21st CENTURY - THE ROLE OF ARTIFICIAL INTELLIGENCE IN OUR LIVES.

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Abstract: *This article provides detailed information about the development of artificial intelligence technologies in the 21st century, their key directions, practical applications, and their impact on society.*

The article highlights the role of artificial intelligence in fields such as medicine, education, economics, and transportation. Additionally, it discusses major challenges of AI technologies, including ethical issues, job reduction, and data security concerns.

Furthermore, the article reviews how artificial intelligence technologies have rapidly evolved since the 2000s, strengthened through advanced approaches, and continue to improve to this day. It also explains the penetration of AI into modern fields such as graphic design and photography, shedding light on its current importance in these areas. This article serves as a useful resource for those interested in the present and future role of artificial intelligence in human life.

Keywords: *artificial intelligence, modern fields, societal impact, current and future role of technology.*

Introduction: Usually, when we hear the term artificial intelligence, we imagine robots capable of speaking like humans and performing all their tasks. In reality, this is not the full picture. Various applications on our mobile devices—such as Google Translate, ChatGPT, Gemini, different types of games, and many others—are also considered artificial intelligence.

What is Artificial Intelligence?

Artificial intelligence is a separate field of computer science that focuses on creating computer systems capable of performing tasks typically associated with human intelligence—such as understanding language, learning, reasoning, problem-solving, calculating, translating, and more. This field began rapidly developing in the early 21st century and continues to advance today. Modern artificial intelligence is designed to perform a wide range of tasks. It consists of algorithms and software systems that can accomplish many functions that the human mind can perform.

A new chapter opened in the AI revolution during the 1990s. In 1997, IBM's Deep Blue computer became the first machine to defeat world chess champion Garry Kasparov.

Another notable example of AI is IBM's Watson supercomputer, which answers questions in natural language based on its database. Mobile assistants like Siri and image-processing applications like Prisma are also among the achievements of artificial intelligence. Today, AI has become widespread and covers nearly all aspects of daily life. For example, in the Chinese city of Inchuan, bank cards are no longer necessary because financial transactions are carried out using facial recognition powered by artificial intelligence.

The Role of Artificial Intelligence in Medicine.

AI plays a crucial role in the field of medicine. For instance, it helps doctors make faster and more accurate decisions. The main tasks of AI in medicine include:

1. Early detection of diseases.AI analyzes medical images such as X-rays, MRI, and CT scans to identify cancer, heart diseases, and lung problems at early stages.

2. Assisting in accurate diagnosis.By comparing millions of medical records, AI recommends the most accurate diagnostic options.

3. Personalized treatment.AI can create individual treatment plans based on a patient's age, genetics, and medical history.

4. Robotic surgery.AI-powered robots perform complex surgeries with high precision, significantly reducing the risk of errors.

5. Drug discovery.AI is widely used to identify medicinal plants, analyze compounds, and test new drugs.

The Role of Artificial Intelligence in Education.

Modern technologies play an important role in education by making the learning process more efficient and accessible. AI contributes to education in the following ways:

Personalized learning.AI provides learning materials tailored to each student's level of knowledge.

24/7 support.Virtual tutors are available at any time to answer questions online.

Assessment of knowledge.AI systems automatically check tests and assignments, giving students instant results.

Assisting teachers.AI helps prepare lesson plans, analyze materials, and create new teaching methods.

Strengthening distance learning.AI makes online learning more interactive and convenient.

The Role of Artificial Intelligence in Economy.

AI accelerates processes in the economy and improves efficiency. Its main applications include:

1. Manufacturing.AI strengthens automation in factories, increasing production speed and quality.

2. Business and trade.It assists in market analysis, demand forecasting, and customer service.

3. Banking and finance.AI detects fraud, reduces credit risks, and improves customer service quality.

4. Labor market.AI contributes to the emergence of new professions and optimizes work processes.

5. Investment and strategy.It helps companies choose the right investment directions.

The Role of Artificial Intelligence in Transportation.

Today, AI is widely applied in transportation as well, making the industry more modern and efficient.

1. Autonomous vehicles.AI is the "brain" of self-driving cars, buses, and trains.

2. Improving safety.AI predicts potential accidents and activates braking or warning systems.

3. Reducing traffic congestion.AI analyzes road conditions and intelligently controls traffic lights.

4. Optimizing public transport routes.AI offers the shortest routes, reducing fuel consumption.

5. Logistics and delivery.AI-powered trucks and drones make delivery services faster and more efficient.

AI in Modern Fields – Graphic Design.

AI accelerates creative processes, automates tasks, and expands creative opportunities.

1. Speeding up design processes. AI can generate logos, banners, layouts, color palettes, and font combinations within seconds.

2. Handling repetitive tasks.AI quickly completes tasks such as background removal, object selection, upscaling, and color correction.

3. Source of creative inspiration.Tools like Midjourney, DALL•E, and Adobe Firefly generate ideas that designers can refine.

4. Creating personalized content.AI helps advertising agencies create thousands of customized design options instantly.

5. Use in 3D and animation.AI assists in texture creation, lighting adjustment, and short animation development.

AI in Photography.

AI is transforming photography by simplifying technical tasks and expanding creative possibilities.

1. Automatic photo editing. AI adjusts contrast, color balance, skin smoothing, noise reduction, and more.

2. Background replacement and object removal.AI allows fast and seamless editing of images.

3. Photo restoration. AI restores old or damaged photos by removing blur and enhancing quality.

4. Creating realistic images.Models like Midjourney, DALL•E, and Stable Diffusion generate photorealistic images for advertising and media.

5. AI integration in cameras.Modern smartphones use intelligent systems such as Smart HDR, Portrait Mode, Night Mode, and advanced autofocus.

Conclusion: The importance of artificial intelligence today is reflected across almost all sectors of society. AI automates production, improves diagnostic accuracy in medicine, provides personalized learning in education, analyzes large datasets in the economy, and enhances efficiency in service industries.

In creative fields—such as design, photography, and media production—AI has become a powerful tool that eases human effort and expands creative capabilities.

In the future, AI will continue to grow its influence by optimizing complex processes, supporting human activity, and offering innovative solutions for global development. However, while AI accelerates economic growth, it may also reduce the number of traditional jobs. If future tasks become fully automated, the risk of unemployment may increase.

Nevertheless, artificial intelligence continues to open new doors of opportunity in all areas of life. Therefore, its significance remains not only relevant today but will also be strategically important for our future.

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