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THE APPLICATIONS OF ARTIFICIAL INTELLIGENCE IN THE NEW WORLD

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1. Introduction

Today, all societies strive for progress in various fields, and it is evident that scientists play a crucial role in this endeavor. Through different experiments and research, they have achieved results that have improved lives, and these studies continue.Research has shown that in recent decades, countries have made significant advancements in scientific production across different fields, trying to secure a prominent position among advanced countries(Erfanmanesh&Bashiri, 2014).

One of the fields in which different countries have progressed is computer sciences. Computer sciences study computational systems and algorithms, aiming to establish a meaningful connection between mathematics and computing. The primary goal of this field is to develop the most efficient methods for solving problems with minimal time and

maximum accuracy. Computer science is a broad discipline, one of its branches being artificial intelligence. AI, introduced as an academic field by John McCarthy, has significantly contributed to advancements in various fields (Safari &Ebrahimi, 2023). The concept of AI originated from classical philosophy. Until now, scientists have extensively explored this domain, attempting to describe human thought processes using different symbolic representations. However, research in this field is still ongoing (Buchanan, 2006).

The primary goal of AI is to create machines that mimic human characteristics, replicating behaviors such as learning, perception, planning, reasoning, and prediction (Mahmoudi&Kazemi, 2023). Like other scientific advancements, AI has both positive and negative aspects, and achieving a balance is the key to maximizing its benefits (Rezaei& Faghih Abdollahi, 2023). This study examines the applications of AI, trying to investigate its various dimensions.

2. Literature Review

AI has attracted significant attention, leading to numerous studies both domestically and internationally. One such study, conducted by Bodan (2019), considers creativity as a fundamental human trait and asserts that creativity is a major challenge for AI. According to Bodan, AI techniques can generate new ideas in three ways: combining similar concepts, discovering potential conceptual spaces, and modifying existing ideas to make the impossible possible.

AI has applications in multiple domains. For example, Karimi (2022) examined AI's role in the oil and gas industry, exploring approaches and algorithms that could lead to potential transformations in this field.

Another study by Rajabi and Nasrollahi (2023) used documentary analysis, descriptive-analytical methods, journalist interviews, and thematic analysis to investigate AI’s impact on social media. The findings highlight significant changes, including shifts in cultural consumption patterns, reduced human decision-making power, and challenges in balancing personalized content with privacy protection.

Higher education is another area significantly influenced by AI. In a study by Hosseini Moghadam (2022), trend analysis, expert panels, brainstorming, interpretive-structural modeling, and scenario analysis were used to explore AI's impact on university education. The study concluded that AI has had a positive effect on academic education.

AI also has significant implications for international politics. In their study, Mahmoudi and Kazemi (2024) found that AI can enhance decision-making accuracy in international politics, improve international relations, and provide solutions for emerging challenges.

3. Technology and a Better Life

The origins of technology date back to the dawn of human history when early humans used natural tools. Some researchers argue that modern technology began with electrical devices (Al-Suleiman &Zarkesh, 2020). The term "technology" originates from the Greek words "Technes" (art and skill) and "Logia" (knowledge), meaning "the study of technique"(Valizadeh& Akbari, 2010).

Numerous definitions exist for technology. For instance, Webster's Dictionary defines it as "a form of knowledge related to applied science, engineering, industry, and art." Francis Bacon, during the Renaissance, recognized an intrinsic connection between nature and technical works, viewing technology as an innovative human effort (Fardanesh&JamshidiTavana, 2014).

Today, technology has infiltrated all aspects of human life, from mapping the human genome to using biotechnology for medical treatments. Scientists predict that AI adoption in the U.S. will grow by 5.47% between 2021 and 2025. Most education experts believe AI will not replace teachers but will enhance educational methods (Rezaei& Faghih Abdollahi, 2023).

4. What is Artificial Intelligence?

Although determining AI's exact origin is challenging, its roots trace back to the 1940s, particularly 1942, when Isaac Asimov published his short story *Runaround*, introducing the Three Laws of Robotics. His works inspired scientists like Marvin Minsky, who later co-founded the MIT AI Lab (Hanlin& Kaplan, 2019).

John McCarthy, a mathematics professor at Dartmouth College, first coined the term "artificial intelligence" and organized a 1956 conference on the subject, marking AI's formal inception (Rajabi&Nasrollahi, 2023). The Rockefeller Foundation funded this event, bringing together AI pioneers (Hanlin& Kaplan, 2019).

AI enables the development of intelligent programs and machines. According to Abdi (2017), defining AI requires answering two questions: 1) What is intelligence? 2) What constitutes intelligent programs or machines? Biologists define intelligence as the ability to learn efficiently, philosophers view it as the ability to think and reason, and computer scientists (e.g., Alan Turing) define it as indistinguishable performance from humans.

5. Applications of Artificial Intelligence

Artificial intelligence has various applications and has demonstrated significant impacts across different fields. AI has become an integral part of nearly all aspects of our lives and is expected to grow into a $190-billion industry in the coming years (Rezaei& Faghih Abdollahi, 2023).

**** Education***

In recent years, AI has had a significant impact on education. According to Iravani, Mir, and SaadatmandManeshadi (2023), AI has influenced education in the following ways:

1. Providing better tools for teachers, enabling them to improve decision-making processes.
2. Analyzing data to enhance educational processes and assess students' performance more effectively.
3. Offering remote learning opportunities to students in underprivileged areas, allowing them access to educational resources similar to their peers.

AI-driveneducation enhances learning by analyzing student performance and tailoring lessons to their individual needs. AI can help teachers deliver more personalized and effective education. Additionally, it allows students to access educational materials any time and anywhere.

**** Medicine***

AI has also had a profound impact on the medical field, where it can analyze complex medical data, establish relationships between datasets, and assist in disease prediction and treatment. AI is widely used in various medical areas such as imaging, tumor diagnosis, and more. Additionally, AI not only helps diagnose diseases but also assists in preventing outbreaks by studying patterns and trends (Abdi, 2017). AI is transforming the medical field by analyzing complex medical data, improving disease diagnosis, predicting health issues, personalizing treatments, reducing medical errors, and advancing medical research. AI-powered robots are even assisting in surgeries, allowing doctors to perform operations remotely.

**** Legal Sector***

Due to its remarkable speed and accuracy in analyzing information, AI has also played a crucial role in the legal sector, reducing human errors and assisting judges in handling

legal cases in many countries (Hosseini, Abdokhodaei, &Sharifkhani, 2023). AI's accuracy in analyzing legal data has significantly impacted the legal field. AI-powered legal assistants analyze vast legal databases, reducing human error and improving decision-making efficiency. Many countries now use AI as a judicial assistant in legal proceedings (Sazmand, 2019).

**** Politics and Economics***

Moreover, AI has influenced international politics, changing the way countries interact, affecting economic policies, defense strategies, human rights, and more. In recent years, AI has become a transformative power, penetrating both domestic and global policy-making spheres. It plays a crucial role in economic policymaking by driving economic growth and increasing competition among nations (Mahmoudi& Bahr Kazemi, 2024). AI's ability to analyze vast amounts of data and identify patterns makes it a powerful tool in diplomacy and international politics. AI assists in foreign policy decision-making by processing large datasets with high accuracy, influencing global interactions and negotiations. Most developed countries have already incorporated AI into their diplomatic and strategic frameworks.

**** Military Industry***

Additionally, AI has become an essential tool in military industries. It is integrated into military equipment and technology, with key applications including image processing, object recognition, and more (Rozian, Rezvani, &Chashiani, 2023). AI is a crucial tool in military technology, assisting in image processing, object detection, and advanced drone systems used for intelligence gathering and national security. AI is increasingly utilized in modern warfare to improve precision and operational efficiency. AI-powered systems can control drones, analyze enemy movements in real time, and enhance battlefield strategies.

**** Robotics***

AI plays a critical role in robotics. While traditional robots were programmed to perform predefined tasks, AI-powered robots can now learn from past experiences and make decisions without prior programming. Humanoid robots, which can communicate and behave like humans, are a prime example of this advancement (Behbusel, Pujari, &Multani, 2020).

**** Research***

AI accelerates research by automating repetitive tasks, allowing researchers to focus on critical issues. AI can also translate texts, enabling researchers to access information in different languages and enhance global collaboration.

**** Industry***

AI has numerous benefits in industrial settings. Many factories and companies now rely on AI for:

1. Ensuring safety and preventing accidents
2. Quality control and certification of approved products
3. Smart industrial robots
4. Optimization of production processes
5. Smart maintenance management
6. Warehouse and inventory management
7. Price forecasting and intelligent pricing strategies
8. AI-driven product development

6. Disadvantages of Artificial Intelligence

Like all technologies, AI has drawbacks, and no invention is without its flaws. AI is no exception.

**** High Costs***

Building machines that can mimic human intelligence requires substantial time, resources, and skilled labor. AI also demands constant updates with new hardware and software, making it a costly endeavor.

**** Human Dependency and Laziness***

AI-powered automation in organizations, companies, and factories reduces the need for human intervention in repetitive and even complex tasks. Over-reliance on AI may lead to reduced cognitive engagement and problem-solving skills among workers. Additionally, companies may replace qualified employees with AI systems (Behbusel, Pujari, &Multani, 2020). Excessive reliance on AI may lead to societal challenges, such as reduced trust in human decision-making, a decline in innovation, and the loss of jobs traditionally performed by humans.

**** Job Displacement***

One of the biggest concerns regarding AI is job loss. As AI-powered machines replace human workers, employment opportunities diminish. It is estimated that by 2030, around 30% of jobs could be taken over by AI-driven robots.

**** Lack of Creativity***

AI can only learn based on pre-existing data and past experiences, but it lacks true creativity. Unlike humans, AI cannot generate innovative ideas beyond its programming.

**** Uncontrollability***

A major concern is the potential uncontrollability of AI in the future. While AI is currently limited in its capabilities, advancements may lead to unforeseen consequences, posing risks to humanity. Initially, AI was seen as a supportive tool for humans. However, as AI capabilities expand, its interactions with humans increase. Some experts predict that AI's growing independence may pose risks in the future.

Conclusion

AI is essentially an imitation of human intelligence, showcasing remarkable advancements in innovation. It has significantly impacted fields such as medicine, education, law, manufacturing, and more. AI has made processes faster and more precise, yielding positive results across various domains.

Like all technologies, AI has both positive and negative aspects. On the positive side, it enables self-driving vehicles, remote surgeries, error reduction, and automation. However, concerns such as job displacement, high costs, lack of creativity, and potential risks remain.

Despite these challenges, with proper regulation and careful implementation, AI will continue to be a valuable asset in human life.

Disclosure statement

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References and notes:

Al-Sulaiman, Batool, and Afsaneh Zarkesh. "An analytical study of the evolution of traditional house architecture to contemporary housing in Homs, Syria." *National Conference on Civil Engineering and Sustainable Urban Development in Iran, Tehran-Tehran*, 2020.

Bahmanabadi, Alireza. "Artificial intelligence and its applications in research activities." *Agricultural Information Science and Technology Promotional Journal*, vol. 6, no. 2, 2013, pp. 33-43.

Boden, Margaret. A. “Creativity and Artificial intelligence.” *Journal of Artificial Intelligence*, vol. 103, no. 1-2, 1998, pp. 356-347.

Buchanan Bruce. G. “A very brief history of Artificial Intelligence.” *AI Magazine*, vol. 26, no. 4, 2005, pp. 60-53.

Analysis of the state of artificial intelligence technology in Iran and the world. Communication and New Technologies Research Office., 2017.

Erfanmanesh, Mohammad-Amin, and Tahereh Bashiri, “Iran’s scientific production progress over the past ten years.” *5th Congress of Progress Pioneers*, Tehran, 2014.

Fardanesh, Hashem, and A’zam Jamshidi-Tavana, “Philosophy of technology, approaches, perspectives, and misconceptions: A reinterpretation of educational technology philosophy for the present era.” *Educational Engineering, Technology, and Instructional Design*, vol. 3, no. 4, 2014, pp. 21-29.

Artificial intelligence worldwide (3): People's Republic of China. Fundamental Governmental Studies Office, 2019.

Haenlein Michael, and Andreas Kaplan, “A Brief History of Artificial Intelligence: On the Past, Present, and Future of Artificial intelligence.” *California Management Review*, vol. 61, no. 4, 2019, pp. 14-25.

Hosseini Moghaddam, Mohammad, “Artificial intelligence and the strategic foresight of universities in Iran: Analyzing goals and stakeholders.” *Strategy Quarterly*, vol. 104, no. 3, 2022, pp. 441-446.

Hosseini, Seyyed-Ahmad, et al, “Application of artificial intelligence in judicial proceedings: Transparency challenges and solutions.” *Judicial Legal Perspectives Quarterly*, vol. 28, no. 101, 2023, pp. 67-90.

Iravani, Mohammad-Hosein, et al, “A systematic review of AI’s impact on global education systems. Modern Advances in Psychology.” *Educational Sciences, and Training Monthly*, vol. 6, no. 69, 2023, pp. 74-87.

Kalateh-Agha-Mohammadi, Ameneh, and Seyyed-Mehdi Sharifi, “The role of artificial intelligence in human resources: AI’s impact on job elimination.” *Future Studies in Media Quarterly*, vol. 3, no. 3, 2021, pp. 36-64.

Karimi, Mojtaba, “Artificial intelligence in upstream oil and gas: Trends, challenges, and future scenarios.” *Scientific Monthly of Oil and Gas Exploration and Production*, no. 199, 2022, pp. 37-49.

Mahmoudi, Amir-Reza, and Maryam Bahr-Kazemi, “Artificial intelligence and its impact on international policies.” *Political Strategy Quarterly*, vol. 8, no. 2, 2024, pp. 227-256.

Mehdizadeh, Mohammad-Reza, and Mohammad Tavakol, “Scientific and technological studies: A review of the sociology of technology.” *Planning and Budgeting Quarterly*, vol. 12, no. 4, 2007, pp. 15-124.

Rajabi, Mohsen, and Mohammad-Sadegh Nasrollahi, “Cultural consequences of AI development in Iranian social media.” *Iranian Cultural Research Quarterly*, vol. 16, no. 2, 2023, pp. 95-125.

Rezaei, Fahimeh, and Ahmad Faghih-Abdollahi, “Examining the application of artificial intelligence in the education system.” *8th National Conference on New Approaches in Education, Mazandaran-Mahmoudabad*, 2023.

Roozian, Milade, et al, “Application of artificial intelligence in military industries.” *20th National Conference on Electrical, Computer, and Mechanical Engineering*, North Khorasan-Shirvan, 2023.

Sabouhiaki, Behrooz, “Technology management, research, and development.” *3rd International Conference on Modern Research in Economic Management and Accounting*, Istanbul-Turkey, 2015.

Sachin, Bhbosale, et al, “Advantages and Disadvantages of Artificial Intelligence.” *National Seminar on Trends in Geography, Commerce, IT and Sustainable Development*, India-Khed, 2020.

Safari, Ehram, and Karim Ebrahimi, “Identifying and prioritizing the challenges of AI development in Iran based on thematic analysis and cognitive mapping.” *Information Management Journal*, vol. 8, no. 1, 2022, pp. 23-44.

Sarvestani, Milad, and Ali Pirovannajad, “Benefits of AI applications in human resource management.” *International Conference on Digital Transformation*, Tehran, 2021.

Shahbazi-Kouhi, Mehdi, et al, “Application of artificial intelligence in education and learning.” *Journal of Sexual and Psychological Disorders*, vol. 1, no. 2, 2024, pp. 1-13.

Valizadeh, Mpjtaba, and Zahra Akbari, “Technology transfer and its success strategies in developing countries.” *4th National Conference on Technology Management in Iran*, Tehran, 2019.

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XÜLASƏ

Yeni dünyada suni intelektin tətbiqləri

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Uzun illərdir ki, Süni intellekt (AI) alimləri bu sahədə araşdırmalar aparmağa sövq edir.Süni intellektlə bağlı tədqiqatlara 1950-ci illərdə başlayıblar. Alimlər süni intellektə insan həyatında yeni bir hadisə kimi baxırlar və bu texnologiyanın insanlar tərəfindən hələ də kəşf edilməmiş çoxsaylı cəhətləri vardır.

Mövcud biliklərə əsaslanaraq, süni intellektin bütün aspektlərini tam başa düşmək hələ də mümkün deyil. Bu tədqiqat süni intellektin müxtəlif sənaye sahələrində tətbiqlərini araşdırmaq, onun istifadəsi ilə bağlı həm faydaları, həm də riskləri əhatə etmək məqsədi daşıyır. Tədqiqat mötəbər mənbələri və mövcud məlumatları nəzərdən keçirərək, kitabxanaya əsaslanan tədqiqat metodundan istifadə etməklə aparılmışdır. Araşdırmalar onu göstərir ki, süni intellekt bir çox sahələrdə əhəmiyyətli rol oynayır, təşkilatlar və şirkətlər üçün tərəqqi və gəlirliliyini sürətləndirir, eyni zamanda bir çoxlarını bu texnologiyanı mənimsəməyə məcbur edir. Bundan əlavə, AI çoxsaylı tapşırıqlar üçün tələb olunan vaxtı əhəmiyyətli dərəcədə azalda və təkrarlanan prosesləri robotlara həvalə edə bilər. Gələcəkdə süni intellektin insanlarla sıx əlaqədə olacağı və birgəyaşayacağı proqnozlaşdırılır.

Açar sözlər: Süni intellekt, Texnologiya, AI Tətbiqləri, İnsan həyatı.

РЕЗЮМЕ

Применение искусственного интеллекта в новом мире

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На протяжении многих лет искусственный интеллект (ИИ) мотивирует ученых проводить исследования в этой области.Исследования в области искусственного интеллекта начались в 1950-х годах. Ученые рассматривают искусственный интеллект как новое явление в жизни человека, и многие аспекты этой технологии еще не были открыты людьми.На основании имеющихся знаний все еще невозможно полностью понять все аспекты искусственного интеллекта.Целью данного исследования является изучение применения искусственного интеллекта в различных отраслях промышленности, а также рассмотрение как преимуществ, так и рисков, связанных с его использованием.

Исследование проводилось с использованием библиотечного метода, с использованием надежных источников и доступной информации.Исследования показывают, что искусственный интеллект играет важную роль во многих областях, ускоряя прогресс и прибыльность организаций и компаний, а также заставляя многих внедрять эту технологию.

Кроме того, ИИ может значительно сократить время, необходимое для выполнения нескольких задач, и делегировать повторяющиеся процессы роботам. Прогнозируется, что в будущем искусственный интеллект будет тесно связан и сосуществовать с людьми.

Ключевые слова: Искусственный Интеллект, технологии, приложения ИИ, человеческая жизнь.