The Impact of Artificial Intelligence on Modern Society

1. Mr. Mayank Sharma

Assistant Professor, Department of Computer Science,

Shyamlal Saraswati Mahavidyalaya,Shikarpur, Bulandshahr,Uttar Pradesh,India.

2. Mr. Pushpendra Singh

Assistant Professor, Department of Computer Science,

Shyamlal Saraswati Mahavidyalaya,Shikarpur,Bulandshahr,Uttar Pradesh,India.

Abstract

Artificial intelligence (AI) is changing many parts of our modern world, including how we work, live, and interact with each other. This paper looks at how AI has developed over time, how it is being used today in areas like healthcare, education, and jobs, and the new problems it brings—like unfairness in AI systems, privacy issues, and moral concerns to achieve this goal, a thorough review of existing research and data on the impact of AI was conducted.

In the end, the paper suggests ways to manage AI in a responsible and fair way, so it helps people and society in a positive way.

KEYWORDS: Artificial intelligence, self-driving, complexity, neural networks, Machine learning, Surgical robots, social impact.

Introduction

Artificial intelligence (AI) used to be something we only saw in science fiction, but now it's part of our everyday lives. AI helps drive self-driving cars, suggests content we might like online, helps doctors find health problems, and makes smart communication tools work. It is now involved in many parts of our daily routines and the decisions we make. This paper looks at how AI is changing our society. It covers its history, how it's used today, its effects on jobs and the economy, the moral questions it raises, and what the future might look like. By looking at both the good and bad sides, the paper aims to give a fair view of how we can use AI in a way that benefits everyone.

Historical Context and Evolution of AI

- **Origin and Early Milestones**

Formal AI began in the 1950s with pioneers like John McCarthy, Alan Turing. The Dartmouth Conference (1956), organized by McCarthy, marked the field's birth. Early work focused on symbolic reasoning, theorem proving, and rule-based systems.

- **Boom and Decline – AI Winters**

Initial optimism led to high expectations, but limitations in computational power and real-world complexity triggered disillusionment. Funding slumps in the 1970s and 1980s led to "AI winters," periods of slowed progress.

- **Resurgence: Machine Learning**

From the 1990s onward, advances in statistical learning and neural networks revived AI. Breakthroughs included IBM's Deep Blue defeating Garry Kasparov (1997), and in 2011 IBM Watson winning **Jeopardy.**

- **Rise of Deep Learning**

Recently, AI has improved a lot with deep neural networks and generative AI. For example, Google's Alpha Go (2016) showed how AI can play complex games like Go. Tools like **GPT** and **DALLE** can create text and images, changing how we make content. Today, AI can not only analyze information but also create new things like Images and have conversations.

Economic Impacts

- **Automation and Productivity**

AI helps businesses work faster and more efficiently. Machines and computer programs can now do many tasks that humans used to do by hand. For example, AI can help manage supply chains, check machines for problems before they break, and make factories run more smoothly. This means companies can save time, reduce costs, and make more products with fewer mistakes.

- **Labour Market Shifts**

Automation displaces routine and manual jobs—factory work, basic data entry, and even certain professional tasks. However, it also creates new roles: AI engineers, data scientists, and maintenance technicians. Historical trends suggest that automation may not reduce overall employment but does require workforce retraining and mobility.

- **Innovation and GDP Growth**

AI contributes significantly to economic growth. A McKinsey report estimates AI could add up to **$13 trillion to global GDP by 2030**. By fostering innovation—through new products, services, and business models—AI accelerates economic transformation.

AI in Healthcare

- **Diagnostics Analytics**

AI-powered diagnostic systems are making medical tests faster and more accurate. Doctors in fields like radiology (scans), pathology (tissue tests), and eye care use AI to help find problems like cancer or eye diseases. AI can also predict who might get certain long-term illnesses, so doctors can treat them early and help prevent serious problems.

- **Personalized Medicine**

It looks at things like a person's genes, habits, and medical history to decide what medicine and dose will work best. This kind of care, called precision medicine, helps reduce side effects and makes treatment more effective.

- **Robotic Surgery and Remote Monitoring**

Surgical robots, like the **da Vinci system**, AI-powered tools also make it possible for doctors to care for patients from a distance using video calls and special devices that check health at home and send updates automatically.

AI in Education

- **Intelligent Tutoring Systems**

Adaptive learning platforms use AI to adapt lessons and exercises based on individual student performance.

- **Personalized Learning**

Machine learning algorithms analyze strengths, weaknesses, and learning styles, customizing content, pacing, and recommendations. This supports mastery-based education approaches.

- **Assessment**

AI-assisted grading tools provide fast feedback on essays and assignments. artificial intelligence to evaluate or grade a person's performance, skills, or knowledge—especially in education and training.

Legal and Ethical Aspects

- **Algorithmic Bias**

AI systems learn from the data they are given. If the data is unfair or biased, the AI can also act unfairly. This can cause problems like discrimination in jobs, loans, and police work. Because of this, it's very important to carefully check the data and make sure the AI treats everyone fairly.

- **Data Privacy and Surveillance**

Collecting a lot of data helps companies show ads that match people's interests and helps track public health. But it also raises worries about governments watching people, companies using data without permission, and whether people agree to their data being collected.

- **AI in Criminal Justice**

AI tools used by police and courts to predict crimes or judge risks can unfairly target certain groups of people. Research shows that these systems sometimes suggest tougher punishments for people from specific backgrounds.

- **Regulation and Governance**

Governments around the world are making laws about AI. The European Union's AI Act sorts AI systems based on how risky they are and sets tougher rules for the most risky ones. More people are asking countries to work together and create common rules to keep AI safe while still encouraging new ideas.

Socio-Cultural Significance

- **Human-AI Interaction**

Voice assistants, chat bots, and social robots are getting better at interacting like people. They can help with things like making technology easier to use and providing emotional support. But they also make us think about how they might affect our real human relationships and if we might start relying on them too much.

- **Communication and Relationships**

AI helps choose news and videos we see online, but this can trap us in "filter bubbles" where we only see things we already agree with. This can hurt how people talk and get along in society. On the other hand, AI can also help people be creative and make new content like stories, art, and music.

- **Shifts in cultural ideas about creativity and work life**

AI can create art, music, and writing, which makes us rethink who really creates these things and what creativity means. In jobs, AI is changing work by increasing contract jobs. These jobs offer more flexibility but can also be less stable and less secure.

Future Perspective

- **Progress on the path to AGI**

The big goal for AI is to create artificial general intelligence (AGI) — machines that can think, learn, and understand things like people do. While AI is getting better at specific jobs, true AGI is still just an idea and brings up important ethical questions.

- **Climate and Sustainability**

AI helps us understand the climate, use energy better, manage carbon, and grow food more carefully. Smart systems and sensors also help lower pollution and waste, which is very important for protecting the environment.

- **Human-Centered and Ethical AI Design**

The future depends on making sure AI follows good values, can be understood, is responsible, and is controlled by people. Rules like the "right to know how AI makes decisions," fairness, and caring about society should guide how we build AI.

- **Future Research Directions**

While this research has provided valuable data into the current state of AI's impact on the modern society, we are depends on A.I on upcoming years. Shown in the below pie chart.

FUTURE PERSPECTIVE

- 2024-25: 18.5
- 2025-26: 27.3
- 2026-27: 45.5
- 2027-28: 68.5
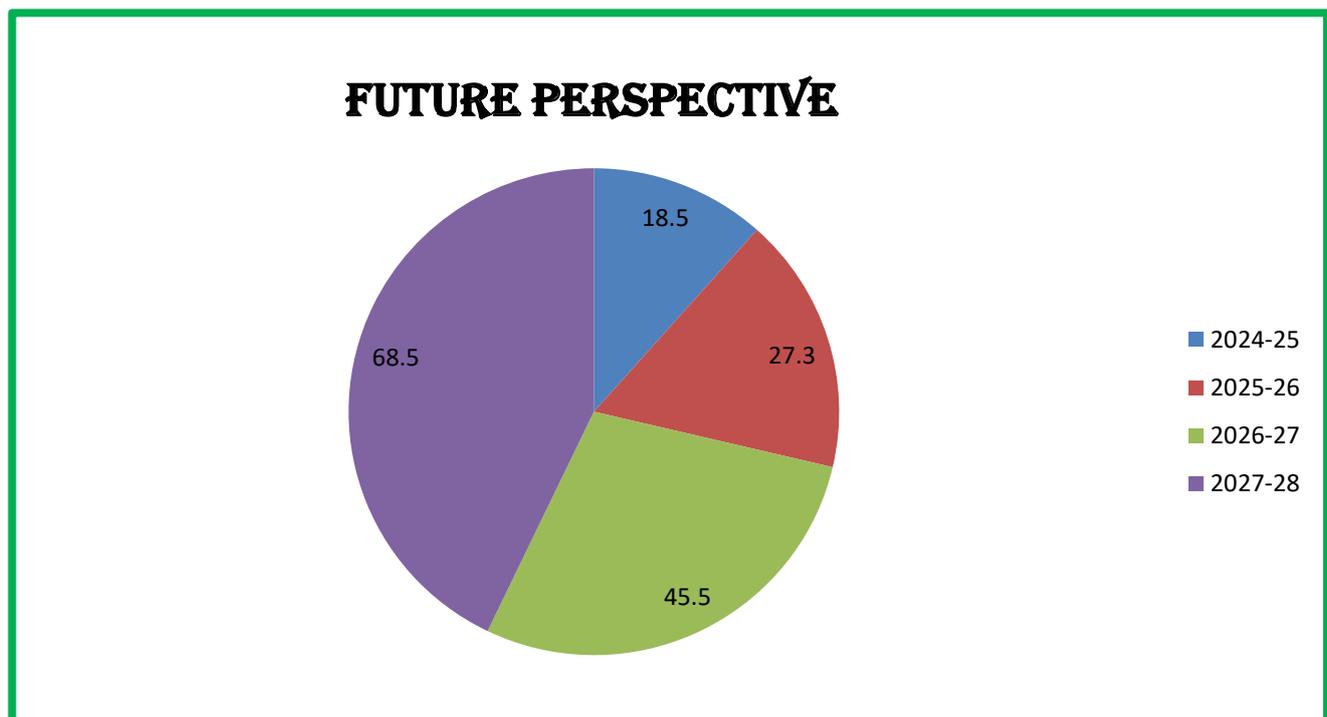
Conclusion

AI is changing many parts of our society like the economy, healthcare, education, government, and culture. It helps us work better, get better medical care, learn in a way that suits us, and be more creative. But AI also brings problems like unfairness, misuse of data, losing jobs, spreading wrong information, and tough ethical questions. To use AI safely, we need good rules, fair design, checks for bias, privacy protection, and making sure everyone can access it.

We are now at an important time with new AI tools like generative AI and AI that could think like humans. To make sure AI helps everyone, countries need to work together, be open about how AI is used, and always focus on human values. The decisions we make now will shape how AI affects modern society and ethics in the future.

References

1. **(Sharma M, 2025). The Double Edged Sword: The Analyzing multifaceted Social Impact of Artificial Intelligence in Modern Society: 3(4):134-136.** https://doi.org/10.5281/zenodo.17964483
2. McKinsey Global Institute. *AI, Automation, and the Future of Work*. 2018.
3. Russell, Stuart, and Norvig, Peter. *Artificial Intelligence: A Modern Approach*. 4th edition 2020.
4. Read Article **India aims to become a global AI powerhouse — Economic Times, 2023**
5. Read Article **NITI Aayog's role in shaping India's AI future — The Hindu, 2022**
6. Take Reference from Google.
7. **Akter S (2024) Global perspectives on the social impacts of artificial intelligence.**
8. Berente N, Gu B, Recker J, Santhanam R (2019) Managing artificial intelligence.
9. Imtiaz I, Mahmood B, Chaudhary A, Rahim Y, Nosheen F (2024) Role of artificial intelligence in changing society: a systematic review.
10. Artificial intelligence: communication, technology, and society (a systematic literature review).
11. Role of artificial intelligence in changing society: a systematic review (Migr Lett).
12. THE IMPACT OF ARTIFICIAL INTELLIGENCE ON SOCIETY (e ISSN: 2582-5208).
13. Kelleher, M. D., Mac Namee, B., & D'Arcy, A. (2015). Artificial intelligence: A guide for thinking humans. Hachette Books
14. Chatterjee S. "Impact of AI regulation on intention to use robots: From citizens and government