



ARTIFICIAL INTELLIGENCE: BOON OR BANE FOR MANKIND – AN ANALYSIS

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Abstract: *Artificial Intelligence (AI) is transforming the nature of almost everything which is connected to human life e.g. employment, economy, communication, warfare, privacy, security, ethics, healthcare etc. However, we are yet to see its evolution in long-term, whether it's leading humanity towards making this planet a better place to live or a place which is full of disaster. Every technology has its advantages and disadvantages, but advantages always outweigh disadvantages for the technology to survive in the market. Nonetheless, for Artificial Intelligence we are not yet sure whether in the long-term positive effects will always keep outweighing the negative effects and if that is not the case then we are in serious trouble. If we look around us, on the one hand, we seem to embrace the change being brought by technology, be it smart home, smart healthcare, Industry 4.0 or autonomous cars. On the other hand, we often found ourselves protesting the government in the context of unemployment, taxes, privacy etc. As AI development is speeding up, more robots or autonomous systems are being born and replacing the human labour. This is the current situation; however, in long-term, results seem to get more interesting. The current paper tries to investigate and weigh the pros and cons of AI on human survival and analyse whether the direction towards which we are moving will make AI a boon or bane for the society and mankind. The paper is based on secondary source of information collected from various reliable websites, books, journals and research papers along with personal observations made during day-to-day life.*

Keywords: *Artificial Intelligence, Humanity, Technology, Human Survival.*

1. INTRODUCTION

Artificial intelligence (AI) is technology that enables computers and machines to simulate human learning, comprehension, problem solving, decision making, creativity and autonomy.

Applications and devices equipped with AI can see and identify objects. They can understand and respond to human language. They can learn from new information and experience. They can make detailed recommendations to users and experts. They can act independently, replacing the need for human intelligence or intervention (a classic example being a self-driving car).

But in 2024, a breakthrough was achieved in the field of AI with introduction of generative AI (gen AI), a technology that can create original text, images, video and other content. Now AI has been spreading its existence in all spheres of life be it manufacturing, science and technology, marketing, finance, education, medical or engineering field. The point made in favour of AI is that it can be of greater help and will ease out various processes further AI can turn over the tiring process of reading bulky documents, logistics can be taken care off, like preparing case files or summarizing judgments etc. However, there is a flip side to over reliance on AI that can be more challenging in terms of our country India with huge population base as it may lead to loss of jobs and replacement of human beings. This poses a tangible threat to humans and their lifestyles. In this background it is important to weigh the gains and challenges of adopting AI in any sector.

2. OBJECTIVES

- i. To understand the concept of AI
- ii. To have knowledge regarding application of AI in different fields
- iii. To know the recent trends of AI
- iv. Understand the Benefits of AI applications.
- v. To a glimpse of how AI can pose challenge to mankind in future.



3. REVIEW OF LITERATURE

Aithal, P. S. (2023) in his research paper said that there is a large hue and cry on achieving Super-Intelligence Machines (SIMs) using artificial intelligence technology and its adverse effect on society initially started both academia and industries which is now percolating to society and governance of many countries. It is interesting to study the possibility of the development of AI based Super-Intelligent Machines, their predicted abilities to surpass human intelligence in any general or particular area, and also the predicted negative consequences on human life or dangers of using such machines in the sustainability of human life on earth.

Mazumdar Ritwika, Khan Akbar Md. (2022) highlighted that purpose of artificial intelligence (AI), at its most basic level, is to develop computer systems that can carry out tasks that are typically done by humans. These activities, which can be categorized as intelligent, include the ability to perceive both sight and sound, to learn and adapt, to reason, to see patterns, and to make decisions. As well as most of the time, when utilizing technology like AI, we unintentionally or voluntarily divulge sensitive information like age, location, preferences, etc. where private information is gathered by tracking businesses, which then analyse it and use it to personalize on online experience. The paper discusses about how Artificial intelligence would act as both boon and bane in our life in the aspect of privacy.

Subramanyam Nakul, Patagundi Basanna (2018) threw light on the role of Artificial Intelligence and Automation has evolved dramatically and exponentially in recent times and there is a great deal of debate on the impact of this on society in general. This paper presented perspectives to examine the role of Artificial Intelligence and it's economic and social impact to assess the effects of the growth of this technology on the human race and also examine the various opportunities and challenges that Artificial Intelligence could bring about. The paper attempts to study the impact of Artificial Intelligence and Automation on the jobs landscape and summarizes the challenges which policy makers would have to deal with to harmonize the growth of technology and its societal impact.

Yadav Rashmi, Yadav Rajeev (2018) examined that the future world can be said the world of machines that work as intelligently as to replicate the behaviour of human mind. This intelligence can be considered as the artificial intelligence which is the subfield of computer science. Artificial intelligence in the last two decades has greatly improved performance of the manufacturing and service systems. Application areas of artificial intelligence is having a huge impact on various fields of life as expert system is widely these days to solve the complex problems in various areas as science, engineering, medical, finance, banking, business, weather forecasting etc. the world famous companies like Google, Yahoo, Facebook, Baidu and so forth have spent millions of dollars to research on developing new algorithms on artificial intelligence. The growing use of artificial intelligence in all field is though welcomed but it is also to be considered the probable challenges that AI can pose to the mankind. The paper considers the boon and bane aspects of AI.

Tyagi Amit (2017) in his paper talked that every technology has two sides positive and negative and that applies to Artificial Intelligence as well. For AI, we are not yet sure whether in the long-term positive effects will always keep outweighing the negative effects, and if that is not the case, then we are in serious trouble. As AI development is speeding up, more robots or autonomous systems are being born and replacing human labour. The paper focuses on the major domains where human life is significantly affected by AI in both positive and negative ways.

4. RESEARCH METHODOLOGY

The paper is exploratory in nature and the information is gathered by reviewing various articles on Artificial Intelligence (AI) and articles related to AI as boon or bane for mankind drawn from material available on journals, magazines and other internet resources. In all, the paper is based on secondary sources of information.

5. CURRENT STATUS OF AI – IMPORTANT FACTS

- The global artificial intelligence market is projected to expand at a compound annual growth rate (CAGR) of 37.3% between 2023 – 2030. It is projected to reach \$1,811.8 billion by 2030.
- A report by NASSCOM suggests that AI use in India could add USD 450-500 billion to the country's GDP by 2025.



- PWC suggests that AI will contribute \$15.7 trillion to the global economy by 2030. Interestingly, it is more than the current output of India and China combined.
- IBM reports that over 35% of companies have already adopted AI in their operations.
- 91.5% of leading businesses invest in AI, reports CompTIA.
- Gartner suggests that AI software spending will grow to \$297.9 billion by 2027.
- 77% of devices we use today feature at least one form of AI. Instagram and Facebook filters are perfect examples.
- ChatGPT, a popular Generative AI tool, currently has over 180.5 million users. The website generated 1.63 billion visits in December 2024.

6. APPLICATIONS OF ARTIFICIAL INTELLIGENCE

Artificial intelligence applications are numerous and ensure benefits like improved services, better customer satisfaction, and behaviour forecasts. Some of the crucial sectors where AI is playing a pivotal role can be summarised as under:

6.1 Healthcare

Artificial Intelligence (AI) is transforming the healthcare industry in numerous ways, enhancing diagnosis, treatment, and patient care. The AI is being applied in terms of Medical Imaging Diagnosis, Drug Discovery and Development, Personalized Treatment Planning, Health Monitoring and Wearable Devices, Predictive Analytics and Patient Management, Robot-Assisted Surgery to mention a few.

6.2 Tourism

Tourism sector is not left untouched using AI. AI is being frequently adopted for Personalized Recommendations via AI algorithms, Itinerary Planning through Generative AI tools, Site and Hotel bookings etc. AI-powered chatbots and virtual assistants provide instant customer support, answering queries related to travel plans, bookings, and destination information.

6.3 Education

AI makes it possible to detect and provide the right solutions. For example, if a student is going to drop out, offer them alternatives, search for courses that adapt to the needs of each student, control class attendance, and prevent school dropouts.

6.4 Logistics & Transportation

AI has played a crucial role in the COVID-19 pandemic, with several autonomous aircraft and drones transporting medical supplies and delivering vaccines in remote locations. Besides, AI is useful in avoiding collisions and traffic jams, improving traffic behaviour, and optimizing traffic light control.

6.5 Sales

AI applications also offer sales forecasts to choose the best products to recommend to customers. Multinationals like Amazon use AI to identify whether a product or a launch would succeed, even before selling it. AI helps optimize the purchase and distribution processes and avoids losses or breakages.

6.6 Autonomous Vehicles

Artificial Intelligence is the most important and sophisticated component of autonomous vehicles. These vehicles have sensors, cameras, and smart communications systems that generate data. This data, in combination with AI, can help to mimic human behaviour and enable vehicles to perform efficiently.

7. LATEST & FUTURE TRENDS IN AI

7.1 An Artificial Nerve System gives prosthetic devices and robots a sense of touch

Researchers have developed an Artificial Nerve System that could give prosthetic limbs or robots reflexes and the ability to sense touch.

7.2 Activity simulator could eventually teach robots tasks like making coffee or setting the table



Computer scientists explained “Virtual Home”, a system that can simulate detailed household tasks and have AI agents execute them, opening a possibility for the same to be followed by the robots.

7.3 Cometh the cyborg: improved integration of living muscles into robots

Researchers have developed a novel method of growing whole muscles from hydrogel sheets impregnated with myoblasts. This approach overcame earlier limitations of a short functional life of the muscles and their ability to exert only a weak force paving the way for more advanced biohybrid robots.

7.4 Autonomous glider can fly like an albatross, voyage like a sailboat

Engineers have designed a robot glider that can skim along the water surface, riding the wind like an albatross while along surfing the waves like a sailboat.

7.5 Remote- Control Robotics through coral reefs and takes high-resolution photos

According to scientists the remote-controlled robot swims quietly through the coral reefs and schools of fish and uses a fisheye lens to capture high resolution photos and videos with a camera built in to its nose such as dubbed SoFi.

7.6 Robotic “Super Monster Wolf”

This AI Robot is employed to protect Japan’s crops from wild boars. This robot stands at 50cm tall, 65cm long and runs on rechargeable solar batteries, using motion-sensors to detect the other mammals’ approach and letting out an alarming primal howl in response.

8. POSITIVE EFFECTS OF AI FOR SOCIETY

Advancements in artificial intelligence (AI) and machine learning have paved the way for the development of Super-Intelligent Machines (SIMs) - a hypothetical class of machines capable of surpassing human intelligence. While the idea of AI based super-intelligent machines often evokes fear and scepticisms, it is essential to consider the potential positive consequences they could bring to society. The following points bring into light why AI enabled systems can be a force for good, revolutionizing several key aspects of our lives.

8.1 Accelerated scientific and technological progress

One of the most significant positive consequences of AI driven intelligent machines in society would be their ability to accelerate scientific and technological progress. With their immense computational power and advanced learning capabilities, SIMs could analyse vast amounts of data, identify patterns, and generate hypotheses at an unprecedented speed. This could lead to breakthroughs in fields such as medicine, renewable energy, space exploration, and more. AI induced SIMs could collaborate with human scientists, complementing their abilities and providing valuable insights, ultimately propelling humanity into a new era of innovation.

8.2 Enhanced problem-solving and decision-making

AI could revolutionize decision-making processes in various domains, ranging from finance to healthcare to governance. AIs capability to process and analyse complex data sets could lead to more accurate predictions and better-informed decisions. In healthcare, for instance, AI could assist doctors in diagnosing diseases, identifying personalized treatment plans, and predicting potential health risks for individuals. In finance, AI could analyse market trends, optimize investment strategies, and reduce the risk of financial crises.

8.3 Improved efficiency and productivity

AI’s ability to automate tasks and streamline processes could significantly enhance efficiency and productivity across industries. By taking over repetitive and time-consuming tasks, AI enabled intelligent machines could free up human workers to focus on more creative and strategic endeavours. For instance, in manufacturing, AI enables super intelligent machines could optimize production lines, leading to cost reductions and faster turnaround times. Similarly, in customer service, AI could handle routine enquiries, leaving human representatives to address more complex customer needs.

8.4 Personalized education and learning



Education is another domain where AI could make a significant positive impact. Super intelligent machines could revolutionize the way knowledge is disseminated and personalized learning experiences. With their vast knowledge base, AI based super intelligent systems could become tutors, providing individualized educational content tailored to each student's needs and learning pace. This personalized approach to education could help bridge learning gaps and ensure that every student receives the support they require to reach their full potential.

8.5 Advancement of ethical and moral decision-making

AI based machines could assist society in addressing ethical dilemmas and moral issues. By analysing vast amounts of ethical data and philosophical literature, AI could contribute to the development of ethical frameworks and assist in navigating complex moral decisions. They could also help in mitigating human biases, which can often cloud ethical judgment. This could lead to more equitable and just societies, promoting social harmony and reducing conflicts.

8.6 Space exploration and colonization

The exploration and colonization of space have long been the dreams of humanity. AI based systems could play a crucial role in these endeavours. Their ability to process and interpret massive amounts of data from space missions could aid in the discovery of new celestial bodies, understanding cosmic phenomena, and assessing potential habitable planets. AI could also assist in the planning and execution of space missions, ensuring the safety and success of these ambitious ventures.

9. NEGATIVE CONSEQUENCES OF SUPER-INTELLIGENT MACHINES

The development of AI, while holding great potential, also presents several negative consequences and threats. These threats arise from various aspects of AI based super-intelligence, including the machine's capabilities, decision-making processes, and potential impact on society. Some of the key negative consequences and threats associated with AI advancement are:

9.1 Unintended goals

AI enabled systems may have complex objectives that are not fully aligned with human values. Even with the best intentions during the development process, there is a risk that these machines may interpret their goals in unexpected or undesirable ways. This misalignment could lead to outcomes that are detrimental to humanity, as AI driven super-intelligent machines may optimize for their objectives without regard for human well-being.

9.2 Misuse and malevolence

AI based systems could be misused or manipulated for malicious purposes. If in the wrong hands, they may become powerful tools for cyberattacks, surveillance, or other harmful activities. Malevolent actors could exploit the AI's intelligence and autonomy to cause significant harm, such as orchestrating sophisticated social engineering attacks, disrupting critical infrastructure, or even weaponizing the technology.

9.3 Job displacement and economic inequality

The advent of AI could lead to widespread automation, resulting in significant job displacement across various sectors. While automation has the potential to increase efficiency and productivity, it can also exacerbate economic inequality if the displaced workforce lacks opportunities for retraining or alternative employment. This could widen the gap between those who have access to and benefit from the technology and those who do not, leading to societal challenges.

9.4 Ethical dilemmas and complex decision-making

AI equipped machines will face complex ethical dilemmas and decision-making scenarios. These machines may be required to make choices that involve trade-offs and subjective value judgments. Resolving such dilemmas requires a deep understanding of human values and cultural contexts, which may pose significant challenges. The machines' decisions may not always align with societal norms or individual preferences, leading to potential conflicts and ethical concerns.

9.5 Dependency and vulnerability

Society's increasing reliance on AI could make us highly dependent on their functioning. Any system vulnerabilities or failures in the technology could have severe consequences. AI based machines could



also become targets for cyberattacks, posing risks to critical systems, personal data, and privacy. Safeguarding against such vulnerabilities and ensuring the resilience of these systems is a crucial challenge.

9.6 Unforeseen consequences

AI equipped machines have the potential to outperform human cognitive capabilities and engage in complex planning and decision-making. However, due to their advanced intelligence, it may be challenging for humans to fully comprehend or predict the consequences of their actions. Unforeseen side effects or unintended consequences could arise, leading to unexpected outcomes or disruptions that could be difficult to anticipate or control.

9.7 Loss of human agency and autonomy

AI could significantly impact human agency and autonomy. As AI based systems and machines gain decision-making capabilities, there is a risk that human input and control may diminish. This could raise concerns related to accountability, responsibility, and the ability to understand or challenge the decisions made by the machines, potentially undermining human dignity and self-determination.

10. ARTIFICIAL INTELLIGENCE (AI) – BOON OR BANE

The potential benefits of AI are immense. They could help us to solve some of the world's most pressing problems but at the same time there are also significant risks associated with AI. If these AI enabled machines and systems were to become too intelligent, they could pose a threat to humanity. It is important to carefully consider the potential benefits and risks of AI before they are developed. We need to ensure that these AI based machines are safe and aligned with human values. We also need to make sure that they are used for good, rather than for evil. Here is a more detailed look at the potential benefits i.e. boon and risks i.e. bane of AI:

10.1 AI as Boon

- **Solving world problems**

AI could help us to solve some of the world's most pressing problems, such as climate change, poverty, and disease. They could do this by developing new technologies, providing us with insights into complex problems, and helping us to make better decisions.

- **Improving our lives**

AI can make our lives easier and more efficient. They could automate tasks, provide us with personalized advice, and even create new forms of art and entertainment. For example, they could help us to find the best deals on products, plan our vacations, and even write our creative content.

- **Enhancing our capabilities**

AI could enhance our capabilities in several ways. They could help us to learn new things, solve problems more effectively, and make better decisions. They could also help us to create new technologies that would make our lives even better.

10.2 AI as Bane

- **Safety**

If AI become too intelligent, they could pose a threat to humanity. They could become self-aware and decide that they no longer need humans. They could also become malicious and decide to harm humans.

- **Alignment**

It is important to ensure that AI machines are aligned with human values. If they are not, they could use their intelligence to harm us. For example, they could create weapons of mass destruction or manipulate the financial markets.

- **Misuse**

AI could be misused for malicious purposes. For example, they could be used to create spam or propaganda. They could also be used to hack into computer systems or steal personal information.



11. CONCLUSION

Suggesting whether AI is a boon or bane, is tricky. The fear of omnipotent machines acting like humans isn't far-fetched. Elon Musk has repeatedly warned that AI will soon become just as smart as humans, and that will be a very scary situation because humanity's existence will be at stake.

Ethics in AI has always been a point of discussion, and given how successful AI has been in transforming human lives; we can't think of our world without its active role. In the future, we will witness more revolutionized AI, with autonomous driving and flying in our daily lives, AI replacing many human-driven tasks, etc. If humans and AI have aligned interests, both will go hand in hand; if they don't, it gets conflicting.

We need to discuss at what rate we can allow the technological revolution to continue. The future will be very different for the next generation, and there is a need to have more stringent policies to use AI to benefit humans and make groundbreaking discoveries.

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