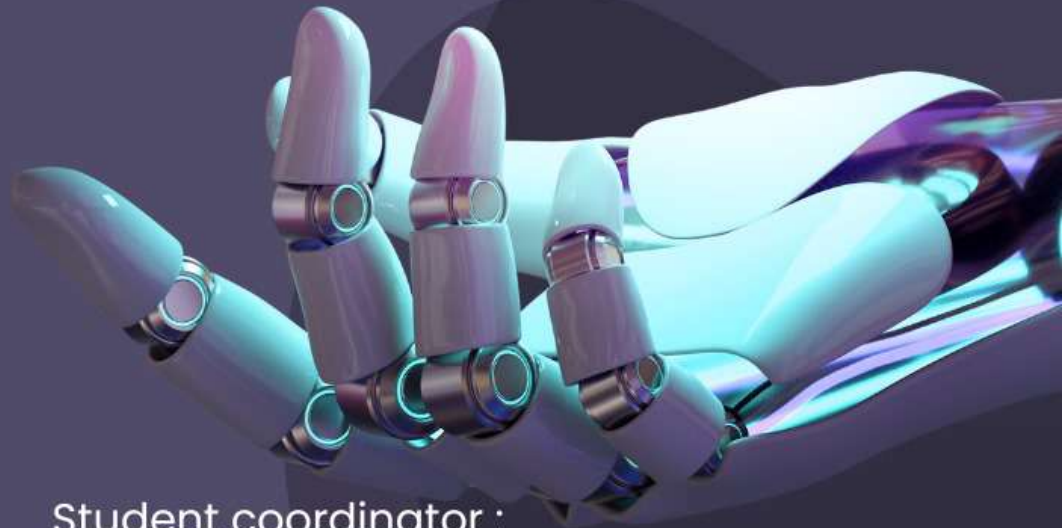# THE WALL MAGAZINE OF IT DEPARTMENT

INNOWAVE

ISSUE – 9 (2024)

Editorial board

Faculty coordinators :
Mrs. Shilpi Bansal (IT)
Mrs. Nupur Tyagi (IT)

Student coordinator :
Roshni – IT-B (2nd year)

Smarter DEVICES

Making life Easier.

like Smart watches
are changing the way we live.
these gadgets Connect to internet
allowing them to do more
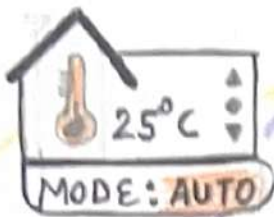than just their basic functions.

What they Do

they Can do things Automaticly
like adjusting thermostat
or reminding you to take
medication. they learn from
your behavior.

25°C
MODE: AUTO

Hey, it's your med time

Why they matter

they Save time & Energy
by handling tasks for us
they also open up new Possiblities
to making our homes more Secure

Challenges Ahead

Privacy & security are Conserns
as they Collect and share Data
It is important to Ensure they're used Respon-
sibly

Dev Sugar (IT-C) 2024   Roll no. 14720803122

Metaverse

The term "metaverse" refers to a collective virtual shared space, created by the convergence of virtually enhanced physical reality and physically persistent virtual reality. The concept has gained significant attention recently, especially with advancements in Virtual reality (VR), augmented reality (AR), and online gaming.

In the metaverse, users can socialize, work, play games, create content, buy and sell goods and services, and engage in various activities just like in the physical world, but within a digital environment. companies like Meta (formely facebook), Epic Games (with fortnite), Robox Corporation (Roblox), and various other tech firms are heavily investing in the development of the metaverse.

Some common features of metaverse are:

1.) <u>Virtual Worlds</u>: The metaverse consists of multiple interconnected virtual worlds or environments.

2.) <u>Avatar Creation</u> : Users can create and customize their digital avatars to represent themselves.

3.) <u>Social Interaction</u> : Users can communicate with each other in real-time.

4.) <u>Education and Training</u> :- Metaverse canbe used for educational purposes, such as virtual classrooms, training & simulations, etc.
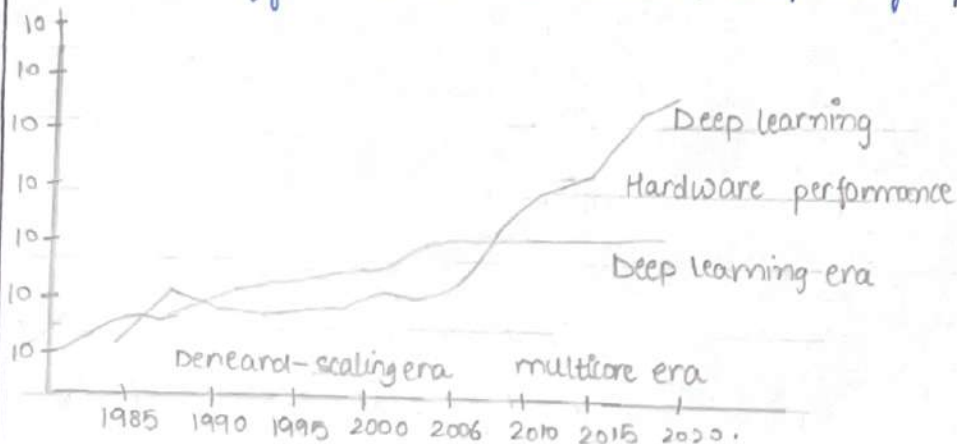
Designer X

Computing Power

Computing power is a crucial aspect of modern technology. It determines how fast and efficiency a computer can perform tasks. The power of a computer is influenced by factors such as the processor speed, memory, capacity, and storage capabilities.

The processor, also known as the central processing unit (CPU), is like the brain of a computer. It carries out instructions and performs calculations. A faster processor can handle more tasks in a shorter amount of time.

Memory often referred to as RAM (Random access memory), is where the computer stores data that it needs to access quickly. More memory allows for smoother multitasking and faster data retrieval.
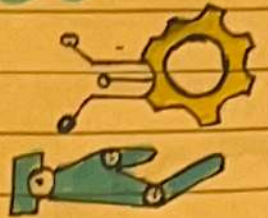
In recent years, advancements in technology have led to the development of powerful computers, such as supercomputers and quantum computers.

As technology continues to evolve, computing power will likely increase

Deep learning

Hardware performance

Deep learning era

Dennard-scaling era   multicore era

1985 1990 1995 2000 2006 2010 2015 2020.

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YEAR — 2nd year
BRANCH — IT-B
Roll No. — 06620803122

Srishti Pandey
IT-B 3rd Year

ROBOTIC PROCESS AUTOMATION

Robotic process automation (RPA) is a software technology that makes it easy to build deploy and manage software robots that emulate humans actions interacting with digital systems and software. Just like people, software robots can do things like understand what's on a screen, complete the right keystrokes, navigate systems, identify and extract data, and perform a wide range of defined actions. But software robots can do it faster and more consistently than people, without the need to get up and stretch or to take a coffee break. Robotic process automation streamlines workflows, which makes organizations more profitable, flexible and responsive. It also increases employee satisfaction, engagement, and productivity by removing mundane tasks from their workdays. It's ideal for automating workflows that involve legacy systems that lack APIs virtual desktop infrastructures (VDIs) or database access.

COMPUTING POWER

Computing Power is a broad term that refers to the ability of a computing system to perform tasks, process data and execute instructions. It's a critical aspect of technology advancement, influencing everything from consumer electronics to scientific research and industrial applications. Computing power, often measured in terms of processing speed.
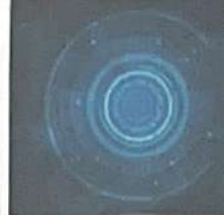
Importance of computing power

Performance: Computing power directly impacts the speed and efficiency of computing tasks. Higher computing power enables faster data processing, complex calculations, and quicker response times.

Innovation: Advances in computing power drive innovation in various fields, including artificial intelligence, data analytics, scientific research, and gaming

Productivity: Improved computing power enhances productivity by reducing processing times, enabling real-time data analysis, and supporting multitasking capabilities.

Competitive Advantage: Organizations and industries can gain a competitive edge by leveraging high computing power for faster decision-making, better insights, and improved customer experiences.

Future Trends and Implications

Quantum Computing: Quantum computing holds the potential to revolutionize computing power by leveraging quantum phenomena such as superposition and entanglement to perform computations at unprecedented speed.

AI and Machine Learning: Continued advancements in artificial intelligence and machine learning algorithms, coupled with specialized hardware like AI accelerators, will further enhance computing power for tasks such as natural language processing, computing vision, and autonomous systems.

Edge Computing: Edge computing distributes computing power closer to the data source, reducing latency and enabling real time processing for applications such as IoT devices, autonomous vehicles and augmented reality.

Computing power is a driving force behind technological progress, enabling innovation, improving productivity, and transforming industries. As hardware and software technologies evolve, and new paradigms such as quantum computing emerge, the potential for further advances in computing power is vast, with profound implications for society, economy, and human progress. Balancing the pursuit of greater computing power with ethical and societal considerations will be crucial in shaping the future of technology.

Tamanna Thakur (093) IT-B 2wd4r

Unlocking Efficiency: The Rise of Robotic Process Automation

In the ever-evolving landscape of technology, one innovation stands out, revolutionizing how business operate - Robotic Process Automation. Picture a digital assistant seamlessely navigating through complex tasks, mimicking human interactions with precision. That's the essence of RPA, a technology marvel designed to liberate business from the shackles of repetitive, rule-bound processes.

As its core, RAA employs software robots, akin to digital maestros, to automate mundane tasks that once demanded valuable human hours. Imagine the tedium of data entry, form filling or invoice processing swiftly handled by these tireless bots. They don't replace human ingenuity but amplify it by liberating employees to focus on more strategic and creative endeavors.

Unlike conventional automation methods, RPA gracefully sidesteps the need for a major IT overhaul. It seamlessly integrates with existing systems, effortlessly gliding through user interface. The result? A harmonious blend of legacy systems and modern efficiency.

The magic lies in the rules-based logic governing these bots. They meticulously follow predefined rules, transforming structed tasks into a symphony of streamlined processes. As organisations scale their automation endeavors, RPA responds nimbly, deploying additional bots to handle burgeoning workloads without a hefty price tag.

TAKSHU CHOUHAN
IT- B
2021-25
81

MISHITA
IT-B
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Robotic Process Automation

Robotic Process Automation (RPA) is a technology that uses software robots (or bots) to automate repititive tasks typically performed by humans within business processes.

These tasks can include data entry, data extraction, form filling, report generation. Key components of RPA includes:

1.) **Bot Creation Tools** : RPA platforms provides tools for creating, configuring, and managing software robots. These generally includes GUI's.

2.) **Scripting or Coding** : while many RPA tools often offer a no-code or low code approach to automation, advanced users can write scrips or code to customize

3.) **Rules Engine** : RPA platform often includes a engine or decision-making capability.

4.) **Monitoring and analysis** : RPA platforms provide monitoring and analytics tools to track the performance, identify bottlenecks, and optimization of automation

5.) **Integration capabilities** :- RPA bots can integrate with a wide range of applications and systems, including legacy systems, API's and more. That allows seemless automation across diverse environments.

Designer X

Designer - 29

VIRTUAL REALITY

Virtual reality immerses users in digital environment through specialized headsets & controllers. It simulates physical presence in imaginary or recreated worlds, offering interactive experience in gaming, simulations, trainings & entertainment. VR technology tracks head movements & adjust the virtual environment, providing a sense of presence & immersion. Its applications extend to education, healthcare & architecture, promising transformative ways to learn, collaborate, & experience content. VR continues to evolve, promising even more realistic & engaging experiences in various domains.

AUGMENTED REALITY

Augmented Reality overlays digital content onto the real world, enhancing our perception of reality through devices like smartphones or smart glasses. It integrates virtual elements seamlessly with the physical environment, offering users additional information, interactive experiences, or digital enhancements. AR finds applications in navigation, retail, education and industrial design, providing real-time & immersive interactions. By blending virtual & physical worlds, AR transforms how we learn, shop, navigate & interact, promising innovative solutions and enriched experiences.
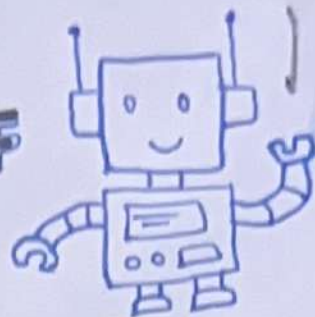
Saurabh Kumar
IT-C 3rd Year

Computing Power

The evolution of Computing Power has been a transformative journey, from room sized mainframes to the current era of Quantum Computing. Key Milestones Include the advent of electronic computers, the rise of microprocessor given by Moore's Law, and the utilization of parallel processing in super computers. Graphics Processing Unit (GPU) has played crucial role in accelerated computing, particularly in AI & deep learning. The 21st century introduces the promise of quantum computing with companies like IBM and google actively developing practical quantum computers. Despite Progress, challenges such as Power consumption persist. Overcoming these challenges is vital for continued innovation. in computing Power.

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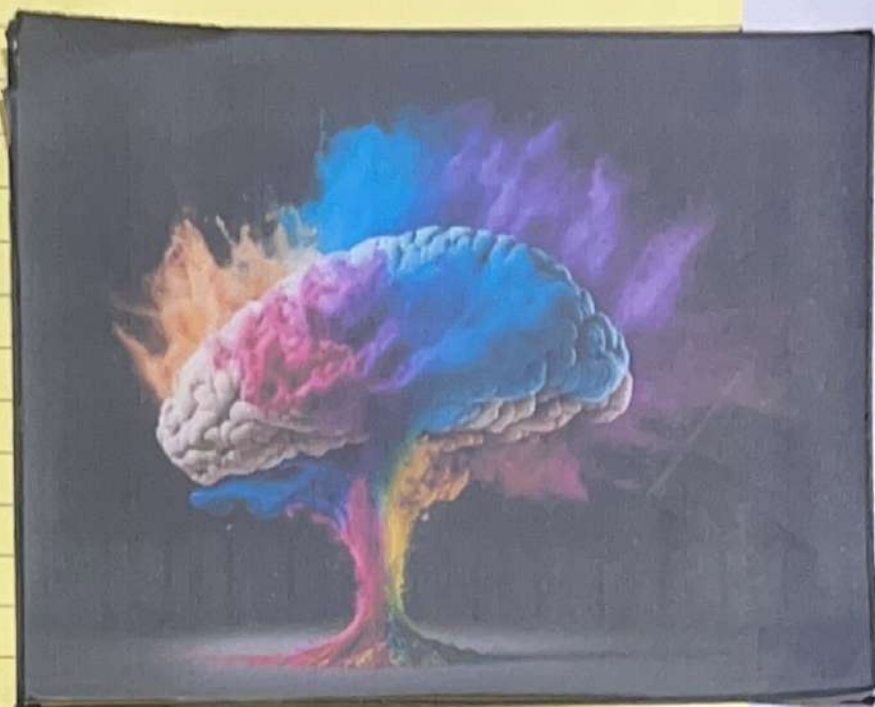
DISCOVER THE POWER OF GENERATIVE AI

ARE YOU READY TO EXPLORE?

Generative AI is a subset of AI that focuses on enabling machines to generate content autonomously, mimicking human-like creative processes.

Techniques:

· Neural Network: Generative models like GANs and VAEs play a key role in producing diverse and high quality outputs.

· Reinforcement Learning: Training models to optimize performance over time through trial and error.

Generative AI is reshaping the landscape of creativity, offering unprecedented possibilities and sparking a new era of innovation.

— UDIT JAIN, IT-A, 2nd Year

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VR/AR

Virtual Reality (VR) and Augmented Reality (AR) technologies represent revolutionary advancements that blur the lines between the physical and digital worlds. VR immerses users in entirely virtual environments, blocking out the external world and transporting them to simulated realms through headsets and controllers.

GENERATIVE AI

Where creativity meets technology.

WHAT IS IT?
- Generative AI uses algorithms to create new content, like text, images, music and more.
- It learns from existing data and produces to do so.

HOW DOES IT WORK?
- Different techniques are used like Neural networks trained on massive datasets. Generative networks trained on overwriting natural selection.

USES?
- Art and design: Perfect example is this picture you see on the right, it was created by google's generative AI - Dream.
- Science & Engineering
- Business and Marketing: Predicting customer behaviour

The Future of AI:
- Generative AI holds immense potential for innovation and problem solving across various fields.
- Responsible development and ethical consideration are crucial alongside its advancements.

— AMRITA, 2nd YEAR, IT-A, 164

EDUCATION

ENGAGEMENT : captivate students attention by providing immersive environments that stimulate all senses.

ACCESSIBILITY : Virtual field trips allow students to explore locations they might not otherwise have access.

INTERACTIVITY : enable hands on learning experiences, allowing students to manipulate objects and observe.

PERSONALIZATION : adapt to individual learning styles and preferences, providing customized learning experiences.

CURRICULUM ENHANCEMENT : can supplement traditional teaching methods by offering immersive content.

SKILL DEVELOPMENT : offer opportunities for skill development in areas such as problem - solving etc.

FUTURE USE OF IMMERSIVE EDUCATION : Becomes more affordable and accessible.

HEALTHCARE

MEDICAL TRAINING   VR and AR provide an interactive, realistic learning experience for medical students. Trainees can practice various scenarios.

THERAPY VR is being used such as exposure therapy for phobias and PTSD. AR can enhance physical therapy by providing real time feedbacks and guidance to patients.

PAIN MANAGEMENT VR has shown promise in pain management by distracting patient from pain through immersive properties. AR can assist in distraction techniques during medical procedures.

SURGICAL PROCEDURES VR and AR are used in surgical planning and stimulation, allowing surgeons to visualise patient anatomy in 3D and practice complex procedures virtually.

ENHANCED TRAINING Realistic stimulations leads to better preparedness for handling challenging clinical scenarios.

COST AND ACCESSIBILITY Initial setup cost for VR and AR systems can be high, but overtime, it is overcomed by its benefits.

TECHNICAL LIMITATIONS Technical issues such as motion sickness in VR or accuracy of AR overlays during surgeries need to be addressed for widespread adoption.