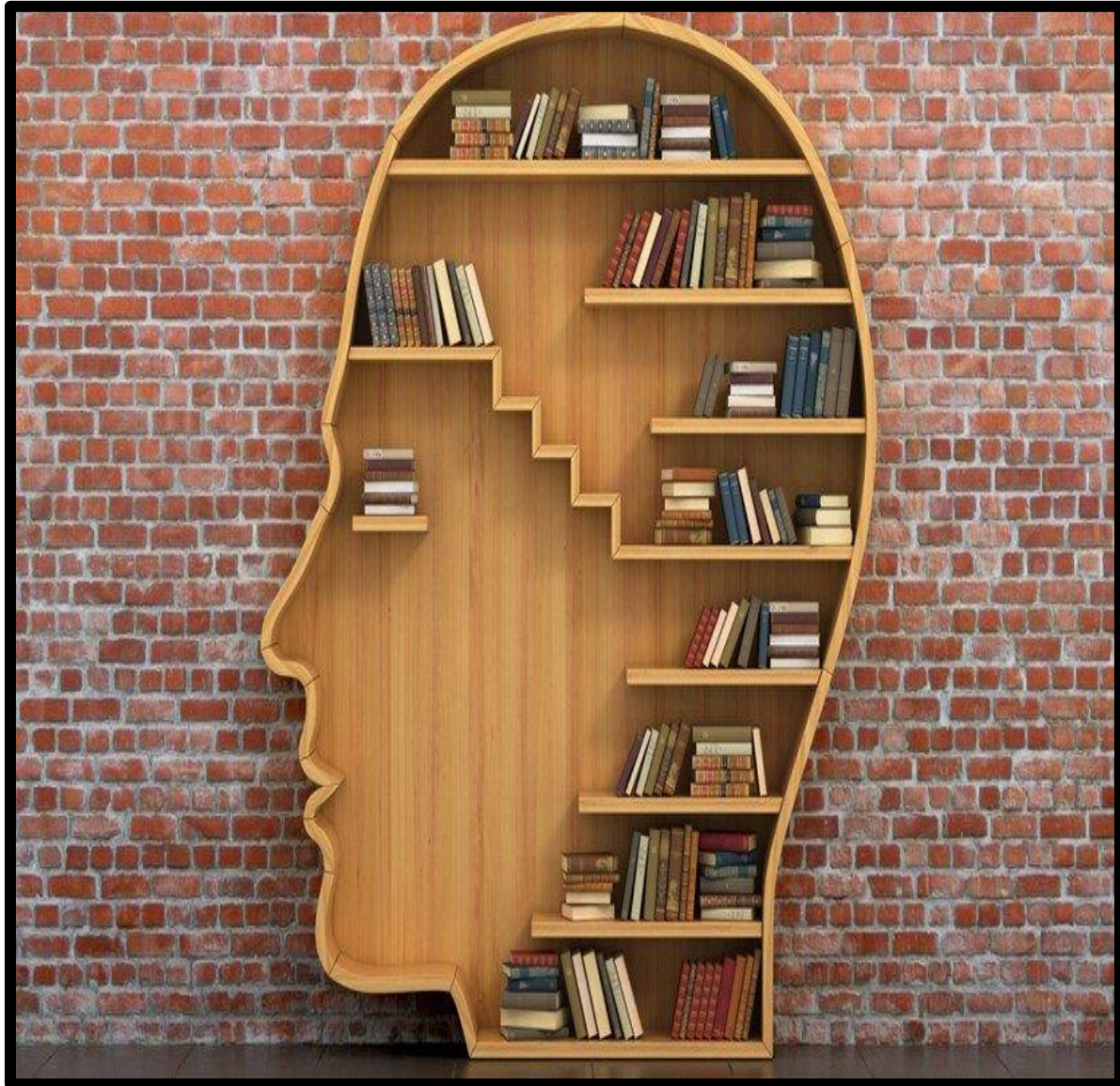


Government Polytechnic Jintur
Department of Computer Engineering

E- MAGZINE



Academic Year :- 2023-2024



Computer engineering is a one of the emerging computing discipline. Now a day's Computers became essential work tools at every level of most organizations, and networked computer systems became the information backbone of organization. Computer engineering refers to undergraduate degree programs that prepare students to meet the computer technology needs of business, government, health care, schools, and other kinds of organizations

Computer engineering is a new and rapidly growing field that started as a grassroots response to the practical, everyday needs of business and other organizations. Today, organizations of every kind are dependent on Computer engineering. They need to have appropriate systems in place.

Mr.P.B. Kale

VISION

To create a skilled technicians in computer engineering for the industry and society

MISSION

M1. To develop the logical abilities among the student.

M2. To solve the board –based problems of the computer engineering.

M3. TO inculcate professional and social ethical values among the students

M4. TO enhance leadership qualities to work in the multidisciplinary environment

CYBERSECURITY



WHAT IS CYBERSECURITY ?

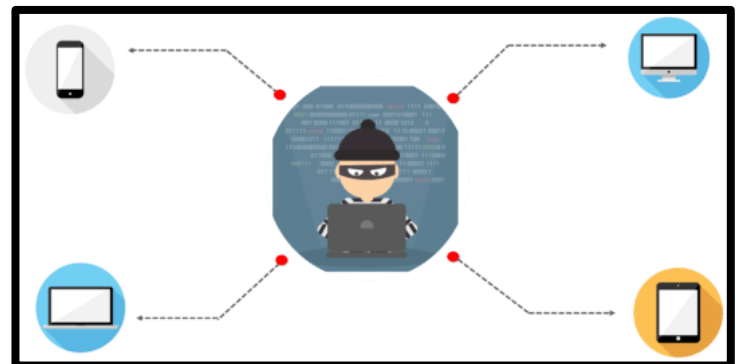
Cybersecurity is the practice of protecting critical systems and sensitive information from digital attacks. Also known as information technology (IT) security, cybersecurity measures are designed to combat threats against networked systems and applications, whether those threats originate from inside or outside of an organization.



TYPES OF CYBER THREATS

The threats countered by cyber-security are three-fold:

1. **Cybercrime** includes single actors or groups targeting systems for financial gain or to cause disruption.
2. **Cyber-attack** often involves politically motivated information gathering.
3. **Cyberterrorism** is intended to undermine electronic systems to cause panic or fear.



- KRANTI GHUGE 2200940179

BLOCKCHAIN

A block chain is a distributed database that is shared among the nodes of a computer network. As a database, a block chain stores information electronically in digital format. Block chains are best known for their crucial role in cryptocurrency systems, such as Bitcoin, for maintaining a secure and decentralized record of transactions. The innovation with a block chain is that it guarantees the fidelity and security of a record of data and generates trust without the need for a trusted third party.



Why blockchain is important:-

Business runs on information. The faster it's received and the more accurate it is, the better. Block chain is ideal for delivering that information because it provides immediate, shared and completely transparent information stored on an immutable ledger that can be accessed only by permissioned network members. A block chain network can track orders, payments, accounts, production and much more. And because members share a single view of the truth, you can see all details of a transaction end to end, giving you greater confidence, as well as new efficiencies and opportunities.

-VARAD PATEL 2100940049

CLOUD COMPUTING



Cloud computing is on-demand access, via the internet, to computing resources—applications, servers (physical servers and virtual servers), data storage, development tools, networking capabilities, and more—hosted at a remote data center managed by a cloud services provider (or CSP). The CSP makes these resources available for a monthly subscription fee or bills them according to usage.

The term ‘cloud computing’ also refers to the technology that makes cloud work. This includes some form of *virtualized IT infrastructure*—servers, operating system software, networking, and other infrastructure that’s abstracted, using special software, so that it can be pooled and divided irrespective of physical hardware boundaries. For example, a single hardware server can be divided into multiple virtual servers.

Virtualization enables cloud providers to make maximum use of their data center resources. Not surprisingly, many corporations have adopted the cloud delivery model for their on-premises infrastructure so they can realize maximum utilization and cost savings vs. traditional IT infrastructure and offer the same self-service and agility to their end-users

Google cloud services

- Compute.
- Storage & Databases.
- Networking.
- Big Data.
- Cloud AI.

-PARMESHWAR BHANDEKARI 2100940059

ARTIFICIAL INTELLIGENCE

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. A subset of artificial intelligence is machine learning, which refers to the concept that computer programs can automatically learn from and adapt to new data without being assisted by humans.



KEY TAKEAWAYS

- Artificial intelligence refers to the simulation of human intelligence in machines.
- The goals of artificial intelligence include learning, reasoning, and perception.
- AI is being used across different industries including finance and healthcare

-APURVA GHAVLE 2200940169

ANALYTICS



What is Analytics?

Analytics is the process of discovering, interpreting, and communicating significant patterns in data. . Quite simply, analytics helps us see insights and meaningful data that we might not otherwise detect. Business analytics focuses on using insights derived from data to make more informed decisions that will help organizations increase sales, reduce costs, and make other business improvements.

Analytics fundamentals

Data in and of itself is meaningless. We can turn over every single rock and learn every possible lesson but if we don't act, if we don't pivot, if we don't adjust, all our work will be for not. If we don't leverage all the technology at our disposal, we are not getting every single dollar back that we could on our investment. In our world today, we are effectively able to speak with our data; have it answer questions; have it predict outcomes for us; and have it learn new patterns. This is the potential of your data.

Analytics trends

Amid the constantly evolving analytics market, the fundamental shift from IT leading the charge to pursue business analytics initiatives, to one where the business and IT share in this decision is now the new normal. There is no doubt that analytics has become strategic for most organizations today, and as such, has introduced a new wave of both new consumers and new expectations.

What has changed is the way that decisions must be made in real time and shared with a wide audience. The workforce is changing, and that change brings a new way to work. Gone are the days where training manuals are commonplace in the office—today's workforce expects to get up and running quickly with an intuitive interface. But it doesn't end there. While speed and simplicity are key, business leaders still have high expectations around data

quality and security. A centralized analytics platform where IT plays a pivotal role is still a fundamental part of any analytics strategy. The combination of both business-led and IT-led initiatives is the sweet spot for innovation.

We believe that putting analytics in the cloud is much more than just a deployment choice—it breaks down the barriers between people, places, data, and systems to fundamentally shift the way people and processes interact with information, technology, and each other.

-SHREYA JOSHI 2100940083

Ethical Hacking



Hacking

Hacking is identifying weakness in computer systems or networks to exploit its weaknesses to gain access.

Example

A hacker can create algorithms to crack passwords, crack networks, or disturb network services.

Ethical Hacking

Ethical Hacking is an authorized practice of system security to identify potential data breaches and threats in a network.

Ethical hackers aim to investigate the system or network for weak points that malicious hackers can exploit or destroy.

-Ethical Hackers check for key vulnerabilities include but are not limited to:

1. Injection attacks
2. Changes in security settings
3. Exposure of sensitive data
4. Breach in authentication protocols
5. Components used in the system or network that may be used as access points

White Hat

The practice of ethical hacking is called “White Hat” hacking, and those who perform it are called White Hat hackers.

Skills Required to Become an Ethical Hacker

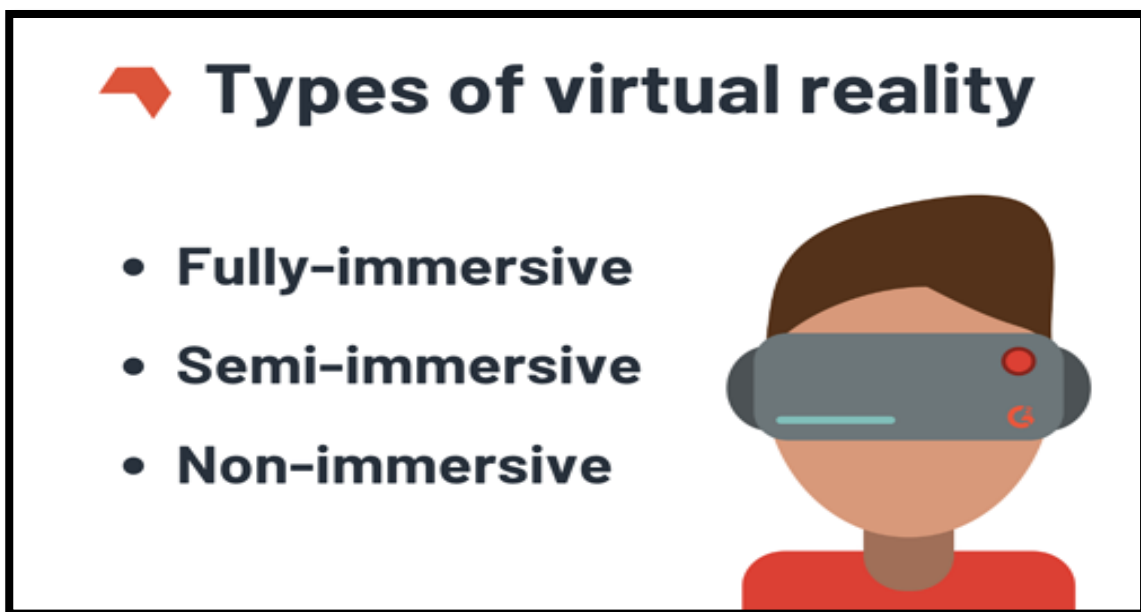
1. Knowledge of programming
2. Scripting knowledge
3. Networking skills
4. Understanding of databases
5. Knowledge of multiple platforms like Windows, Linux, UNIX, etc.
6. The ability to work with different hacking tools

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VIRTUAL REALITY

What is virtual reality?

Unlike augmented reality, virtual reality is a fully digital experience that can either simulate or differ completely from the real world. The term virtual reality refers to a computer-generated, three-dimensional environment. In order to experience and interact with *virtual reality*, you'll need the proper equipment, like a pair of VR glasses or a headset. Virtual reality technology is used to create immersive experiences that can help educate and even entertain consumers. Outside of its popular gaming use case, virtual reality is applied in a variety of industries, such as medicine, architecture, military, and others. Everything that makes up our perception of reality is due to our senses. So, in theory, everyone's reality is unique to them. Taking that a step further, it would make sense that if you provided your sense with other simulated or computer-generated information, your perception of reality would change – creating a new, virtual one.



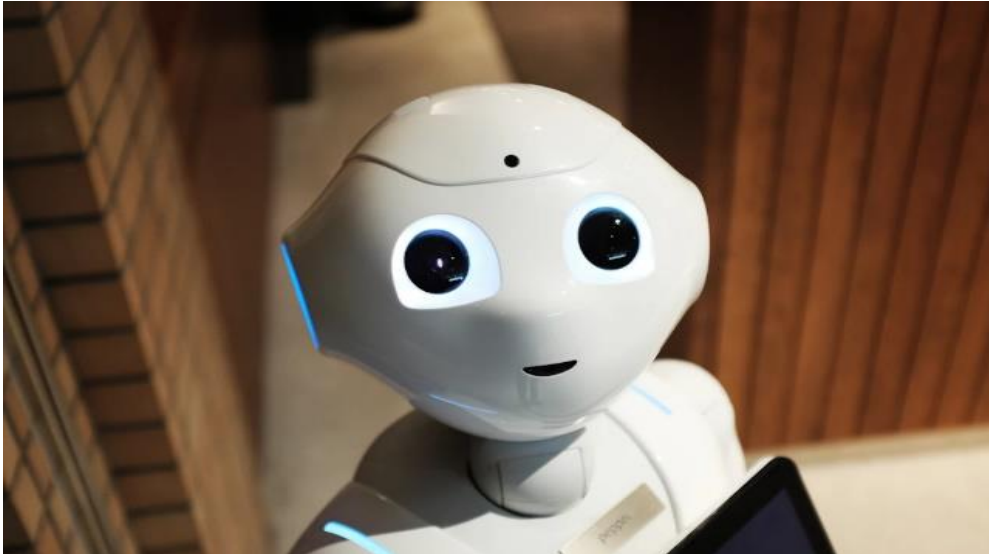
Types of virtual reality

There are three main types of virtual reality used today to transform the world around us, including non-immersive, semi-immersive, and fully-immersive simulations.

To get a better understanding of how the technology is used, let's break down the different types of VR and see examples of each.

AUTOMATION

Automation is a term for technology applications where human input is minimized. This includes business process automation (BPA), IT automation, personal applications such as home automation and more.



Types of automation

Basic automation takes simple, rudimentary tasks and automates them. This level of automation is about digitizing work by using tools to streamline and centralize routine tasks, such as using a shared messaging system instead of having information in disconnected silos. Business process management (BPM) and robotic process automation (RPA) are types of basic automation.

Process automation

Process automation manages business processes for uniformity and transparency. It is typically handled by dedicated software and business apps. Using process automation can increase productivity and efficiency within your business. It can also deliver new insights into business challenges and suggest solutions. Process mining and workflow automation are types of process automation.

Integration automation

Integration automation is where machines can mimic human tasks and repeat the actions once humans define the machine rules. One example is the “digital worker.” In recent years, people have defined digital workers as software robots that are trained to work with humans to perform specific tasks. They have a specific set of skills, and they can be “hired” to work on teams.

Artificial intelligence (AI) automation

The most complex level of automation is artificial intelligence (AI) automation. The addition of AI means that machines can “learn” and make decisions based on past situations they have encountered and analyzed. For example, in customer service, virtual assistants powered can reduce costs while empowering both customers and human agents, creating an optimal customer service experience.

MACHINE LEARNING

Machine Learning is the field of study that gives computers the capability to learn without being explicitly programmed. ML is one of the most exciting technologies that one would have ever come across. As it is evident from the name, it gives the computer that makes it more similar to humans: *The ability to learn*. Machine learning is actively being used today, perhaps in many more places than one would expect.

Machine learning is an important component of the growing field of data science. Through the use of statistical methods, algorithms are trained to make classifications or predictions, uncovering key insights within data mining projects. These insights subsequently drive decision making within applications and businesses, ideally impacting key growth metrics. As big data continues to expand and grow, the market demand for data scientists will increase, requiring them to assist in the identification of the most relevant business questions and subsequently the data to answer them.



How machine learning works

1. **A Decision Process:** In general, machine learning algorithms are used to make a prediction or classification. Based on some input data, which can be labelled or unlabeled, your algorithm will produce an estimate about a pattern in the data.
2. **An Error Function:** An error function serves to evaluate the prediction of the model. If there are known examples, an error function can make a comparison to assess the accuracy of the model.
3. **An Model Optimization Process:** If the model can fit better to the data points in the training set, then weights are adjusted to reduce the discrepancy between the known example and the model estimate. The algorithm will repeat this evaluate and optimize process, updating weights autonomously until a threshold of accuracy has been met.