

Article

Application of Artificial Intelligence in Various Fields

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Abstract: Artificial intelligence (AI) has quickly grown in importance as part of modern day digital transformation, impacting much of society. However, the integration of AI technologies across a range of sectors including education, healthcare, economics, and media has risen faster than explanatory vehicles that can inform the public about their concrete effects, their benefits, and their risks. The objective of this study is to study the function of artificial intelligence in various sectors and analyse its contribution to elements of efficiency, innovation, and human progress. This study uses qualitative analytical method grounded on worldwide literature on the ordinary uses of technology implementations and digital systems in education, healthcare, business and logistics. More specifically, systems including intelligent tutoring systems, automated data analysis tools, and diagnostic technologies for medical imaging. The functionality, efficacy, and decision making impacts of these systems are evaluated. The results also show that the AI technologies improve operational efficiency, allow the firms to provide personalised services and help in better data-driven decision making. Intelligent tutoring systems lean students towards personalized learning, while also lessening your burden as a teacher. Examples of AI driven diagnostic tools in healthcare aid in early disease identification in addition to analysis of medical images, allowing for better treatment results. Furthermore, AI not only increases economic growth by automating, digitalizing and better managing logistics. In this study, the authors argue that artificial intelligence can change a number of sectors and help us tackle tough global challenges. Nevertheless, trust in AI systems ensures its responsible governance and ethical regulation in further analysis. It must be managed, professionals developed, and ethics incorporated to play a role in sustainable human development with the help of AI.

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1. Introduction

Today, it is difficult to imagine our daily lives without information technologies. Likewise, artificial intelligence (AI) is rapidly developing and is being widely applied across various domains. It would not be an exaggeration to say that information technologies and artificial intelligence have fully permeated our education, work, and everyday activities [1]. Their influence can be observed in education, healthcare, industry, banking systems, transport, and even household life. Perhaps the most talked about query is, will AI take over our jobs? Yes, in a few professions, automation is taking on more significant roles. But obviously, the changes brought by artificial intelligence have also brought new jobs and opportunities [2], [3], [4]. Artificial intelligence is technology that allows computers to think and solve problems like human beings. It means developing

human-like capabilities of thinking, learning and making decisions through computers and software. As people strive to simplify their lifestyles based on their needs, technologies built on various programming algorithms have been developed. Scientists have been conducting research in artificial intelligence for many years. Historically, Alan Turing is considered one of the pioneers of research in this field. Artificial intelligence was established as an independent scientific discipline in 1956. Although research in AI has been ongoing since the mid-20th century, public interest increased significantly in 2012 when deep learning demonstrated its superiority over other AI methods [5]. Rapid development of the field has taken place since the introduction of transformer architecture in 2017 [6], [7]. Artificial intelligence has seen massive growth from early 2020 to today, with plenty of companies, universities, and labs making big strides forward.

Artificial intelligence today touches nearly every industry. It has enormous impact on education, health care, transport and logistics, economics and business, information technology and mass media, industry and manufacturing, security and law enforcement, agriculture, and many more fields. Numerous reforms are being implemented through digitalized systems [8], [9].

2. Materials and Methods

In the field of education, intelligent tutoring systems such as ChatGPT, Duolingo, Coursera, and Khan Academy use artificial intelligence to identify students' weaknesses and provide personalized recommendations. In higher education institutions of Uzbekistan, AI-based electronic systems are being introduced to analyze students' academic performance dynamics. Artificial intelligence has brought fundamental changes to the education system. In 2024, more than 47% of the EdTech (Education Technology) market was occupied by AI-based systems. Currently, intelligent tutoring systems (ITS), chatbots, and distance learning platforms enable the individualization of the learning process.

3. Results and Discussion

As a result, the educational process becomes more efficient, teachers' workload is reduced, and personalized learning approaches are provided for each student [10], [11]. Systems for analyzing students' knowledge levels, developing individualized learning programs, generating automated tests and assessments, and supporting learners through voice, video, and text analysis in distance education have been introduced. Consequently, educational quality has improved and data resources have expanded.

Artificial intelligence also plays a distinctive role in healthcare. It is crucial in saving lives through early disease detection, medical image analysis, and treatment optimization. AI systems developed by Google Health and DeepMind can detect retinal diseases with accuracy comparable to medical professionals. In the United States, IBM Watson analyzes cancer cases and recommends treatment methods to physicians. In 2023, a program capable of predicting heart attacks with 85% accuracy was developed in South Korea. Artificial intelligence enables early disease detection, for example, through image analysis in cancer diagnosis [12]. It is widely used in clinical diagnostics, prognosis, and treatment improvement. The use of artificial neural networks in medical AI systems assists physicians in making rapid diagnostic decisions. Furthermore, AI contributes to workforce training, professional development, and the effective use of research-based technologies. Efforts are underway to expand the use of artificial intelligence technologies, improve digital data collection, storage, and processing systems, and train qualified specialists in this field. Increasing the number of skilled professionals is essential for integrating artificial intelligence into science and practice, as expert specialists are the key drivers of AI implementation across sectors. Artificial intelligence may play a crucial role in

combating cancer [13]. It can also be applied in diagnosis, determining disease progression, developing personalized treatment plans based on individual patient characteristics, and advancing personalized medicine. In the future, further development of digital technologies and artificial intelligence is expected to significantly transform human life. These technologies may provide effective solutions to important global challenges such as environmental protection, climate change mitigation, and energy conservation (Figure 1).

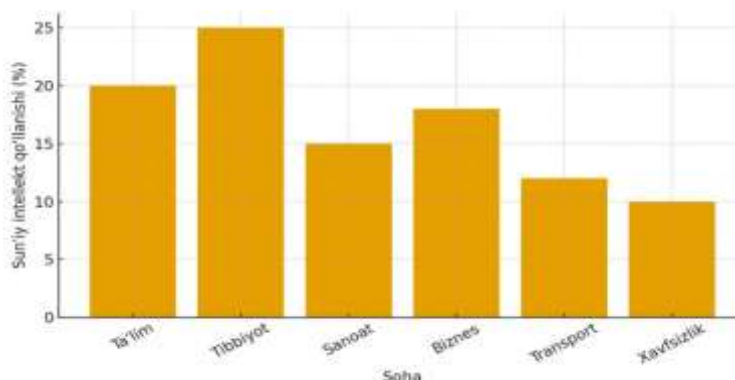


Figure 1. Usage of AI in different spheres

Digital technologies and artificial intelligence have created vast opportunities for further development and achieving higher efficiency across all sectors of society. At the same time, it is crucial to apply these technologies responsibly and cautiously. Artificial intelligence represents one of the greatest achievements of human intellect, but it is also one of its greatest challenges. It can serve as a powerful assistant to humanity; however, under improper management, it may also become a potential source of risk. Thus, whether artificial intelligence becomes beneficial or harmful to human life depends on who uses it and for what purpose. If it serves human well-being, justice, ethical values, and progress, it may become one of the greatest achievements in human history [14], [15]. However, if used without proper oversight and solely for material gain, it could turn into a tool that works against its creator.

Therefore, the most important task of humanity is not merely to create artificial intelligence, but to learn how to govern and manage it responsibly. Artificial intelligence is not only a source of convenience and progress for humanity, but also a powerful technology that requires a responsible and ethical approach..

4. Conclusion

If artificial intelligence (AI) is applied for appropriate purposes and guided by human interests and ethical principles, it can simplify life, accelerate development, and enhance overall well-being. In contrast, if misused or implemented without proper oversight, it may replace human roles and contribute to social, economic, and even moral challenges within society. Therefore, it is not entirely accurate to classify artificial intelligence as inherently “good” or “bad.” In essence, AI is a tool whose impact depends on how it is governed and the objectives for which it is utilized.

AI has the potential to revolutionize industries, make better decisions, and improve efficiency across many spheres of life, including education, health, economics and governance. However, when implemented in a responsible manner, it fosters innovation, improves resource allocation, and allows data-centric solutions to invest in intricate global issues. But this crucial part of AI growth also brings with it urgent challenges — job displacement, data privacy, algorithmic bias, and accountability, to name a few. If there is

no appropriate regulation, AI systems can inadvertently exacerbate inequality or disrupt social cohesion,

Therefore, the next chapter for artificial intelligence will not just be about developing better machines but the ethical framework that comes around them. The real problem humanity faces is not so much building intelligent systems, but having these systems behave in a way that is consistent with the values of society and the well-being of humankind. Ultimately, artificial intelligence should be viewed as a strategic instrument that reflects human intentions. Its benefits or risks are determined not by the technology itself, but by the way it is managed and the purposes it serves.

REFERENCES

- [1] UNESCO, "Artificial Intelligence and Education: Guidance for Policy-makers," 2021. [Online]. Available: <https://unesdoc.unesco.org>
- [2] World Health Organization, "Ethics and Governance of Artificial Intelligence for Health," 2021. [Online]. Available: <https://www.who.int>
- [3] World Economic Forum, "Shaping the Future of Technology Governance: AI," 2023. [Online]. Available: <https://www.weforum.org>
- [4] OpenAI, "ChatGPT Platform Overview," 2024. [Online]. Available: <https://openai.com>
- [5] Lex.uz, "National Legal Framework of Digital Transformation in Uzbekistan," 2023. [Online]. Available: <https://lex.uz>
- [6] Coursera, "Artificial Intelligence Learning Programs," 2024. [Online]. Available: <https://www.coursera.org>
- [7] Khan Academy, "AI in Education Initiatives," 2024. [Online]. Available: <https://www.khanacademy.org>
- [8] Duolingo, "AI-based Language Learning Systems," 2024. [Online]. Available: <https://www.duolingo.com>
- [9] Google Health, "Artificial Intelligence in Medical Diagnostics," 2023. [Online]. Available: <https://health.google>
- [10] DeepMind, "AI for Healthcare Applications," 2023. [Online]. Available: <https://deepmind.google>
- [11] IBM, "Watson Artificial Intelligence in Oncology," 2022. [Online]. Available: <https://www.ibm.com>
- [12] McKinsey & Company, "The State of AI in 2023," 2023.
- [13] OECD, "Artificial Intelligence in Society," 2022.
- [14] European Commission, "Ethics Guidelines for Trustworthy AI," 2021.
- [15] Stanford University, "AI Index Report," 2024.