MICROSECTRA SOFTWARE TECHNOLOGIES PVT.LTD

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1 To study Artificial Intelligence its needs & Applications in various domain .

Artificial Intelligence is the simulation of the human process by machines (computer systems). These processes include the learning, reasoning, and self-correction. We need Artificial Intelligence (AI) because the work that we need to do is increasing day-to-day. So it's a good idea to automate the routine work. We need Artificial Intelligence (AI) because the work that we need to do is increasing day-to-day. So it's a good idea to automate the routine work. This saves the manpower of the organization and also increases the productivity. Additionally, through this Artificial Intelligence, the company can also get the skilled the persons for the development of the company. Moreover the companies today think that they want to mechanize all the regular and routine work. And they think they can automate those regular works through the simple program Because, with the development of data science, automation becomes more common. The application of this AI is majorly seen at website chat portal. You people when you come to the websites probably seen the welcome message. Then after actual conversation usually starts.

So this Powerful Artificial Intelligence has divided into 4 categories. So now let me explain to you one by one :

A good example of this Reactive machines is Deep blue. And this is usually applied in Chess Board. This can identify the pieces of the chess board and make predictions. But the drawback is that it does not have memory. It means, it cannot use the past experiences to predict the future. So it just uses the current situation and just moves the pawn. It is intended for the application of a small situation. The situation could be handled within a moment itself.This type of AI is applied where there is a need for memory. Some machines work on the basis of the past experience. It means they the information of the same thing that happened in the past and does the current work accordingly. This type of AI majority used in the areas of self-driving cars. It uses its memory to act in situations like traffic collisions.

This type of AI refers to the understanding of other behaviors and do the work according to It includes the feeling. the intention, moves of the other person. In general, this kind of AI still does not exist. And today most of the scientists ware working hard to get it practically.

Like the above type, this type of Artificial Intelligence systems, need to bring practically. They think that you these systems should have a selfawareness and must have a capabity to understand the feeling of others

So finally , I would like conclude the application Artificial Intelligence with the following figure

Applications of artificial intelligence :

Artificial intelligence, defined as intelligence exhibited by machines, has many applications in today's society. More specifically, it is Weak AI, the form of AI where programs are developed to perform specific tasks, that is being utilized for a wide range of activities including medical diagnosis, electronic trading platforms, robot control, and remote sensing. AI has been used to develop and advance numerous fields and industries, including finance, healthcare, education, transportation, and more. In agriculture new AI advancements show improvements in gaining yield and to increase the research and development of growing crops. New artificial intelligence now predicts the time it takes for a crop like a tomato to be ripe and ready for picking thus increasing efficiency of farming.[2] These advances go on including Crop and Soil Monitoring.

AI In Marketing,AI In Banking,AI In Finance, Health care,GaGamin

Object detection.

2 To study 3D Printing Technology its needs & Applications in various domain .

- The design and product development implications of AM in industry can cover several disciplines, such as industrial design or mechanical engineering design. Recent research has expanded RM applications into four sub-categories that cover four applications domains: (1) user-fit requirements and ergonomics, (2) improved functionality or product performance, (3) parts consolidation and (4) aesthetics (Campbell et al., 2012). The following two subsections will cover parts consolidation and the product functionality applications of the technology. In the modelling phase, in order to obtain the printing model, the machine uses virtual blueprints of the object and processes them in a series of thin cross-sections that are being used successively. The virtual model is identical to the physical one.
- In the printing phase, the 3D printer reads the design (consisting of cross-sections) and deposits the layers of material, in order to build the product. Each layer, based on a virtual cross section, fuses with the previous ones and, finally, after printing all these layers, the desired object has been obtained. Through this technique, one can create different objects of various shapes, built from a variety of materials (thermoplastic, metal, powder, ceramic, paper, photopolymer, liquid).
- The final phase consists in the finishing of the product. In many cases, in order to obtain an increased precision, it is more advantageous to print the object at a higher size than the final desired one, using a standard resolution and to remove then the

supplementary material using a subtractive process at a higher resolution.

AM technologies found applications starting in the 1980s in product development, data visualization, rapid prototyping, and specialized manufacturing. Their expansion into production (job production, mass production, and distributed manufacturing) has been under development in the decades since. Industrial production roles within the metalworking industries[4] achieved significant scale for the first time in the early 2010s. Since the start of the 21st century there has been a large growth in the sales of AM machines, and their price has dropped substantially.[5] According to Wohlers Associates, a consultancy, the market for 3D printers and services was worth $2.2 billion worldwide in 2012, up 29% from 2011.[6] McKinsey predicts that additive manufacturing could have an economic impact of $550 billion annually by 2025.[7] There are many applications for AM technologies, including architecture, construction (AEC), industrial design, automotive, aerospace,[8] military, engineering, dental and medical industries, biotech (human tissue replacement), fashion, footwear, jewelry, eyewear, education, geographic information systems, food, and many other fields.

Application of 3D Printing :

3D printing for medical applications

Organ models to aid preoperative planning and surgical treatment analysis

High-fidelity physical organ models play a significant role in clinical treatment and in medical education. Conventional manufacturing processes, such as casting or forging, waste so much time in preparing expensive tooling, and always ignore individual differences among patients. 3D printing has the advantage of rapidly fabricating customized

medical models at a lower cost, since there are no tools involved. 3D printed organ models primarily help doctors to perform surgical analysis and preoperative training. Personalized medical models with complex shapes that are made using 3D printing can provide doctors and engineers with a medium for communication, and can assist in surgical planning and diagnosis. There is no requirement for biocompatibility of materials in such applications, which include medical models and in vitro equipment for preoperative planning, prosthesis design, testing standards, and so on, because printed parts will not enter the body.

A group of researchers from China and America have used 3D printing technology with HeLa cells and gelatin/alginate/fibrinogen hydrogels to successfully construct in vitro cervical tumor model ,thus providing vivid 3D imaging of the tumor environment. As shown in HeLa cells form round spheroids with smooth surfaces and tight cell–cell connections within the 3D hydrogel, while exhibiting a flat and elongated morphology on 2D tissue culture plates. The use of 3D printing technology for medical applications will efficiently solve the donor-shortage issue for organ transplantations, and is therefore an emerging and rapidly developing interdisciplinary field that tightly integrates material science, biology, and clinical science. It is difficult to simulate the structure and biological function of the ECM in vitro, as it is a complex system with multiple components. Existing technologies that primarily stack cell-seeded hydrogels are unable to solve the issues of cellular nutrition and oxygen supply. For larger scaffolds, a sufficient number of cells cannot be provided at present. Compared with In addition, other limitations that include cell survival, development, differentiation, and fusion, must be solved for the further development of printed scaffolds, tissues, and organs.

3 To study Internet of Things its needs & Applications in various domain .

The internet of things, or IoT, is a system of interrelated computing devices, mechanical and digital machines, objects, animals or people that are provided with unique identifiers (UIDs) and the ability to transfer data over a network without requiring human-to-human or human-tocomputer interaction.

A *thing* in the internet of things can be a person with a heart monitor implant, a farm animal with a biochip transponder, an automobile that has built-in sensors to alert the driver when tire pressure is low or any other natural or man-made object that can be assigned an Internet Protocol (IP) address and is able to transfer data over a network.
Increasingly, organizations in a variety of industries are using IoT to operate more efficiently, better understand customers to deliver enhanced customer service, improve decisionmaking and increase the value of the business.

How IoT works

An IoT ecosystem consists of web-enabled smart devices that use embedded systems, such as processors, sensors and communication hardware, to collect, send and act on data they acquire from their environments. IoT devices share the sensor data they collect by connecting to an IoT gateway or other edge device where data is either sent to the cloud to be analyzed or analyzed locally. Sometimes, these devices communicate with other related devices and act on the information they get from one another. The devices do most of the work without human intervention, although people can interact with the devices -- for instance, to set them up, give them instructions or access the data.

The connectivity, networking and communication protocols used with these web-enabled devices largely depend on the specific IoT applications deployed.
IoT can also make use of artificial intelligence (AI) and machine learning to aid in making data collecting processes easier and more dynamic.

Application of Internet Things :

Radio Frequency identification (RFID) is a wireless technology that is used for identification of objects [6]. Due to its reduced cost and increased abilities like tracking the location, status of objects and remote reading [4], it is more preferred than the usual bar code technology. It is the root cause factor for an object to be identified so that it can be connected to the internet. RFID uses radio waves to identify things and transfer its information to the RFID reader without physical contact. The RFID system has two main components: RFID tags (transponders) and RFID Readers (transceivers) [6]. The tags have a microchip, memory to record information using Electronic Product Code (EPC) or Universal Identification (UID) and an embedded antenna. The working of an RFID application is as follows: The RFID tags are attached to the items which have to be monitored and whose information is to be shared. The readers are flashed on the tag and due to the radio signals received by the in-built antenna, the tag responses by transferring their EPC to the reader. The reader then transmits this information from EPC to the computer to be shared across the internet. In cases where smart phones are used, the sensors present in the mobile devices capture the information and are uploaded online using GPRS or Wi-Fi. Tags are of two types: active and passive. Active tags have inbuilt battery, allows reading from distance locations and transmit information

frequently to the reader. On the other hand passive tags do not have a battery of their own and transmit EPC only when the transceivers come within their range [6].The above working refers to an active tag. The Passive tag responds in a different way. When the passive tag is approached by a reader, an electromagnetic signal from the reader energises the tag. Using inductive coupling [6], the energy from the signal is absorbed by the tag which converts it into electrical energy and stores in a inbuilt capacitors that it can respond to the reader with an EPC. Hence the RFID system uploads the thing's information through non-contact reading by a machine rather than humans.

Embedded systems are intelligent and things with embedded intelligence become smart things. These make things perform certain actions automatically. For e.g. A smart watching machine can wash and dry clothes automatically without human intervention. Nano-technology can imbibe intelligence in things which are called smart devices.

IOT applications are used widely in many domains. Healthcare, agriculture, smart buildings (school, hospital, home) , supply chain management , Transportation and defence.

4 To study Machine Learning its needs & Applications in various domain .

Machine learning (**ML**) is the study of computer algorithms that improve automatically through experience.[1][2] It is seen as a subset of artificial intelligence. Machine learning algorithms build a mathematical model based on sample data, known as "training data", in order to make predictions or decisions without being explicitly programmed to do so.[3] Machine learning algorithms are used in a wide variety of applications, such as email filtering and computer vision, where it is difficult or infeasible to develop conventional algorithms to perform the needed tasks.

Machine learning is closely related to computational statistics, which focuses on making predictions using computers. The study of mathematical optimization delivers methods, theory and application domains to the field of machine learning. Data mining is a related field of study, focusing on exploratory data analysis through unsupervised learning.

In its application across business problems, machine learning is also referred to as predictive analytics.

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Application of Machine Learning :

Traffic Alerts, Social Media, Transportation and Commuting, Online Video Streaming.

5 To study Data Science its needs & Applications in various domain .

Data science is an inter-disciplinary field that uses scientific methods, processes, algorithms and systems to extract knowledge and insights from many structural and unstructured data.[1][2] Data science is related to data mining, machine learning and big data.

Data science is a "concept to unify statistics, data analysis, machine learning, domain knowledge and their related methods" in order to "understand and analyze actual phenomena" with data.[3] It uses techniques and theories drawn from many fields within the context of mathematics, statistics, computer science, domain knowledge and information science. Turing award winner Jim Gray imagined data science as a "fourth paradigm" of science (empirical, theoretical, computational and now data-driven) and asserted that "everything about science is changing because of the impact of information technology" and the data deluge.[4][5]

There are a variety of different technologies and techniques that are used for data science which depend on the application. More recently, full-featured, end-to-end platforms have been developed and heavily used for data science and machine learning. In this section of the 'What is Data Science?' blog, we will look at how top industry players like Google, Amazon, and Visa are using Data Science. IT organizations need

to address their complex and expanding data environments in order to identify new value sources, exploit opportunities, and grow or optimize themselves, efficiently. Here, the deciding factor for an organization is ‘what value they extract from their data repository using analytics and how well they present it’. Below, we list some of the biggest and best companies that are hiring Data Scientists at top-notch salaries.

Application of of Data science :

1. Fraud and Risk Detection
2. Healthcare
3. Internet Search
4. Targeted Advertising
5. Website Recommendations
6. Advanced Image Recognition
7. Speech Recognition
8. Airline Route Planning
9. Gaming
10. Augmented Reality

6 To study Data Analytics its needs & Applications in various domain .

There are many open-source machine learning algorithms and tools that are compatible with financial data and help to produce actionable and accurate insights. Also, renowned financial services companies have deep pockets and can afford to spend a lot on state-of-the-art computing equipment.

Big Data Analytics is especially important in industries like aviation as there is no physical access to the testing environment. Tech hitches can't be fixed by the cabin crew on the go and only in the biggest airports have maintenance teams.

Thus, Big Data analytics solutions can predict the probability of a plane being delayed or cancelled due to technical hitches. Another important aspect is predicting aircraft engine parts failures as aircraft engine part replacements are among the most common and critical maintenance tasks in the aviation industry.

Transportation and logistics

Data Science and Big Data analytics are real game-changers for the transportation industry. They help to optimize routing and freight movement. Additionally, they help with

fleet optimization and predictive maintenance through the real-time view of fleet operating conditions. Also, they help to optimize transit schedules by predicting the impact of maintenance, road-works, congestion and accidents.

One very important benefit is that the use of data helps companies save so much money, develop better marketing strategies, improve the efficiency in procurement, support the growth of business and differentiate themselves from other competitors in the industry. There are several other areas where the application of data is known to be useful apart from companies alone.

Data analytics is the science of integrating heterogeneous data from diverse sources, drawing inferences, and making predictions to enable innovation, gain competitive business advantage, and help strategic decisionmaking. The data analytics domain has evolved under various names including online analytical processing (OLAP), data mining, visual analytics, big data analytics, and cognitive analytics. Also the term analytics is used to refer to any datadriven decision-making.

Depending on the stage of the workflow and the requirement of data analysis, there are four main kinds of analytics – descriptive, diagnostic, predictive and prescriptive.

Data analytics is the science of analyzing raw data in order to make conclusions about that information. The techniques and processes of data analytics have been automated into mechanical processes and algorithms that work over raw data for human consumption. Data analytics help a business optimize its performance.

Because learning data science is hard. It's a combination of hard skills (like learning Python and SQL) and soft skills (like business skills or communication skills) and more. This is an entry limit that not many students can pass. They got fed up with statistics, or coding, or too many business decisions, and quit.Transportation.

Application of Data Anaylatic :

1. Risk detection. ...
2. Risk Management. ...
3. Delivery. ...
4. Fast internet allocation. ...
5. Reasonable Expenditure. ...
6. Interaction with customers.

7 To study Block chain Technology its needs & Applications in various domain .

Blockchain technology can be integrated into multiple areas. The primary use of blockchains today is as a distributed ledger for cryptocurrencies, most notably bitcoin. There are a few operational products maturing from proof of concept by late 2016.[39] Businesses have been thus far reluctant to place blockchain at the core of the business structure.[51]

A blockchain, originally block chain,[4][5] is a growing list of records, called *blocks*, that are linked using cryptography. Each block contains a cryptographic hash of the previous block a timestamp, and transaction data (generally represented as a Merkle tree).

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".[7] For use as a distributed ledger, a blockchain is typically managed by a peer-to-peer network collectively adhering to a protocol for inter-node communication and validating new blocks. Once recorded, the data in any given

block cannot be altered retroactively without alteration of all subsequent blocks, which requires consensus of the network majority. Although blockchain records are not unalterable, blockchains may be considered secure by design and exemplify a distributed computing system with high Byzantine fault tolerance.

Decentralized consensus has therefore been claimed with a blockchain. Blockchain was invented by a person (or group of people) using the name Satoshi Nakamoto in 2008 to serve as the public transaction ledger of the cryptocurrency bitcoin.

The identity of Satoshi Nakamoto remains unknown to date. The invention of the blockchain for bitcoin made it the first digital currency to solve the double-spending problem without the need of a trusted authority or central server.

The bitcoin design has inspired other applications, and blockchains that are readable by the public are widely used by cryptocurrencies.

Blockchain is considered a type of payment rail. Private blockchains have been proposed for business use. Sources such as Computerworld called the marketing of such blockchains without a proper security model.

Application of Block chain :

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- Secure sharing of medical data
- Music royalties tracking
- Cross-border payments
- Real-time IoT operating systems
- Personal identity security
- Anti-money laundering tracking system
- Supply chain and logistics monitoring
- Voting mechanism
- Advertising insights
- Original content creation
- Cryptocurrency exchange
- Real estate processing platform.

8 To study of Cyber security its needs & Applications in various domain .

Cyber security or information technology security are the techniques of protecting computers, networks, programs and data from unauthorized access or attacks that are aimed for exploitation.

Disaster recovery planning is a process that includes performing risk assessment, establishing priorities, developing recovery strategies in case of a disaster. Any business should have a concrete plan for disaster recovery to resume normal business operations as quickly as possible after a disaster.

Network security includes activities to protect the usability, reliability, integrity and safety of the network. Effective network security targets a variety of threats and stops them from entering or spreading on the network. Network security components include: a) Anti-virus and anti-spyware, b) Firewall, to block unauthorized access to your network, c) Intrusion prevention systems (IPS), to identify fast-spreading threats, such as zero-day or zero-hour attacks, and d) Virtual Private Networks (VPNs), to provide secure remote access.

the domains of cybersecurity. Something we see happen in most organizations is that the domains are split into different departments under the security umbrella. This is fine for the most part, but it leads to some confusion when creating our defense in depth strategy. Bear in mind that many organizations break the domains down differently, and I've combined a couple of the domains below, so your mileage may vary depending on the organization overall. The domains of cybersecurity. Something we see happen in most organizations is that the domains are split into different departments under the security umbrella. This is fine for the most part, but it leads to some confusion when creating our defense in depth strategy. Bear in mind that many organizations break the domains down differently, and I've combined a couple of the domains below, so your mileage may vary depending on the organization overall.

Usually referred to as IAM, this domain entails all the systems, processes, and procedures an organization uses to assign identities, handle authentication, and manage access control. Identity is the process of assigning each individual user and system their own unique name.

Authentication is the process of establishing a method for users to prove their identity. Identity and authentication are usually carried out through the use of usernames and passwords, respectively. Security engineering usually refers to two key subdomains: network security and computer operations security. This domain is where your technical expertise is put to use in securing both the network and hosts from attacks.

SoftwareSoftware development takes on a handful of issues regarding internally developed applications or systems:

Providing proper secure coding training for developers

Performing code analysis on new code (whether it be new applications or updates to existing apps)

Overseeing development processes and procedures

Understanding updated application feature requirements and their implications on the security of the application.

Application of Cyber Security :

1. Business protection against malware, ransomware,phishing and social engineering.
2. Protection for data and networks.
3. Prevention of unauthorized users.
4. Improves recovery time after a breach.
5. Protection for end-users.

9 To study of Cloud computing its needs & Applications in various domain .

Cloud computing metaphor: the group of networked elements providing services need not be individually addressed or managed by users; instead, the entire provider-managed suite of hardware and software can be thought of as an amorphous cloud.

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 centers available to many users over the Internet.[1] 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. Clouds may be limited to a single organization (enterprise or be available to many organizations (public cloud).

A cloud can be private or public. A public cloud sells services to anyone on the internet. A private cloud is a proprietary network or a data center that supplies hosted services to a limited number of

people, with certain access and permissions settings. Private or public, the goal of cloud computing is to provide easy, scalable access to computing resources and IT services.Cloud computing relies on sharing of resources to achieve coherence and economies of scale.

Users can access large amounts of computing power on demand. It is typically sold by the minute or the hour.

It is elastic -- a user can have as much or as little of a service as they want at any given time.

The service is fully managed by the provider (the consumer needs nothing but a personal computer and Internet access). Significant innovations in virtualization and distributed computing, as well as improved access to high-speed internet, have accelerated interest in cloud computing.

Advocates of public and hybrid clouds note that cloud computing allows companies to avoid or minimize up-front IT infrastructure costs.Developing in the cloud enables users to get their applications to market quickly. Hardware failures do not result in data loss because of networked backups.

A domain, in the context of networking, refers to any group of users, workstations, devices, printers, computers and database servers that share different

types of data via network resources. A domain has a domain controller that governs all basic domain functions and manages network security.

Developing in the cloud enables users to get their applications to market quickly. Hardware failures do not result in data loss because of networked backups. Cloud computing uses remote resources, saving organizations the cost of servers and other equipment.

Application of Cloud Computing :

1. Infrastructure as a service (IaaS) and platform as a service (PaaS) ...
2. Private **cloud** and hybrid **cloud**. ...
3. Test and development. ...
4. Big data analytics. ...
5. File storage. ...
6. Disaster recovery. ...
7. Backup.

10 To study Industry 4.0 its needs and List Minimum 20 IT Product based & Service based Industry.

The aerospace industry has sometimes been characterized as "too low volume for extensive automation" however Industry 4.0 principles have been investigated by several aerospace companies, technologies have been developed to improve productivity where the upfront cost of automation cannot be justified, one example of this is the aerospace parts manufacturer Meggitt PLC's project, Industry 4.0 is used interchangeably with the fourth industrial revolution and represents a new stage in the organization and control of the industrial value chain.

Cyber-physical systems form the basis of Industry 4.0 (e.g., 'smart machines'). They use modern control systems, have embedded software systems and dispose of an Internet address to connect and be addressed via IoT (the Internet of Things). This way, products and means of production get networked and can 'communicate', enabling new ways of production, value creation, and real-time optimization. Cyber-physical systems create the capabilities needed for smart factories.

These are the same capabilities we know from the Industrial Internet of Things like remote monitoring or track and trace, to mention two.

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IT product Based Industries :

- Adobe
- Amazon
- Amdocs
- BMC Software
- Cisco Systems
- Dell EMC
- Google
- Hewlett-Packard (HP)
- IBM

- Intel
- Microsoft Corporation
- Oracle
- Paypal
- Pegasystems
- Red Hat Software
- Salesforce
- SAP SE
- Symantec Software company
- VMware, Inc

~~Thank You~~