ROLE, SIGNIFICANCE AND DEVELOPMENT OF ARTIFICIAL INTELLIGENCE IN MODERN SOCIETY

Bozorova Irina Jumanazarovna
Doctor of Philosophy in Economic Sciences (PhD), Acting Associate Professor
(Orcid ID: 0009-0009-0699-0125)

Abstract. The article discusses the role, significance and prospects for the development of artificial intelligence (AI) in modern society. Its impact on the economy, healthcare, education and other areas of life are described. Particular attention is paid to the social and ethical aspects of using AI, as well as potential challenges related to automation and data security. Promising areas of AI technology development are analyzed, including explainable artificial intelligence, quantum computing and the Internet of Things. Keywords: artificial intelligence, automation, machine learning, neural networks, cybersecurity, quantum computing, AI ethics, digital transformation.

РОЛЬ, ЗНАЧЕНИЕ И РАЗВИТИЕ ИСКУССТВЕННОГО ИНТЕЛЛЕКТА В СОВРЕМЕННОМ СОЦИУМЕ

Ирина Жуманазаровна Бозорова
Доктор философии по экономическим наукам (PhD), и.о.доцента
(Orcid ID: 0009-0009-0699-0125)

Аннотация. В статье рассматриваются роль, значение и перспективы развития искусственного интеллекта (ИИ) в современном обществе. Описаны его влияние на экономику, здравоохранение, образование и другие сферы жизни. Особое внимание уделяется социальным и этическим аспектам

использования ИИ, а также потенциальным вызовам, связанным с автоматизацией и безопасностью данных. Анализируются перспективные направления развития технологий ИИ, включая объяснимый искусственный интеллект, квантовые вычисления и Интернет вещей.

Ключевые слова: искусственный интеллект, автоматизация, машинное обучение, нейронные сети, кибербезопасность, квантовые вычисления, этика ИИ, цифровая трансформация.

Artificial intelligence (AI) is one of the fastest growing technologies of our time, significantly affecting various areas of society. From automating routine processes to developing complex analytical systems, AI is transforming the economy, medicine, education, industry, and everyday life. This article will look at the role and significance of artificial intelligence, as well as the prospects for its further development.

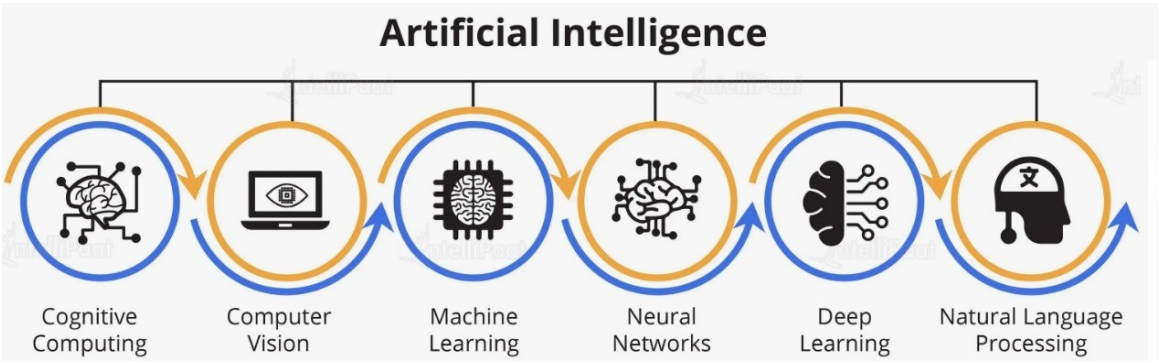
The role of artificial intelligence in modern society. AI plays a key role in the modernization of many areas of activity. In the economy, it helps increase labor productivity, reduce costs, and optimize business processes. In industry, intelligent systems help automate production, which increases its efficiency and reduces the level of errors. In healthcare, AI is used to diagnose diseases, create personalized treatments, and manage medical data.

In addition, artificial intelligence is actively being introduced into education. Intelligent systems help develop personalized learning programs, adapt the educational process to the individual needs of students, and improve the quality of distance education. In everyday life, AI manifests itself in the form of voice assistants, intelligent recommendation systems, navigation services, and automated security systems.

The Importance of Artificial Intelligence. The importance of artificial intelligence cannot be overestimated, as it not only facilitates the execution of complex tasks, but also opens up new horizons in scientific research, business and

the social sphere. One of the most important aspects is the ability of AI to analyze large volumes of data, identify patterns and offer optimal solutions. This is especially relevant in the field of financial market forecasting, risk management and cybersecurity. AI also has important social significance. It can be used to develop intelligent environmental monitoring systems, predict natural disasters and manage resources more efficiently. In the medical field, artificial intelligence facilitates the early diagnosis of dangerous diseases, which increases the chances of successful treatment.

However, despite all the advantages, AI technologies also give rise to a number of ethical and social issues. For example, the automation of many processes can lead to job losses and increased social inequality. There are also concerns about data privacy and the possible abuse of AI technologies in the field of surveillance and control.



Pic. 1. Schematic diagram illustrating the key areas of Artificial Intelligence (AI)

The image is a schematic diagram illustrating the key areas of Artificial Intelligence (AI) under the heading "Artificial Intelligence." The diagram comprises six main components, interconnected by guiding lines that emphasize their interrelation within a unified framework.

Each component is represented as an individual circle containing an icon symbolizing the specific area, with the name of the area displayed below:

•**Cognitive Computing:** Depicted with a brain surrounded by digital lines, symbolizing computational processes and the modeling of human thought and decision-making.

•**Computer Vision:** Represented by an icon of a computer with an eye on the screen, symbolizing the ability of computers to analyze and interpret visual data, including images and videos.

•**Machine Learning:** Shown with an icon of a brain embedded in a microchip, emphasizing the connection of machine learning to data processing and the training of algorithms.

•**Neural Networks:** Illustrated with a network of interconnected dots, representing the architecture of artificial neural networks that mimic the functioning of the human brain.

•**Deep Learning:** Depicted as a stack of neural layers, highlighting complex multi-layered algorithms used for analyzing large data sets.

•**Natural Language Processing (NLP):** Shown with a head and a microphone icon, symbolizing the processing of natural language for understanding, interpreting, and generating text.

Each component is encased in a ring with a yellow-to-blue gradient, visually unifying them into a cohesive system. The guiding arrows emphasize the dynamic and integrated nature of AI processes.

The diagram employs a minimalist design, focusing on clarity and the logical interconnection of elements, making it an effective visual aid for educational or scientific materials on modern AI technologies.

Prospects for the development of artificial intelligence. Modern research in the field of artificial intelligence is aimed at improving machine learning algorithms, developing neural networks and creating more adaptive and ethically safe technologies. One of the main areas is the development of Explainable AI systems, which will allow better understanding and control of the decision-making process of artificial intelligence.

In addition, active work is underway to integrate AI into such promising technologies as quantum computing and the Internet of Things (IoT). Quantum computers combined with artificial intelligence can significantly speed up data processing and solving complex problems. And the interaction of AI with IoT will allow the creation of smart cities, where the infrastructure will adapt to the needs of residents in real time.

The development of artificial intelligence also requires the creation of new legislative norms and ethical standards governing the use of technologies. This will minimize potential threats and make AI safer for society. Artificial intelligence plays an important role in modern society, significantly changing many areas of life. Its importance lies in increasing work efficiency, improving the quality of medical services, modernizing education, and much more. However, the development of AI is accompanied by a number of challenges related to ethical issues, data security, and the social consequences of automation. In the future, further improvement of AI technologies and their deeper integration into various aspects of life are expected, which will make society more technologically advanced and innovative.

REFERENCES:

1. Bozorova, I. (2022). ELECTRONIC EDUCATIONAL RESOURCE AS A MODERN DIDACTIC LEARNING TOOL. *Евразийский журнал математической теории и компьютерных наук*, *2*(4), 26-30.

2. Ergash o'g'li, Q. F., & Jumanazarovna, B. I. (2020). METHODS OF DISPLAYING MAIN MEMORY ON CACHE. *Ответственный редактор*, 6.

3. Daminova, B. E., Bozorova, I. J., Badritdinova, F. T., & Sh, B. S. (2024). METHODOLOGICAL ASPECTS OF THE USE OF INTERACTIVE DIGITAL TECHNOLOGIES IN TEACHING A FOREIGN LANGUAGE. *Экономика и социум*, (5-1 (120)), 237-240.

4. Бозорова, И. (2024). Сущность, содержание и значение категории “цифровая экономика”. *YASHIL IQTISODIYOT VA TARAQQIYOT*, *2*(9).

5. Esanovna, D. B. ELECTRONIC TEXTBOOK AS A BASIS FOR INNOVATIVE TEACHING. *MAVZUSIDAGI XALQARO ILMIY-AMALIY ANJUMAN*, 660.

6. Student, M. D., Student, N. H., & Student, J. K. (2024). THE ROLE OF MODERN INFORMATION AND COMMUNICATION TECHNOLOGIES IN TEACHING LESSONS IN MATHEMATICS AND COMPUTER SCIENCE. *Экономика и социум*, (2-2 (117)), 88-93.

7. Bozorova, I. J., Sh, M. F., & Rustamov, M. A. (2020). NEURAL NETWORKS. NEURAL NETWORKS: TYPES, PRINCIPLE OF OPERATION AND FIELDS OF APPLICATION. *РОЛЬ ИННОВАЦИЙ В ТРАНСФОРМАЦИИ И УСТОЙЧИВОМ РАЗВИТИИ СОВРЕМЕННОЙ*, *130*.

8. Bozorova, I. J. (2020). METHODS OF PROCESSING AND ANALYSIS OF BIO SIGNALS IN ELECTROCARDIOGRAPHY. *ПРОБЛЕМЫ СОВРЕМЕННЫХ ИНТЕГРАЦИОННЫХ ПРОЦЕССОВ И ПОИСК ИННОВАЦИОННЫХ РЕШЕНИЙ*, 97-99.

9. Бозорова, И. Ж. (2020). СОЗДАНИЕ ПРОГРАММНОГО ОБЕСПЕЧЕНИЯ ЭЛЕКТРОННОЙ БИБЛИОТЕЧНОЙ СИСТЕМЫ НА ОСНОВЕ QR-КОДОВОЙ ТЕХНОЛОГИИ. In *ТЕОРИЯ И ПРАКТИКА СОВРЕМЕННОЙ НАУКИ* (pp. 26-28).

10. Бозорова, И. Ж. (2020). Принцип работы электрокардиографа и его роль в современной медицине. In *научные достижения студентов и учащихся* (pp. 25-27).

11. Бозорова, И. Ж. (2023). Учёт методов оценки товарно-материальных запасов. *INNOVATSION IQTISODIYOTNI SHAKLLANTIRISHDA AXBOROT KOMMUNIKATSIYA TEXNOLOGIYALARINING TUTGAN O ‘RNI*, *1*(1).

12. Бозорова, И. Ж. (2024). МЕСТО И РОЛЬ ИНФОРМАЦИОННО-КОММУНИКАЦИОННЫХ ТЕХНОЛОГИЙ В ЭКОНОМИЧЕСКИХ ПРОЦЕССАХ. *Экономика и социум*, (2-1 (117)), 910-915.

13. Bozorova, I. (2023). Features of information systems of economic accounting of material and technical assets. *Science and innovation*, *2*(A6), 345-348.

14. Бозорова, И. Ж. (2023). Принятие решений в сфере финансов в условиях цифровой трансформации. *Экономика и социум*, (1-2 (104)), 603-606.

15. Jumanazarovna, B. I. (2023). The Use of Digital Technologies in the Process of Improving Economic Systems for Accounting for Inventory Items. *Miasto Przyszłości*, *36*, 62-65.