

Does the Machine Think? The Problem of Knowledge, Consciousness, and Intelligence in the Philosophy of Artificial Intelligence

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Abstract:

With the emergence of artificial intelligence as one of the most important manifestations of contemporary technological development, and the transition of its applications from performing calculations and pre-programmed tasks to intelligent systems capable of adaptation, learning, data analysis, identifying various patterns, interacting with humans through natural languages, and making complex decisions, a philosophical debate has emerged around an old yet renewed problem concerning the nature of the intelligence possessed by machines and the extent to which their various operations can be described as genuine thinking or whether they merely constitute simulations of certain external manifestations of human thought.

Through this study, we seek to address this problem through a conceptual, philosophical, and critical approach that begins by distinguishing between human intelligence and artificial intelligence, then examines the question of whether a computer can think through the Turing Test and the criticisms directed against it, particularly the position of John Searle, who distinguishes between the simulation of intelligent behavior and the possession of understanding and meaning. The article also discusses the relationship between intelligence, consciousness, and knowledge, as well as the role of algorithms and data in designing intelligent behavior, concluding with a presentation of some critical perspectives associated with artificial intelligence, including the ethical, legal, social, and economic risks related to it.

The study concluded that the rapid development of intelligent systems has enabled machines to perform tasks that were previously associated with human mental abilities. However, the ability to process information and produce intelligent responses is not, in itself, sufficient to determine whether a machine possesses understanding or consciousness comparable to that of humans. This makes the question of machine thinking extend beyond the technical dimension to encompass philosophical, epistemological, and ethical dimensions associated with the artificial intelligence revolution.

Keywords: Artificial Intelligence; Thinking; Consciousness; Knowledge; Machine; Turing Test; Philosophy of Artificial Intelligence.

I. Introduction:

This article proceeds from a fundamental idea that the growing development of artificial intelligence applications and their penetration into various fields have made the boundaries between what is human and what is machine increasingly complex, particularly with the emergence of systems capable of processing language, learning from data, generating and

analyzing images, and designing responses that, in some cases, appear similar to human responses.

This leads us to reconsider the question of the relationship between intelligence, thinking, consciousness, and knowledge. If a machine or computer can process information, make inferences, and make decisions, does this mean that it actually thinks? And if an artificial intelligence-supported intelligent system can interact with humans through natural language, does this mean that it understands language in the way humans understand it in its various contexts, or does it process patterns and symbols according to rules and algorithms on which it has previously been trained? Accordingly, the main research problem can be formulated as follows:

To what extent can the intelligent behavior displayed by a machine or computer program be considered genuine thinking, and what are the limits of similarity between artificial intelligence and human intelligence in terms of thinking, consciousness, and knowledge?

The following sub-questions arise from this main question:

1. What is the relationship between human intelligence and artificial intelligence?
2. What does it mean for a machine to think?
3. Can algorithms produce knowledge in the human sense of knowledge?
4. What are the limits of artificial intelligence, and what are the main critical perspectives associated with it?

• Importance of the Study:

The importance of this topic stems from its attempt to go beyond the technical view of artificial intelligence toward addressing the intellectual and epistemological foundations upon which it is based, and from its attempt to distinguish between concepts that are often used interchangeably, such as intelligence, thinking, understanding, consciousness, and knowledge. It also seeks to analyze the relationship between the intelligent behavior produced by machines and the mental processes performed by humans, particularly since artificial intelligence is no longer merely a technology with a limited scope, but has become an interconnected system involving big data, natural language processing, deep learning, robotics, computer vision, and other technologies.

• Study Methodology:

This article falls within theoretical studies that rely on the descriptive-analytical method. It describes the fundamental concepts and ideas associated with artificial intelligence and then analyzes their philosophical, epistemological, and critical dimensions by describing the frameworks related to the philosophy of artificial intelligence, the question of the computer's ability to think, big data, and technologies associated with artificial intelligence, followed by critical perspectives on this technology.

• Definition of Concepts:

1) Human Intelligence:

It is defined as the ability to find solutions to problems by using symbols and various research methods, processing knowledge, and using acquired experience to obtain new information and

knowledge that lead to finding solutions to a particular problem within a specific field (Ibrahim, 2010, p. 42).

Professor Salman Bakr Kran, however, argued that “there is, to date, no specific and precise definition of intelligence, and even intelligence in its general sense differs from one context to another and from one environment to another. In school, it is the person who excels in their studies and obtains the highest qualifications; in the business sector, it is the person capable of exploiting commercial opportunities and achieving the best gains; and in sports, Maradona was a football genius because he was able to read and predict the movements of the opposing team in advance and translate them by exploiting opportunities in the best possible way and consequently winning” (Nafla & Yousef, 2022, p. 87).

Based on the two preceding definitions, an intelligent person is someone who can overcome the problems they face, either by drawing on their previous experiences or through organized thinking, and then reach sound solutions that enable them to properly process the data and information available to them and benefit from them.

2) Artificial Intelligence:

The scholar John McCarthy was the first to coin the term artificial intelligence, defining it as “the science and engineering of creating intelligent machines, particularly computer programs, as it is based on creating computer devices and programs capable of thinking in the same way as the human brain functions and simulating human behavior” (Abdellaoui, 2021, p. 194).

Andreas Kaplan and Michael Haenlein also defined it as “the ability of a system to interpret external data correctly, learn from this data, and use those lessons to achieve specific goals and tasks through flexible adaptation” (Al-Ruwais, 2021, p. 12).

Based on the foregoing, the concept of human intelligence is the fundamental starting point for understanding artificial intelligence. Humans do not use their intelligence merely to receive and process information; rather, they employ it in learning, understanding, inference, and adapting to new and complex situations. Artificial intelligence, by contrast, emerged to build systems capable of simulating some of these abilities within a purely artificial environment by attempting to solve problems, acquiring and applying knowledge, learning from previous experiences, dealing with difficult and complex situations, and responding to new circumstances.

II. Study Outline:

Based on the research problem and its questions, the topic will be addressed through three main sections:

Section One: From the Simulation of Intelligence to the Problem of Thinking

Section Two: Intelligence, Consciousness, and Knowledge

Section Three: The Limits of Artificial Intelligence and Critical Perspectives

First: From the Simulation of Intelligence to the Problem of Thinking:

1) Artificial Intelligence and the Simulation of the Human Mind:

The idea of simulation occupies the largest space in the philosophy of artificial intelligence. The machine is designed to perform tasks resembling some of the tasks carried out by the human mind, whether related to learning, recognizing the surrounding environment, or processing

natural languages. The principle of artificial intelligence is based on designing intelligent machines that simulate human behavior and use an approach similar to that of humans in order to solve various problems and deal with hypotheses rapidly and accurately. This simulation is clearly manifested in natural language processing applications, where the technology aims to make computers capable of understanding and responding to human language, whether through understanding natural language or even producing it. The paradox here is that a machine may produce a response that appears intelligent to us without our having direct evidence that it understands the meaning it produces in the way humans understand it (Al-Muqaiti, 2021, p. 15).

Accordingly, the question should not only be: What can a machine do? It should also be: What does it mean for the machine to perform that action?

2) The Turing Test: When Behavior Becomes the Criterion for Intelligence:

The question of the machine's ability to think became particularly associated with the British scientist Alan Turing, who published a paper in 1950 addressing the question of machine thinking. Turing proposed what he called the "Imitation Game," in which a human and a computer program are placed in two separate rooms, while a judge communicates with them through questions without knowing which one is the human and which one is the program. If the judge cannot distinguish between them based on the answers provided, the computer can be considered to have successfully passed the test and to be capable of thinking (Hamdan, 2022). It is clear from this that the importance of the Turing Test lies in the fact that it shifted the discussion from attempting to define thinking in an abstract manner toward seeking an observable behavioral criterion. If a machine has the ability to produce answers that correspond to human answers, the more important question becomes: Do we need to know what is happening inside the machine in order to judge its intelligence? Here, one of the most important issues in the philosophy of artificial intelligence emerges: Is intelligent behavior sufficient to claim that thinking exists? Thus, the test measures what appears externally, namely the system's ability to provide responses resembling human responses, but it does not necessarily provide an answer concerning the nature of the internal processes that led to those responses.

3) Searle's Criticism: Simulation Does Not at All Constitute Understanding:

One of the most prominent philosophical criticisms directed against the concept of machine thinking is the position of the philosopher John Searle, who argued that computers do not think in the human sense and that a program does not reproduce the processes that occur in the human mind, but rather simulates thinking externally. Searle links thinking to the human mind and its relationship with the external world, considering that a machine does not necessarily possess the understanding and meaning that distinguish human thinking (Moussa & Habib Bilal, 2019, pp. 48–49).

Accordingly, this position leads us to distinguish between two fundamental concepts: the first is **simulation**, meaning that the machine produces outputs resembling those produced by humans; and the second is **understanding**, which gives the machine the ability to understand the meaning, content, and context with which it is dealing.

Second: Intelligence, Consciousness, and Knowledge:

1) The Transition from Intelligence to Consciousness:

The most complex question, which is fundamentally associated with consciousness, concerns the ability to construct a machine that performs some functions related to thinking. Consciousness is not limited to processing information alone; rather, in humans, it is associated with awareness of the self (the “I”), the surrounding environment, inner experience, and the ability to perceive experience and connect it to the context in which it occurs. The discussion surrounding the philosophy of artificial intelligence is linked to the extent to which intelligent systems are capable of developing consciousness similar to human consciousness. The computer’s ability to possess consciousness and awareness of its surrounding environment still represents a major challenge for developers of artificial intelligence systems (Garvey, 2022, p. 956).

Accordingly, we can distinguish between two levels: **functional intelligence**, that is, the ability to process information and produce an appropriate response; and **self-awareness**, that is, possessing an inner experience and awareness of the self and the environment.

2) Acquiring Knowledge between Humans and Machines:

Acquiring, storing, analyzing, and using knowledge to solve problems, updating and maintaining it, investing scientific and applied knowledge and experiences in solving problems, as well as generating or developing new knowledge and experiences and activating computerized knowledge in decision-making, constitutes one of the fundamental functions of artificial intelligence. However, these functions raise an important epistemological question: Does storing and processing knowledge mean possessing it in the human sense? A machine may contain millions of documents and may be able to extract patterns and relationships from them and provide results at a speed exceeding human capacity. However, this does not necessarily mean that it experiences knowledge as a human experience. Humans do not deal with knowledge merely as separate pieces of data; rather, they connect it with experience, context, memory, lived experience, and values (Al-Ruwais, 2021, p. 14).

Accordingly, the distinction between **information** and **knowledge** becomes important when discussing artificial intelligence and the extent of its ability to acquire knowledge and employ it in various fields.

3) Producing Intelligent Behavior through Big Data and Algorithms:

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Big data represents the raw material upon which many modern artificial intelligence applications rely. Big data has expanded the ability of intelligent systems to discover patterns and relationships and to generate various predictions. Big data is defined as sets of data characterized by volume, velocity, and variety, making their storage, processing, and analysis through traditional methods difficult (Salem Attia, 2022, p. 29).

Here, it can be argued that a large part of a system’s intelligence is related to its ability to process data and to the algorithms that organize this processing. This is particularly evident in deep learning, which relies on algorithms and artificial neural networks inspired by the way the human brain itself functions and requires large amounts of data and high computational power (Deng & Yu, 2014, p. 209).

However, the existence of similarities between computational structures and certain principles inspired by the brain does not necessarily mean that an artificial network possesses the mental experience of the human brain. Here, another epistemological problem emerges, namely that some modern systems operate in ways that are difficult to fully explain.

Third: Limits of Artificial Intelligence and Critical Perspectives:

1) Weak Artificial Intelligence and Strong Artificial Intelligence:

In order to understand the problem of thinking, it is necessary to distinguish between weak artificial intelligence and strong artificial intelligence. Weak artificial intelligence refers to systems designed to perform specific functions within a particular environment, such as driving a car or playing chess, whereby a system can outperform a human in a particular task without possessing general intelligence comparable to that of a human (Garvey, 2022, p. 957).

Strong artificial intelligence, on the other hand, is associated with a more ambitious idea, namely the possibility that a system may possess a general capacity for thinking, analysis, contextual understanding, adaptation, learning, and understanding the surrounding environment in a manner similar to the human mind (Leung & Ng, 2020). This distinction leads us to the question: “Can a machine think?” A machine that performs a specific task with a high degree of efficiency does not necessarily represent a model of general intelligence capable of dealing with various other situations with the same degree of efficiency.

2) Does Producing Language Mean Understanding It?

Natural language processing applications provide a clear example of the philosophical problem associated with artificial intelligence. Intelligent systems can analyze human language, generate texts, respond to commands, and interact with users with ease. This type of application has become one of the most important manifestations of convergence between humans and machines. Natural language processing aims to enable computers to deal with human language, whether through understanding or producing natural language, and these applications rely on computational linguistics, statistics, machine learning, and deep learning (Diwan, 2023, p. 33). However, the ability to produce a complete and grammatically correct sentence or to provide an appropriate answer to a particular question is not, in itself, sufficient to prove that a system possesses an understanding of meaning. Here, a distinction can once again be made between simulation and understanding. A machine or computer program may produce language as a computational result of processing patterns and relationships, whereas humans deal with language as a means of expressing the meaning they experience on the basis of the situation before them. From this perspective, the development of language processing does not eliminate the philosophical problem; rather, it makes it more acute.

3) From the Simulation of Human Intelligence to the Ethical Risks Associated with It:

The problem of artificial intelligence is not limited to the question of thinking and consciousness; it also extends to the consequences resulting from the spread of intelligent systems. Although artificial intelligence contributes to facilitating life and developing various sectors, it has also become a source of social, security, legal, and ethical risks, particularly given the possibility of its misuse and violations of the privacy of individuals and institutions. This

has led to new problems concerning trust in digital content (Al-Bayoumi & Abdullah, 2023, p. 1032).

Here, a fundamental paradox emerges: the more capable a machine becomes of simulating humans, the more difficult it sometimes becomes to distinguish between content produced by humans and content produced by machines. This is not merely a technical problem; it also extends to an epistemological problem because it affects the way in which humans are able to distinguish what is real from what is artificial.

4) The Legal Problem and Liability for Use:

The increasing use of artificial intelligence has led to the emergence of legal issues concerning liability for damages resulting from intelligent systems, legal personality, intellectual property protection, civil and criminal liability, personal data protection, and others. Recently, debate has intensified over the possibility of recognizing artificial intelligence as possessing legal personality and over determining liability for damages that may result from robots and intelligent systems (Hassan & Hossam Al-Din, 2023, p. 114).

This approach reveals that the question concerning the nature of the machine is no longer merely an abstract philosophical question; rather, it has a direct impact on determining liability within society for damages resulting from the actions of such a machine. If an intelligent system makes a decision relatively independently, who bears responsibility for the error? Is it the programmer, the company that developed it, the user, the entity that operated the system, or the system itself? This question brings us once again to the issue of the nature of the machine and the limits of its autonomy.

5) The Social and Economic Dimension:

The impact of the use of artificial intelligence on work and society is extending in a concerning manner. Its ability to automate numerous tasks has raised concerns regarding the future of a number of jobs, while the same technology may also lead to the emergence of new jobs and specializations. Artificial intelligence has begun to replace humans in a number of tasks, and studies addressing this aspect have predicted that some jobs will be subject to automation, alongside the emergence of new jobs associated with the Fourth Industrial Revolution (Al-Hadi & Mohamed, 2021, p. 22).

Here, the importance of the philosophical question emerges once again: if a machine is capable of performing an increasing number of cognitive functions, what will remain as a distinctive domain of human beings?

Fourth: Critical Analytical Reading:

The preceding discussion demonstrates that the question “Can a machine think?” cannot be answered simply with either yes or no, because the answer depends fundamentally on what is meant by thinking itself. If thinking means the ability to process information, discover relationships, and make decisions, then intelligent systems have made significant progress in these areas and have come to outperform humans in some of them. However, if thinking means self-awareness, understanding meaning on the basis of previous experiences, and the ability to connect knowledge with the human context, then the matter becomes more complex.

Moreover, the rapid developments associated with big data, deep learning, natural language processing, and robotics have neither closed nor eliminated the philosophical question; rather, they have expanded its scope and intensified the debate surrounding it. The more capable a machine becomes of simulating human intelligence, the more necessary it becomes to distinguish more precisely between simulation and the mental capacity itself. From this perspective, the value of the philosophy of artificial intelligence does not lie in rejecting or absolutely accepting technology, but rather in critically examining the concepts we use to judge it.

Fifth: The Necessity of Rethinking the Concept of Human Intelligence:

The development of artificial intelligence has led to a reconsideration of the concept of intelligence itself. If humans have traditionally regarded thinking, reasoning, learning, and creativity as fundamental indicators of intelligence, machines have become capable of easily and effortlessly simulating an increasing number of these indicators. However, this raises a deeper question: Is intelligence a set of functions that can be broken down, reconstructed, and reproduced computationally, or is it a more complex phenomenon associated with consciousness, experience, and interaction with the world around us?

Accordingly, artificial intelligence drives us to rethink the very way in which humans think. The study of the intelligent machine does not merely reveal the possibilities of technology; it also leads us to reconsider questions concerning the nature of the human mind and the sources of knowledge, the relationship between thinking and consciousness, and the difference between processing symbols and understanding meanings. Therefore, it can be argued that the philosophy underlying artificial intelligence is concerned not only with the possibility of making machines more intelligent, but also with how to make human beings themselves intelligent.

III. Conclusion:

Based on what has been presented, it becomes clear, through the attempt to analyze the problem of machine thinking, that artificial intelligence has moved beyond the stage of machines that execute predetermined commands toward systems capable of learning, adapting, processing and analyzing data, recognizing patterns, understanding language, and producing rapid and accurate responses that, in many cases, appear similar to those produced by humans. However, this development does not provide a satisfactory answer to the philosophical question concerning the ability of machines to think.

The Turing Test provided an important behavioral criterion for assessing machine intelligence, but it did not settle the question of whether intelligent behavior reflects the existence of internal thinking in machines similar to that of humans. Moreover, the criticisms directed against it, particularly Searle's position, clearly highlighted the distinction between simulating thinking and possessing understanding and meaning.

Furthermore, the relationship between intelligence, consciousness, and knowledge has demonstrated that information processing, pattern recognition, and the provision of answers do not necessarily indicate that a machine possesses self-awareness or a cognitive experience comparable to that of humans.

At the same time, the rapid developments in machine-learning models, deep learning, natural language processing, big data, and robotics have made distinguishing between intelligent behavior and thinking more difficult than ever before.

Accordingly, the question “Can a machine think?” cannot be addressed from a purely technical perspective. Rather, it should be described as an open philosophical and epistemological problem that remains subject to continuous discussion and analysis. Answering it first requires determining the precise meaning of thinking, followed by identifying the relationship between intelligence and consciousness and distinguishing between processing information and understanding it, and between simulating behavior and possessing a mental experience.

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