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A Study of "Significant Role of Artificial Intelligence (AI) in India

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Abstract: *John McCarthy is considered as the father of Artificial Intelligence. John McCarthy was an American computer scientist. The term "artificial intelligence" was coined by him. An AI tool is a software application that uses artificial intelligence algorithms to perform specific tasks and solve problems. AI tools can be used in a variety of industries, from healthcare and finance to marketing and education, to automate tasks, analyse data, and improve decision-making. Artificial intelligence (AI), the ability of a digital computer or computer-controlled robot to perform tasks commonly associated with intelligent beings. Artificial intelligence is the simulation of human intelligence processes by machines, especially computer systems. Specific applications of AI include expert systems, natural language processing, and speech recognition and machine vision. Artificial intelligence is the intelligence of machines or software, as opposed to the intelligence of humans or animals. It is a field of study in computer science that develops and studies intelligent machines. Such machines may be called AIs.AI is a machine's ability to perform the cognitive functions we associate with human minds, such as perceiving, reasoning, learning, interacting with an environment, problem solving, and even exercising creativity. Alexa and Google Assistant examples of conversational AI.*

Keywords: Artificial Intelligence, Problem solving, Creativity

I. INTRODUCTION

Artificial intelligence (AI) refers to computer systems capable of performing complex tasks that historically only a human could do, such as reasoning, making decisions, or solving problems. Today, the term "AI" describes a wide range of technologies that power many of the services and goods we use every day – from apps that recommend TV shows to chatbots that provide customer support in real time. AI is not only for engineers. If you want your organization to become better at using AI. Artificial intelligence is prevalent across many industries. Automating tasks that don't require human intervention saves money and time, and can reduce the risk of human error. Here are a couple of ways AI could be employed in different industries: Finance industry- Fraud detection, Health care industry-AI-powered robotics could support surgeries close to highly delicate organs or tissue to mitigate blood loss or risk of infection.

Objectives of the study:

1. To study of the significant role of Artificial Intelligence (AI).
2. To focus on limitations and suggestions of Artificial Intelligence (AI).

Research Methodology and Data sources

1. The present study is based on historical method.
2. This research is based on secondary data and information is collected from books, journals and websites.

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Limitations of the study :

1. The paper is based upon a conceptual model.

What is concept 'Artificial intelligence (AI) '

"Artificial intelligence (AI) is the theory and development of computer systems capable of performing tasks that historically required human intelligence.''

Such as recognizing speech, making decisions, and identifying patterns. AI is an umbrella term that encompasses a wide variety of technologies, including machine learning, deep learning and natural language processing.

Types of Artificial Intelligence (AI) :

1. Reactive machines :

Reactive machines are the most basic type of artificial intelligence. Machines built in this way don't possess any knowledge of previous events but instead only "react" to what is before them in a given moment. As a result, they can only perform certain advanced tasks within a very narrow scope, such as playing chess, and are incapable of performing tasks outside of their limited context.

2. Limited memory machines :

Machines with limited memory possess a limited understanding of past events. They can interact more with the world around them than reactive machines can. For example, self-driving cars use a form of limited memory to make turns, observe approaching vehicles, and adjust their speed. However, machines with only limited memory cannot form a complete understanding of the world because their recall of past events is limited and only used in a narrow band of time.

3. Theory of mind machines :

Machines that possess a "theory of mind" represent an early form of artificial general intelligence. In addition to being able to create representations of the world, machines of this type would also have an understanding of other entities that exist within the world. As of this moment, this reality has still not materialized.

4. Self-aware machines :

Machines with self-awareness are the theoretically most advanced type of AI and would possess an understanding of the world, others, and itself. This is what most people mean when they talk about achieving AGI. Currently, this is a far-off reality.

Seven branches of Artificial Intelligence :

1. Computer vision.
2. Fuzzy Logic.
3. Expert systems.
4. Robotics.
5. Machine learning.
6. Neural networks/deep learning.
7 .Natural language processing.

Some common Artificial Intelligence applications include:

1. Virtual assistants like, Siri and Alexa.
2. Recommendation systems used in e-commerce platforms.
3. Fraud detection in financial institutions.
4. Autonomous vehicles.
5. NLP for chat bots and customer service.
6. Image and facial recognition in security systems.
7. Medical diagnosis and healthcare systems.

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Artificial intelligence (AI) has a bright future, but it also faces several difficulties. AI is predicted to grow increasingly pervasive as technology develops, revolutionising sectors including healthcare, banking, and transportation.

In this paper researchers highlight of significant role of Artificial intelligence (AI) in India:

1. Solving Medical Errors :

Artificial Intelligence within a Clinical Decision Support System will play a critical role in saving lives in India. CDS Systems will be able to better analyse diseases in detail and will be able to give precise diagnose which will help all medical practitioners to understand the patient's condition so they would be able to conduct a thorough and proper medical treatment so they would be able to save more lives.

2. Providing Access To Healthcare In Rural Areas :

Artificial Intelligence will be critical to expand and provide healthcare to people belonging to rural areas. Artificial Intelligence to have a faster development process for life-saving drugs which would allow the drug companies to keep lower prices for drugs. Automation will be able to handle those repetitive tasks and keep healthcare costs cheap thereby making Healthcare more accessible in rural areas.

3. Administrative Tasks

In India, The Teacher-Student ratio is abysmal, due to which many teachers have to take on a lot of administrative and mundane tasks upon themselves which decreases their productivity but that's about to change. Artificial Intelligence Powered with Automation will work to complete these mundane tasks more efficiently in a shorter span of time which will free a lot of time available to teachers to focus more on coursework and how to make it more interesting for students.

4. Personalized Learning Process

Artificial Intelligence will empower students and teachers with Personalized Learning, AI will be able to track the performance of the students and will have a lot more information about the student particularly on the areas they require improvement and the methods which the child can use to learn the concepts better.

5. Customized Curriculum

Artificial Intelligence will be a key player in making students more interested in learning. With Artificial Intelligence, we will able to understand the student, his/her interests, and his/her knowledge, by doing so we will able to create a customized curriculum for each student so that they will learn at their own pace and will be able to have fun while learning.

6. 5G Technology

The challenge to transfer that much amount of data is possible due to 5G. The network speeds of 5G will allow the transfer, collection, and receiving of data instantaneously which would allow car manufacturers to create a robust Collision Detection System that will increase Road Safety.

7. Chip Technology Powered By Artificial Intelligence

The implementation of these chips in cars will transform cars into mobile data centres which would allow the transfer and processing of data at a significantly faster rate which would give us more insights into car accidents and how the car is being driven which would allow us to take steps at an early stage to increase road safety.

Benefits of Artificial Intelligence in India :

1. Greater accuracy for certain repeatable tasks, such as assembling vehicles or computers.
2. Decreased operational costs due to greater efficiency of machines.

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3. Increased personalization within digital services and products.
4. Improved decision-making in certain situations.
5. Ability to quickly generate new content, such as text or images.
6. Automation Smart Decision Making.
7. Enhanced Customer Experience.
8. Medical Advances &Research and Data Analysis.
9. Solving Complex Problems.
10. Business Continuity & Managing Repetitive Tasks.
11. Minimizing Errors &Increased Business Efficiency.

● Dangers of Artificial Intelligence for India:

1. Job loss due to increased automation.
2. Potential for bias or discrimination as a result of the data set on which the AI is trained.
3. Possible cyber security concerns.
4. Lack of transparency over how decisions are arrived at, resulting in less than optimal solutions
5. Potential to create misinformation, as well as inadvertently violate laws and regulations.

These are just some of the ways that AI provides benefits and dangers to society. When using new technologies like AI, it's best to keep a clear mind about what it is and isn't. With great power comes great responsibility, after all.

Challenges/ limitations /problems / issues of Artificial Intelligencein India :

Following challenges facing in Artificial Intelligence**:** Computing is not that Advanced, Fewer people support, Creating Trust, One Track Minds, Provability, Data Privacy and security, Algorithm bias, Data Scarcity, More on AI Risks.

1. Data Dependency:

Examples. The Herculean Task of Data Collection, Perils of Biased Data. This can lead to unfair decision-making, ranging from job applications to legal judgments, reinforcing existing societal prejudices.

2. Explainability and Transparency:

Examples. The Black Box Dilemma, Transparency is Paramount, Toward a Transparent Future, Explainable AI" seeks to make AI's decision-making transparent and understandable, bridging the trust gap between humans and machines.

3. Generalization vs. Specialization:

Examples. Master of One &The Quest for General AI. Replicating this ability for AI to generalize across tasks remains an ongoing challenge.

4. Computational Costs:

Examples. AI's Energy Hunger, The Carbon Footprint Concern. As AI models grow more complex, the environmental implications of their energy consumption come to the fore.

5. Ethical and Societal Implications:

Examples. Mirror to Society, Job Displacement Worries, Big Brother's Digital Eyes. The surge in AI-powered surveillance tools raises alarms about privacy and the potential misuse of technology for authoritarian control.

6. Reliability and Safety:

Examples. Predictable yet Unpredictable, Real-world Complexity. The world is unpredictable. Validating AI's decisions across a myriad of scenarios, some unforeseen during training, adds layers of complexity to AI deployment.

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7. Human and AI Interaction:

Examples. Harmonious Cohabitation, Psychological Dynamics. As AI systems become more pervasive, understanding and addressing potential psychological impacts, such as over-reliance or undue trust in AI, is essential.

8. The Barrier of Common Sense:

Examples. Computational Brains Lack Common Sense, Endowing Machines with Intuition. Researchers worldwide are working diligently to in still AI with this elusive "common sense" to make their decisions more aligned with human understanding.

Opportunities for Artificial Intelligence in India :

1. Artificial Intelligence in Marketing.
2. Using AI techniques to Track Competitors.
3. Make light work of Big Data.
4. AI integrated customer support solutions.
5. Artificial Intelligence in CRMs.

● Some suggestions, recommendations, solutions, and measures that can be taken :

1. Recognize the social risks implied by artificial intelligence :

The first step in resolving a problem is to recognize that it exists. According to EIU, the risk for the future of employment and privacy posed by artificial intelligence is undeniable. Faced with this reality, there is no room for complacency or resignation.

2. Educate and boost transparency :

AI revolution need to explain their work and the plans for society in the simplest way possible. They have a lot of power and that brings with it a lot of responsibility, the EIU says.

3. Adapt training and education to the new artificial intelligence society :

All of this in a way that makes close collaboration between teachers, business and lawmakers more necessary than ever in the face of the ongoing evolution of training needs.

4. Regulation and improving the treatment of data :

It calls for the creation of specific regulations that allow the appropriate use of aggregate anonymous data in response to current doubts on cybersecurity and privacy.

5. Build bridges and enhance communication :

Good public policies could lessen the negative effects of artificial intelligence without limiting the positive ones, the report concludes –for example, in the labor market.

II. CONCLUSION

Although advances are likely to improve the functioning of AI, AI will remain a function of human activity. However, if AI can learn to self-replicate and thus become a life form, albeit a man-made one, outcomes become uncertain.There are many more benefits of Artificial Intelligence that span from space exploration to advancements in defence systems and more. The technology is evolving steadily, and it has the potential to be more intelligent than ever. While there is no surefire way of predicting the future of AI, it will certainly continue benefitting businesses and end-users in their everyday lives.Talk to our expert team to help you with the perfect AI technology adoption that suits the needs of your business to accelerate growth, optimize the team, and enhance individual performance.In conclusion, the future of work intertwined with artificial intelligence is a realm of endless possibilities. By leveraging AI's capabilities while nurturing

human skills, we can create a future where technology augments our potential, transforming industries and fostering a more efficient and adaptable workforce.

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