INTERNATIONAL JOURNAL OF EDUCATIONAL AND SCIENTIFIC RESEARCH FINDINGS, MAY, 2025, ISSN: 2749-7481 VOL. 7 NO.1, GERMANY

A CRITICAL ANALYSIS OF THE MERITS AND DEMERITS OF ARTIFICIAL INTELLIGENCE IN OUR SOCIETY. AN ACADEMIC DISCOURSE

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ABSTRACT

This study analysed the merits and demerits of artificial intelligence in our society. The rapid advancement of artificial intelligence (AI) has ushered in a transformative era in modern society, reshaping how individuals interact, work, and access services. In the context of carrying out this research, the following subheads were explored: concept of artificial intelligence, types of artificial intelligence and different applications of artificial intelligence, to mention but a few. Narrow artificial intelligence, artificial general intelligence (AGI) and artificial superintelligence, among others, were mentioned as the types of artificial intelligence. The different applications of artificial intelligence as mentioned in the study included for e-commerce, for education and lifestyle, to mention but a few. Furthermore, the merits of artificial intelligence in our society, as mentioned in the study, included enhanced efficiency and productivity, automation and healthcare applications, etc. Job displacement and unemployment, privacy concerns and bias and discrimination in AI systems were mentioned as the demerits of artificial intelligence in our society. More so, the study highlighted the mitigating strategies to the demerits of AI in our society to include bias detection and mitigation, accountability and privacy and data security, among many others. The study concluded that artificial intelligence stands as both a transformative force and a source of profound societal challenges. One of the recommendations made was that governments and organisations should establish comprehensive ethical frameworks to guide the responsible development and deployment of AI technologies.

KEYWORDS: Artificial Intelligence, Merits, Demerits and Society

INTRODUCTION

The rapid advancement of artificial intelligence (AI) has ushered in a transformative era in modern society, reshaping how individuals interact, work, and access services. From virtual assistants and recommendation algorithms to autonomous vehicles and predictive healthcare, AI technologies are increasingly embedded in daily life and institutional frameworks. The integration of AI into various sectors has generated considerable academic interest, particularly regarding its implications for efficiency, economic growth, and social change (Dwivedi et al.,

2021). As the technology matures, it becomes crucial to assess not only its transformative benefits but also its broader impact on ethical, legal, and social dimensions.

Among the foremost merits of AI is its capacity to enhance productivity, accuracy, and decision-making across multiple domains. In healthcare, for instance, AI-enabled diagnostics have demonstrated high precision in detecting diseases such as cancer and COVID-19, surpassing some traditional methods (Jiang et al., 2021). Similarly, AI contributes significantly to business operations by optimising supply chains, forecasting consumer behaviour, and streamlining human resources processes (Raisch & Krakowski, 2021). These applications underscore the potential of AI to drive innovation and support evidence-based outcomes in both public and private sectors.

Despite these advantages, the proliferation of AI technologies also raises pressing concerns about privacy, algorithmic bias, job displacement, and accountability. Scholars have warned about the risks of data misuse, surveillance, and the reinforcement of social inequalities through biased algorithmic systems (Mehrabi et al., 2021). Additionally, the automation of routine tasks has led to fears of unemployment, particularly in sectors vulnerable to digitisation and robotics. Without robust regulatory frameworks and ethical oversight, these demerits may outweigh the benefits and erode public trust in AI systems.

The duality of AI's impact necessitates a critical academic discourse that moves beyond technical evaluation to address the broader socio-political consequences. This paper undertakes a balanced analysis of both the merits and demerits of AI, drawing on interdisciplinary research and contemporary case studies. By examining how AI influences different facets of society—from labour markets and education to governance and ethics—this study aims to provide a comprehensive understanding of the technology's implications in the current era.

CONCEPT OF ARTIFICIAL INTELLIGENCE

The term artificial intelligence is frequently applied to the project of developing systems endowed with the intellectual processes characteristic of humans, such as the ability to reason, discover meaning, generalise, or learn from past experience. According to Copeland (2025), artificial intelligence (AI) is the ability of a digital computer or computer-controlled robot to perform tasks commonly associated with intelligent beings. Furthermore, Staff (2024) stated that 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. Xu et al. (2021) explained that artificial intelligence (AI) coupled with promising machine learning (ML) techniques is a field in computer science that is broadly affecting many aspects of various fields, including science and technology, industry, and even our day-to-day life. The ML techniques have been developed to analyse high-throughput data with a view to obtaining useful insights, categorising, predicting, and making evidence-based decisions in novel ways, which will promote the growth of novel applications and fuel the sustainable booming of AI.

Artificial intelligence (AI) is capable of enabling computational systems to perform tasks typically associated with human intelligence, such as learning, reasoning, problem-solving, perception, and decision-making. It is a field of research in computer science that develops and

studies methods and software that enable machines to perceive their environment and use learning and intelligence to take actions that maximize their chances of achieving defined goals. Scott (2025) explained that artificial intelligence (AI) technology allows computers and machines to simulate human intelligence and problem-solving tasks. The ideal characteristic of artificial intelligence is its ability to rationalize and take action to achieve a specific goal. More so, Craig (2024) mentioned that artificial intelligence (AI) is the simulation of human intelligence processes by machines, especially computer systems. Examples of AI applications include expert systems, natural language processing (NLP), and speech recognition and machine vision. In addition, JETIR (2019) asserted that computers are designed to act like humans in this branch of computer science. Artificial intelligence encompasses games, advanced devices, neural networks, the language of design, and robotics. There are actually no machines with full artificial (that is, they can mimic human behaviour) intellect.

TYPES OF ARTIFICIAL INTELLIGENCE

The following are the types of artificial intelligence:

- Narrow AI

Narrow AI, also known as artificial narrow intelligence (ANI) or weak AI, describes AI tools designed to carry out very specific actions or commands. They are built to serve and excel in one cognitive capability and cannot independently learn skills beyond their design. All AI systems used today fall under the category of narrow AI. Narrow AI often utilises machine learning, natural language processing and neural network algorithms to complete specified tasks. Some examples of narrow AI include self-driving cars and AI virtual assistants (Betz, 2024).

- Artificial General Intelligence (AGI)

Artificial general intelligence (AGI), also called general AI or strong AI, refers to a theoretical form of AI that can learn, think and perform a wide range of tasks at a human level. The ultimate goal of AGI is to create machines that are capable of versatile, human-like intelligence, functioning as highly adaptable assistants in everyday life. Though still a work in progress, the groundwork of artificial general intelligence could be built from technologies such as supercomputers, quantum hardware and generative AI products like ChatGPT. According to Kumar (2025), AGI is endowed with broad human-like cognitive capabilities, enabling it to tackle new and unfamiliar tasks autonomously. Such a robust AI framework possesses the capacity to discern, assimilate, and utilise its intelligence to resolve any challenge needing human guidance.

- Artificial Super Intelligence

Artificial superintelligence (ASI), or super AI, is truly the stuff of science fiction. It's theorised that once AI has reached the general intelligence level, it will soon learn at such a fast rate that its knowledge and capabilities will become stronger than those of even humankind. ASI would act as the backbone technology of completely self-aware AI and other individualistic robots. Its concept is also what fuels the popular media trope of "AI takeovers". But at this point, it's all speculation. Lateef (2025) mentioned that artificial superintelligence is the stage of artificial

intelligence when the capability of computers will surpass human beings. ASI is currently a hypothetical situation as depicted in movies and science fiction books, where machines have taken over the world.

DIFFERENT APPLICATIONS OF ARTIFICIAL INTELLIGENCE

There are many uses of artificial intelligence that are being employed today. AI models generate media content, both written and visual. They are used to detect fraudulent financial activity. Artificial intelligence can control machines in manufacturing and transportation. The most widely used applications of AI are likely content generation and other applications of natural language models. Autonomous control of machines in transportation and manufacturing is another common application. According to Hinton (2024), some of the applications of AI include:

1. E-Commerce

Artificial Intelligence (AI) has transformed the e-commerce industry by enhancing customers' shopping experiences and optimising businesses' operations. AI-powered recommendation engines analyse customer behaviour and preferences to suggest products, leading to increased sales and customer satisfaction. Additionally, AI-driven chatbots provide quick customer support, resolving queries and guiding shoppers through their purchasing journey. For example, Amazon uses AI to recommend products to its users based on their browsing history, past purchases, and preferences. This personalisation boosts engagement and sales by showing customers items they are more likely to buy.

2. Education

The next AI application is its use in the betterment of education! AI in education is transforming how students learn and how educators teach. Adaptive learning platforms use AI to customise educational content based on each student's strengths and weaknesses, ensuring a personalised learning experience. AI can also automate administrative tasks, allowing educators to focus more on teaching and less on paperwork. Example: another important application of AI is in EdTech, where platforms like Simplelearn use AI algorithms to offer course recommendations and provide personalised feedback to students, enhancing their learning experience and outcomes.

3. Lifestyle

The next AI application is a common one: AI in lifestyle. AI is integrated into various lifestyle applications, from personal assistants like Siri and Alexa to smart home devices. These technologies simplify daily tasks, offer entertainment options, manage schedules, and even control home appliances, making life more convenient and efficient to learn homeowners' temperature preferences and schedule patterns and automatically adjust settings for optimal comfort and energy savings.

4. Robotics

AI enhances robots' capabilities, enabling them to perform complex tasks precisely and efficiently. In industries like manufacturing, AI-powered robots can work alongside humans, handling repetitive or dangerous tasks, thus increasing productivity and safety. Example: in automotive manufacturing, AI-driven robots are used for assembling parts, painting, and quality control, significantly speeding up production and ensuring high-quality output.

5. Natural Language Processing

Natural Language Processing (NLP) is an AI field focusing on interactions between computers and humans through natural language. NLP enables machines to understand, interpret, and generate human language, facilitating applications like translation, sentiment analysis, and voice-activated assistants. For example, Grammarly uses NLP to analyse text for grammatical errors, style improvements, and clarity suggestions, helping users enhance their writing quality.

6. Computer Vision

Computer vision involves using AI to interpret and process visual information from the world around us. It enables machines to recognise objects, people, and activities in images and videos, leading to security, healthcare, and autonomous vehicle applications. Example: self-driving cars use computer vision to detect and respond to obstacles, traffic signals, and pedestrians, ensuring safe navigation.

7. Face Recognition

Face recognition technology uses AI to identify and verify individuals based on facial features. This technology is widely used in security systems, access control, and personal device authentication, providing a convenient and secure way to confirm identity. For example, Apple's Face ID technology uses face recognition to unlock iPhones and authorise payments, offering a secure and user-friendly authentication method.

MERITS OF ARTIFICIAL INTELLIGENCE IN OUR SOCIETY

The following are the merits of artificial intelligence in our society:

- **Enhanced Efficiency and Productivity**

AI significantly boosts efficiency and productivity by optimising processes and reducing the time and resources required to complete tasks. AI systems can analyse data, predict outcomes, and suggest improvements, allowing businesses to streamline operations and eliminate bottlenecks. This leads to faster production cycles, reduced operational costs, and higher output quality (Duggal 2025).

- **Automation**

Recent surveys show that 72% of organisations have adopted AI, leading to significant increases in automation across professional services and various business functions. AI's impact on transportation, communications, service industries, and consumer products is immense. With automation, businesses enjoy increased productivity and higher production rates. Automation

ensures more efficient use of raw materials, reduced lead times, improved product quality, and better safety. It also frees up resources for more crucial tasks (Koch, 2024).

- Healthcare Applications

According to Oza (2021), AI techniques are highly utilised in the medical field. For instance, AI machines in healthcare devices have helped doctors evaluate the patient's health-related data and risk factors as well. It helps patients know the side effects of various medicines. Moreover, robotics is also used in treating mentally sick patients, suchch as those with depression. At present, there is also software available to detect & monitor neurological disorders and stimulate the brain's functionality.

DEMERIT OF ARTIFICIAL INTELLIGENCE IN OUR SOCIETY

AI, while offering many benefits, also presents societal downsides. These include job displacement as automation replaces human workers, potential biases in AI algorithms leading to discriminatory outcomes, privacy concerns due to data collection and analysis, and a lack of creativity and emotional intelligence compared to humans. Additionally, over-reliance on AI can hinder critical thinking and reduce human interaction.

- Job Displacement and Unemployment:

AI-powered automation can lead to job losses in various industries, particularly those involving repetitive tasks. One of the most pressing disadvantages of artificial intelligence is its impact on jobs. As AI takes over tasks traditionally performed by humans, entire professions are at risk. Roles in manufacturing, customer service, and even certain types of white-collar jobs are being automated, leading to job loss and economic uncertainty for many workers. AI may increase productivity, but the social cost of displaced jobs can't be overlooked.

- Privacy Concerns

AI systems are data-hungry, and the data they need often includes personal information. As AI collects and analyses this data, concerns around privacy escalate. The potential for misuse of data, either through accidental breaches or malicious intent, is significant. The more AI understands about individuals, the more vulnerable their personal information becomes—a major disadvantage of AI for many. Duggal (2025), AI systems often require vast amounts of data to function effectively, which can lead to significant privacy concerns. Personal data collection, storage, and analysis can be intrusive, exposing sensitive information without individuals' consent.

- Bias and Discrimination in AI Systems

AI systems learn from existing data, which can contain biases. If not addressed, these biases can lead to discriminatory outcomes. For example, AI algorithms used in hiring processes might favour certain demographic groups over others if trained on biased data. Ensuring fairness and inclusivity in AI applications requires ongoing vigilance and intervention (Tiwari, 2024).

- High Development and Implementation Costs

Building and implementing AI isn't cheap. Businesses need advanced technology, skilled professionals, and extensive datasets, which can be financially burdensome. Small to medium-sized enterprises may struggle to afford AI development, creating a gap between tech-rich and tech-poor companies. This high cost is a disadvantage of AI that hinders accessibility and equity in AI adoption.

- Lack of Accountability and Responsibility

When an AI system makes a decision, especially one with serious consequences, determining who is responsible can be tricky. Should it be the AI developer, the company, or perhaps the AI itself? This lack of accountability becomes a serious concern, especially in sectors like healthcare and finance, where decisions significantly impact human lives.

MITIGATING STRATEGIES TO THE DEMERITS OF AI IN OUR SOCIETY

To mitigate the negative impacts of AI in society, strategies focus on ethical development, transparency, accountability, and ensuring AI benefits everyone. This includes addressing bias, promoting diverse AI teams, implementing robust governance, and educating the public about AI's capabilities and limitations.

- Bias Detection and Mitigation:

Invest in tools and processes to identify and mitigate bias in AI models, using diverse datasets and fairness-aware algorithms. Sharma, (2024), Ensuring AI systems are fair and unbiased is essential to responsibly managing related risks. AI systems are only as good as the data and assumptions that go into building them. And data often reflects human and societal biases. AI trained on biased data can discriminate against certain groups without intending to.

- Accountability:

Accountability refers to the idea that there should be clear responsibility for the actions of an AI system. Accountability is important because it ensures that there are mechanisms in place to address any harm caused by an AI system and to prevent such harm from occurring in the future.

- Privacy and Data Security:

Prioritise data privacy and security, ensuring responsible data collection and use, and educate users about AI data-capture practices. Artificial intelligence uses algorithms to process large amounts of past data and identify patterns or features in that data. It learns from these patterns, using them to make predictions about future behaviour that are generally accurate and incredibly quick.

- Transparency and Explainability:

Make the inner workings of AI systems understandable to stakeholders, fostering trust and accountability. As cited by Blyth (2023), transparency is a key AI guiding principle as well as one of the seven GDPR data protection principles (see below). Reliance on AI can result in a

lack of transparency. The transparency 'void' makes it harder for employers to justify decisions and harder for employees to challenge those decisions. Indeed, in some cases, employees may not even be aware that AI has been used in their employer's decision-making process.

- Impact Assessments:

Conduct thorough impact assessments to evaluate potential consequences of AI systems and address them proactively. Adams and Stone (2024) mentioned that an impact assessment helps in considering the implications of an occurrence for people and their environment of proposed actions while there is still an opportunity to modify [or abandon] the proposed actions if the impact they pose contains a potential or actual threat of harm.

CONCLUSION

Artificial intelligence stands as both a transformative force and a source of profound societal challenges. Its benefits—ranging from improved efficiency to enhanced decision-making—are reshaping industries and daily life. However, ethical concerns, job displacement, and algorithmic bias demand critical attention. A balanced approach that embraces innovation while ensuring accountability is essential. Policymakers, technologists, and academics must collaborate to develop inclusive and transparent AI systems. Without such efforts, the risks may eclipse the rewards. As this discourse has shown, the future of AI hinges not just on its capabilities but on how responsibly it is governed.

RECOMMENDATIONS

- Governments and organizations should establish comprehensive ethical frameworks to guide the responsible development and deployment of AI technologies.
- Strong data protection regulations are essential to safeguard user information and prevent misuse by AI-driven platforms.
- Governments and industries should support educational programmes to up skill workers whose jobs are threatened by automation.

REFERENCES

Adams. R & Stone, K. (2024) Dimension: Responsible AI Governance. https://idl-bnc-idrc.dspacedirect.org/server/api/core/bitstreams/cdd15494-b229-48e6-9c36-99aa751c82d1/content#:~:text=Impact%20assessments%20can%20help%20mitigate%20risks%20and,economic%2C%20social%2C%20ethics%2C%20and%20responsible%20innovation%20assessments.

Avijeet B. (2025). Artificial Intelligence Applications and Uses. Available at: https://www.simplilearn.com/tutorials/artificial-intelligence-tutorial/artificial-intelligence-applications

Betz, S. (2024). 7 Types of Artificial Intelligence. Available at: https://builtin.com/artificial-intelligence/types-of-artificial-intelligence.

Blyth, L. (2023), Artificial Intelligence in the workplace – managing legal risk to maximise opportunities. Available at: https://www.michelmores.com/tech-innovation-insight/artificial-intelligence-in-the-workplace-managing-legal-risk-to-maximise-opportunities/#:~:text=Transparency%20is%20a%20key%20AI%20guiding%20principle,harder%20for%20employees%20to%20challenge%20those%20decisions.

Copeland B. J. (2025). Artificial intelligence. Available at: https://www.britannica.com/technology/artificial-intelligence

Craig L. (2024).What is AI? Artificial Intelligence explained. Available at: https://www.techtarget.com/searchenterpriseai/definition/AI-Artificial-Intelligence

Duggal, N, (2025). Advantages and Disadvantages of AI. Available at: https://www.simplilearn.com/advantages-and-disadvantages-of-artificial-intelligence-article.

Duggal, N. (2025) Advantages and Disadvantages of AI. Available at: https://www.simplilearn.com/advantages-and-disadvantages-of-artificial-intelligence-article

Dwivedi, Y. K. (2021). Artificial Intelligence (AI): Multidisciplinary perspectives on emerging challenges, opportunities, and agenda for research, practice and policy. *International Journal of Information Management*, 57, 101994. https://doi.org/10.1016/j.ijinfomgt.2019.08.002

Hinton S. (2024).Applications of Artificial Intelligence | Overview & Examples.https://study.com/academy/lesson/artificial-intelligence-in-everyday-life.html

JETIR. (2019). The Concept of Artificial Intelligence. Arun Singh, Department of Computer Science and Engineering Galgotias University, Yamuna Expressway Greater Noida, Uttar Pradesh 6(3), 2349-5162

Jiang, F. (2021). Artificial intelligence in healthcare: Past, present and future. *Seminars in Cancer Biology*, 69, 1-12. https://doi.org/10.1016/j.semcancer.2020.05.006

Koch, R. (2024). Benefits of Artificial Intelligence: How it Contributes to Our Society and Economy. Available at: https://www.clickworker.com/customer-blog/benefits-of-ai/.

Kumar, A. (2025). Types of AI Explained. Available at: https://www.simplilearn.com/tutorials/artificial-intelligence-tutorial/types-of-artificial-intelligence.

Lateef, Z. (2025). 7 types of Artificial Intelligence (AI). Available at: https://www.edureka.co/blog/types-of-artificial-intelligence/.

Mehrabi, N. (2021). A survey on bias and fairness in machine learning. ACM Computing Surveys (*CSUR*), 54(6), 1–35. https://doi.org/10.1145/3457607.

Oza, H. (2021). Importance and Benefits of Artificial Intelligence. Available at: https://www.hdatasystems.com/blog/importance-and-benefits-of-artificial-intelligence.

Raisch, S., & Krakowski, S. (2021). Artificial intelligence and management: The automation–augmentation paradox. *Academy of Management Review*, 46(1), 192–210. https://doi.org/10.5465/amr.2018.0072

Scott G. (2025). Artificial Intelligence (AI): What It Is, How It Works, Types, and Uses. Available at: https://www.investopedia.com/terms/a/artificial-intelligence-ai.asp

Sharma, A. (2024) An Ultimate Guide to Managing The Risks of AI. Available at: https://www.a3logics.com/blog/an-ultimate-guide-to-managing-the-risks-of-ai/

Staff C. (2024). What Is Artificial Intelligence? Definition, Uses, and Types. Available at: https://www.coursera.org/articles/what-is-artificial-intelligence

Tiwari, m. (2024), the Disadvantages of AI: Understanding the Challenges and Risks. Available at: https://www.linkedin.com/pulse/disadvantages-ai-understanding-challenges-risks-mohit-tiwari-rxp4c

Xu Y., Liu X., Cao X., Huang C., Liu E., Qian S., Liu X., Wu Y., Dong F., Qiu C., Qiu J., Hua K., Su W., Wu J., Zu H., Han Y., Fu C., Yin Z., Liu M., Roepman R., Zhang J. (2021). Artificial intelligence: A powerful paradigm for scientific research. *The Innovation,* 2(4), 100179.