

**G. Narayanamma Institute of Technology
and Science (AUTONOMOUS)**

Department of Information Technology

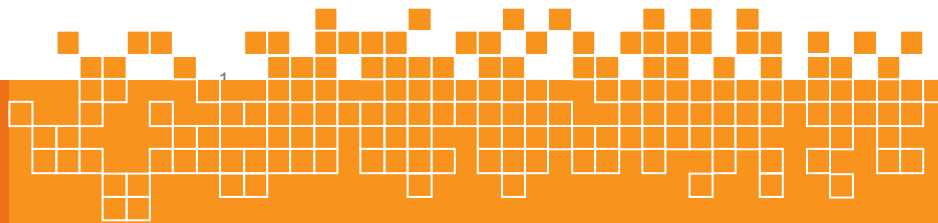


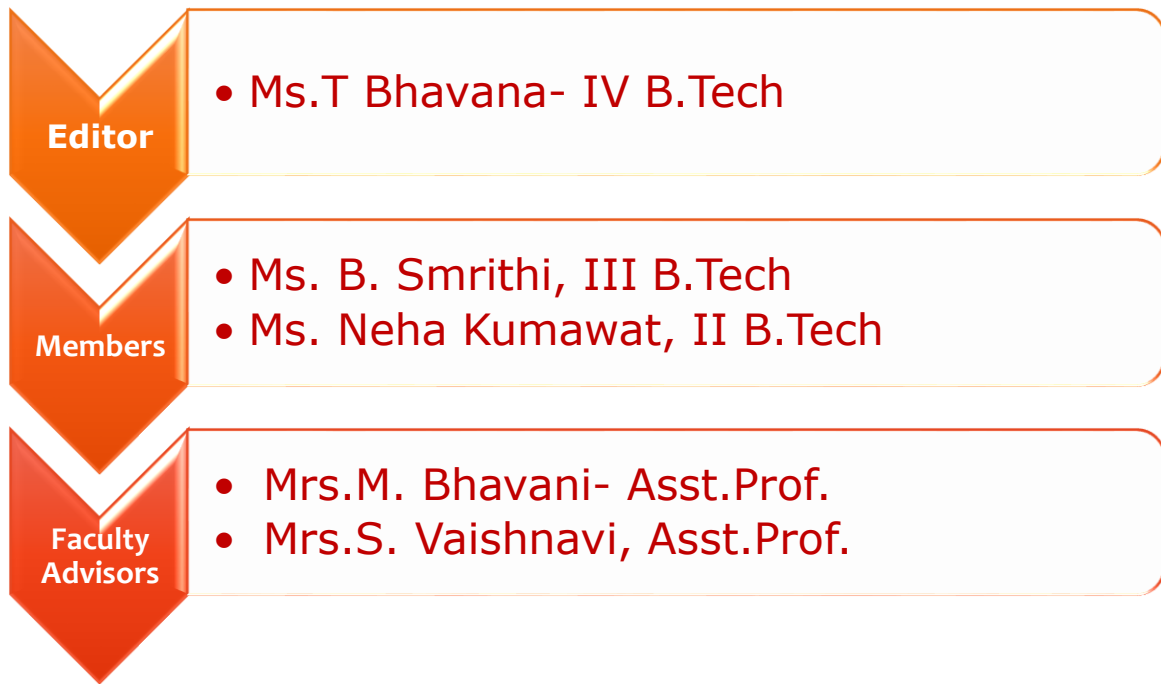
VOICES

XII EDITION
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Voices

- ✚ IT Technical magazine is a platform for IT students to express their creativity and showcase their literary skills.
- ✚ VOICES is designed to present to its readers the technical developments and technical papers that have been prepared by IT students.

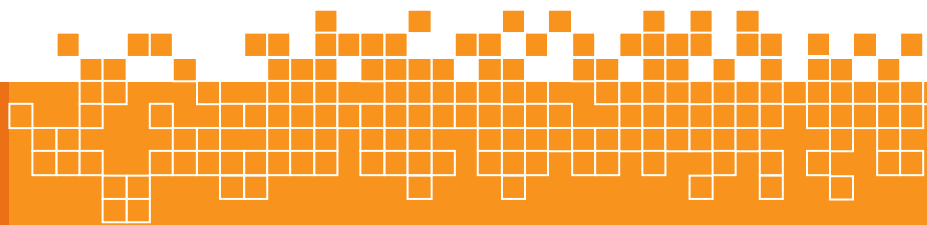




To build a collaborative academic environment that responds swiftly to the challenges of Information technology.



To foster an intellectual environment that delivers virtuous Information Technocrats with commitment to industry and society by strengthening the logical, analytical and applicative skills to excel academically and professionally. To inculcate good communication skills in students and introduce them to various codes of professional practices for carrying out effective team collaborations and project management in the field of IT.



Message from HOD's Desk:



I feel very elated and at the same time privileged to share a few words as you go through the pages of the magazine “VOICES”. IT department endeavors to help students to seek the best from the surroundings. The knowledge thus gained becomes a ladder for them to soar into greater heights. It's often the collective effort that leads to the discovery and fulfillment of aspirations.

I feel proud to be a part of VOICES an instrument in moulding the students. We try to shape every sphere of a student's personality in the IT Department. I take this opportunity to express my sincere thanks to all the members of the faculty and auxiliary staff for their sincere contribution in making this Edition.

Dr.I.Ravi Prakash Reddy

Professor & HOD

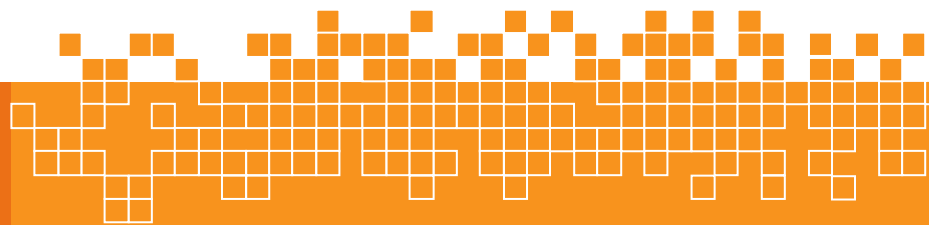


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the earth. Satellite communication contains a couple of main components like the **1.space segment** and **2.the ground segment**.The ground segment consists of fixed or mobile transmission,reception and ancillary equipment and the space segment, which mainly is the satellite itself.

2. Infrared Communication

Infrared wireless technological communication information in a device or systems through infrared radiation. Infrared radiation is an electromagnetic energy at a wavelength that is longer than that of red light(which has high wavelength). It is used for TV remote control, security control, and a communication which stays within a short range. In the electromagnetic spectrum, infrared radiation (IR) lies between microwaves and visible light. So, they can be used as a source of communication at the end of the day.

3. Broadcast Radio

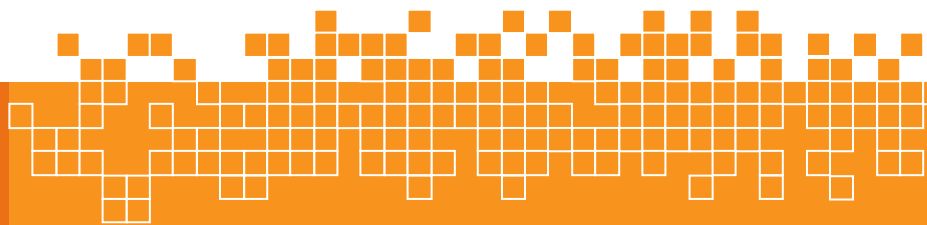
The first wireless technological communications is the open radio communication to seek out widespread use, and it still serves a purpose in recent years. Handy multi channel radios permit a user to speak over short distances, whereas citizen's bands offer communication services for sailors.

4. Wi-Fi

Wi-Fi is a wireless communication used by various electronic devices like smartphones, laptops, Ipad etc.In this particular setup, a router works as a communication hub wirelessly. These networks allow users to be connected only within close proximity to a router. WiFi is very common in networking applications which affords portability without a wire. These networks require to be protected with passwords for the purpose of its security, otherwise it will be accessed by other people.

5. Microwave Communication

Microwave wireless communication is an effective communication that mainly uses radio waves. The wavelengths of radio waves are measured in centimeters(cm). In this communication, the information can be transferred using two methods. One is the terrestrial method and the other one is the satellite method .Satellite method, the data can be transmitted through a satellite that orbits 22,300 miles above this earth. Stations on the earth receive and send data signals from the satellite. It has a frequency



ranging from 11GHz-14GHz and with a transmission speed of 1Mbps to 10Mbps. The main disadvantage of microwave signals is, they can be sometimes highly affected by bad weather, especially when the weather is rainy.

6. Bluetooth Technology

The Bluetooth technology is used for exchanging data between mobile and other devices wirelessly to a system for the transferring of data. Cell phones are connected to hands free earphones, mouse, wireless keyboard. By using a Bluetooth device the information from one device to another device. This technology has various functions.

Advantages of Wireless Technology

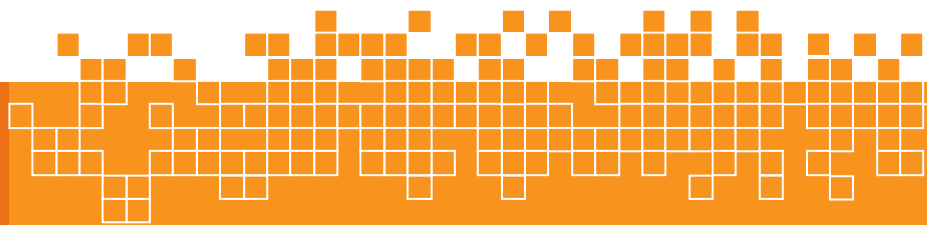
1. Any data or information can be transmitted faster and with a high speed
2. Maintenance and installation is less costly for these networks.
3. The internet can be accessed from anywhere wirelessly.
4. It is very helpful for workers, doctors working in remote areas as they can be in touch with medical centers.

Disadvantages of Wireless Technology

1. An unauthorized person can easily capture the wireless signals which spread through the air.
2. It is very important to secure the wireless network so that the information cannot be misused by unauthorized users

Final Thought

This is all about the *types of wireless technology* above. Things are even more easier than before nowadays. Cordless has helped us out more in this. Of Course we need to be grateful to those makers who come up with different unending technologies every time.



Introduction Wireless Technology

Sahithya Rama

IT-B (3/4)

Wireless networking technology is an alternative to traditional cable and fibre optic networks. It is fast becoming a vital productivity tool for today's mobile workforce.

A wireless network uses radio waves instead of cables to connect devices such as laptops to the internet, or to your business network. It removes the need for expensive and messy wires, and allows you or your staff to access your company's documents, emails and other resources from any location within your network's coverage area or any Wi-Fi hotspot. By removing the need for wiring, wireless networks can be a quick and cost-effective small business networking solution.

This guide looks at the pros and cons of wireless networking. It examines the different types of wireless technologies, including personal area networks and cellular networks, and shows you how to choose the right type of network for your business. Finally, it offers tips to help you set up effective measures for wireless network security.

A Guide to Types of Wireless Technologies



Types of Wireless Communication

The days of the word “wireless” describing your nan’s vintage radio are long gone in the year of 2020. There are now more types of wireless communication on the market that we thought will be possible even as recently as just 20 years ago, and the word “wireless” is now a casual name for quite a few of them. Not all kinds of wireless are equal, however, and not all can (or are) used in the same applications. Some of these terms may be familiar to you: radio and television broadcasting, radar communication, cellular communication, global position systems (GPS), WiFi, Bluetooth and radio frequency identification are all examples of “wireless”, with wildly different uses in some cases. Today, we will focus on the types of wireless technologies that commonly find application in information technology.

Types of Wireless Network in Cellular Communication

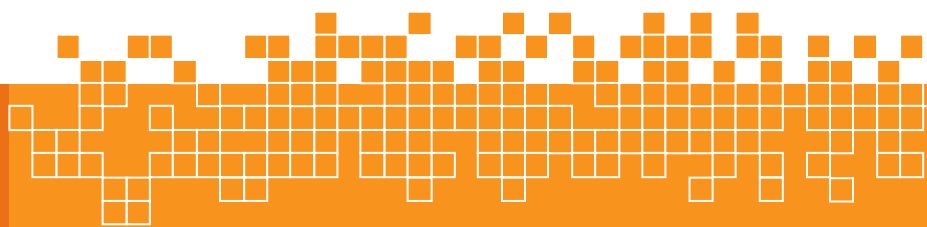
When we talk about cellular wireless communication, we are most commonly referring to a scenario where a device like a mobile phone/smartphone or a sim card enabled tabled, or laptop computer connects to a cellular tower to facilitate internet access on the go. Cellular communication typically uses radio waves of specific frequency for data and voice transmission.

3G is the third generation of wireless mobile telecommunication technology. Most often, it is found in mobile phones/smartphones, and sim card enabled tablets.

4G is a loose term for the fourth generation of cellular telecommunication technologies, up to about ten times faster than 3G.

LTE stands for Long Term Evolution which has sometimes been marketed as 4G LTE, but it is technically not 4G but rather an evolution of 3G. Still, the performance of both 4G and LTE is comparable in most everyday scenarios where coverage is not an issue, blurring the difference between 4G and LTE for most users.

5G is the fifth-generation technology standard for cellular networking, providing further bandwidth (speed) improvements over the past iterations of cellular wireless networks.



Augmented/ Virtual Reality

G.Preethika

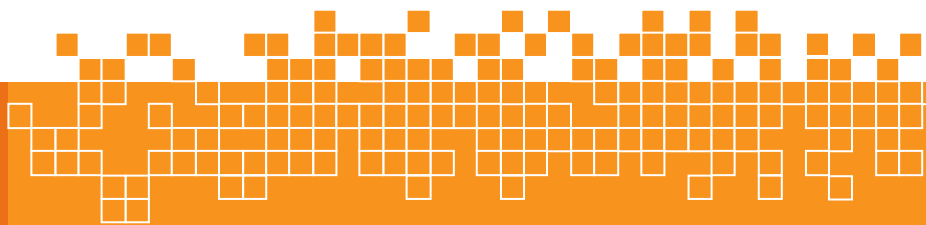
IT-B(2/4)



Augmented Reality

The word "Augmented" means to add. It is created by using the technology by adding digital information to an image or something. Augmented reality is an important concept and impacts our lives deeply. It provides an improved version of reality as it uses different tools to make the environment existing and real. Augmented reality gives you an interactive experience of the real-world environment. It keeps you in your place and superimposes the technology in the form of text, sounds, and images.

Augmented reality merges the physical world with computer-generated virtual elements. It is accessed using common equipment such as mobile phones. There are nearly uncountable possibilities with the Augmented Reality. With the smartphone's camera, AR adds the digital elements to a live view. It uses the smartphone's camera to present the real world's view in front of us and then put a layer of information that includes the text or images on the top of that view. Some of the examples of Augmented Reality are the Pokemon Go game, Snapchat lenses.



Now, let's see the benefits and limitations of augmented reality.

Advantages of Augmented Reality

- It increases accuracy.
- It offers innovation, continuous improvement, and individualized learning.
- It helps developers to build games that offer real experiences.
- It enhances the knowledge and information of the user.

Disadvantages of Augmented Reality

- Projects based on AR technology are expensive to implement and develop.
- Excessive use of augmented reality technology can lead to eye problems, obesity, etc.
- It can cause mental health issues

Virtual Reality

It is a very important and interesting term. The terms 'Virtual' refers to something conceptual that does not have its physical existence, and the word 'reality' refers to the state of being real. So, virtual reality means something that is almost real. It is defined as the creation of a simulated environment by using computer technology. Viewing virtual reality means viewing a completely different reality than the one in front of you. It can be artificial, like an animated scene or a place which is photographed and integrated in a virtual reality app. It enables us to move around and look in every direction - up, down, sideways, and behind, as we are present there actually.



Virtual reality apps allow us to explore the places that we have never been to, such as the Mars surface, the top of Mt. Everest, areas deep under the sea, and many more things that we can imagine only. It uses three of our senses: hearing, touching, seeing, to trick the brain into thinking that we are at a different place.

Advantages of Virtual Reality

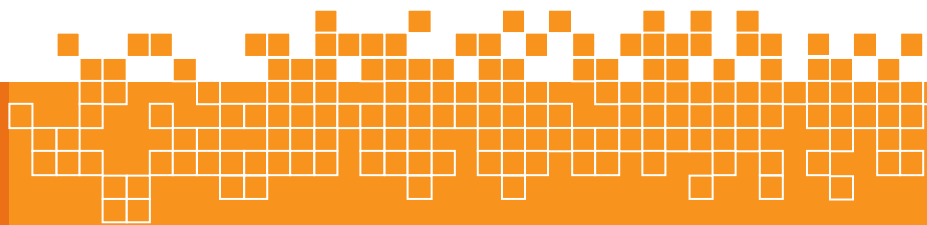
- It creates an interactive environment.
- It helps us to explore the world by creating a realistic world using computer technology.
- It makes education comfortable and easy.
- It allows users to do an experiment in an artificial environment.
- It increases the work capabilities.
- Virtual reality is helpful for medical students to do practice well. It will be helpful for patients, too, as it offers a safe environment to them by which a patient can come into contact with the things they fear.
- Virtual reality helps to measure the performance of sportsperson and analyze their techniques.

Disadvantages of Virtual Reality

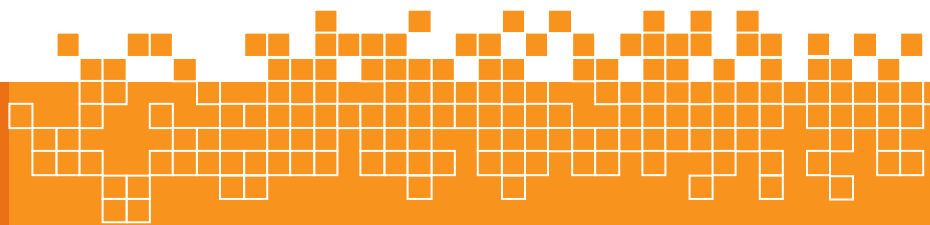
- Using VR, people start ignoring the real world. They started living in the virtual world instead of dealing with the issues of the real world.
- Training in the virtual environment does not have the same result as training in the actual world.
- It is not guaranteed that a person has done a task well in the real world if he/she has performed that task well in the virtual world.

Augmented Reality v/s Virtual Reality

Now, let's see the comparison chart between Augmented reality and Virtual reality. Here, we are showing the comparison between both terms on the basis of some characteristics.



On the basis of	Augmented Reality	Virtual Reality
Involvement	In AR user is partially immersed with the real world, i.e. user is immersed with mix of real-world and virtual world.	In VR, the user is completely immersed in a virtual world.
Distinction	In augmented reality, it is easy to distinguish between both real-world and virtual world.	In Virtual reality, it is hard to distinguish between the virtual world and real world.
Devices used	In AR, there is a use of tablet, smartphones, or another mobile device.	In VR, there is a use of head-mounted display or glasses.
Reality and virtuality	Augmented reality is 75% real and 25% virtual.	Virtual reality is 75% virtual and 25% real.
Network data	Augmented reality requires upwards of 100Mbps bandwidth.	A virtual reality video with 720p requires a connection of at least 50Mbps.
Revenue	The projected revenue share for augmented reality in 2020 is \$120 million.	The projected revenue share for virtual reality in 2020 is \$30 million.
Visual senses	In Augmented reality, a user always has a sense of presence in the real world.	Whereas, in virtual reality, the visual senses are under control of the system.



Augmented Reality, Virtual Reality and their effect on learning style in the creative design process

B.Usha Chandana

IT-A(4/4)

Abstract

Research has shown that user characteristics such as preference for using an interface can result in effective use of the interface. Research has also suggested that there is a relationship between learner preference and creativity. This study uses the VARK learning styles inventory to assess students learning style then explores how this learning preference affect the use of Augmented Reality (AR) and Virtual Reality (VR) in the creative design process.

Key words

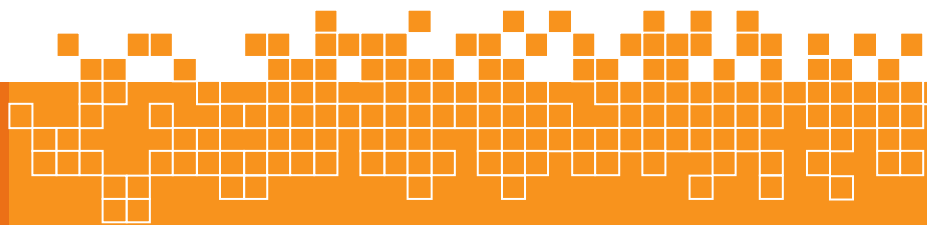
augmented Reality, Virtual Reality, Learning styles, Design education, Creativity.

Virtual Reality (VR) and Augmented Reality (AR)

VR has been extensively used in educational environments. As AR technology is becoming more accessible, it is being more often adapted for mainstream use. While VR can generally be interpreted as an immersive three-dimensional computer-generated environment, AR can be thought of as overlaying of the virtual over the physical environment.

VR is a simulated three-dimensional environment which either emulates the real world or acts as an imaginary world. Even though the majority of virtual environments cater to the visual sense, virtual environments can cater to the auditory, haptic, olfactory, and even the taste sense. VR is commonly used as an entertainment, education, and research tool. It offers a wide variety of options and opportunities in conducting research, especially in human behaviour research, since virtual environments can be controlled according to the need of the researcher.

AR has been defined as a variation of VR (Azuma, 1997). While VR completely immerses the user inside a computer-generated environment where the user cannot relate to the physical environment, AR allows the overlaying of virtual elements onto the physical environment.

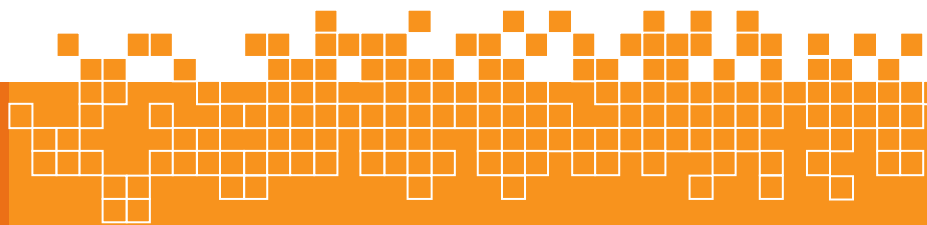


AR can be considered a hybrid of virtual and physical environments and therefore supplements reality rather than replacing it. Given the similarities and overlapping of certain characteristics between these two interfaces (AR and VR), there is a critical need to identify advantages or disadvantages of one over the other for its use in a specific domain. AR is an interface that offers tangible interaction (Ishii, 2007) and is often referred to as tangible user interface (TUI). There for the tangible nature of AR might appeal to kinaesthetic users as compared to the visual nature of VR, which might appeal more to the visual learners. Even though AR has existed for several decades, there is a gap in the knowledge about how human factors affect the use of AR (Huang, Alem, & Livingston, 2012). Better understanding of user experience factors in AR environments is important for a number of reasons. With the emergence of new hardware that has the capability of supporting AR applications, interest in how to use this technology efficiently has been increasing. Such studies are only currently becoming feasible because of the recent maturation of the technology. Extensive studies of this type will allow the development of specific and general design and usage guidelines for AR technology not only in design education and design practice but in other fields of study as well. Moreover, understanding human perception of AR will accelerate the introduction of such technologies into mainstream use beyond the current novelty value of AR.

Effects of User Characteristics on the Design Process

Digital interfaces affect the design process in a number of ways, such as the way the individual use it, the familiarity with the tools and the intrinsic qualities of the tool. It is important to understand how these interfaces affect the design process and thereby the people using them. The purpose of this study is to explore digital interfaces and user preferences for learning.

Research on using digital media in design education has for the most part focused on the development of the technology. Whatever user evaluation has been done has focused on technical aspects rather than using a human-centred approach (Gab bard & Swan, 2008). Nevertheless, both system and user performance measurements are important aspects for AR because the technology coordinates the physical environment and the computer- generated overlaid environment (Grier et al., 2012).

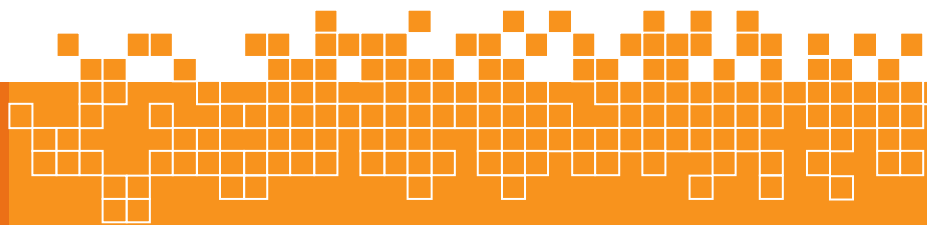


In his 10 books on architecture, Vitruvius stated that an architect should be a good writer, a skilful draftsman, versed in geometry and optics, expert at figures, acquainted with history, informed on the principles of natural and moral philosophy, somewhat of a musician, not ignorant of the law and of physics, nor of the motions, laws, and relations to each other, of the heavenly bodies (as cited in D'Souza, 2009, p. 173). Apart from these basic technical skills, an architect is assumed to have or acquire imagination and be creative and must gain artistic and intellectual abilities as well (Potur & Barkul, 2007). Isham (1997, p. 2) stated, "The ability to concisely communicate a highly complex and creative design solution has at its creative core visualization skills (internal imaging) that allow designers to mentally create, manipulate and communicate solutions effectively."

These different characteristics that make a designer may depend on the designer's innate skills and intelligences as well as the learning method. Thurstone (1938) described intelligence as a combination of factors such as associative memory, number facility, perceptual speed, reasoning, spatial visualization, verbal comprehension, and word fluency. He further identified three factors of spatial ability, mental rotation, spatial visualization, and spatial perception. D'Souza (2006) stated that designers use the seven types of intelligences which Gardener (1983) discusses – logical, kinaesthetic, spatial, interpersonal, intrapersonal, verbal, and musical intelligence – and suggested the addition of graphical, suprapersonal, assimilative, and visual intelligences to the types of intelligences so that the framework for design intelligence is more comprehensive.

According to Gardner's multiple intelligences theory, individuals have a distinctive capacity to succeed in a particular field, and the method of educating these individuals should foster these intelligences. The idea of learning styles suggests that individuals have a particular way of learning that works best for them. For example, some individuals learn more easily from visual activities and some learn more easily from hands-on activities. Educators should identify the learning style best suited for the student.

Understanding the learner preferences of the individual is important when selecting the instructional medium. In this study, emphasis is on learner preference instead of intelligences because this study focuses on the modality through which information is provided to the students (i.e., through the AR or VR interface).



Types of VR devices

At the moment, there are two major types of headsets. Both have their pros and cons, which you'll want to consider if you're looking to purchase one. The first type has a **screen built in to the headset**. These devices connect to a computer and require a pretty powerful system to operate smoothly. They have great graphics and perform well, but they're also **pretty expensive**. A few popular examples of these include the Oculus Rift, the Vive, and the PlayStation VR, which connects to the PlayStation 4 game console. Some of these devices come with **handheld controllers** that track your hands' movements as well, providing for a more interactive experience.

Augmented reality

Augmented reality allows you to see the world around you with digital images layered on top of it. There are currently a couple of AR headsets available, including the Microsoft HoloLens and the Magic Leap. However, they are currently more expensive than VR headsets, and are marketed primarily to businesses.



Augmented reality can also be used on devices like smartphones and laptops without the use of a headset. There are a variety of apps that use AR, including some that allow you to translate text using your camera, identify stars in the sky, and even see how your garden would look with different plants. You may have even previously used AR without realizing it, while playing a game like Pokemon Go or using filters on Snapchat.



Watch the following video to see how augmented reality could be applied in the near future. Both VR and AR technologies are growing at a pretty rapid pace. Many experts predict that they'll continue to become more and more popular in the near future. As technology becomes more advanced, it'll be exciting to see how they'll be applied to both business and everyday life!

Artificial Intelligence

Neha Kumawat

IT-B(2/4)

Introduction:



The Artificial Intelligence tutorial provides an introduction to AI which will help you to understand the concepts behind Artificial Intelligence. In this tutorial, we have also discussed various popular topics such as History of AI, applications of AI, deep learning, machine learning, natural language processing, Reinforcement learning, Q-learning, Intelligent agents, Various search algorithms, etc.

Our AI tutorial is prepared from an elementary level so you can easily understand the complete tutorial from basic concepts to the high-level concepts.

What is Artificial Intelligence (AI)?

AI is one of the fascinating and universal fields of Computer science which has a great scope in future. AI holds a tendency to cause a machine to work as a human.



Artificial Intelligence is composed of two words **Artificial** and **Intelligence**, where Artificial defines "man-made," and intelligence defines "thinking power", hence AI means "a man-made thinking power."

Why Artificial Intelligence?

Before Learning about Artificial Intelligence, we should know that what is the importance of AI and why should we learn it. Following are some main reasons to learn about AI:

- With the help of AI, you can create such software or devices which can solve real-world problems very easily and with accuracy such as health issues, marketing, traffic issues, etc.
- With the help of AI, you can create your personal virtual Assistant, such as Cortana, Google Assistant, Siri, etc.
- With the help of AI, you can build such Robots which can work in an environment where survival of humans can be at risk.
- AI opens a path for other new technologies, new devices, and new Opportunities.

Advantages of Artificial Intelligence

Following are some main advantages of Artificial Intelligence:

- **High Accuracy with less errors:** AI machines or systems are prone to less errors and high accuracy as it takes decisions as per pre-experience or information.
- **High-Speed:** AI systems can be of very high-speed and fast-decision making, because of that AI systems can beat a chess champion in the Chess game.
- **High reliability:** AI machines are highly reliable and can perform the same action multiple times with high accuracy.
- **Useful for risky areas:** AI machines can be helpful in situations such as defusing a bomb, exploring the ocean floor, where to employ a human can be risky.
- **Digital Assistant:** AI can be very useful to provide digital assistant to the users such as AI technology is currently used by various E-commerce websites to show the products as per customer requirement.
- **Useful as a public utility:** AI can be very useful for public utilities such as a self-driving car which can make our journey safer and hassle-free, facial recognition for security purpose, Natural language processing to communicate with the human in human-language, etc.



Disadvantages of Artificial Intelligence

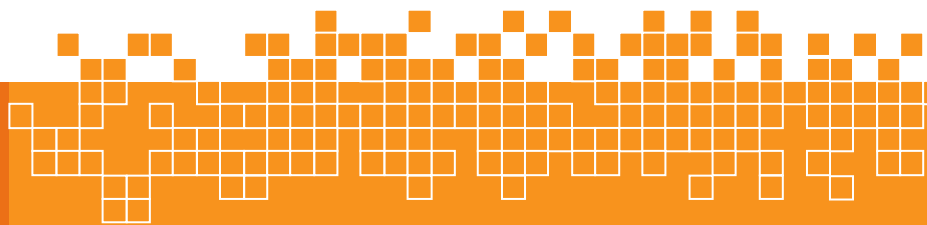
Every technology has some disadvantages, and the same goes for Artificial intelligence. Being so advantageous technology still, it has some disadvantages which we need to keep in our mind while creating an AI system. Following are the disadvantages of AI:

- **High Cost:** The hardware and software requirement of AI is very costly as it requires lots of maintenance to meet current world requirements.
- **Can't think out of the box:** Even we are making smarter machines with AI, but still they cannot work out of the box, as the robot will only do that work for which they are trained, or programmed.
- **No feelings and emotions:** AI machines can be an outstanding performer, but still it does not have the feeling so it cannot make any kind of emotional attachment with human, and may sometime be harmful for users if the proper care is not taken.
- **Increase dependency on machines:** With the increment of technology, people are getting more dependent on devices and hence they are losing their mental capabilities.
- **No Original Creativity:** As humans are so creative and can imagine some new ideas but still AI machines cannot beat this power of human intelligence and cannot be creative and imaginative.

Artificial Intelligence

Artificial Intelligence suggest that machines can mimic humans in:

- Talking
- Thinking
- Learning
- Planning
- Understanding



Artificial Intelligence is also called Machine Intelligence and Computer Intelligence.



Artificial Intelligence (AI)

Artificial Intelligence is a scientific discipline embracing several Data Science fields ranging from narrow AI to strong AI, including machine learning, deep learning, big data and data mining.

Artificial Intelligence
Narrow AI
Machine Learning
Neural Networks
Big Data
Deep Learning
Strong AI

Narrow AI

Narrow Artificial Intelligence is limited to narrow (specific) areas like most of the AI we have around us today:

- Email spam Filters
- Text to Speech
- Speech Recognition
- Self Driving Cars
- E-Payment
- Google Maps
- Text Autocorrect
- Automated Translation
- Chatbots
- Social Media
- Face Detection



Strong AI

Strong Artificial Intelligence is the type of AI that mimics human intelligence.

Strong AI indicates the ability to think, plan, learn, and communicate.

Strong AI is the theoretical next level of AI: True Intelligence.

Strong AI moves towards machines with self-awareness, consciousness, and objective thoughts.

Why AI Now?

One of the greatest innovators in the field of machine learning was John McCarthy, widely recognized as the "Father of Artificial Intelligence".

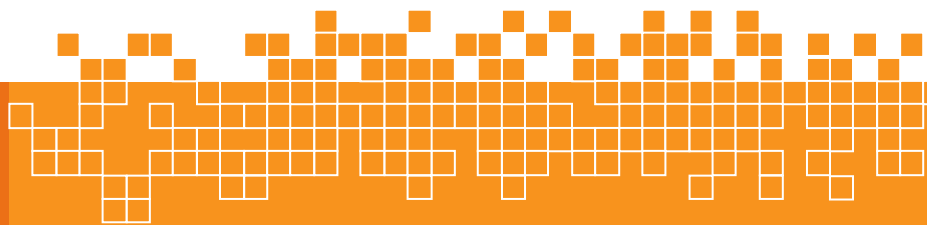
In the mid 1950s, McCarthy coined the term "Artificial Intelligence" and defined it as "the science of making intelligent machines".

The algorithms has been here since then. Why is AI more interesting now?

The answer is:

- Computing power has not been strong enough
- Computer storage has not been large enough
- Big data has not been available
- Fast Internet has not been available

Another strong force is the major investments from big companies (Google, Microsoft, Facebook, YouTube) because their datasets became much too big to handle traditionally.



ARTIFICIAL INTELLIGENCE & ITS APPLICATIONS

Bhargavi S

IT-A(3/4)

ABSTRACT

It is the science and engineering of making intelligent machines, especially intelligent computer programs. It is related to the similar task of using computers to understand human intelligence, but AI does not have to confine itself to methods that are biologically observable. While no consensual definition of Artificial Intelligence (AI) exists, AI is broadly characterized as the study of computations that allow for perception, reason and action. Today, the amount of data that is generated, by both humans and machines, far outpaces humans' ability to absorb, interpret, and make complex decisions based on that data. Artificial intelligence forms the basis for all computer learning and is the future of all complex decision making. This paper examines features of artificial Intelligence, introduction, definitions of AI, history, applications, growth and achievements.

ARTIFICIAL INTELLIGENCE METHODS:

Machine Learning It is one of the applications of AI where machines are not explicitly programmed to perform certain tasks; rather, they learn and improve from experience automatically. Deep Learning is a subset of machine learning based on artificial neural networks for predictive analysis. There are various machine learning algorithms, such as Unsupervised Learning, Supervised Learning, and Reinforcement Learning. In Unsupervised Learning, the algorithm does not use classified information to act on it without any guidance. In Supervised Learning, it deduces a function from the training data, which consists of a set of an input object and the desired output. Reinforcement learning is used by machines to take suitable actions to increase the reward to find the best possibility which should be taken in to account. Natural Language Processing(NLP) It is the interactions between computers and human language where the computers are programmed to process natural languages. Machine Learning is a reliable technology for Natural Language Processing to obtain meaning from human languages. In NLP, the audio of a human talk is captured by the machine. Then the audio to text conversation occurs, and then the text is processed where the data is converted into audio. Then the machine uses the audio to respond to humans. Applications of Natural Language Processing can be found in IVR (Interactive Voice Response) applications used in call centres, language translation applications like Google Translate and word processors such as Microsoft Word to check the accuracy

of grammar in text. However, the nature of human languages makes the Natural Language Processing difficult because of the rules which are involved in the passing of information using natural language, and they are not easy for the computers to understand. So NLP uses algorithms to recognize and abstract the rules of the natural languages where the unstructured data from the human languages can be converted to a format that is understood by the computer. Automation & Robotics The purpose of Automation is to get the monotonous and repetitive tasks done by machines which also improve productivity and in receiving cost-effective and more efficient results.

Machine Vision Machines can capture visual information and then analyze it. Here cameras are used to capture the visual information, the analogue to digital conversion is used to convert the image to digital data, and digital signal processing is employed to process the data. Then the resulting data is fed to a computer. In machine vision, two vital aspects are sensitivity, which is the ability of the machine to perceive impulses that are weak and resolution, the range to which the machine can distinguish the objects. The usage of machine vision can be found in signature identification, pattern recognition, and medical image analysis, etc. Knowledge-Based Systems(KBS): A KBS can be defined as a computer system capable of giving advice in a particular domain, utilizing knowledge provided by a human expert. A distinguishing feature of KBS lies in the separation behind the knowledge, which can be represented in a number of ways such as rules, frames, or cases, and the inference engine or algorithm which uses the knowledge base to arrive at a conclusion. Neural Networks: NNs are biologically inspired systems consisting of a massively connected network of computational “neurons,” organized in layers. By adjusting the weights of the network, NNs can be “trained” to approximate virtually any nonlinear function to a required degree of accuracy. NNs typically are provided with a set of input and output exemplars. A learning algorithm (such as back propagation) would then be used to adjust the weights in the network so that the network would give the desired output, in a type of learning commonly called supervised learning.



Applications of AI

Artificial Intelligence has various applications in today's society. It is becoming essential for today's time because it can solve complex problems with an efficient way in multiple industries, such as Healthcare, entertainment, finance, education, etc. AI is making our daily life more comfortable and fast. Following are some sectors which have the application of Artificial Intelligence



AI in Astronomy

Artificial Intelligence can be very useful to solve complex universe problems. AI technology can be helpful for understanding the universe such as how it works, origin, etc.

AI in Healthcare

In the last, five to ten years, AI becoming more advantageous for the healthcare industry and going to have a significant impact on this industry.

Healthcare Industries are applying AI to make a better and faster diagnosis than humans. AI can help doctors with diagnoses and can inform when patients are worsening so that medical help can reach to the patient before hospitalization.

AI in Gaming

AI can be used for gaming purpose. The AI machines can play strategic games like chess, where the machine needs to think of a large number of possible places.

AI in Finance

AI and finance industries are the best matches for each other. The finance industry is implementing automation, chatbot, adaptive intelligence, algorithm trading, and machine learning into financial processes.

AI in Data Security

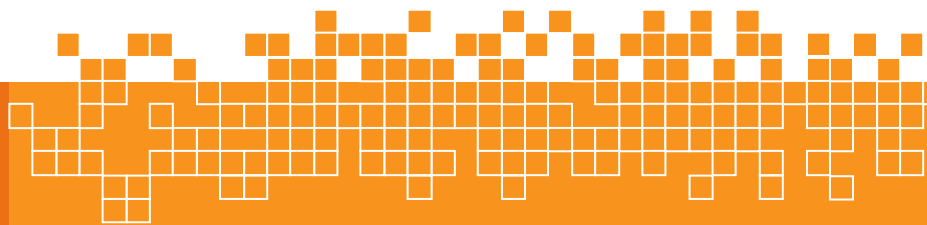
The security of data is crucial for every company and cyber-attacks are growing very rapidly in the digital world. AI can be used to make your data more safe and secure. Some examples such as AEG bot, AI2 Platform, are used to determine software bug and cyber-attacks in a better way.

AI in Social Media

Social Media sites such as Facebook, Twitter, and Snapchat contain billions of user profiles, which need to be stored and managed in a very efficient way. AI can organize and manage massive amounts of data. AI can analyze lots of data to identify the latest trends, hashtag, and requirement of different users.

AI in Travel & Transport

AI is becoming highly demanding for travel industries. AI is capable of doing various travel related works such as from making travel arrangement to suggesting the hotels, flights, and best routes to the customers. Travel industries are using AI-powered chatbots which can make human-like interaction with customers for better and fast response.



AI in Automotive Industry

Some Automotive industries are using AI to provide virtual assistant to their user for better performance. Such as Tesla has introduced TeslaBot, an intelligent virtual assistant.

Various Industries are currently working for developing self-driven cars which can make your journey more safe and secure.

AI in Robotics:

Artificial Intelligence has a remarkable role in Robotics. Usually, general robots are programmed such that they can perform some repetitive task, but with the help of AI, we can create intelligent robots which can perform tasks with their own experiences without pre-programmed. Humanoid Robots are best examples for AI in robotics, recently the intelligent Humanoid robot named as Erica and Sophia has been developed which can talk and behave like humans.

