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ӨНЕРДЕГІ ЖАСАНДЫ ИНТЕЛЛЕКТ: СЫН-ҚАТЕРЛЕР МЕН МҮМКІНДІКТЕР

Аннотация

Мақала жасанды интеллекттің (ЖИ) қарқынды дамуын, оның қазіргі қоғамға әсерін талдауға және адам мен жасанды интеллект арасындағы болашақ өзара әрекеттесуді болжауға арналған. Автор жасанды интеллект тек жаңа технология емес, адам өмірінің барлық салаларын терең қайта құруды талап ететінін атап көрсетеді. Мақалада шектеулі интеллектке дейінгі әртүрлі жасанды интеллект түрлері егжей-тегжейлі қарастырылады. Сонымен қатар, автор жасанды интеллекттің дамуымен байланысты этикалық және әлеуметтік сын-қатерлерге назар аударады. Мысалы, автоматтандыру салдарынан жұмыс орындарының жоғалуы, кемсітушілік пен технологияға қол жетімділіктің теңсіздігі. Мақаланың қорытындысында технологиялық және этикалық аспектілерді қамтитын жасанды интеллектті дамыту мен пайдалануға кешенді көзқарас қажеттілігі атап өтіледі. Автор жасанды интеллектті зерттеуге инвестициялауды жалғастыруға, технологияны жауапкершілікпен пайдалану шеңберін қалыптастыруға және адам мен жасанды интеллекттің болашағы туралы кең қоғамдық диалогқа шақырады.

Түйінді сөздер: жасанды интеллект, трансформация, алгоритм, прогресс, даму.

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ИСКУССТВЕННЫЙ ИНТЕЛЛЕКТ В ИСКУССТВЕ: ВЫЗОВЫ И ВОЗМОЖНОСТИ

Аннотация

Статья посвящена анализу стремительного развития искусственного интеллекта (ИИ), его влияния на современное общество и прогнозу будущего взаимодействия человека и ИИ.

Автор подчеркивает, что ИИ является не просто новой технологией, а претендует на глубокое преобразование всех сфер жизни человека. В статье подробно рассматриваются различные виды ИИ, от ограниченного до суперинтеллекта. Однако автор также акцентирует внимание на этических и социальных вызовах, связанных с развитием ИИ, таких как потеря рабочих мест вследствие автоматизации, возможность дискриминации и неравенства в доступе к технологиям. В заключении статьи подчеркивается необходимость комплексного подхода к развитию и использованию ИИ, включающего технологические и этические аспекты. Автор призывает к продолжению инвестирования в исследования ИИ, формированию рамки ответственного использования технологий и к широкому общественному диалогу о будущем взаимодействия человека и ИИ.

Ключевые слова: *искусственный интеллект, трансформация, алгоритмы, прогресс, развитие.*

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ARTIFICIAL INTELLIGENCE IN ART: CHALLENGES AND OPPORTUNITIES

Annotation

The article is devoted to the analysis of the rapid development of artificial intelligence (AI), its impact on modern society and the prediction of future human-AI interaction. The author emphasizes that AI is not just a new technology, but claims to be a profound transformation of all spheres of human life. The article discusses in detail various types of AI, from limited to superintelligence. However, the author also focuses on the ethical and social challenges associated with the development of AI, such as job losses due to automation, the possibility of discrimination and inequality in access to technology. In conclusion, the article emphasizes the need for an integrated approach to the development and use of AI, including technological and ethical aspects. The author calls for continued investment in AI research, the formation of a framework for the responsible use of technology, and a broad public dialogue about the future of human-AI interaction.

Key words: *artificial intelligence, transformation, algorithm, progress, development.*

Introduction. The rapid advancement of artificial intelligence (AI) is reshaping the modern world,

unlocking unprecedented opportunities for innovation and strategic development. As AI becomes increasingly integrated into every aspect of our lives, it is not only driving significant societal transformations but also presenting complex challenges that demand thoughtful consideration.

This article seeks to explore the dynamic evolution of AI, focusing on the major challenges it poses and the opportunities it offers in today's world. By examining the role of AI in shaping consumer behavior and societal trends, the article aims to shed light on how its potential can be harnessed for the benefit of humanity.

In addition to providing a critical overview of the obstacles and possibilities associated with AI, this work aspires to inspire further academic research and inquiry into this rapidly evolving field.

Research materials and methods. This scientific article employs theoretical and methodological review and analysis techniques. A comprehensive review of existing scientific and practical works on artificial intelligence was conducted, identifying key trends and examples from practice. These were subsequently analyzed to formulate major conclusions and recommendations.

This approach allowed for the synthesis of information from diverse research studies, creating a comprehensive view of the topic based on scientific publications and real-world examples.

A review of the literature on the topic. The issue under consideration is well-researched in scientific literature. For the purposes of this article, the works of R. Makov (2023), A. Postolit (2022), P. Domingos (2016), T. Hastie and D. Friedman (2020), and M. Chichileishvili (2024), among others, were utilized.

R. Makov, in his book Artificial Intelligence: The Beginning of a New Technological Revolution: Challenges and Opportunities, offers an in-depth exploration of the world of AI, highlighting its potential, capabilities, and undeniable impact on daily life, the economy, and society as a whole (Makov 2023). This book serves as a powerful tool for understanding and adapting

to a new reality where AI becomes an integral part of our existence.

In Foundations of Artificial Intelligence in Python Examples, A. Postolit emphasizes that "algorithms govern our lives. They find books, movies, jobs, and partners for us, manage our investments, and develop new medicines. These algorithms are increasingly being trained on the vast datasets we leave behind in today's digital world" (Postolit 2022).

Pedro Domingos describes machine learning as a transformative force, stating, "Machine learning allows smart robots and computers to program themselves. It is one of the most significant modern technologies and one of the greatest enigmas" (Domingos 2016).

Results of the study. Over the past decade, there has been an explosion in the fields of computing and information technology. Alongside this growth, vast amounts of data have emerged in various domains such as medicine, biology, finance, and marketing. The challenge of interpreting this data has led to the development of new statistical tools and has given rise to emerging scientific disciplines, including data mining, machine learning, and bioinformatics. The works of T. Hastie and D. Friedman provide a unified theoretical framework that describes critical ideas in these fields (2020).

The OECD defines artificial intelligence (AI) systems as "machine systems capable of influencing their environment by producing outputs (predictions, recommendations, or decisions) to achieve a set of objectives." These systems utilize machine and/or human-generated data and inputs to perceive real and/or virtual environments; analyze these perceptions either automatically (e.g., via machine learning) or manually to integrate them into a model; and use the outputs derived from the model to formulate options (Organization for Economic Cooperation and Development 2024).

Realizing the potential of AI is impossible without properly understanding and managing these challenges. J. Mokyr underscores the historical significance of this issue, noting that sustained economic growth since the

start of the Industrial Revolution around 1750 was not only driven by tangible inventions but also by how we understood and managed them (Mokyr 2005, 1113–1180).

The article by Bianchini and colleagues explores the application of neural networks and artificial intelligence in scientific research. By proposing the concept of a new general method of invention, they expand the possibilities of AI in this domain (Bianchini, Müller, and Pelletier 2022).

Discussion of results. Artificial intelligence (AI) is not just another emerging technology; it is a transformative invention that can be compared to epochal innovations like electronics, computers, and the internet in terms of its potential impact on civilization. However, its influence might be even more profound and far-reaching. Unlike previous technologies, which merely served as tools in human hands, AI has the potential to create systems that could surpass our cognitive capabilities in the future (Makov 2023).

AI is undergoing an unprecedented phase of progress, reshaping the world at an unparalleled speed. Each day, algorithms are becoming more complex and powerful, marking significant advances in research. From healthcare and education to the production of artistic works, AI is penetrating all spheres of life. We are witnessing the emergence of personalized recommendations, smart homes, and new professional tools, which showcase the breadth of AI's influence (Hastie, Tibshirani, and Friedman 2020). Its dynamic development introduces new opportunities and challenges that require careful analysis and a rational approach.

However, alongside its enormous potential to improve human life, the rapid development of AI also brings about numerous challenges. One of the key issues is ensuring the ethical and responsible use of AI. It is crucial to guarantee that algorithms do not harm individuals or cause unintended negative consequences. Additionally, concerns arise about job displacement due to automation and inequalities in access to AI technologies. Addressing these and other questions requires thorough research and the development of

appropriate strategies to build a fair and secure future with AI.

AI can be categorized into three main types. The first is narrow artificial intelligence, which consists of software-hardware systems specialized in specific domains. For instance, a computer program can defeat a world chess champion, but this ability is limited to that domain. The second type is general artificial intelligence, which comprises systems capable of performing tasks similar to humans. General AI can replicate human cognitive abilities, such as acquiring data, extracting relevant information from data streams, comparing different solutions, learning quickly, and applying accumulated experience. The third type is artificial superintelligence, which surpasses human capabilities in all domains, including scientific discoveries, general knowledge, and social skills.

Currently, humanity is successfully integrating elements of AI across various sectors. Examples include self-driving cars that detect and respond to obstacles, navigation systems that accept route instructions via voice control, and spam filters in email that not only identify spam but also analyze prior experiences and user preferences to sort emails into specific folders. Another classic example of AI is a translator, which performs highly specific tasks with exceptional precision. AI is also applied in text recognition, voice recognition, text-to-speech conversion, and more (Postolit 2022).

Realizing AI's potential for the benefit of humanity requires a comprehensive approach that includes technological and ethical considerations. It is essential to develop AI algorithms that are not only efficient but also safe and neutral (Domingos 2016). Special attention should be given to creating AI systems capable of addressing global challenges, such as combating climate change, ensuring access to clean water and energy, and improving healthcare and education.

Raising public awareness about the opportunities and challenges associated with AI is equally important. Engaging broader populations in the development of ethical principles and norms for AI use can foster a transparent and sustainable framework for its growth.

Through this approach, AI can be harnessed to build a just, prosperous, and sustainable future for the benefit of humanity.

Our lives are increasingly intertwined with algorithms. They are not only present in smartphones and computers but also embedded in cars, household appliances, and even toys. Algorithms manage airplanes, production lines, supply chains, and accounting systems. If these algorithms were to suddenly stop functioning, the consequences for the world would be catastrophic. Thus, even though we may not always be aware of their influence, algorithms have become an integral part of modern civilization. They enhance the comfort, efficiency, and safety of our lives, and their role will only grow in the future. However, this development must be accompanied by responsibility. We must ensure the safety and reliability of algorithms, develop their ethical dimensions, and guarantee that AI serves the benefit of humanity through responsible usage.

Conclusion. The modern dynamics of artificial intelligence (AI) development present an unprecedented opportunity to transform the world for the better. AI offers immense potential for addressing global challenges, improving the quality of life, and opening new horizons across various fields of activity. However, with this progress comes great responsibility. It is crucial to ensure the safety, ethics, and transparency of AI applications to prevent new risks and problems while ensuring that AI serves the benefit of humanity.

To realize its full potential, it is necessary to continue investing in AI research and development for the benefit of humanity, establish frameworks for the responsible use of technologies, and engage in widespread discussions about the ethical and social aspects of AI development. Only through collaboration among scientists, engineers, policymakers, and society at large can AI be transformed into a powerful force for good, building a fair, prosperous, and sustainable future for all.

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