USING ARTIFICIAL INTELLIGENCE FOR FURTHER SUSTAINABLE ENVIRONMENTAL DEVELOPMENT OF THE WORLD

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Abstract:

Today, the process of development and widespread use of new artificial intelligence technologies is clearly visible, which are becoming a powerful force and can carry, on the one hand, safety and security, and on the other hand, a threat, both for an individual and for of all humanity. This article is devoted to the use of artificial intelligence in the environmental field, which can have a significant role in the success of protecting our planet and its continued existence. Currently, artificial intelligence is capable of helping humanity in many ways, keeping control and analyzing the current situation in the environmental sphere, which is its benefit for professionals and specialists in various fields.

Keywords: Artificial intelligence, ecology, environmental problems, neural network, sustainable development, environment, natural resources, sustainable tourism.

Introduction

Artificial intelligence (hereinafter referred to as AI) is a powerful factor of transformation in various spheres of people's lives - from healthcare to transport, from the service sector to financial systems. With its ability to process massive amounts of data and learn from identified patterns, AI has opened up new opportunities for innovation and efficiency.

Artificial intelligence technologies have enormous potential for solving environmental problems facing humanity. A sharp increase in computing power, the active implementation of artificial intelligence systems and digitalization in general greatly increase the ability to solve environmental problems.

The role of AI in the invention of new technologies and the formation of environmental policy on a global scale is increasing every day. A conscious attitude towards the environment today is the focus of attention of companies, organizations and states. For example, Uzbekistan has been paying special attention to solving environmental problems

American Journal of Interdisciplinary Research and Development
ISSN Online: 2771-8948
Website: www.ajird.journalspark.org
Volume 36, January - 2025

for several years now. 2025 has been declared the Year of Environmental Protection and Green Economy in the country. [6]

A special program has been adopted in which priority attention should be paid to the introduction of "green" technologies, saving water, significantly increasing green areas, mitigating the consequences of the Aral disaster, solving the problem of household waste and, most importantly, strengthening public health.

Artificial intelligence has the potential to revolutionize environmental research by providing new tools and methods for analyzing and modeling ecological systems.

Today we are witnessing the so-called fourth industrial revolution, which not only makes people super-productive thanks to digital technologies, but can also lead to a rethinking of the very concept of "homo sapiens."

In March 2024, the UN General Assembly adopted a resolution on artificial intelligence entitled "Harnessing the Power of Safe, Secure and Reliable Artificial Intelligence Systems for Sustainable Development," proposed by the United States and co-sponsored by 120 states. It states that "safe, secure and reliable artificial intelligence systems can accelerate and drive progress towards all 17 Sustainable Development Goals." [7] And among these goals there are those that relate to solving environmental problems. [9]

The application of artificial intelligence in the environmental field can play an important role in protecting our planet.

LITERATURE REVIEW

Artificial intelligence appeared a long time ago, but people began to talk about it and actively discuss its impact on various spheres of public life only a few years ago. The starting point can be considered the emergence of the Chat GPT platform, which caused a strong reaction not only among young people, but also among professionals in each individual field.

Recently, many works have appeared devoted to the use of AI in solving environmental problems and improving the situation to save the environment.

For example, Gerasina E.V. "The use of artificial intelligence in solving environmental problems." [2] The author drew attention to the advantages of using artificial intelligence in solving environmental problems.

Gubasheva Kh.A. in the work «The Impact of Artificial Intelligence on Environmental Monitoring» [3] raised the questions «What poses a threat to the environment and how can artificial intelligence prevent a global crisis? How artificial intelligence algorithms can analyze patterns and trends that are difficult for humans to identify? What difficulties does artificial intelligence face when conducting environmental monitoring?»

Zhuk A. in the article "The Impact of Artificial Intelligence on the Environment: Hidden Environmental Costs and Ethical and Legal Issues" [4] drew attention to the variety of environmental, ethical and political and legal problems associated with the training, use and development of artificial intelligence, which consumes significant amount of energy

American Journal of Interdisciplinary Research and Development
ISSN Online: 2771-8948
Website: www.ajird.journalspark.org
Volume 36, January - 2025

(mostly from non-renewable sources). And this leads to increased carbon emissions and creates obstacles to further sustainable environmental development.

Semenova A.T. devoted her article "Development of eco-technologies using artificial intelligence" [8] to consideration of issues of development of eco-technologies, their implementation in the field of sustainable environmental development, their connection with artificial intelligence and its role in improving resource management and environmental protection.

Shinkarenko E.D., Vyaltsev A.V. in the article "Artificial Intelligence Technologies for the Protection of Biodiversity" [10] showed the possibilities of using artificial intelligence in the field of ecology. This will allow, given the scale and complexity of the measures necessary to protect the environment, to significantly improve the real capabilities of the state in this area of activity.

RESEARCH METHODS

Based on the specifics of this topic, certain research methods were used. The theoretical basis of the study was the work of domestic and foreign scientists in the field of application of innovative technologies and artificial intelligence, as well as solving environmental problems of environmental protection. The research method was chosen as the main one. The methodological basis of the study was also made up of general scientific methods of cognition, in particular, synthesis, comparative analytical and logical analysis, and systematic analysis of scientific literature on this topic.

DISCUSSION

The modern world is faced with a number of serious problems related to climate change, environmental pollution and depletion of natural resources. In this context, the active adoption of AI significantly enhances human capabilities in solving environmental problems and promoting sustainable development.

Artificial intelligence technologies are demonstrating their capabilities in various areas related to environmental protection. This includes predicting natural disasters, optimizing energy and water consumption, more efficient waste management, monitoring the environmental situation and monitoring compliance with environmental regulations. Machine learning algorithms help identify patterns and trends, analyze data on climate change, and predict its impact on the environment.

Modern technologies make it possible to collect and process huge amounts of information about the state of the environment, which helps make informed decisions to optimize the use of natural resources, reduce pollution and maintain environmental balance. The development and application of artificial intelligence in ecology opens up new horizons for people in the field of environmental protection and sustainable use of natural resources.

In 2018, at the World Economic Forum in Davos, Dr. Celine Germeier, head of the innovation and sustainability department at PwC, gave a presentation that significantly influenced the scientific community's ideas about the possibilities of using artificial

intelligence solutions in the context of ecology. She made the case for more than 80 potential applications of artificial intelligence.

Many large companies in the world today are already closely addressing this issue. For example, since 2018, Microsoft, together with National Geographic, has initiated a grant program whose goal is to develop new solutions based on artificial intelligence technology to regulate environmental problems. Google Corporation, together with the United Nations, has launched a project in which specialists can monitor the environmental situation in real time. In Russia, AI is used to monitor forest fires, track changes in ecosystems and control pollution. AI systems from Microsoft's Project Premonition and Google's Global Fishing Watch are actively used to predict the spread of diseases and control illegal fishing. These systems collect and analyze large amounts of data to help identify problems and propose solutions. The World Environmental Situation Center (WESR) should also be mentioned. The initiative uses AI to analyze complex data sets, offering real-time analysis and forecasts on various environmental factors such as CO_2 concentrations, glacier mass changes and sea level rise. WESR is intended to be a comprehensive platform for monitoring Earth's vital environmental indicators, essentially serving as a "mission control center" for the planet.

The use of artificial intelligence has already been reflected in such industries and areas as waste disposal, economical use of electricity, water and other resources, monitoring and prediction of emissions of harmful substances, early warning systems for natural disasters, compiling an inventory of the state of biological resources, identifying sources and causes of pollution, assistance in preserving rare species of animals and plants, optimizing resource purification processes, etc. However, for now he acts exclusively as an assistant, a "right hand," but not as a sole subject capable of independently calculating, predicting, drawing conclusions and making decisions. An environmental catastrophe can only be prevented through joint efforts; AI at this stage of development is not equipped with the appropriate functions.

Recently, the field of sustainable tourism has attracted great interest - the introduction of environmentally friendly practices in the tourism industry. Its main goal is to ensure that tourism can be supported in the long term without compromising natural and cultural resources, and to bring economic and social benefits to the local population. One of the main aspects of sustainable tourism is environmental responsibility, i.e. focusing on resource conservation, pollution reduction and biodiversity protection.

As tourism and travel grow in tandem, sustainability is expected to be taken into account along with it. In the future, AI will therefore help create more sustainable travel practices by optimizing resource use, reducing waste and promoting green travel options. For example, AI can help plan more efficient travel routes to minimize your carbon footprint.

The roots of sustainability in AI-powered tourism come from growing awareness of climate change and environmental degradation, as well as the development of AI and big data technologies, which have enabled the development of sophisticated tools that can optimize resource use and reduce waste.

Today, there are already companies that have already begun integrating AI to promote sustainability in tourism. Examples include Lufthansa and Qantas, which are using AI to plan more efficient travel routes that minimize fuel consumption and carbon footprint.

Hotels and resorts are also using AI to monitor and optimize the use of resources such as water and energy, thereby reducing waste. For example, Hilton uses AI-powered systems to manage energy consumption across all of its properties.

In addition, AI-driven platforms provide travelers with recommendations for sustainable accommodations, transportation and entertainment. Platforms such as Google Travel now include information about the environmental impact of travel options.

Uzbekistan does not remain aloof from solving many environmental problems. "Air and water pollution, soil erosion, desertification, uncontrolled use of fossil fuels lead to global warming, an increase in the number of natural disasters and damage the environment and public health," notes President of Uzbekistan Sh.M. Mirziyoyev. [6]

In response to these challenges, in November 2021, on the initiative of President Sh. Mirziyoyev, the national project "Yashil Makon" ("Green space") was launched throughout the country, the goal of which is to preserve natural resources and ensure ecological diversity. In continuation of the work of this project, Decree of the President of the Republic of Uzbekistan dated November 23, 2023 No. 199 "On measures to ensure environmental sustainability by further increasing the level of landscaping in the republic and the consistent implementation of the nationwide project "Yashil Makon" ("Green space") was adopted.

The implementation of the Regional Climate Strategy has begun jointly with neighboring countries. The University of Central Asia for the Study of Climate Change and the Environment has been established in Tashkent.

On November 12, 2024, the President of the Republic of Uzbekistan spoke at the United Nations Climate Change Conference (COP29), where he noted: "Our main goal within the framework of the Paris Agreement is to prevent an accelerated increase in air temperature in the region, keeping it within 1.5- 2 degrees this century. In this regard, we in Uzbekistan are decisively implementing large-scale reforms to achieve carbon neutrality. By 2030, we plan to reduce greenhouse gas emissions by 35 percent. We are ready to expand these commitments by 2050. We intend to increase the share of "green" energy to 40 percent. We create clusters of electric vehicles and "green" hydrogen, solar and wind generation hubs. As part of the Yashil Makon ("Green space") program, we are expanding green space." [1] He made concrete proposals to overcome the consequences of global climate change. [1]

A framework agreement was also approved between the Republic of Uzbekistan and the European Bank for Reconstruction and Development on the conduct of operations under the Environmental Rehabilitation Account for Central Asia in the Republic of Uzbekistan [5]

CONCLUSION

The integration of AI and digitalization systems in solving environmental problems is currently under active development. The use of AI in the environmental sector is evolving thanks to both government initiatives and private sector innovation. The key factors, in our opinion, are national priorities in the field of technological development, environmental protection and recognition of the potential of AI to improve efficiency and decision making. The desire for sustainable development and solving environmental problems encourages the world to develop and implement new innovative projects.

Thus, developments in the field of artificial intelligence are already being actively used to protect the environment. In the future, there is their further spread, thanks to which people will be able to reduce the anthropogenic load on nature.

The use of AI in ecology can help improve the process of monitoring and protecting the environment. It helps improve the accuracy and reliability of environmental data analysis results and reduce the costs of environmental research. It also contributes to better management of natural resources and environmental protection.

However, it must be taken into account that programs cannot completely replace the human factor in environmental work. Ecologists still have to carry out the work manually and monitor the results of the research work.

With the introduction of AI into our lives, we must understand that its use must be both ethical and environmentally friendly. Organizations related to AI need to be guided by the principle of proportionality and give preference to energy- and resource-efficient methods, including in terms of data volumes. But if the use of AI entails "disproportionate negative impacts on the environment," then it should be abandoned. Those. industry, researchers, politicians and states, public organizations will have to find a balance between positive and negative impacts on the environment and provide an integrated approach to the development of AI. Experts propose to develop a regulatory framework to regulate AI in the field of ecology and encourage companies to implement natural resource conservation programs. Today, there is a need for an interdisciplinary approach and the importance of competent implementation of AI in various fields of activity for maximum impact on the development of society and the economy.

It is now clear that artificial intelligence technologies provide exciting opportunities to rethink how people interact with the natural world and provide tools to better monitor and manage the environment and natural resources to meet the needs of industry and society.

REFERENCES

1. Speech by the President of the Republic of Uzbekistan at the United Nations Climate Change Conference (COP29), 11/12/2024. - https://president.uz/ru/lists/view/7690
2. Gerasina E.V., Selina M.A. // Young scientist. - 2023. - No. 46 (493). — P. 463-465. — URL: https://moluch.ru/archive/493/107866/
3. Gubasheva Kh.A. // Scientific and technical bulletin of the Volga region. - 2023. - No. 11. - P. 165-167. - URL: https://www.elibrary.ru/item.asp?id=55665946

4. Zhuk A. // Journal of Digital Technologies and Law. - 2023. - T. 1, No. 4. - P. 932-954. - URL: https://elibrary.ru/item.asp?id=56570603

5. Resolution of the President of the Republic of Uzbekistan No. PP-3078 dated June 21, 2017 on the approval of an international treaty. 06/22/2017. - https://president.uz/ru/lists/view/676)

6. The President proposed declaring 2025 the Year of Environmental Protection and Green Economy. - https://www.gazeta.uz/ru/2024/11/20/2025-year/

7. UN General Assembly Resolution "Using the capabilities of safe, secure and reliable artificial intelligence systems for sustainable development" - A_RES_78_265-RU.pdf

8. Semenova A.T., Beloded N.I. // Breakthrough scientific research as the engine of science: collection of articles of the International Scientific and Practical Conference. - Ufa, 2023. - pp. 39-41. - URL: https://www.elibrary.ru/item.asp?id=54789532

9. Sustainable Development Goals https://www.un.org/sustainabledevelopment/ru/sustainable-development-goals/

10. Shinkarenko E., Vyaltsev A.V. // Modern problems of ecology and industrial safety: collection of materials of the II All-Russian scientific and technical conference. - Novocherkassk, 2023. - pp. 77-79. - URL: https://www.elibrary.ru/item.asp?id=54173529.