ARTIFICIAL INTELLIGENCE AND ITS IMPORTANCE

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Artificial intelligence (AI) technology is presented and discussed in the paper. The main advantages of AI systems, neural networks, and machines are also introduced alongside the AI technology landscape. The statistics and predictions about the future developments of AI are also mentioned.

Since the 1st century BC, people have always been fascinated by the possibility of creating systems that imitate the human brain. In the modern world, the term "artificial intelligence" was coined in 1955 by John McCarthy. In 1956, McCarthy and a group of scientists organized a two-month seminar called "The Dartmouth Summer Research Project on Artificial Intelligence". This beginning led to the creation of neural networks, machine learning, deep learning, and, eventually, a whole new field of study – data science.

In layman's terms, AI is a machine acting like a human. These machines can evaluate, observe, and learn from data and errors, just like a human brain does. In addition, AI has advantages over humans in flexibility and the ability to handle tasks of any kind and complexity, as depicted in Figure 1 [1]. Machine learning (ML), a subset of AI, makes software applications more precise in forecasting results without being specially programmed. It helps computers self-learn from data and implements learning without human intervention. However, creating such an advanced AI that will mimic the human mind requires an enormous foundation of software and specialized hardware for writing and training machine learning algorithms.
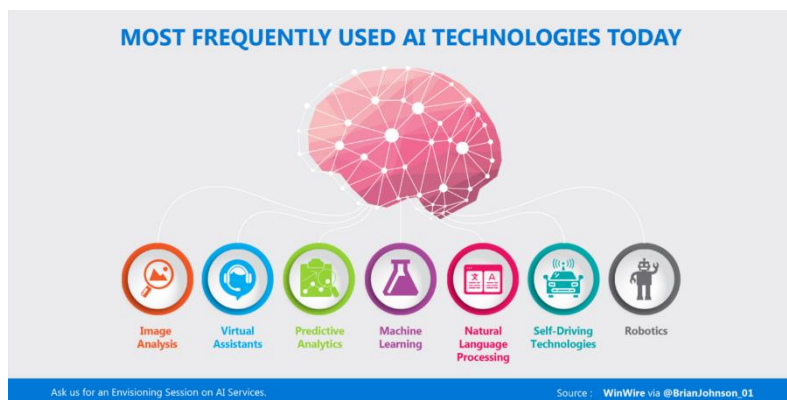
Figure 1 – most frequently used AI technologies today.

Now, let's take a look at all the important benefits of AI that justify all the resources spent:

AI attains phenomenal accuracy and speed of decision-making. AI achieves exceptional accuracy thanks to deep neural networks that were inaccessible to humanity until the 20th century. For example, all your interactions with Google Services are based on deep learning, which becomes more and more accurate as we use them. AI technologies are even used in the medical industry to detect cancer cells on magnetic resonance images with high precision by experienced radiologists [2]. Intelligent machines can also make decisions quicker compared to humans. What is more, AI makes decisions without any emotions and biased views, ensuring result-oriented decision-making.

Healthcare applications. AI technologies are widely used in the medical field. For example, AI machines in medical devices have helped doctors evaluate patients' health-related data and risk factors. This allows patients to know the side effects of various medications. In addition, robotics is also used in the treatment of mentally ill patients, such as those with depression. This software is also available to detect, track, and monitor neurological disorders and stimulate the human brain's functionality.

Managing recurring tasks. Intelligent machines make their decisions with incredible speed. They can simultaneously perform several processes to generate the best outcomes, which can be very useful for managing monotonous tasks without occasional setbacks. For example, machines with AI can be used in factories to avoid injury to people and achieve the highest production efficiency.

Risk minimisation. Specific tasks can be hazardous for people; however, machines can be a great alternative here. For example, enabling machines to cope with a natural calamity can lead to faster recovery and reduce the burden on human teams. This concept arose as a result of an initiative by Google and Harvard to create an artificial intelligence system for predicting the location of earthquake aftershocks. And after studying several earthquakes and their aftershocks, it displayed a higher degree of accuracy in determining the locations of aftershocks than conventional methods.

According to revenue statistics from «The Artificial Intelligent Software Market», in 2018 AI market size was estimated at only $10.1 billion. However, since 2018 in each subsequent year, AI revenue has reached new records, from $10.1 billion in 2018 to $50 billion in 2021. What is more, we can expect the global artificial intelligence market size to grow from $93.53 billion in 2021 to $997.77 billion by 2028. For the forecast period of 2021–2028, the AI market size is expected to increase by 40.2% (Compound Annual Growth Rate) [3].

The world is on the verge of a revolution in many industries with the help of artificial intelligence and data analysis. Significant deployments in finance, national security, healthcare, criminal justice, transportation, and smart cities have changed decision-making, business models, risk mitigation, and system performance. These developments bring economic and social benefits that directly point to the importance of AI in our world.

References:

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