ARTIFICIAL INTELLIGENCE FOR ENGINEERING

UNIT-1 : An Overview of AI

LECTURE-4

Content : Emerging Technologies

Lecture Outcome : students are able to explains emerging technol...

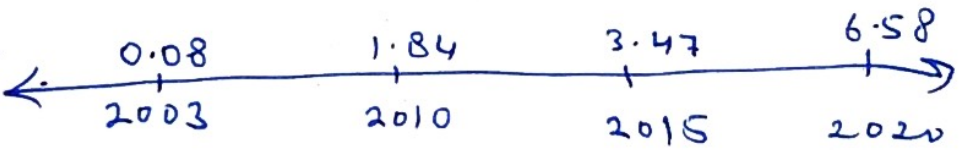
1. Internet of Things (IoT)

The Internet of Things (IoT) is the network of physical objects or "things" embeded with electronics, software, sensors, and network connectivity, which enables these objects to collect and exchange data.

Current Status & Future Prospect of IoT

World Population	6.3 Billion	6.8 Billion	7.2 Billion	7.6 Billion
Connected devices	500 Million	12.5 Billion	25 Billion	50 Billion

Connected devices per person



Few Applications of IoT

- Building & Home automation
- Manufacturing
- Medical & Healthcare System

- Media
- Environmental Monitoring
- Infrastructure Management
- Energy Management
- Transportation.

Data Science

Data is everywhere, The amount of digital data that exists is growing at a rapid rate, doubling every two years, and changing the way we live. An article by Forbes states that data is growing faster than ever before. By the year 2020, about 1.7 megabytes of new information will be created every second for every human being on the planet.

What is data science:

Dealing with unstructured and structured data, Data Science is a field that comprises everything that related to data cleansing, preparation, and analysis

Data Science is the combination of statistics, Mathematics, programming, problem-solving, Capturing data in ingenious ways, the ability to look at things differently, and the activity of cleansing, preparing, and aligning the data.

In simple terms, it is the umbrella of techniques used when trying to extract insights and information from data.

Application of Data Science

- **Internet Search**

  Search engines make use of data science algorithms to deliver the best results of search queries in a fraction of seconds.

- **Digital Advertisements**:

  The entire digital marketing spectrum uses the data science algorithms from display banners to digital billboard This is the main reason for digital ads getting higher CTR (Click Through Rate) the traditional advertisement.

Blockchain

Emerging Technologies :

1- AI : AI claimed the top spot on the list. Artificial intelligence refers to programmed algorithms that automatically parse and apply knowledge. It is the largest force in emerging technology, and includes security and sales applications for businesses.

2. 5G : 5G offers improvements over 4G, such as low latency, intelligent power consumption and high device density. 5G will make augmented reality, smart cities and connected vehicles possible.

3. IoT : The internet-of things combines information from connected devices and allows for analytics of systems. These platforms, devices and datsets provide additional insights and efficiencies for the enterprise.

4. Serverless Computing : Serverless computing or Function as a service (FaaS), allows companies to build applications that scale in real time so that they can respond to demand that can change instantly depending on orders

of magnitude. FaaS offers a consumption-based platform so that developers can quickly and cost effectively deploy applications.

5. Biometrics: security will be improved by biometrics by allowing people and devices to authenticate and move seamlessly through the world.

6. Augmented Reality | Virtual Reality

AR and VR transform how people engage with machine, data and each other. The enterprise is using mixed reality, AI and sensor technologies to enhance execution fluxibility, operational efficiency and individual productivity.

7. Blockchain:

There is an ever-increasing need to be able to secure and manage transactions across the internet, and blockchain is the answer. Blockchain manages data and supply chain challenges.

8. Robotics:

Robotics are shifting from industrial use to service delivery and are impacting home and businesses, both physically and virtually.

9. Natural Language Processing:

NLP is a field of AI that enables computers to analyze and understand human language. speech to text converts human language into programming language. Text to speech converts a computer operation to an audible response.

10. Quantum Computing

Our ability to process and analyze big data will be impacted by quantum computing. It is the key to ~~[illegible]~~ leveraging machine learning and the power of AI.