deepest insecurities I have,
Would you still look at me the same?

I worry for the future that lies ahead,
Waiting to gnarl our hopes out,
In a world hankering behind wealth and fame.

I worry about the distant past,
With memories I thought to be forgotten,
In a world that confuses innocence with being lame.

I worry about the legacy I'll leave behind,
Something that won't be known for a hundred years to come.

I worry about the place I'll make for myself,
For legacy is what matters most, in this country I come from.

I worry if all these worries are in vain, for legacy leaves me naught, after I'm long dead.
I worry if my actions, will impact how the next generations are brought up and bred.

I worry if this world, so cruel and harsh, will be made any better with my effort.
I worry if this change comes at a price, for this world, at destroying lives, is an expert.

If I could tell you, my friend,
The deepest insecurities I have,
Would you still look at me the same?
That I hope to see a better world,
To make it happier than its claim.

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"Stay away from it. It's a mirage, basically" - Warren Buffet

"With e-currency based on cryptographic proof, without the need to trust a third party middleman, money can be secure and transactions effortless." - Satoshi Nakamoto

"Bitcoin is a technological tour de force." - Bill Gates

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