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“Emerging Trends in IT”

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Abstract:

Emerging trends in information technology (IT) refer to tools or technologies that are becoming more and more popular and are anticipated to have a big impact on the economy or society. The Internet of Things (IoT), blockchain, cleantech, AI, augmented reality (AR), virtual reality (VR), big data, advanced analytics, robotics, advanced artificial intelligence (AAI), neurotechnology, biotechnology, climate intervention technologies, quantum computing, and communication are some of the major emerging technological trends. With its capacity to automate procedures, analyze enormous datasets, and generate insightful predictions, machine learning (ML) and artificial intelligence (AI) have propelled the IT sector to unprecedented heights and revolutionized a number of sectors. The process of teaching a computer to learn from its inputs without explicit programming for every situation is known as machine learning. A computer can become artificially intelligent with the use of machine learning. The ability of a computer or computer-controlled robot to carry out actions typically performed by intelligent beings is known as artificial intelligence (AI). Workplace AI is revolutionizing businesses through increased productivity, innovation, and the creation of new job categories. In a similar vein, automation has simplified processes, decreased errors, and allowed workers to concentrate on more difficult jobs. Data entry and administrative tasks are the first jobs that AI will replace. Data entry and administrative work, customer service, manufacturing, and assembly line jobs are among the first job categories targeted by AI. Retail checkouts, entry-level graphic design, translation, corporate photography, and basic analytical roles.

Keywords: workplace, data security, encryption, and technology

INTRODUCTION:

Although both **augmented reality (AR)** and **virtual reality (VR)** use a recreated environment to supplement or replace the real world, they differ in a number of ways:

Device: While AR may be accessible through the camera on a smartphone or tablet, VR requires a

headset to produce a completely immersive experience.

Interaction:

In virtual reality, users are confined to interacting with the virtual environment under the system's control. Users can engage with both the digital and physical worlds and manage their presence in the real world via AR. Numerous industries, including gaming, entertainment, education, healthcare, and marketing, use both VR and AR. The Pokemon Go app and the IKEA furniture fitting software are two instances of AR in action.

Blockchain:

A distributed archive of safely connected documents, a blockchain can be used for supply chain management, smart contracts, and cryptocurrency, among other applications. Any type of electronic equipment that preserves copies of the chain and keeps the network operational might be a blockchain node. The network must algorithmically support any newly extracted block in order for the chain to be updated, trusted, and validated. Each node has its own copy of the blockchain. Blockchain types include public, private, hybrid, and consortia. Which blockchain network is appropriate for you will depend on its unique advantages and disadvantages, which primarily determine its suitable applications.

The Internet of Things, or IoT, is a network of physical objects with data collection and sharing capabilities. Anything with a sensor that has been given a unique identity (UID) can be considered part of the Internet of Things.

Robotics:

Engineering, design, and construction all come together in robotics. The goal of this technology is to create machines that can carry out both simple and difficult activities. It's an area of research that creates robots. Robots were created to help people with repetitive tasks. Humans are essential to the majority of AI systems, either as inputs to study the behavior of the system or as outputs to provide the necessary knowledge. Robotics is unique in that it creates physical systems that, at least for autonomous robots, can see and act in the actual world without the assistance of people. Robots and artificial intelligence (AI) have made it possible for companies of all sizes to come up with creative answers to problems in a variety of industries. To fully exploit the potential of AI and robots, Intel offers the necessary technology, resources, and partnerships. Smart Bird's robot seagulls are one example. Raven's security surveillance drone is another example. Robots capable of visiting Mars' surface are also included in this category. Humanoids, Mars Rovers, and NASA's Robonaut are a few examples of robots. Consumer robots carry out enjoyable duties like shopping and using products. Robots of various kinds are employed for space travel, such as visiting the surface of Mars, and for exploring the interior of gas tanks and volcanoes.

Big data:

The term "big data" describes incredibly vast and diverse sets of semi-structured, unstructured, and structured data that keep growing rapidly over time. Big data refers to extensive, varied databases that are enormous in bulk and expand quickly over time. To address business issues and make wise judgments, big data is utilized in machine learning, predictive modeling, and other advanced analytics.

Big data analytics assists businesses in connecting their data and using it to find new prospects. This in turn results in more profitable operations, more satisfied consumers, and wiser business decisions. Companies that combine big data and sophisticated analytics benefit in a number of ways, including cost reduction.

Advanced analytics is a group of tools and processes that analyze data, identify trends, and offer insights using artificial intelligence (AI) and other approaches. A group of technologies known as artificial intelligence (AI) seeks to replicate human comprehension of data, pattern recognition, prediction, and action recommendation. Here are some further facts on AI and sophisticated analytics.

Advanced analytics: Assists organizations in comprehending complex market dynamics by utilizing a variety of technologies. Predictive and statistical forecasting are part of it.

AI: Makes use of technology to integrate abstract algorithms, process data, and work on intricate modeling. Computer vision, natural language processing (NLP), and deep learning methods are examples of AI tools.

Examples of use:

Advanced analytics in finance can assist in risk management, fraud detection, and strategy optimization.

Security and privacy:

AI is capable of ingesting vast volumes of data, including private data like financial, medical, or personal records. Companies should take steps to ensure data privacy, such as putting data security measures in place and obtaining consent before sharing and analyzing data.

CONCLUSION:

In essence, the subject of information technology is broad and diverse. The time it takes for new items to hit the market can be accelerated by information technology. Better individual training will be necessary for IT security in the future, but more efficient techniques will also be needed. These issues will be readily resolved by artificial intelligence, although training personnel to operate the machines will still be required.

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