

A Study on the Impact of Artificial Intelligence on Society

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ABSTRACT

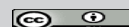
Artificial intelligence (AI), often known as the fourth industrial revolution (IR 4.0), will alter not only how we perform tasks and interact with others, but also what we know about ourselves. However, AI has a significant impact on how we perform tasks and interact with one another. Observe AI technology so that the world might profit from the development of this new intellect. It is connected with the notion that computer systems are expected to exhibit intelligence. It was the exclusive domain of humans previously. AI is able to make decisions and solve complicated problems in several sectors of society without human assistance. It has fundamentally altered society's perspective on the discovery of human intelligence. Artificial intelligence is advancing quickly in numerous aspects of contemporary culture. AI can be utilised in a variety of fields, including medical research and the development of breakthrough technologies, such as driverless vehicles. The introduction of Artificial Intelligence has had both positive and negative consequences for society. The primary goal of this paper is to investigate the impact of artificial intelligence on society as well as the challenges of artificial intelligence.

Keywords: Artificial Intelligence (AI), Technology, positive and negative impact, industrial revolution, SWOT analysis

Due the brain, humans are naturally capable of thinking and completing certain tasks independently. The human brain can accomplish certain analytical tasks, such as object recognition, significantly faster than any machine. This has spurred researchers and scientists to create computers capable of performing activities similar to those created by the human brain. This cognitive capacity is referred to as Natural Intelligence and it enables humans and animals to learn, remember, make decisions, and perform a variety of complicated tasks^[1]. The idea of artificial intelligence has been around since the 1950s. It used to be that people had high hopes for AI's achievement in all sectors of society back then. Artificial intelligence (AI) is viewed as an accurate instrument for problem solving that does not require the assistance of a

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human. In the past, humans were thought to be the only ones capable of addressing difficult problems in a faultless, cost-effective, and rapid manner without any assistance from AI, which is now, regarded a computer-centric technology^[2]. We can differentiate between two distinct forms of AI based on the functions and capabilities that it provides. The first type is known as “weak artificial intelligence,” also referred to as “narrow artificial intelligence,” and it is developed to carry out a specific function, such as facial recognition, an Internet Siri search, or a self-driving automobile. Many of the currently operating systems that claim to use artificial intelligence (AI) are most likely only using a limited form of AI that is centred on doing one particular task. Despite the fact that this form of artificial intelligence appears to be beneficial to human life, there are still many who believe it could be harmful. They reason that a malfunctioning form of weak AI could cause disruptions in the electric grid or cause damage to nuclear power plants. Strong AI is a different view of AI in that it can be programmed to act like a human mind, to be intelligent in whatever task it is given, and even to have perception, beliefs, and other cognitive abilities that are normally only attributed to humans^[3]. Programming jobs will boost automated systems’ efficiency. The goal is to create a machine that can draw conclusions similarly to a person. In other words, it can use instances and draw lessons from them to increase the precision of its inferences in the future. We are still a long way from building machines with the same capabilities as people. However, the modern machines are becoming quite proficient in particular areas. The key concept of artificial intelligence is that instead of being programmed with every potential response, the computer uses what it has learnt to generate new responses^[4]. The impact of machines on people’s daily lives will be unprecedented in human history, and they will transform society as we know it^[5]. “The four D’s of robotics” are jobs becoming automated: Dirty, dangerous, and difficult and dull^[6].

FUNCTIONS OF AI

1. **Automation:** Artificial intelligence will assist the system or process in automatically carrying out its activities.
2. **Machine learning and vision:** The science of programming a computer to behave through deep learning, analog-to-digital conversion, and digital signal processing in order to forecast, analyse, and view through a camera.
3. **Natural language processing:** he processing of human language by a computer programme, such as the detection and elimination of spam and the instantaneous translation of one language into another in order to facilitate human communication.
4. **Robotics:** A branch of engineering concerned with the design and manufacture of cyborgs, also known as machine men. They are used to perform tasks for the convenience of humans or tasks that are too difficult or dangerous for humans to perform and can operate continuously, such as in assembly lines.
5. **Self-driving car:** When developing automated control for a vehicle, it is best to make use of a combination of computer vision, image recognition, and deep learning.

RESEARCH AGENDA

1. What is the concept of Artificial Intelligence?
2. What is the positive and negative impact on society due to Artificial Intelligence?

3. What are the Challenges faced due to Artificial Intelligence?
4. How to analyse the Strengths, Weaknesses, Opportunities and Threats of Artificial Intelligence?

OBJECTIVES OF THE STUDY

1. To study the concept of Artificial intelligence.
2. To investigate the positive and negative impact of artificial intelligence on society.
3. To examine the Challenges faced due to Artificial Intelligence.
4. To analyse the Artificial Intelligence by SWOT Analysis.

RESEARCH METHODOLOGY

The study is undertaken with the help of secondary data. Information is collected through the journals, articles and books.

POSITIVE AND NEGATIVE IMPACT OF ARTIFICIAL INTELLIGENCE:

The introduction of this artificial intelligence technology has brought about changes in our culture that are short-term, medium-term, and long-term in nature. The introduction of AI into society has had major repercussions for professionals who are accustomed to working with modern technologies, for legal practitioners who are fostering the effects of AI's influence with its regulatory implications, and for technocrats who frequently use the assistance of modern technology to arrive at a precise decision in a technological matter that is complex^[2].

Positive Impacts

1. Fast and accurate diagnostics

AI is also capable of providing multiple therapy options for medical professionals to consider. The process is carried out in roughly the following manner: To enter the digital findings of the physical examination into a computer, which will then take into account all of the possibilities, automatically diagnose whether or not the patient suffers from specific inadequacies and illness, and even recommend various kinds of treatment that are accessible.

2. Socially therapeutic robots

Seniors can benefit from having pets because they can lower their blood pressure, relieve their worry and sense of isolation, and enhance the amount of social engagement they have. The idea of providing elderly people who live alone with cybernetic companions who can even assist with housework has recently gained traction. The quality of life for elderly people and those with physical disabilities can be improved with the help of therapeutic robots and socially assistive robot technology.

3. Reduce errors related to human fatigue

Errors made by humans are unavoidable and can frequently be quite expensive; the danger of making

mistakes increases in proportion to the degree of fatigue that employee is experiencing. The AI, on the other hand, is immune to the effects of either mental weariness or emotional distraction. It eliminates the potential for errors, and it enables the task to be completed more quickly and accurately.

4. Artificial intelligencebased surgical contribution

People have the option of selecting artificial intelligence-based surgical techniques. Even while it is still necessary for trained medical practitioners to run this AI in order for it to perform the task, it causes significantly less harm to the patient. The da Vinci surgical system is a robotic technology that is currently available in the majority of hospitals. This technology enables surgeons to do treatments with a minimally invasive level of patient trauma. These systems make it possible to achieve a level of precision and accuracy that is significantly higher than that of procedures that are carried out manually. The less invasive the operation is, the fewer traumas the patients will experience, the less blood they will lose, and the less anxious they will be.

5. Improved radiology

Imaging procedures such as prenatal imaging, cardiac MRI, and body MRI all became standard practise by the early 2000s. The quest for new algorithms that can detect certain diseases and interpret the findings of scans is still on-going. All of these are achievements made possible by advances in AI technology.

6. Virtual presence

A remote diagnosis of the diseases is something that is now possible because to advances in virtual presence technology. The patient does not have to move from his or her bed, but by employing a remote presence robot, the doctors are able to check on the patients even when they are not physically present. The movement and interaction of medical professionals is almost identical to what it would be like if they were physically present. Patients who are unable to travel may receive assistance from professionals thanks to this capability^[3].

NEGATIVE IMPACT

1. A massive social change will occur that will disrupt the way we live in the human community. Humans must work hard to make a living, but with AI, we can simply programme the machine to do something for us without even picking up a tool. As AI replaces the need for people to meet face to face for idea exchange, human closeness will gradually diminish. As personal gatherings are no longer required for communication, AI will stand in the gap.
2. Many jobs will be replaced by machines, leading to the onset of unemployment. Currently, many vehicle assembly lines are populated by machines and robots, displacing traditional workers. Even in supermarkets, store employees will no longer be required because digital devices can perform human labour. The AI area is dominated by the automation of processes. One of the major repercussions of AI is job loss. Humans have relied on manual labour and the investment of their time to generate money over the previous ten years. As technology advances and clever robots are created, we may witness a future in which people are paid simply for being citizens, which will be critical in the fight against automation that steals jobs from people^[7].

3. As a result of AI investors acquiring the lion's share of profits, wealth disparity will be generated. The disparity between the wealthy and the poor will deepen. The so-called "M" shape distribution of wealth will become increasingly apparent.
4. New concerns arise not just in terms of society, but also in terms of AI itself, since the AI being trained and learnt to perform the given task can eventually take off to the point where humans have no control, resulting in unexpected problems and repercussions. When an AI is fully loaded with the necessary algorithms, it is able to work autonomously, ignoring the commands of its human controllers.
5. The human creators of AI may create something with racial bias or that is egocentrically oriented to harm certain people or things. For example, the United Nations has voted to restrict the spread of nucleus power for fear of its indiscriminate use in destroying humanity or targeting specific races or regions to achieve dominance. AI has the potential to target specific races or programmed objects in order to carry out the programmers' command of destruction, resulting in global disaster^[3].

IMPACT OF ARTIFICIAL INTELLIGENCE ON THE SOCIETY AS A WHOLE

1. Impact of Artificial Intelligence on Ecological Studies (Environment)

There has always been room for tools that can facilitate ecological thinking rather than just aid in the collection and analysis of data because of the enormity of the challenge as well as the labour itself. Both fundamental and applied studies of ecology have been revolutionised by AI-derived modelling and methodologies, which have also significantly contributed to the growth of the field. Artificial intelligence is being used in ecology to help with the apparent impotence in organising and analysing wide ecological knowledge, improving overall process efficiency and resolving data gathering issues^[6].

2. Impact of Artificial Intelligence on Agriculture

AI technology can be used for a variety of purposes, including harvesting, airborne surveillance, remote sensing, proximity sensing, pest and weed control, and advisory services, among others. Microsoft is currently working with 175 farmers in Andhra Pradesh, India, to provide advisory services such as seeding and fertiliser usage. When compared to the previous year, this initiative resulted in a 30% increase in yield per hectare on average. Harvest technologies such as Harvest Croo have created an autonomous berry picking machine in which AI mimics human cognition^[9].

3. Impact of Artificial Intelligence on Government

Artificial intelligence is emerging as humanity's most valuable asset. Similarly, it is beneficial to any country's government and plays an important role in our daily lives. According to a survey, AI is capable of reducing administrative burdens and assisting in the resolution of resource allocation issues.

Further AI advancements can be seen as a path to driving the future of any economy in an era of modern technologies that require big data—According to Accenture, AI has the potential to double economic growth rates by 2035. However, every proper technique comes at a cost. In the case of AI in public sectors, it can raise concerns about privacy, speeding up and adopting digital tools, and whether humans can cooperate or keep up with the speed of machinery.

4. Impact of Artificial Intelligence on Education

Experts believe that by 2025, artificial intelligence will create more jobs than it will displace, but the new jobs will require more skills than the old jobs. As new skills emerge, governments, educational institutions, and employers should consider how to most effectively develop learning programmes that equip people with the skills needed to compete in the modern economy.

As a result, educational institutions will need to prepare students for careers in the industries. Further study is required on the new teaching roles that require a new set of graduate characteristics, with an emphasis on imagination, creativity, and innovation—a set of aptitudes and competencies that are seldom ever replicable by machines^[10].

5. Impact of Artificial Intelligence on Innovation

Artificial intelligence possesses characteristics that can aid in increasing the efficiency of the existing economy. Furthermore, it can make a greater contribution to the market’s “innovation.” These innovations have the potential to impact both productions as well as a wide range of products and services. Consider the case of “atomwise,” a new company that focuses on the identification of drug candidates through the use of neural networks to depict the bioactivity of specific individual molecules. Atomwise’s example demonstrates two ways in which artificial intelligence can be seen in fields of innovation^[11].

6. Impact of Artificial Intelligence on Military and Defence

Artificial intelligence is being used in nearly every military application, and military research organisations are expected to expand funds for research and development to develop new and advanced kinds of artificial intelligence. There is a lot of potential for national security in AI’s current capabilities. Satellite imagery analysis and cyber defence, for example, might benefit greatly from the current state of machine learning technology’s automation capabilities^[12].

7. Impact of Artificial Intelligence in Healthcare and Medicine

AI improves health care workers’ capacity to perceive human behaviour and requirements. A virtual nurse named Molly has been built by the firm named sensely to assist in keeping track of patients and their doctor visits^[13].

8. Impact of Artificial Intelligence on Labour Market

Many people are concerned about the impact of artificial intelligence on the labour market. According to a Pew Research Center expert survey, half of the experts (48%) believe that AI will displace more jobs than it will create, while the other half (52%) believe that technology will create more jobs than it displaces by 2025^[14].

9. Impact of Artificial Intelligence on Manufacturing Industry

Industrial AI is a systematic discipline that focuses on creating, validating, and deploying diverse machine learning algorithms for sustainable performance in industrial applications. It provides solutions for industrial applications and serves as a bridge between academic AI research findings and industry practitioners^[15].

SWOT ANALYSIS OF ARTIFICIAL INTELLIGENCE

The entire impact of this study incorporates strategic alterations with regard to all of the SWOT variables, which are control, vulnerability, opportunities, and threats^{[16],[17]}.

Strengths

This is advantageous to all businesses. Companies save money by having technology manage daily tasks (rather than humans). It reduces operational costs and even noncompliance penalties.

1. Adopted by numerous businesses.
2. Improved quality of life.
3. Boost productivity in the workplace.

Weaknesses

AI is constrained. It's a tool, but it's not always the answer. AI is capable of communication, yet it lacks emotional expression. It can therefore utilise knowledge, but it won't be able to comprehend or respond to the subtleties of human emotion.

1. Artificial intelligence will always be inhuman.
2. The opportunity to outwit us.
3. Governments are slow to adapt.

Opportunities

This allows for faster problem resolution, which may benefit other industries such as customer service.

1. Integrating AI with more recent forms of technology.
2. Smart cars help people with disabilities move forward.
3. Reduced employee stress.

Threats

The human race will have to coexist with artificial intelligence rather than being overtaken by it.

1. The theft of jobs.
2. Losing control over Artificial Intelligence.
3. Wrong move by Artificial Intelligence^{[18],[19]}.

FINDINGS OF THE STUDY

1. Another application of AI in financial systems is fraud detection. It can be difficult to detect fraudulent activity in huge organizations, but AI can detect irregularities, outliers, or deviant cases that require further study.
2. It promises to increase productivity, boost well-being, and aid in the resolution of global issues such as climate change, resource scarcity, and health problems.

3. AI improves people's life by powering various apps and services that assist them in doing everyday tasks such as communicating with friends and utilizing an email program or ride-sharing service.

CONCLUSION

A new initiative to create computational models of intelligence is centered on AI. The fundamental premise is that any form of intelligence, whether human or nonhuman, may be expressed in terms of symbol structures and symbolic operations that can be coded in a digital computer. The question of whether such a properly programmed computer would actually be a mind or would merely simulate one is one that has been hotly contested, but AI researchers do not need to wait for the resolution of that argument or for the fictitious computer that could simulate every aspect of human intelligence. Aspects of intelligent behaviour, such problem-solving, drawing conclusions, learning, and language comprehension, have already been coded as computer programs, and in a relatively small number of domains, like diagnosing diseases in soybean plants, AI algorithms can outperform humans.

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