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КОМП'ЮТЕРНА ТА ПРОГРАМНА ІНЖЕНЕРІЯ

ARTIFICIAL INTELLIGENCE - CRITERIA, COMPONENTS, FORM. ADVANTAGES AND DISADVANTAGES

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Artificial intelligence is now well-known as AI and even teenager will manage to describe the vast possibilities it might contribute to the contemporary world. The term artificial intelligence was coined in 1956, but AI has become more popular today, thanks to increased data volumes, advanced algorithms, and improvements in computing power and storage.

Artificial intelligence (AI) is intelligence demonstrated by machines, as opposed to intelligence displayed by humans or by other animals. "Intelligence" encompasses the ability to learn and reason, to generalize and infer meaning. Nevertheless, we are not limited by bare imitation of human abilities and skills, but we are talking about the possibility of searching for the rational solution to numerous tasks and understanding of the goals and approaches, which are required to reach them.

Research in AI has focused chiefly on the following components of intelligence: learning, reasoning, problem solving, perception, and language usage, social and general intelligence- these are the basic foundations, the components, which demand constant observation, assessment and measurement. At this point, there are multiple methods, that can give us understanding of each following component and the way it is implemented.

Studying can be demonstrated in various forms, from random choice and simplest memorization (rote learning) to more advanced and complex variant- generalization, which pressuposes the problem of implementing, which involves applying past experience to analogous new situations.

Reasoning highlights the importance of drawing inferences, that might be appropriate in this particular situation. Inferences are classified as either deductive or inductive. The most remarkable difference in between these two forms of reasoning is that in the deductive case - the truth of the premises guarantees the truth of the conclusion, whereas in the inductive case - the truth of the premise lends support to the conclusion without giving absolute assurance.

Problem - Solving involves numerous methods and approaches, that serve as a guarantee of successful achievement of the set goals or predefined solution. Problem-solving methods divide into special purpose and general purpose.

The perception of the environment is performed through scanning by means of various sensory organs, analysis, recognition and ability to operate autonomously.

The abilities in linguistics could be demonstrated by the foremost perception, thorough and genuine understanding, deep analysis and interaction as the highest merit.

Social intelligence allows the system to recognize, interpret, process or simulate human feeling, emotions and mood, which furthermore creates solid background for human - computer interaction as a phenomenon.

While general intelligence offers a wide range of abilities that might grant the solution, which was found with breadth and versatility similar to human. Undoubtedly, it fascinates the average human being and creates numerous questions about the further performance and enrolment to various spheres of our life!

Self-correction. This aspect of AI programming is designed to continually fine-tune algorithms and ensure they provide the most accurate results possible.

AI uses neural networks, rules-based systems, statistical methods and other AI techniques to generate new images, new text, new music and new ideas in order to catch up with modern concepts of creativity, design and development.

What are the advantages and disadvantages of artificial intelligence?

Let's start with a small intercourse into advantages that AI is capable of. AL can process large amounts of data much faster and make predictions more accurately than human being, which gives us reduced time and orientation on the smallest details as visible benefits. Also, it allows rapid transformation to actionable information. AI is widely used in data-heavy industries, including banking and securities, pharma and insurance, to reduce the time it takes to analyse big data sets. Financial services, for example, routinely use AI to process loan applications and detect fraud.

Saves labour and increases productivity. An example here is the use of warehouse automation, which grew during the pandemic and is expected to increase with the integration of AI and machine learning.

The best AI translation tools deliver high levels of consistency, offering even small businesses the ability to reach their customers in their native language.

In addition, AI can personalize content, messaging, ads, recommendations and websites to individual customers.

AI-powered virtual agents are always available, programs do not need to sleep or take breaks, providing 24/7 service, unlike human representatives.

Though, nothing is perfect, it's high time to proceed with highlight the disadvantages, which are also available. The first and the primary disadvantage of AI is its price, it's quite expensive to process the large amounts of data, AI programming require hight costs. As AI techniques are incorporated into more products and services, organizations must also be attuned to AI's potential to create biased and discriminatory systems, intentionally or inadvertently. As AI is still considered brand new and developing sphere, we can observe the limited supply of qualified workers to build AI tools.

The other pitfalls are about the fact that AI reflects the biases of its training data, at scale.

Furthermore, we can't omit the lack of ability to generalize from one task to another.

Still the generalization and popularization of AI lead to the elimination of human jobs, increasing the unemployment rates.

To summarize my report, I would like to say, that AI is successfully implemented in various essential spheres of our life, such as health, business, education, finance, law, entertainment, media, software coding, IT processes, security, manufacturing, banking, transportation. AI has gained exemplary reputation and it's hard to imagine modern life without its existence and further influence!

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