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(18A31A0589)****Ch. Pavan Venkata Vamsi  
(18A31A0596)****S. Vani Sri Sindhu  
(18A31A0584)**

# TECH PULSE

**Vision:**

To emerge as a center of technical expertise in the field of computer science and engineering by producing globally competent professionals with technical & research capabilities, ethical values and team spirit.

**Mission:**

- M1.** To produce qualified and competent software professionals.
- M2.** To induce application oriented and research capabilities in students for the betterment of society.
- M3.** To inculcate ethics and human values in students so as to adapt to the dynamism in the field of computing technology.

**Program Educational Objectives:** **PEO-1**

To provide students with a strong foundation in the mathematical,

scientific and engineering fundamentals necessary to formulate, solve and analyze engineering problems.

 **PEO-2**

To develop an ability to analyze, design and develop novel engineering solutions.

 **PEO-3**

To make the students responsible with ethics, best practices, values and social concerns to meet requirements of responsible team player in the society.

## Message From Head Of The Department



My vision is to develop constructive thinking and analytical capabilities of every student of the department of CSE. Our department is fully committed to provide students with a strong, broad based fundamental engineering education and prepare the students for a career in the industry, teaching and nationwide laboratories. We also plan to develop entrepreneurial skills in students so that they would propel the spirit of growth of our economy and would be able to generate employment opportunities for other qualified and skilled persons. I personally look forward to integrate my experience of over 10 years in teaching and research into the learning systems and use my skill along with the collective efforts of the other faculty members of the department to build a comprehensive methodology that helps us to nurture the young minds. I look forward for prepare the students to face the challenges of technology that the engineering sector would offer in the future and guide them in offering technological solutions for the betterment of the society and our nation.

Wishing all our students brilliant and bright future.

With Best Wishes,

Dr. M Radhika Mani  
Professor & HoD of CSE,  
Pragati Engineering College  
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**“If you think technology can solve your security problems, then you don’t understand the problems and you don’t understand the technology.”**

— Bruce Schneier

## **MIXED REALITY**

### **THE FUTURE OF EDUCATION**

The latest advancement in the world of technology is mixed reality, and unsurprisingly, many are keen to see how it will influence the education scene. Essentially a combination of virtual reality and augmented reality, mixed reality is set to play a big role in training the students of the future.

Below is a look at how MR is changing the face of education.

#### **1. Learning from everywhere**

Virtual reality, augmented reality, and now mixed reality are breathing life to the notion that learning can be accomplished anywhere, and not just within the confines of the classroom. Digital reality is enabling students to benefit from immersive experiences, which prepare them for real life in a more hands-on way.

As technology evolves, more institutions are bound to come to terms with the importance of through demonstration rather than intensive lectures. Mixed reality will also foster better relationships between students and their future employees by introducing them to their prospective career fields earlier.



## 2. Collaborative Learning

Developers are appreciative of the role of collaborative learning in the classroom and are introducing VR, AR and MR technologies with which young minds can work on projects, visit learning sites, and participate in lectures together, even when they're not in the same physical space.



A good example is EON Creator, an interactive tool from EON Reality, which enables users to combine learning materials with videos, sound effects, notes, and PowerPoint presentations, explore the creations of other students and teachers, and meet virtually for collaborations from nearly anywhere and at any time.

## 3. Education at a greater scale

Mixed reality is opening doors to learning avenues that were previously well out of reach. Today, a proper VR ready laptop and a pair of MR headsets are all a curious learner needs to explore harsh deserts, dive into deep seas and walk on alien planets, all while in the comfort of their classroom or home. Although the price of entry is still far higher than most educators would like, technological advancements, such as Mobile VR and Microsoft's \$300 headsets, point towards a future where mixed reality and virtual reality tech are affordably placed in the hands of every learner.



#### 4. Meaningful competition

Competition has always been a major hallmark of a student's learning journey. However, experts have complained for years that modern education, particularly at the university level, tends to lay too much emphasis on competition among students than the actual learning experience.



#### 5. The end of traditions

Despite heavy influence by technology, educational institutions have maintained a somewhat adamant commitment to tradition. The teaching methods in many classrooms have therefore not changed in decades.



Sowmya Peddireddy  
(17A31B0531)

#### Conclusion

Mixed reality is undoubtedly poised to change the way teachers deliver and students acquire new information, knowledge, and skills, both in and out of the classroom.

MR technology will not only make learning more enjoyable, but it will also increase the efficiency of education by engaging students in a manner with which textbooks simply cannot compete. With tech giants like Google, Apple and Microsoft investing big in mixed reality; it won't be long until it becomes standard for classrooms to be equipped with MR gadgets.

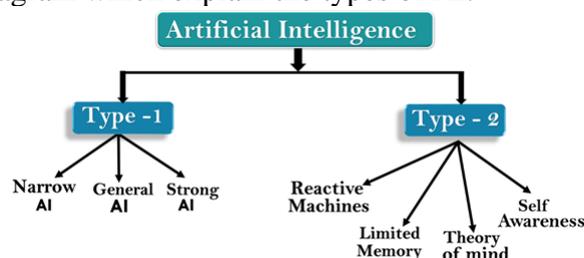
## ARTIFICIAL INTELLIGENCE(AI)

ARTIFICIAL INTELLIGENCE(AI) refers to the simulation of human intelligence in machines that are programmed to think like humans and mimic their actions. The term may also be applied to any machine that exhibits traits associated with a human mind such as learning and problem-solving. The ideal characteristic of artificial intelligence is its ability to rationalize and take actions that have the best chance of achieving a specific goal. As technology advances, previous benchmarks that defined artificial intelligence become outdated. For example, machines that calculate basic functions or recognize text through optimal character recognition are no longer considered to embody artificial intelligence, since this function is now taken for granted as an inherent computer function. AI is continuously evolving to benefit many different industries. Machines are wired using a cross-disciplinary approach based mathematics, computer science, linguistics, psychology, and more.



### Types of Artificial Intelligence:

Artificial Intelligence can be divided in various types, there are mainly two types of main categorization which are based on capabilities and based on functionality of AI. Following is flow diagram which explain the types of AI.



### AI type-1: Based on Capabilities

#### 1. Weak AI or Narrow AI:

Narrow AI is a type of AI which is able to perform a dedicated task with intelligence. The most common and currently available AI is Narrow AI in the world of Artificial Intelligence.

Narrow AI cannot perform beyond its field or limitations, as it is only trained for one specific task. Hence it is also termed as weak AI. Narrow AI can fail in unpredictable ways if it goes beyond its limits.

Apple Siri is a good example of Narrow AI, but it operates with a limited pre-defined range of functions.

IBM's Watson supercomputer also comes under Narrow AI, as it uses an Expert system approach combined with Machine learning and natural language processing.

Some Examples of Narrow AI are playing chess, purchasing suggestions on e-commerce site, self-driving cars, speech recognition, and image recognition.

## 2. General AI:

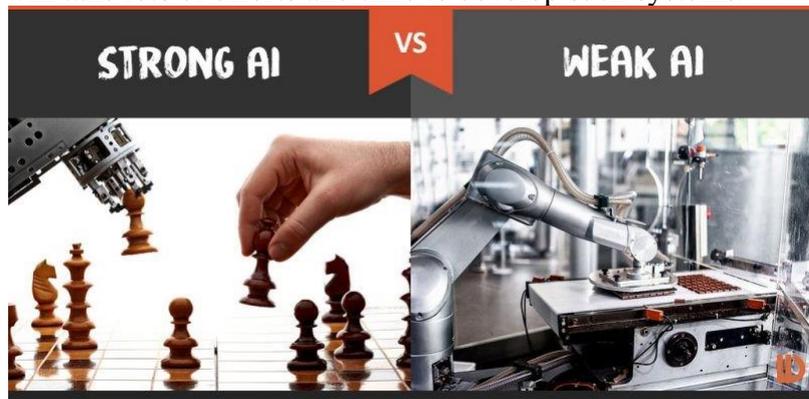
General AI is a type of intelligence which could perform any intellectual task with efficiency like a human.

The idea behind the general AI to make such a system which could be smarter and think like a human by its own.

Currently, there is no such system exist which could come under general AI and can perform any task as perfect as a human.

The worldwide researchers are now focused on developing machines with General AI.

As systems with general AI are still under research, and it will take lots of efforts and time to develop such systems.



## 3. Super AI:

Super AI is a level of Intelligence of Systems at which machines could surpass human intelligence, and can perform any task better than human with cognitive properties. It is an outcome of general AI.

Some key characteristics of strong AI include capability include the ability to think, to reason, solve the puzzle, make judgments, plan, learn, and communicate by its own.

Super AI is still a hypothetical concept of Artificial Intelligence. Development of such systems in real is still world changing task.



**K.SRI HARSHA VARDHAN**  
(19A31A05B1)



## CYBER SECURITY IMPORTANT

Cybercrime is without question one of the most worrying threats for modern against it. Cyber security initiatives have recently accelerated in response, as a means for businesses to stay one step ahead of potential threats.



**Shaik moben yasmeen**  
**(19A35A0510)**

Cybersecurity or information technology security (it security) is the protection of computer systems and networks from the theft of or damage to their hardware, software, or electronic data, as well as from the disruption or misdirection of the services they provide.

The field is becoming more important due to increased reliance on computer systems, the Internet and wireless network standards such as Bluetooth and Wi-Fi, and due to the growth of "smart" devices, including smartphones, televisions, and the various devices that constitute the "Internet of things". Owing to its complexity, both in terms of politics and technology, cybersecurity is also one of the major challenges in the contemporary world.

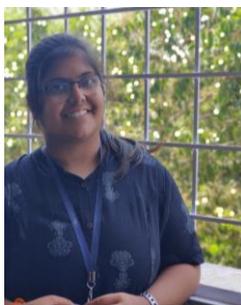
## EDGE COMPUTING

Edge computing is transforming the way data is being handled ,processed ,and delivered from millions of devices around the world. The explosive growth of internet-connected-devices the IOT - along with new applications that require real-time computing power, continues to drive edge-computing system.

Faster networking technologies ,

Such as 5G wireless,are allowing for edge computing systems to accelerate the creation or support of real-time applications,such as video processing and analytic,self-driving cars,artificial intelligence and robotics ,to name a few.

While early goals of edge computing were to address the costs of bandwidth for data traveling long distances because of the growth of IOT - generated data,the rise of real-time applications that need processing at the edge will drive the technology ahead.



**Vanaparthi hari sree**  
**lalitha vardhini**  
**(18A31A0589)**

Characteristics :

- Geographically distributed
- Autonomous and distributed
- Real-time interactions
- Heterogeneous
- It is contextual and low latency

REFERENCE :

<https://www.sciencedirect.com/science/article/pii/S2352864817301335>

## CLOUD COMPUTING

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**Cloud computing** is the on-demand availability of computer system resources, especially data storage (cloud storage) and computing power, without direct active management by the user. The term is generally used to describe data centres available to many users over the Internet. Large clouds, predominant today, often have functions distributed over multiple locations from central servers. If the connection to the user is relatively close, it may be designated an edge server.



types of cloud

Depending on the type of data you're working with, you'll want to compare public, private, and **hybrid clouds** in terms of the different levels of security and management required.

- **Public Cloud** – Whole computing infrastructure is located on the premises of a cloud computing company that offers the **cloud service**.
- **Private Cloud** – Hosting all your computing infrastructure yourself and is not shared. The security and control level is highest while using a private network.
- **Hybrid Cloud** – using both private and public clouds, depending on their purpose. You host your most important applications on your own servers to keep

- them more secure and secondary applications elsewhere.
- **Community Cloud** – A community cloud is shared between organizations with a common goal or that fit into a specific community (professional community, geographic community, etc.)

### Types of cloud services

**Cloud computing** services fall into 4 categories: infrastructure as a service (IaaS), platform as a service (PaaS), software as a service (SaaS) and FaaS (functions as a service). These are sometimes called the cloud computing stack, because they build on top of one another.

1. **Infrastructure-as-a-service (IaaS)**

IaaS is the most basic category of **cloud computing services** that allows you rent IT infrastructure (servers or VM's) from a cloud provider on a pay-as-you-go basis.

2. **Platform as a service (PaaS)**

Platform-as-a-service (PaaS) refers to the supply an on-demand environment for developing, testing, delivering and managing software applications. It is designed to quickly create web or mobile apps, without worrying about setting up or managing the underlying infrastructure of servers, storage, network and databases needed for development.

3. **Software as a service (SaaS)**

Software-as-a-service (SaaS) is a method for delivering software applications over the Internet as per the demand and on a subscription basis. SaaS helps you host and manage the software application and underlying infrastructure and handle any maintenance (software upgrades and security patching).

4. **FaaS (functions as a service)**

FaaS adds another layer of abstraction to PaaS, so that developers are completely insulated from everything in the stack below their code. Instead of handling the hassles of virtual servers, containers, and application runtimes, they upload narrowly functional blocks of code, and set them to be triggered by a certain event. FaaS applications consume no IaaS resources until an event occurs, reducing pay-per-use fees.



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## MACHINE LEARNING

Machine learning is an application of artificial intelligence (AI) that provides systems the ability to without being explicitly programmed. Machine learning focuses on the development of computer programs that can access data and use it learn for themselves.

Resurging interest in machine learning is due to the same factors that have made data mining and Bayesian analysis more popular than ever. Things like growing volumes and varieties of available data, computational processing that is cheaper and more powerful, and affordable data storage.

What's required to create good machine learning systems?

- Data preparation capabilities.
- Algorithms – basic and advanced.
- Automation and iterative processes.
- Scalability.
- Ensemble modeling.



Did you know?

- In machine learning, a target is called a label.
- In statistics, a target is called a dependent variable.
- A variable in statistics is called a feature in machine learning.
- A transformation in statistics is called feature creation in machine learning.



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**(18A31A0577)**

All of these things mean it's possible to quickly and automatically produce models that can analyze bigger, more complex data and deliver faster, more accurate results – even on a very large scale. And by building precise models, an organization has a better chance of identifying profitable opportunities – or avoiding unknown risks.

*Reference:*

*[https://www.sas.com/en\\_in/insights/analytics/machine-learning.html#machine-learning-importance](https://www.sas.com/en_in/insights/analytics/machine-learning.html#machine-learning-importance)*

## BLOCKCHAIN TECHNOLOGY

### -A NEW TECHNOLOGY

A blockchain, originally block chain, is a growing list of records, called blocks, that are linked using cryptography. ... By design, a blockchain is resistant to modification of the data. It is "an open, distributed ledger that can record transactions between two parties efficiently and in a verifiable and permanent way".

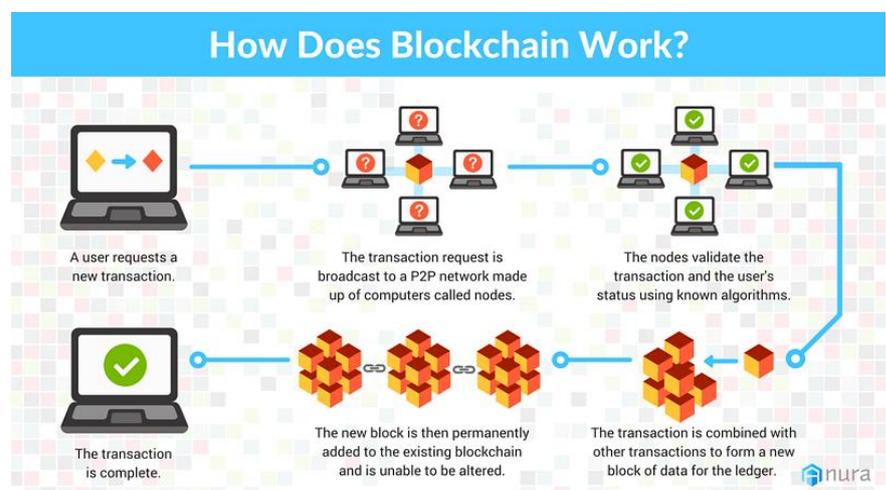
### STRUCTURE:

A blockchain is a decentralized, distributed, and oftentimes public, digital ledger consisting of records called blocks that is used to record transactions across many computers so that any involved block cannot be altered retroactively, without the alteration of all subsequent blocks. This allows the participants to verify and audit transactions independently and relatively inexpensively.

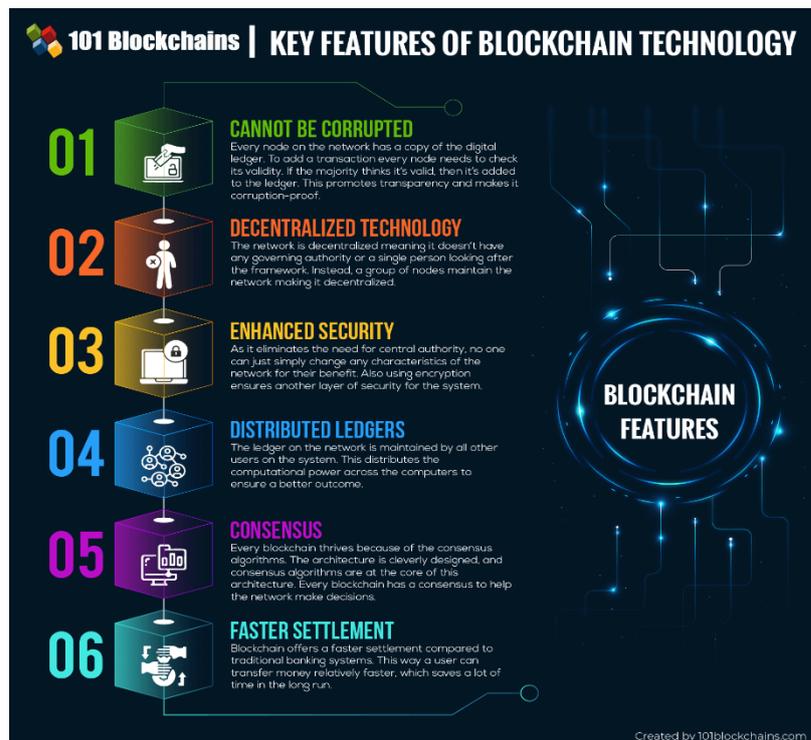
### BLOCKS:

Blocks hold batches of valid transactions that are hashed and encoded into a Merkle tree.<sup>[1]</sup> Each block includes the cryptographic hash of the prior block in the blockchain, linking the two. The linked blocks form a chain.<sup>[1]</sup> This iterative process confirms the integrity of the previous block, all the way back to the original genesis block.

### WORKING OF BLOCKCHAIN TECHNOLOGY:



## MAIN FEATURES OF BLOCKCHAIN TECHNOLOGY



### WHY BLOCKCHAIN TECHNOLOGY??

- No third party involvement.
- Transparency
- Unalterable copied only
- Real time tracking
- Security
- No single point failure
- Reduce cost
- Trusted transaction



Alluri lalitha sri Madhuri  
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may be difficult to arrange for in real clinical settings. Such immersive simulations are much more cost-effective than traditional nursing simulation devices.

## **2. Reduced Time and Reduced Human Error in Reconstructive Surgery:**

Reconstructive surgeries enabled by Mixed Reality with the use of HoloLens have proven to be very successful at the Imperial College at St. Mary's Hospital, London. According to the team guided by Dr. Philip Pratt, Mixed Reality helps surgeons locate and reconnect major blood vessels. With HoloLens, surgeons are able to use holographic overlays to see the bones and identify the course of blood vessels which aids them in their surgery, improving the outcome for the patient.



## **3. Revolutionizing Surgery:**

In December 2017, Dr. Thomas Gregory undertook a live transplant surgery with the help of HoloLens. It helped him access the patient's medical information and anatomical pictures in 3D during the surgery. Since HoloLens is a standalone computer worn like a helmet by the surgeon, his hands are free for surgery. Additionally, the use of microphones and sensors allows the surgeon to communicate with other surgeons in different parts of the world making collaboration easier. All these features, along with the simulations and information it can pull up, make Mixed Reality a valuable asset in improving surgical performance.

## **4. Improving the Patient Experience:**

Building trust through efficient communication is an important aspect of a doctor-patient relationship. Mixed Reality makes this possible in a more immersive way. For example, in a recent interview

with Sirko Pelzl, CEO and CTO of apoQlar, he spoke about Virtual Surgery Intelligence (VSI) and said: “physicians can use VSI to show patients their own MRI scans and explain the surgical procedure in visual detail. We were able to illustrate in a recent study how greatly patients appreciated this education and communication.”

#### 5. **Streamlining Care:**

Receptionists, nurses, doctors, and other professionals need to coordinate with each other in hospitals and clinics. Working as a team can be a challenge, and professionals often rely on multiple devices for communication and recalling charts and other data. By standardizing on mixed reality devices, health centers can provide a seamless means of communication and ensure everyone can send and receive notes instantly. Furthermore, MR devices can record and share voice communication, making it quicker and easier to send voice notes that can be heard between visits to patients. With MR technologies, health centers can allow healthcare professionals to spend more time with patients.



Reference: <https://www.wikipedia.org/>



**K. Koushik Sri Sai**

**(3rd year, CSE)**

## MOBILE APP DEVELOPMENT

**Definition:** - This computer-designed program is fit to run on mobile devices – including iOS and Android – tablets and various other devices. Apps have made lives easier for us and we have reached a point where we cannot imagine our lives without these apps. Let us take a dive across how it all began – the evolution of mobile apps – a sneak peek.

### History of the Development of Mobile Apps:

The first-ever known smartphone was launched by IBM in the year 1993. And, it came with features such as the contact book, calendar, world clock and calculator. A few years later, in the year 2002, the next smartphone, i.e., the blackberry smartphone was launched. In April of 1973, exactly on the 3rd of this month, Martin Cooper of Motorola made the first call on the mobile phone to Dr. Joel S. Engel of the Bell Labs. This instrument weighed around 1.1 kg.

But, over the next two decades, researchers were on a spree to get mobile apps ready for these devices. The R&D department of IBM Simon came up with the first mobile app for Smartphones in 1993 exactly two decades after the first call was made.

The portable devices or PDAs had their first operating system, known as EPOC developed by Psion. Released in the early 90s, this was first of the recognizable apps. The exciting app or the 16-bit systems that executed the EPOC's user programs could run apps such as diaries, databases, spreadsheets, and word processors. But the future models were capable of accommodating 32-bit OS and were integrated with 2MB RAM allowing users to add extra apps through their software packs. Then, came the time of Palm OSes. Developed by Palm Inc. in the year 1996, these were mainly designed for personal digital assistants and were known as Garnet OS. This came with a

touchscreen graphical user interface along with a number of basic apps and other third-party apps that were programmed in C/C++. Later on, the wireless application protocol (WAP) browsers were introduced as an extension for these.

Mobile phones used at first: User were forced to charge their mobile phones for not less than 10 hours as the battery become dead after sometime. And, the use could make a call for hardly 30 minutes in a day as it had to be kept for charging.

### **Different Types of Mobile app:**

1. Native apps
2. Web apps
3. Hybrid apps

**Native App:** Native apps are built specifically for a mobile device's operating system (OS). Thus, you can have native Android mobile apps or native iOS apps, not to mention all the other platforms and devices. Because they're built for just one platform, you cannot mix and match – say, use a Blackberry app on an Android phone or use an iOS app on a Windows phone.

**Technology Used:** Native apps are coded using a variety of programming languages. Some examples include: Java, Kotlin, Python, Swift, Objective-C, C++, and React.

And then, every time there's an update to the app, the user has to download the new file and reinstall it. This also means that native apps do take up precious space in the device's storage.



**Web App:** Web apps behave similarly to native apps but are accessed via a web browser on your mobile device. They're not standalone apps in the sense of having to download and install code into your device. They're actually responsive websites that adapt its user interface to the device the user is on. In fact, when you come across the option to "install" a web app, it often simply bookmarks the website URL on your device.

**Technology Used:** Web apps are designed using HTML5, CSS, JavaScript, Ruby, and similar programming languages used for web work.



**Hybrid App :** ps. And then there are the hybrid apps. These are web apps that look and feel like native apps. They might have a home screen app icon, responsive design, fast performance, even be able to function offline, but they're really web apps made to look native.

**Technology Used:** Hybrid apps use a mixture of web technologies and native APIs. They're developed using: Ionic, Objective C, Swift, HTML5, and others.



**Yelleti Rishitha**

**19A31B0536**



## MOVIE TICKET PRICING SYSTEM WITH MACHINE LEARNING

Dynamic pricing is used to create different prices for different customers, based on their location or other circumstances. This method is now used in all movie booking systems. There are some parameters, depends on which the price varies, like whether the customer wants to book a ticket in the front row or the back, or the customer wants an executive seat or a couple of seats. Not only the seats, but prices also depend on where the movie hall is located and which show timing the customer has chosen. All ticket booking apps like BookMyShow uses dynamic pricing. At times of high demand, when a new movie launches BookMyShow increases the price of the tickets. The other way is to come up with discounts or to give users with customized offers for a limited period. In other words, dynamic pricing is a prediction problem, where **Machine Learning** is the best tool to tackle it.



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### Implementations:

- Decide the public you are aiming at.
- Collect historical data from different price points offered in the past as well as the demand for these points.
- Build a model to predict the ticket price based on different parameters.
- Use an optimization algorithm to discover the optimal price for customer's choice, to maximize the probability of purchasing. This method can also be used for creating product packages and discounts.

### Conclusion:

Dynamic pricing has a huge impact on sales and profits earned by companies. It can increase the profit from 10 to 20 per cent and also can increase the sales up to 200 per cent. This is why most of the leading companies and apps, be it BookMyShow or Flipkart or Walmart are using this mechanism.

## **Neuralink - The merging of Brain and Machine**

It has been showcased in numerous movies, how people in sci-fi universes is capable of uploading their brain to a computer or a network either to escape death or as way to achieve super human intelligence. However, as of now such ideas has been kept within fiction and not something that anyone thought could be possible in the near future, this however might just have changed after Elon Musk and the Neuralink company revealed their current research at a press conference which took place Tuesday 16th of July 2019. So in this we will look further into exactly what Neuralink is doing and how they are doing it, along with some advice of how you can get into this exiting area yourself.

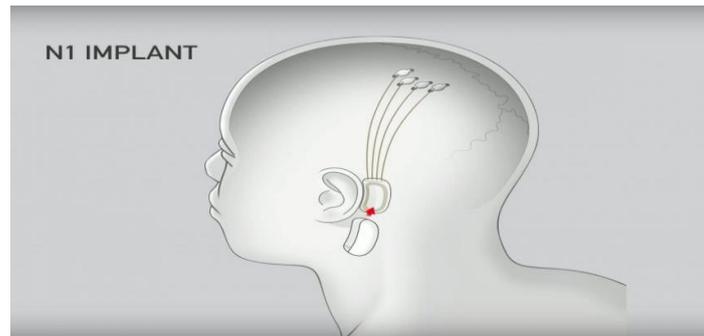


### **What is Neuralink?**

The company was founded in 2016 by Elon Musk and 8 others and has since its founding raised more than 150 million dollars in funding to support its vision and future work. Neuralink is an American neurotechnology based in San Francisco where it shares offices with OpenAI another company by Elon Musk. The long term goal of the company as stated by Elon Musk is to achieve "Symbiosis with Artificial Intelligence".

### How will Neuralink do it?

The whole idea behind Neuralink is to make a fully working Human-Brain Interface(HBI), which will allow a human to control a computer or a smartphone directly from the brain. This Interface will remove the need for touching a keyboard, screen or mouse as this is currently where we are limited as humans.



### "As safe and painless" as laser eye surgery

The implant would work by recording information emitted by neurons in the brain, as explained in a video presentation at the event.

When a cell receives enough of the right kind of neurotransmitter input, a chain reaction is triggered that causes an action potential, as the neurons relay messages to the synapses.

These action potentials produce an electric field that spreads from the neuron, and can be detected by placing electrodes nearby, allowing recording of the information represented by a neuron.



**Chiluvuri Reshma**  
(19A31B0507)



Neuralink has also created a neurosurgery robot capable of implanting the threads.

## SPINNAKER

A super computer that mimics brain

Today's world is not using the technology, but is living in it! A dynamic technology can change a person's life in such a drastic way that it's hard to imagine life without it, once you've experienced it. Such a technology is the innovation of SPINNAKER. It is that kind of transformative technology which can mimic the human brain and is capable of completing more than 200 million actions per second. It can model more biological neurons. It has the ability to run complex neural networks at low power.



It is an open source- multi -cloud continuous delivery platform. It is open sourced by Netflix and contributed to by Google. It supports cloud vendors like AWS, Azure, App Engine etc. Software is the highest leverage way to improve humanity. While all other clouds are responsible for availability, Spinnaker is the first ever tool that is responsible for application first approach to software delivery. It powers the core by continuous delivery of software. This trend has radically changed how companies interact, develop and use. This is a dynamic field that saves tons of information to a remote database. It is a powerful tool that can help streamline application deployment. If something is definitely wrong, Spinnaker also makes it easy to roll back the changes. It is the world's most powerful continuous delivery platform. Neuroscientists can now use SPINNAKER to help unlock some of the secrets of how the human brain works by running unprecedentedly large-scale simulations.

Ref:

- <http://singularityhub.com/>
- <https://economictimes.indiatimes.com/>



**S. Vani Sri Sindhu**

**(18A31A0584)**

## CYBER SECURITY

Definition: Computer security, cybersecurity or information technology security is the protection of computer systems and networks from the theft of or damage to their hardware, software, or electronic data, as well as from the disruption or misdirection of the services they provide.

Types of cyber security:

1. Critical infrastructure security
2. **Application security**
3. **Network security**
4. **Cloud security**
5. **Internet of things (IoT) security**

### 1. Critical infrastructure security :

Critical infrastructure security consists of the cyber-physical systems that modern societies rely on.

Common examples of critical infrastructure:



Muktineni Urjitha bala  
19a31b0524



2. **Application security:** You should choose application security as one of the several must-have security measures adopted to protect your systems. Application security uses software and hardware methods to tackle external threats that can arise in the development stage of an application. Applications are much more accessible over networks, causing the adoption of security measures during the development phase to be an imperative phase of the project.

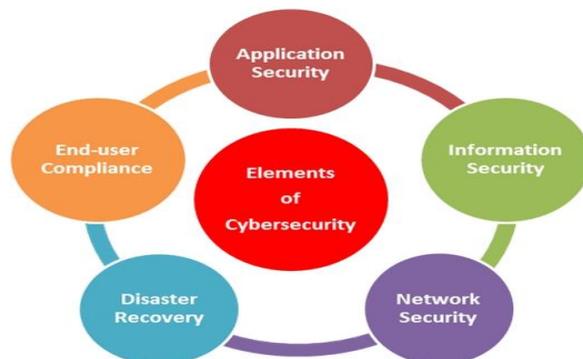
### Types of application security:

1. antivirus programs
2. firewalls
3. encryption programs

These help to ensure that unauthorized access is prevented. Companies can also detect sensitive data assets and protect them through specific application security processes attached to these data sets.



3. **Network security:** As cyber security is concerned with outside threats, network security guards against unauthorized intrusion of your internal networks due to malicious intent. Network security ensures that internal networks are secure by protecting the infrastructure and inhibiting access to it.



Common examples of network security implementation:

1. extra logins
2. new passwords
3. application security
  - a. antivirus programs
  - b. antispyware software
  - c. encryption
  - d. firewalls
  - e. Monitored internet access

#### 4. Cloud security:

Improved cyber security is one of the main reasons why the **cloud is taking over**.

Cloud security is a software-based security tool that protects and monitors the data in your cloud resources. Cloud providers are constantly creating and implementing new security tools to help enterprise users better secure their data.



#### 5. Internet of things (IoT) security

IoT refers to a wide variety of critical and non-critical cyber physical systems, like appliances, sensors, televisions, Wi-Fi routers, printers, and security cameras.

According to **Bain & Company's** prediction...

IoT's data center, analytics, consumer devices, networks, legacy embedded systems and connectors are the core technology of the IoT market.

IoT devices are frequently sent in a vulnerable state and offer little to no security patching. This poses unique security challenges for all users.

A study done by Bain **found** that



1. security is one of the biggest barriers to great IoT adoption
2. enterprises would buy more IoT devices on average if security concerns were addressed
3. enterprises are optimistic about IoT's business value and growth

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### Traffic and Energy Aware Routing (TEAR) Scheme To Improve The Stability Period

The most significant issue that must be illuminated in structuring an information transmission calculation for remote sensor systems (WSNs) is the way to spare sensor hub vitality while addressing the requirements of uses/clients as the sensor hubs are battery constrained. While fulfilling the vitality sparing prerequisite, it is additionally important to accomplish the nature of administration. If there should arise an occurrence of crisis work, it is important to convey the information on schedule. Accomplishing the nature of administration in WSNs is likewise significant. So as to accomplish this necessity, Power-effective Energy-Aware steering convention for remote sensor systems is suggested that spares the vitality by productively choosing the vitality proficient way in the directing procedure. At the point when the source discovers a course to goal, it figures  $\alpha$  for each course. The thought of hubs heterogeneity in the steering is fundamental for accomplishing ideal asset usage. This letter considers sensor hubs with arbitrary beginning energies and irregular inconsistencies in information age rate (traffic) to show a reasonable bunching based WSN appropriate for heterogeneous detecting applications. The letter introduces a vitality model for the situation and proposes a Traffic and Energy Aware Routing (TEAR) plan to improve the strength time frame. The reenactment results demonstrate that TEAR beats other grouping based directing calculations under the situation

### A Deep Learning based Approach for Emotion Recognition on Twitter using Unison Model

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Despite recent successes of deep learning in many fields of natural language processing, previous studies of emotion recognition on Twitter mainly focused on the use of lexicons and simple classifiers on bag-of-words models. The central question of our study is whether we can improve their performance using deep learning. To this end, we exploit hashtags to create three large emotion-labeled data sets corresponding to different classifications of emotions. We then compare the performance of several word- and character-based recurrent and convolutional neural networks with the performance on bag-of-words and latent semantic indexing models. We also investigate the transferability of the final hidden state representations between different classifications of emotions, and whether it is possible to build a unison model for predicting all of them using a shared representation. We show that recurrent neural networks, especially character-based ones, can improve over bag-of-words and latent semantic indexing models. Although the transfer capabilities of these models are poor, the newly proposed training heuristic produces a unison model with performance comparable to that of the three single models.

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## **A INVESTIGATIVE STUDY ON SURVIVING THE CRISIS IN DIGITAL FORENSICS**

Digital Forensics (DF) has developed from a moderately dark tradecraft to a significant piece of numerous examinations. DF instruments are currently utilized regularly by inspectors and experts inside neighbourhood, state and Federal law requirement; inside the military and different US government associations; and inside the private "e-Discovery" industry. Improvements in criminological research, apparatuses, and process over the previous decade have been extremely fruitful and numerous in initiative positions presently depend on these instruments all the time regularly without acknowledging it. In addition, there is by all accounts an across the board conviction, buttressed on by depictions in the well known media, that exceptional devices and able experts can remove noteworthy data from for all intents and purposes any gadget that an administration, private office, or even a capable individual may experience. As new advances create hoodlums discover approaches to apply these advances to carry out violations. With the blast of web advances practically all significant organizations on the planet have web nearness hence presenting their information to real and ill-conceived clients. PCs have become inborn piece of our lives. Organizations have streamlined their activity sparing a huge number of dollars on account of the web advances and administrations. Neither the organizations nor the purchasers can live without these advances. In light of the perplexing association of PC innovation in all parts of our lives, it likewise has become legitimate proof in both common and criminal cases. PC confirmations conceded in courts could be any record or section recuperated from the capacity gadgets, for example, email, perusing history, designs, photos, or application archives. These documents might be undeleted or erased. Erased record recuperation would require uncommon systems. PC experts prepared in digital forensics protect and recover proof in a non-damaging way. Proof might be recouped from any capacity medium introduced in digital gear, for example, PCs, cameras, PDAs, or PDAs. All scientific work ought to be finished with care remembering archiving away from of authority for request for the proof to be admissible in a courtroom.

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**BROADCASTING CHAT SERVER**

Chat-Application provide the process of talking to other people who are using the Network at the same time you are. Several network systems are built to communicate with one another as well as made available through serviceoriented architectures. In this project, the client server architecture is used to develop a chat application. Firstly a chat application is created for both Client and Server which is based on Transmission Control Protocol(TCP) where TCP is connection oriented protocol and is a reliable connection protocol. It is the Concept of “Chat Server” by using GUI Application and Socket Programming. Chat server should support multiple connection of users and messages sent to the server are broadcast to all currently connected users. This explains the basic concepts of threading in network programming. Thus it is to create a chatting application similar to facebook messenger, whatsapp etc;

**EXPRESSION RECOGNITION USING BEZIER CURVES****AUTHORS:**

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This paper presents Bezier curves expression estimation system. The framework depends on facial expressions extraction utilizing the information on the face geometry and approximated by third order Bezier curves representing the connection between the movement of features and changes of appearances. For face discovery, shading segmentation dependent on the clever thought of fluffy characterization has been utilized that controls uncertainty in hues . Trial results exhibit that this strategy can perceive the outward appearances with a precision of in excess of 90 cases. At last the framework has been executed utilizing a controller robot and giving facial expression orders. From human face structure, the input is partitioned in 3 locales, for example, right eye, left eye and mouth areas from the face picture. Right off the bat comes the face identification and afterward location of the skin area . The crop operation is applied on the facial skin locale and interfaces the largest skin area to distinguish the skin surface of the human face.Study has been undertaken to investigate the determinants of stock returns in Karachi Stock Exchange (KSE) using two assets

### SMART GADGET FOR WOMEN SAFETY USING IoT

Now a days women and men are having equal rights and responsibilities with personal and professional life also . Hence women are giving equal competition with men in all the fields, they are given works in both the even and odd shifts. Every single day women and young girls are being assaulted, molested, and raped. The streets, public transport, public spaces in particular have become the main spots of the hunters. Because of these reasons women can't step out of their house. The one and only one thought in every women's mind is when they will be able to move freely on the streets even in odd hours without worrying about their security. In critical situations the women will not feel insecure or helpless if they have some kind of safety gadgets with them. We propose to have a device which comprises of a wearable "Smart gadget" which continuously communicates with Smart phone that has access to the internet. This system can be used at places like bus stops, railway stations, offices, footpaths, shopping malls, markets, etc. This Project presents a women safety detection system using GPS and GSM modems. This system can be interconnected with the alarm system and alert the neighbours. This detection and messaging, calling system is composed of a GPS receiver, Microcontroller and a GSM Modem. GPS Receiver gets the location information from satellites in the form of latitude and longitude.

The Microcontroller processes this information and this processed information is sent to the user using GSM modem. A GSM modem is interfaced to the node MCU. The GSM modem sends an SMS and calls to the predefined mobile number. When a woman is in danger and in need of self-defense then she can press the switch which is allotted to her. By pressing the switch, the entire system will be activated then immediately a sms and call will be sent to concern person with location using GSM and GPS from the victims phone.

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**EXPRESSION RECOGNITION USING BEZIER CURVES**

This paper presents Bezier curves expression estimation system. The framework depends on facial expressions extraction utilizing the information on the face geometry and approximated by third order Bezier curves representing the connection between the movement of features and changes of appearances. For face discovery, shading segmentation dependent on the clever thought of fluffy characterization has been utilized that controls uncertainty in hues . Trial results exhibit that this strategy can perceive the outward appearances with a precision of in excess of 90 cases. At last the framework has been executed utilizing a controller robot and giving facial expression orders. From human face structure, the input is partitioned in 3 locales, for example, right eye, left eye and mouth areas from the face picture. Right off the bat comes the face identification and afterward location of the skin area . The crop operation is applied on the facial skin locale and interfaces the largest skin area to distinguish the skin surface of the human face. Study has been undertaken to investigate the determinants of stock returns in Karachi Stock Exchange (KSE) using two assets.

**Application Of Viterbi Algorithm For Efficient Transportation Forecasting**

This paper discusses a novel application of probabilistic models which can uncover a hidden sequence of states thereby helping us predict the transportation needs during time where people will travel in huge numbers. We advocate the application of Viterbi algorithm for serving our purpose. The Viterbi algorithm has been already applied in various domains with remarkable efficiency forcing us to think about its role in supporting development of robust prediction models for railway transport. Our paper enlightens the strength of Viterbi algorithm and how its efficiency is comparable to other prediction models which considers the standard factors only limiting their conclusive prediction power. The experimental results prove that our proposed strategy improves prediction accuracy significantly than other forecasting models.

# AI AND DEEP LEARNING RESEARCH GROUP

Pragati Engineering College (Autonomous) is now Zonal Lead for leadingindia.ai – A national wide AI Skilling and Research Initiative

## Objective

Objective of the leadingindia.ai initiative is making Deep Learning and AI skills mainstream in India to fulfill trilateral needs of entrepreneurship, Industry academia partnership and application-inspired Engineering Research

Head of the Research Group: **Dr. S Rao Chintalapudi, Associate Professor, Department of CSE**

## Research Group Members:

- Prof. S V Ramana Murthy Professor, Department of CSE
- Dr. M. Radhika Mani Head & Professor, Department of CSE
- Mrs. D. Sirisha Head & Associate Professor, Department of IT
- Mr. M V Rajesh Associate Professor, Department of CSE
- Mrs. Y. Jnapika Assistant Professor, Department of CSE

Name of the AI Students Club: **Future Now**

Name of the Student Ambassador: **Ms. Hyndhavi Kona**

AI Skilling Target (By the end of 31st March 2020) : **2000**

AI Skilling Achieved (By the end of 31st August 2019) : **1013**

For more details follow this link: <https://www.leadingindia.ai/zonalleaddetails/71>

Facebook Link: <https://www.facebook.com/Pragati-AI-and-Deep-Learning-Research-Group-369148973668263/>

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Instagram Link: [https://www.instagram.com/pragati\\_ai\\_dl\\_researchgroup/](https://www.instagram.com/pragati_ai_dl_researchgroup/)

Special Web Page to be added on your Institution Web site (May be linked to leadingindia.ai )

Give the link here : <https://pragati.ac.in/research-and-development-cell/ai-and-deep-learning-research-group/>





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