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AI AND FUTURE

BHARTI NAWLANI
RESEARCH STUDENT
Department of Commerce
Mula Education Society's Arts, Commerce and Science College, Maharashtra - 414105, India.

Abstract-Artificial Intelligence (AI) involves creating computer systems that can carry out activities typically associated with human intelligence, such as learning, problem-solving, and decision-making.
As we navigate the 21st century, the impact of AI is becoming increasingly pronounced across diverse domains, promising unprecedented advancements while raising ethical considerations and challenges. It explores the multifaceted dimensions of AI's role in shaping the future.
One of the pivotal trends in AI is the relentless advancement of machine learning techniques. Particularly, deep learning has emerged as a powerhouse, showcasing remarkable capabilities in image and speech recognition, natural language processing, and autonomous systems. This trajectory suggests a future where AI systems can comprehend and process information in ways that mimic, and sometimes surpass, human cognition.
As AI development is rapidly advancing globally. Countries like China lead in AI research, investing heavily to achieve technological supremacy. The European Union emphasizes ethical AI frameworks, while the United States fosters innovation through public-private collaborations. Diverse strategies reflect a dynamic landscape, with nations striving for leadership in AI's transformative potential. As India positions itself as a global AI player, collaborations between government, industry, and academia become paramount, ensuring sustainable and inclusive AI adoption. The evolving landscape presents a unique opportunity for India to harness AI's potential for societal development and economic advancement.

However, with these opportunities come responsibilities. Ethical considerations and regulatory frameworks are gaining prominence in the AI discourse. As AI permeates various aspects of our lives, ensuring responsible and fair use becomes imperative. Striking a balance between innovation and ethical guidelines is essential to prevent biases, protect privacy, and address societal concerns.
Natural Language Processing (NLP) is another frontier where AI is making significant strides. The improvement in NLP facilitates more natural and seamless interactions between humans and machines.
Cybersecurity is a critical arena where AI is proving its mettle. As cyber threats evolve in sophistication, AI is being deployed for threat detection, anomaly identification, and real-time response. This proactive approach enhances cybersecurity measures, safeguarding digital ecosystems from malicious activities.
However, Collaborations between researchers, policymakers, and industries will drive breakthroughs, mitigating risks and fostering trust. While the potential for societal benefits is vast, addressing issues of bias, privacy, and job displacement will be essential to ensure an inclusive and equitable AI future.
In conclusion, the trajectory of AI in shaping the future is dynamic and holds immense promise. However, it necessitates a mindful approach to ethics, regulation, and societal impact. As AI continues to evolve, ongoing research, interdisciplinary collaboration, and a commitment to responsible innovation will be pivotal in harnessing its transformative potential for the betterment of humanity.

KEYWORDS: INNOVATION, GLOBAL ADVANCEMENT, INDIA, ETHICS.

I. INTRODUCTION

Artificial Intelligence (AI) alludes to the advancement of computer frameworks that can do assignments that regularly require human insights. These assignments incorporate learning, thinking, problem-solving, understanding normal dialect, and judgement. AI endeavors to create machines that can imitate human cognitive capacities, permitting them to alter, upgrade, and perform perplexing errands independently.

RESEARCH OBJECTIVE

- To elaborate on significance of AI.
- To analyze World's approach towards AI.

- To analyze India's approach towards AI.
- To recognize utilization of AI in diverse fields.
- To know broadly utilized AI devices in the world.
- To anticipate what future holds for AI.

STATEMENT OF PROBLEM:

- Unemployment: AI – the artificial intelligence can replace human intelligence to a few extend.
- Need of counting 'Ethics' in ever changing innovation which has made is it incomprehensible to separate between 'Reel' and 'Real'.

METHODOLOGY:

This is an Exploratory investigation, wherein auxiliary information such as News, Articles, website and Government Report in public domain have been studied.

II. History and Advancement of AI:

- **Origin of AI:** To begin with work which is presently recognized as AI was done by Warren McCulloch and Walter pits in 1943 who made show of artificial neurons.
- **Theoretical Establishment:** In 1956, the word "Artificial Intelligence" firstly received by American Computer researcher John McCarthy at the Dartmouth Conference. For the first time, AI coined as a academic field.
- **Robot**: In 1972, The first cleverly humanoid robot was built in Japan which was named as WABOT-1.
- **IBM Deep Blue**: In the year 1997, it beats world chess champion, Gary Kasparov, and got to be the first computer to beat a world chess champion.
- **A vacuum cleaner:** Year 2002 stamped as presence of AI in the frame of Roomba.
- **Braille**: Analysts have created a robotic sensor that combines artificial intelligence techniques to examined braille at speeds generally twofold that of most human readers.
- **IBM's Watson:** In 2011, IBM's Watson showcased the control of AI in understanding common language by winning the TV quiz show 'Jeopardy!', beating human champions.
- In 2016: **Google's AlphaGo** program beat the world champion Go player, Lee Sedol, checking a noteworthy breakthrough in AI's ability to learn and make decisions.
- **Open AI Chat GPT-4:** The most recent model in the series, GPT-4, was released in March, 2023.
- **A self-healing robot**: Recently, in February 2024, Robo Tech have made a self-healing robot who repairs themselves when damaged.

2.1 World's Approach Towards Artificial Intelligence:

All the nations of the world all agree that Artificial Intelligence (AI) is a worthy financial and social investment; this is demonstrated by China and the UK predicting AI-based contributions to their GDPs of 26% and 10% respectively by 2030. U.S., France, Japan, China, and UK have revealed key AI policies. As an encouragement on supply-side infrastructural interventions, countries are engaging in "data trusts," 5G systems, supercomputing centers, financial incentives, open-source libraries for software development among others to promote AI advancement. The future employee blueprinting includes significant growth in asset allocation for STEM talent development such as university investments and advanced courses.

USA has the highest number of publications in AI research followed by China and Japan. Previously, US universities were dominant but now Chinese ones like Peking University as well as Tsinghua University are gaining eminence. Global public funding for AI has gone up with participation from China, America, France and Japan aimed at driving higher R&D spendings industrial parks for start-ups, venture capital funds and network infrastructure related to AI projects.

America is a global leader in AI with strong research activity, industry influence plus tech hubs like Silicon Valley spearheading innovation. Google, Microsoft, Amazon, etc. reign supreme in the landscape of artificial intelligence. The quick advancement of AI has significant suggestions for economies and social orders, emphasizing the require for convenient arrangement frameworks.

India's AI engagement can be seen by investigation, innovation, and strategic activities, that may not have been an early adopter, but later endeavors exhibit acknowledgment of AI's potential for financial development and societal advancement. The country's engagement with AI started with the foundation of teach like IITs and IISERs, contributing to ability development and cutting-edge investigate, adjusting India with worldwide progressions. Creating an arrangement system is significant for India to set up a dynamic AI biological system in the midst of the quickly changing socio-economic scenario.

2.3 AI IN INDIA

NITI Aayog, the National Institution for Transforming India became a major player in shaping India's AI strategy. The institution created a National AI Strategy which outlines the vision, goals and implementation plans to develop AI technology in the country. The goal of this strategy is to position India as global leader in artificial intelligence (AI) and focuses on research, development and responsible deployment of AI across multiple sectors.
Private sectors are playing a significant role during India's Artificial Intelligence journey with tech companies taking the lead in innovation and implementation of AI solutions. This has led to numerous startups being formed that address different challenges within

healthcare, finance, agriculture and education. These start-ups are not only diversifying economic landscape but they also depict flexible and creative mindset seen in Indian entrepreneurship.
The government has recently taken up initiatives which have been aimed at enhancement of citizen services through recognition of how crucially important AI is when it comes to governance. The commitment to improved efficiency and transparency can be demonstrated by presence of such features like customer engagement using AI-powered chatbots; predictive analytics for resource optimization; integration of AI into various government services.
India is addressing the gap in AI skills by focusing on education and workforce development. Workforce equipped with necessary skills related to AI are being trained through skill development programs, training initiatives, and industrial-academic collaborations. The strong emphasis on Science, Technology, Engineering, and Maths (STEM) talent development can be observed in various reforms and schemes. Indian steps towards artificial intelligence cannot solve all its problems. Infrastructure gaps, more investment needs to be injected in India's digital economy, while a comprehensive regulatory framework must also be developed among other things.
International collaboration has been a significant part of India's journey into AI which has seen partnerships and knowledge exchange contribute in the holistic understanding of worldwide AI trends and advancements. India's journey into AI shows a dynamic progression from early stages of research and education to strategic policy formulation that involves active participation from government as well as industry stakeholders. This enables the country to become a major player in global artificial intelligence landscape through continuous investments in research, skills development as well as technology adoption that drives developments benefiting both the nation-state and global society at large.
India's national strategy for artificial intelligence prepared by NITI Aayog has formulated the way forward to harness the power of Artificial Intelligence (AI) in different sectors. To solve various societal problems in India; Artificial Intelligence (AI) has been adopted in various sectors which include health, education, farming, smart cities as well as infrastructure. This includes initiatives concerning efficient transportation systems.
To evaluate a potential project, two criteria could be used:
1. Is it new technology or scientific field that emerged or gained attention, and can therefore provide solutions to real-life problems of importance?
2. Whether it meets emerging user needs that no existing/available technology solutions may cater for?

One of the celebrated inventions of India is -
AIRAWAT: The AI supercomputer named 'AIRAWAT' located at C-DAC in Pune holds the 75th position globally. The recognition came out during the 61st edition of Top 500 Global Supercomputing List held at International Supercomputing Conference (ISC 2023) in Germany. By achieving this feat, India stands tall among other nations globally when it comes to AI supercomputing. It was installed by National Program on AI under Prime Minister's Science, Technology and Innovation Advisory Council (PM-STIAC).

2.4 AI BECOMING INHERENT PART IN DIFFERENT SECTORS

Artificial Intelligence (AI) has become a transformative force across various sectors, revolutionizing the way industries operate, make decisions, and deliver services. From healthcare to finance, education to agriculture, AI applications are shaping the future of technology and business.
2.4.1. Healthcare: In healthcare, AI is making significant strides in diagnosis, treatment, and patient care. Machine learning algorithms analyze vast amounts of medical data, aiding in early disease detection and personalized treatment plans.
Finance: The financial sector embraces AI for fraud detection, risk management, and personalized customer experiences. Machine learning algorithms analyze transaction patterns, identifying anomalies indicative of fraudulent activities.

2.4.2. Education: In education, AI is transforming the learning experience through personalized education platforms, intelligent tutoring systems, and automated grading. Adaptive learning technologies use AI to customize educational content based on individual student progress and learning styles.

2.4.3. Agriculture: AI is revolutionizing agriculture by optimizing crop management, precision farming, and yield prediction. AI-powered drones and sensors collect data on soil health, crop conditions, and weather patterns, enabling farmers to make informed decisions. Predictive analytics helps forecast crop yields, reducing waste and optimizing resource usage.

2.4.4. Manufacturing: In manufacturing, AI enhances production efficiency through predictive maintenance, quality control, and process optimization. AI-driven robots and automation systems streamline assembly lines, reducing human error and increasing productivity.

2.4.5. Transportation: In the transportation sector, AI contributes to the development of autonomous vehicles, traffic management, and logistics optimization. Self-driving cars use AI algorithms for navigation, obstacle detection, and decision-making. Traffic management systems leverage AI also, analyze real-time traffic data.
2.4.6. Telecommunications: AI is integral to the telecommunications sector for network optimization, predictive maintenance, and customer service automation. Machine learning algorithms analyze network performance data to optimize signal strength and reduce downtime.

2.4.7. Cybersecurity: In cybersecurity, AI plays a crucial role in threat detection, anomaly analysis, and response automation. Machine learning algorithms analyze network patterns to identify potential security threats and anomalies.

2.5 AI AND ETHICS:

AI ethics comprises a set of principles that guide stakeholders, ranging from engineers to government officials, in ensuring responsible development and use of artificial intelligence technology. This involves adopting a safe, secure, humane, and environmentally conscious approach to AI.

Gabriela Ramos, Ass. Director General of UNESCO said; "In no other field is the ethical compass more relevant than in artificial intelligence. These versatile technologies are transforming our work, interactions, and lifestyle. The world is on the verge of a transformation comparable to the impact of the printing press six centuries ago. While AI technology offers significant advantages in various domains, the absence of ethical safeguards poses a risk of perpetuating real-world biases and discrimination. This could exacerbate divisions and jeopardize fundamental human rights and freedoms."

A proactive way to ensure ethical AI –
Policy - Creating the necessary structure to drive standardization and enact regulations.
Education - Executives, data scientists, front-line employees and consumers all need to understand policies, key considerations and potential negative impacts of unethical AI and fake data.
Technology - The organizations need to invest in defensive measures rooted in open, transparent and trusted AI infrastructure providing a system-level approach to automating privacy assurance, ensuring data confidence and detecting unethical use of AI.

2.6 FUTURE OF AI?

Artificial Intelligence (AI) is on the verge of revolutionizing technological innovation and could change everything in human life. The influence of AI oversteps particular business sectors to touch many aspects of society that are deep and pervasive. Ahead, the picture is increasingly clear that AI will impact our future in different ways.
Among others, one of the major effects associated with AI includes its **automation** capability for various sectors or industries. Through this automation, unimaginable levels of efficiency, productivity and cost-effectiveness can be realized. However, there are concerns regarding job loss and employment structures as well. In case repetitive tasks are taken over by machines equipped with artificial intelligence systems in day-to-day operations, certain jobs may cease to be relevant or exist at all. Thus, some efforts have to be put into re-skilling and upgrading the workforce so as to make it adaptable to changes occurring in a labor market that is shifting while capitalizing on potential opportunities arising from automated processes driven by cognitive machines.
Artificial Intelligence (AI) can serve as a game-changer when dealing with such pressing **environmental** problems as climate change, resource depletion, biodiversity loss and others. For example, using AI algorithms it is possible to optimize energy consumption; improve resource management practices; mitigate damages caused by environmental deterioration. The future is promising for AI since its potential is projected to surpass the current achievements with continuous evolution in 2024 and beyond.
Expected developments involve smarter virtual assistants and chatbots that can blend into everyday lives better through enhanced speech recognition as well as handling complex tasks. AI systems are increasingly focusing on being explicable or transparent by making models and algorithms more understandable.
There are opportunities and risks associated with AI that will require a focus on human values, equity, sustainability towards responsible adoption of AI. Collaboration and responsible stewardship are therefore emphasized to capture the transformative capacity of AI for a brighter inclusive future.

III. FINDING:

These days, in spite of the fact that humanly made AI threatens human survival i.e., employment. The developing AI too requires some instructions in some way, since it is going to be troublesome to control the course where it might go wrong, if not appropriately coordinated. We must get it that AI is both double-edged sword which needs cautious handling.

In this viewpoint, there are numerous other openings for creating AI that will be exceptionally curiously range to work on both in its development as well as for the legal field. Like US or China, India ought to have invest more in AI research field to be an AI superpower. Currently scenario has seen so much transformation of AI over all divisions; it may churn out a few stones for India if its driven as well.

Amid its initiation, there was trust brought by AI to a few researchers at that time but they were incapable to move advance due to immature computers at that point but nowadays we have got supercomputers which are able of doing wonders. For this reason, artificial intelligence is considered as an asset with additional prospects and commitments.

IV. CONCLUSION:

- AI has already ingrained in our daily lives from mobile finger lock, text recognition, text translation to making a mind-blowing presentation or animated realistic characters in video form.
- AI technology has taken new heights since, last few years, as this technology has become easier to access and increased functionality and applicability.
- Humans to ensure their progress need to learn this advance technology to ensure their relevance in survival race.
- Experts all over the world together should come together to balance the effects of AI with ability to maintain privacy, detect fake data including fake - document, picture or videos.

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