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*«Искусственный интеллект в пространстве современного искусства: проблемы и перспективы»
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DEVELOPMENT PERSPECTIVES OF ARTIFICIAL INTELLIGENCE AND ITS IMPACT ON OUR CULTURAL HERITAGE

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Abstract

Artificial intelligence (AI) is the one of the fast changing several fields, including such as asset management and cultural affairs. The ongoing development of AI technologies that claims lots of opportunities, offers new tools for the preservation, promotion, and restoration of individual and global cultural assets. In Azerbaijan, a country rich with historical and cultural heritage, AI tools has the potential to play a pivotal role in ensuring the sustainability and accessibility of national treasures and collaborations. This paper discusses the general cultural and techno-psychological development perspectives of AI and examines how its advancements can influence Azerbaijan's cultural heritage landscape. Through the integration of AI-based approaches such as digitization of history, virtual reality of ancient era, and predictive analysis of civilization status, Azerbaijan can preserve its historical legacy while promoting it on global platforms.

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Süni intellektinin inkişaf perspektivləri və onun mədəni irsimizə təsiri

Xülasə

Süni intellekt (Sİ) aktivlərin idarə edilməsi və mədəniyyət kimi sürətlə dəyişən bir neçə sahədən biridir. Müxtəlif səviyyəli imkanlar tələb edən süni intellekt texnologiyalarının davamlı inkişafı fərdi və global mədəni sərvətlərin qorunması, təşviqi və bərpası üçün yeni alətlər təklif edir. Tarixi və mədəni irslə zəngin bir ölkə olan Azərbaycanda süni intellekt vasitələri milli sərvətlərin və əməkdaşlığın davamlılığının və əlçatanlığının təmin edilməsində mühüm rol oynamaq potensialına malikdir. Bu məqalə süni intellektin ümumi mədəni və texno-psixoloji inkişaf perspektivlərini müzakirə edir və onun irəliləyişlərinin Azərbaycanın mədəni irs mənzərəsinə necə təsir edə biləcəyini araşdırır. Tarixin rəqəmsallaşdırılması, antik dövrün virtual reallığı və sivilizasiyanın statusunun proqnozlaşdırılan təhlili kimi süni intellektə əsaslanan yanaşmaların inteqrasiyası vasitəsilə Azərbaycan öz tarixi irsini qoruyub saxlaya, eyni zamanda onu global platformalarda təbliğ edə bilər.

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Атиф Намазов
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Перспективы развития искусственного интеллекта и его влияние на наше культурное наследие

Аннотация

Искусственный интеллект (ИИ) является одной из быстро меняющихся областей, включая такие, как управление активами и культурные вопросы. Продолжающееся развитие технологий ИИ, которое требует множества возможностей, предлагает новые инструменты для сохранения, продвижения и восстановления индивидуальных и глобальных культурных ценностей. В Азербайджане, стране, богатой историческим и культурным наследием, инструменты ИИ могут сыграть ключевую роль в обеспечении устойчивости и доступности национальных сокровищ и сотрудничества. В этой статье обсуждаются общие культурные и техно-психологические перспективы развития ИИ и рассматривается, как его достижения могут повлиять на ландшафт культурного наследия Азербайджана. Благодаря интеграции подходов на основе ИИ, таких как оцифровка истории, виртуальная реальность древней эпохи и предиктивный анализ статуса цивилизации, Азербайджан может сохранить свое историческое наследие, продвигая его на глобальных платформах.

Keywords: Artificial Intelligence, Cultural Heritage, AI in Culture, Virtual Restoration.

Açar sözlər: Süni İntellekt, mədəni irs, mədəniyyətdə SI, virtual bərpa.

Ключевые слова: Искусственный интеллект, культурное наследие, ИИ в культуре, виртуальная реставрация.

Introduction

Artificial Intelligence is without doubt one of the most gamechanging technological developments of 21st century. AI also permeates nearly every facet of our world, from healthcare, education, psychology, art to business and government levels. Cultural heritage, one of the least trending yet highly impactful grounds on which AI is starting to make a mark is on the realm of cultural heritage. The application of AI can provide rather easy solutions to the tasks concerning digitization, analysis as well as preservation, too dissemination of our cultural heritage. With its rich history spanning thousands years, unique traditions and religions fallback centuries in Azerbaijan has various music dances songs Azerbaijan has differing music songs dances etc.

Cultural heritage encompasses tangible, such as monuments, manuscripts, artifacts and intangible, like oral literature, music, traditions, folklore, and language elements that express the historical and cultural identity of a ancestors. For Azerbaijan, which has been at the crossroads of various civilizations, the Silk Road, Islamic, Turkic, and Caucasian cultures for millennia, the preservation of cultural heritage is of strategic importance in terms of transmitting national identity and collective memory to future generations. However, the challenges of the 21st century create a number of problems in the management of cultural heritage: urbanization and modernization can result in the disappearance of many tangible monuments and traditional forms of life; climate change and environmental degradation accelerate the destruction of fragile heritage samples; globalization and digital media can cause local cultures to fade into the background in the face of global cultural models; limited financial and technical resources make it difficult to document, restore, and protect

many cultural objects. . In addition, the application of artificial intelligence in the field of cultural heritage is in line with global trends promoted by international organizations such as UNESCO, ICOMOS, and Europeanana.

Development Perspectives of Artificial Intelligence:

The development of AI is reflected not only in the complexity and computational power of algorithms, but also in the diversity of its applications and the potential for social impact. The trends observed in the field of AI indicate that in the near future this technology will penetrate more deeply into all areas of public life, including science, healthcare, education, industry and culture. In modern times, the development of AI is mainly concentrated in three directions: the improvement of learning algorithms (machine learning and deep learning), the development of systems that can interact naturally with humans (speech and language processing technologies), and the expansion of systems that can visually analyze the environment (computer vision). These technologies have already begun to be applied in real life in various forms. For example, they are widely used in medicine to increase the accuracy of diagnostics, in transport to control autonomous vehicles, and in industry to automate and optimize production processes.

Whereas, the issue of making artificial intelligence systems more reliable and explainable is also relevant. In particular, the justification of decisions and the assessment of the social consequences of these decisions are widely discussed in the ethical and legal sphere. This also shows that the development of AI should be accompanied not only by technical progress, but also by the formation of ethical and normative frameworks.

For last ten years, the development of generative artificial intelligence – that is, models capable of generating new information, images, text or sound – has been particularly striking. These technologies open up innovative opportunities in areas such as artistic creation, literary analysis, language reconstruction and even visual simulation of historical events. At the same time, multimodal artificial intelligence models – that is, systems that can simultaneously work on different types of information such as text, sound and image – create conditions for a more comprehensive analysis of the complexity of human culture. One of the prospects for the development of artificial intelligence is its integration with physical technologies. This has led to the emergence of applications in conjunction with autonomous robotics, intelligent sensor systems and reality technologies (augmented and virtual reality). Such technological synergy expands the possibilities of practical application of AI not only at the software level, but also in the real world, together with the Internet of Things (IoT), drone technology and sensor-based monitoring systems.

All these development trends present artificial intelligence not only as a technical tool, but also as a fundamental tool for simulating and improving human activity. For this reason, the development of AI also creates new perspectives and opportunities in the field of culture and cultural heritage. Cultural assets is a strategic area in terms of preserving, studying and delivering to society tangible and intangible values formed throughout history and passed down from generation to generation. The development of artificial intelligence technologies can lead to a number of innovations in this area: automation of archiving and documentation processes, virtual reconstruction of lost or damaged cultural objects, decoding of rare manuscripts, restoration of ancient languages and dialects, digital preservation and analysis of folklore and musical heritage are of particular importance in this regard. Thus, the development prospects of artificial intelligence are not limited to technological advances; it also allows for the preservation, transmission, and re-presentation of

cultural values in new ways. For countries with a rich historical and cultural diversity like Azerbaijan, this can become an important tool in preserving national heritage and promoting it to the world.

AI development impacts on Azerbaijan Cultural Heritage:

Azerbaijani culture has a rich historical past, diverse cultural heritage formed under the influence of various civilizations, and intangible values that differ across regions. This heritage includes monuments, archaeological finds, manuscripts, folk music, crafts, folklore, and traditional knowledge. In the modern era, when traditional methods are not enough to preserve cultural heritage and pass it on to future generations, artificial intelligence technologies create new opportunities and methodological approaches in this area.

The first and most important impact of artificial intelligence is observed in the field of digitization and analysis of cultural heritage data. After historical documents, ancient manuscripts, exhibits stored in museum collections, and archival materials are digitized with high-quality images, they can be automatically classified using AI algorithms, the readability of texts can be restored, and damaged parts can be reconstructed. This is especially important in terms of the protection and study of rare and unique documents stored in Azerbaijani manuscript collections.

On the other hand, most important area is the protection and re-presentation of intangible cultural heritage. Azerbaijani national values, such as mugham, ashug art, folk dances, dialects and oral literature, are often transmitted orally or through performance, rather than through written or fixed physical media. Through artificial intelligence voice recognition, speech analysis and generative models, it is possible to study, structure and restore these heritage forms audio and visually. For example, through sound analysis of mugham performances from different regions, the style, style and rhythmic characteristics can be analyzed. This creates new methods for didactic presentation and teaching of mugham. Artificial intelligence also has the power to change the presentation formats of cultural heritage. Interactive virtual tours of historical monuments and ancient cities are created through AI systems working in conjunction with virtual reality (VR), augmented reality (AR) and interactive 3D modeling technologies. For example, cultural heritage sites such as the Sheki Khan Palace, Icherisheher, and Gobustan rock paintings have been 3D modeled with the support of artificial intelligence and can be presented digitally to both researchers and the public. This is an effective tool in terms of both education and tourism.

Another important aspect is the safety and continuous protection of cultural heritage. Through artificial intelligence technologies, it is possible to monitor the physical condition of cultural heritage sites, automatically detect cracks and damage, and predict the need for restoration. This is especially important for architectural examples that may be damaged by earthquakes, moisture, and other external influences. Finally, artificial intelligence also creates new opportunities in terms of the international presentation and promotion of Azerbaijani cultural heritage. By ensuring multilingualism through natural language processing technologies, our heritage is presented in different languages, automatic translations, and contextual explanations are prepared. This serves to make Azerbaijan's rich cultural heritage more widely known on the global cultural map. Thus, the development of artificial intelligence technologies provides modern and effective tools for the preservation, analysis, restoration and presentation of Azerbaijani cultural heritage in the global space. These technologies contribute to the transmission of traditional culture to future generations in a more accessible and interactive form, overcoming the limitations of time and space. The rich historical and cultural diversity of Azerbaijan provides both an original source and high scientific

potential for the application of artificial intelligence, which allows for the synthesis of technology with local culture.

Conclusion

In view of the studies considered, it is possible to analyze the global state of cultural heritage for the future, including the current one. When we analyze artificial intelligence as an impact on peoples, societies, and, in particular, their moral and psychological state, it becomes clear that artificial intelligence, as the main branch of modern developing information technologies, has become simply a tool for optimal communication and efficiency. In particular, communities and AI should make the following contributions:

1. Artificial intelligence has transformative potential not only in technical but also in humanitarian fields: In particular machine learning, computer vision and generative models – create vast opportunities for the preservation, reconstruction and study of cultural heritage. These technologies, moving away from being technical tools, are becoming carriers and broadcasters of culture.

2. The cultural heritage of Azerbaijan is a rich and unique context for artificial intelligence applications: The diversity and ancient historical heritage of Azerbaijan – from mugham to Gobustan paintings, from manuscripts to architectural monuments – can be an important object of research for the application of artificial intelligence, both from a practical and scientific point of view.

3. Digitization and automation can ensure the sustainability of cultural heritage: Work such as deciphering manuscripts, indexing archives, and analyzing audio and visual heritage can be carried out more efficiently in terms of both time and resources with the application of AI. This expands the protection and use of heritage examples that are difficult to access with traditional methods.

4. Artificial intelligence requires ethical and normative approaches: The application of ethical principles is necessary for the non-distortion, correct presentation and contextual preservation of cultural heritage. The reconstructions and interpretations created by AI require a responsible approach in terms of history and culture.

5. A new field of research and application is emerging: “Cultural Heritage Technologies”: This research shows that a new multidisciplinary field is emerging at the intersection of AI and cultural heritage. Here, the humanities, computer science and information technology come together, which can create the basis for new academic and technological projects in Azerbaijan.

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