

THE PROBLEM OF HUMAN MIND AND ARTIFICIAL INTELLIGENCE: AN EVALUATION

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Abstract

One of the essential constituents of the human person is the possession of mind. Mind is said to be the power of thinking. It is the capacity for a reflective activity. More so, the functions of the human mind include: cognition, memory, imagination, volition, among others. It has been observed that some scholars ascribe mind to machines in the same way it is applied to human mind. They argue that there is no essential difference between the human mind and machines. This position has created the problem of human mind and artificial intelligence among philosophers of mind. Employing the philosophical method of analysis, this study observes that although a great deal of achievement has been recorded in the field of cybernetics, it is altogether unreasonable to attribute mind/intelligence to machine. The study maintains that machines, no matter how sophisticated they may be, do not have minds of their own, and this is seen in the fact that they cannot originate their own ideas; they lack creative and innovative capacities. The study therefore concludes that it is only human beings are truly intelligent; the so-called intelligence of machines is simply artificial in every sense of the word.

Keywords: Human Mind, Artificial Intelligence, Consciousness, Computer, Innovation

Introduction

The human person in his quest to be the master of himself has invented several objects in order to make life much meaningful and easier. Some of these technological inventions of man are so sophisticated that they can, when necessary conditions are fulfilled, perform functions similar to that traditionally meant for human beings. Computers and robots, for instance, are able to carry out most of the jobs man ordinarily does, and they do these jobs almost better and faster. For this reason, some philosophers argue that machines are intelligent beings or, if you like, that human beings are intelligent machines.

It is against this background that this work seeks to examine the components of the human mind alongside the artificial intelligence. The objective of this work is to investigate why machines are being equated with human beings in our era and to demonstrate that such an equation is ill founded.

Background to the Concept of Artificial Intelligence

Art, according to Omoregbe (2001, p.49), is by its very nature an imitation of nature. A work of art, meanwhile gains its pleasant admiration and appreciation the more it resembles a natural object. For instance, the more a statue of man resembles a real human being the more it is admired as a work of art. This appreciation reaches its climax if such an artwork is made in such a way that it displays or even mimics certain functions naturally belonging to human being.

Today, there are sophisticated machines that function almost like the human mind, so much so that at the first look, one would have no reason not to attribute minds to them. They are, as it were, imitations of the human minds (Omoregbe, 2001, p.47). There can be no doubt that these machines are, indeed, wonderful works of art - fine imitations of nature. They are well made by the artists that through them, one would get to understand more clearly how the human cognitive process functions. For the reason that they function like the human mind, they are widely referred to as artificial minds or artificial intelligence (Omoregbe, 2001, p.47). Some of these works of the human hand now called artificial intelligence are computers and robots. There are now computerized robots that seem to think and behave intelligently like human beings. They can be sent on errands, they work in factories and have been used to replace human beings. They now do many things which traditionally could only be done by human beings. In industrialized countries they have taken over a number of things that only human beings used to do in the past, thereby rendering so many people practically jobless.

According to Omoregbe (2001, p.47), they now successfully 'compete' with human beings for jobs, and indeed, many industrialists prefer them in their factories since they work faster than human beings and it is cheaper to use them than to employ human beings. In addition to these, they are also said to be more efficient and easier to maintain than human beings. They are equipped with artificial minds and artificial hands with which they can handle even delicate things. The robots also have special sets of artificial fingers that ensure a firm grip and these hands are very useful in many assembly operations (Oladele, 1995, p.28, cited in Omoregbe, 2001, p.49) For

instance, computers now do translations from one language to another, make corrections and do proofreading of works. It marks examination questions, record attendants, and solve Mathematical problems.

Even the specialist knowledge of human experts has been tapped from them and stored away in the computers to be used as when needed. This saves one the trouble, the time, and the cost of looking for the experts, and having to pay heavily for their service. Their knowledge, stored away in computers will simply be reproduced and used to solve the problem one is confronted with, without having to go back to them. Besides, the human experts can forget their specialist knowledge with the passage of time, but the computer does not forget what has been stored in it. Some of the problems associate with the human memory has been taken care of by artificial intelligence (Omoregbe, 2001, p.48). We can then understand why delicate works are done by computer since its accurate reproduction any time is certain (computer does not do work, it is used by man to do work the same way he uses hoe, machete, pen etc). It is not surprising then that some philosophers now advance and defend the thesis that there is no essential difference between the human mind and the artificial minds, such as the computer.

A Brief History of the Problem of Artificial Intelligence

Thinking machines and artificial beings were said to have appeared in Greek myths such as Talos of Crete, the bronze of Hephaestus, and Pygmalion's Galatea (McCorduck, 2004, pp.4-5). Human likeness, believed to have intelligence, were built in every major civilization: animated cut images were worshipped in Egypt and Greece (McCorduck, 2004, pp.6-9). Pamela McCorduck argues that all of these are some examples of an ancient urge to forge the gods (McCorduck, 2004, p.34). Stories of these creatures and their fates discuss many of the same hopes, fear and ethical concerns that are presented by artificial intelligence.

Mechanical or formal reasoning has been developed by philosophers and mathematicians since antiquity. The study of logic led directly to the invention of the programmable digital electronic computer, based on the work of mathematician Alan Turing and others. Turing's theory of computation suggested that a machine, by shuffling symbols as simple as '0' and '1,' could simulate any conceivable act of mathematical deduction (Berlinski, 2000, p. 17). This, along with concurrent discoveries in neurogy, information theory and cybernatics, inspired researchers to begin to seriously consider the possibility of building an electronic brain (McCorduck,

2004, pp.51-107). Founders of artificial intelligence were profoundly optimistic about the future of the new field: Herbert Simon predicted that "machines will be capable, within twenty years, of doing any work a man can do" and Marvin Minsky agreed: "Within a generation...the problem of creating 'artificial intelligence' will substantially be solved" (Simon, 1965, p.96). In the late 1990 and early 21st century, artificial intelligence achieved its greatest successes, and began to be used for logistics, data mining, medical diagnosis and many other areas throughout the technology industry (McCorduck, 2004, p. 57). Faster computers were the principal reason that Deep Blue became the first computer chess-playing system to beat a reigning world chess champion, Garry Kasparov on 11 May, 1997 (McCorduck, 2004, p.63). In March, 2016, AlphaGo won 4 out of 5 games of Go in a match with Go champion, Lee Sedol, becoming the first computer Go-playing system to beat a professional human Go player without handicaps (McCorduck, 2004, p. 63).

Perception and Consciousness: The Nature of Human Mind

Mind is that immaterial part of human being generally referred to as cognitive faculty because in it lies that power by which man can think and know. Indeed it can be rightly asserted that any being that has the power to think has a mind. Thinking, then, is the basic evidence for the existence of mind. But all thinking and all acquisition of knowledge presupposes consciousness (Omogbe, 2005, p. 1). For it is because man has consciousness that he can think, and carry out other mental activities. Thus, Omogbe (2005) argues that, "Consciousness is the activity of the mind. The mind is the power of thinking. Thinking is therefore an act of consciousness and presupposes consciousness." (p.1) Consciousness for him is the awareness of our experience. Like Husserl, Omogbe believes that consciousness has intentional object - that consciousness is always consciousness of something. Hence, Omogbe (2005, p. 1) avers that consciousness presupposes a subject and an object, that is, the subject of experience - that which undergoes the experience; and the object of experience - that which is experienced. The subject of experience, according to him, is an individual, that is, a human being.

He also noted that human consciousness is a reflective consciousness or self-consciousness, as it is often called - that is, consciousness that is conscious of itself. He then outlined several activities of consciousness which include thinking, believing, knowing, imagining, seeing, listening, feeling, deliberating, deciding, loving, liking, hating, doubting and desiring (Omogbe, 2005, p.2). Meanwhile the basic features of consciousness are the fact that it is a mental activity, indubitable, inaccessible, non-

spacious, it has continuous nature, the fact that it is outside oriented, it is reflective, etc (Omoregbe, 2005, pp. 1 -4).

Besides the claim that consciousness is an activity of the mind, Omoregbe (2005, p.5) equally identifies few other functions of the mind such as memory, cognition, volition, and imagination. Memory, for him, is the retentive or storage function of the mind. He believes that a computer can imitate this function of the mind. It can store data and recall them at will. Cognition, itself, is the aspect of the mind with which it performs the cognitive function — the function of acquiring knowledge. Volition or will is the aspect of the power of the mind with which it makes decision and choices, accepts or rejects anything. The other function of the mind outlined by Omoregbe is imagination. It is the power of the mind to picture what the mind is thinking about whether or not such a thing exists in reality.

It should be noted that the object of imagination is different from the object of thought and from that of *perception*. Quoting Sartre, Omoregbe (2005, p.6) purports that an image is a certain type of consciousness which represents something analogically in the mind. This analogical representation is a temporary phantom which in itself can be anything real or unreal. An image, though it is a consciousness of something, cannot be a perception. For instance, the image of a chair is different from the perception of a chair. From here it follows that the artificial intelligence, say a computer, though it might truly perceive, it cannot form images of its perception. And this sort of haphazard activity is after all no perception at all. Hence, Omoregbe (2005) rightly observes:

When I perceive a chair...my perception is a certain consciousness and the chair is the object of the consciousness. As soon as I close my eyes, I perceive the image of the chair that I have just perceived. The chair by giving itself now in image could not be in my consciousness anymore than before. (p.7)

From this we can well deduce that the very act of imagining consists of three elements, namely the act of thinking about an object, the object about which one is thinking, and the analogical representation of the object (Omoregbe, 2005, p. 7). This imagination or formation of image is a function of the mind and it is purely an act of consciousness.

The Concept of Intelligence viz a viz Artificial Intelligence

Intelligence has been defined in many different ways including one's capacity for logic, abstract thought, understanding, self-awareness, communication, learning, emotional knowledge, meaning planning creativity, and problem solving. It can be more generally described as the ability to perceive information, and retain it as knowledge to be applied towards adaptive behaviors within an environment. Intelligence is most widely studied in human, but has also been observed in non-human animals and in plants. Artificial intelligence is intelligence in machines. It is commonly implemented in computer systems using system software. Artificial intelligence is both the intelligence of machines and the branch of computer science which aims at creating it, through the study and design of intelligent agents or "rational agents," where an intelligent agent is a system that perceives its environment and takes action which maximizes its chances of success (Rrand, G, 1997, p. 1). Achievements in artificial intelligence include constrained and well-defined problems such as games, problem solving and optical character recognition; and a few more general problems such as robotics, autonomous (self- driving) cars etc.

Simply put, therefore, artificial intelligence is the intelligence exhibited by machines. The term intelligence is likely to be applied when a machine performs or mimics "cognitive" functions that we intuitively associate with human minds, such as learning and problem solving (Russell & Norving, 2009, p.2). In computer science, an ideal intelligence machines is a flexible rational agent that perceives its environment and takes actions that maximizes its chances of success at an arbitrary goal (Russell & Norving, 2009, p.2). Model examples of artificial intelligence include computers that can beat professional players at chess and Go, and self-driving cars that navigate crowded city streets. The central problems (or goals) of artificial intelligence research include reasoning, knowledge, planning, learning, natural language processing (communication), perception and the ability to move and manipulate objects (Russell & Norving, 2009, p.2).

The notion of artificial intelligence was founded on the claim that a central property of human beings, namely human intelligence, "*the sapiens of homo sapiens*" can be so precisely described that a machine can be made to stimulate it (Russell & Norving, 2009, p.2). This raises philosophical questions about the nature of the mind. Today, artificial intelligence techniques have become an essential part of the technology industry, providing the heavy lifting for many of the most challenging problems in computer science.

Man as an Intelligent Machine

Some scholars are of the view that the human person is an intelligent machine. For Pollock, it is possible to construct an intelligent machine and build consciousness into it. Thus, Omoregbe (2001) observes, "There is no obstacle to building consciousness into an intelligent machine." (p.49). Pollock (1988, cited in Omoregbe, 2001, p.49) cites an analogy of the statue in which he purports to claim that human beings are physical objects that supervene on their bodies in the same way that a statue is a lump of clay that supervenes on the clay. From this analogy he concludes that both human beings and machines are physical objects and do intelligent things. Man does intelligent things, the computer does intelligent things therefore, man is an intelligent machine.

The Artificial Brain Argument

Machines are intelligent, but observers have failed to recognize it. When Deep Blue beat Garry Kasparov in chess, the machine was acting intelligently. However, onlookers commonly discount the behavior of an artificial intelligence program by arguing that it is not 'real' intelligence after all; thus, real intelligence, for them, is whatever intelligent behavior people can do that machine still cannot. Brains can be stimulated by a machine and because brains are intelligent, stimulated brains must also be intelligent; thus, machines can be intelligent. Hans Moravec has argued that it is technologically feasible to copy the brain directly into software and hardware, and that such a simulation will be essentially identical to the origin. An artificial intelligence system must be able to reproduce aspects of human intelligence (Bundy, 1980, p.91).

Dreyfus' Critique of Artificial Intelligence

In *Alchemy* (1965) and *What Computers Can't Do* (1972), Dreyfus summarized the history of artificial intelligence and ridiculed the unbridled optimism that permeated in the field. Dreyfus felt that their optimism was totally unwarranted. He believed that they were based on false assumption about the nature of human intelligence. McCorduck (2004) explains Deyfus' position: "A great misunderstanding accounts for public confusion about thinking machines, a misunderstanding perfected by the unrealistic claims researchers in artificial intelligence have been making, claims that thinking machines are already here or at any rate, just around the corner." (p.212). These predictions, Dreyfus observes, were based on the success of an "information processing" model of the mind articulated above. Believing that they had successfully simulated the essential process of human thought with simple programs, it seemed short steps to producing fully intelligent machines. However, Dreyfus argues that they

are serious problems with this information viewpoint. The mind, according to him, is nothing like a computer.

Dreyfus' Four Assumptions of Artificial Intelligence

Dreyfus identifies four philosophical assumptions that supported the position of early artificial intelligence researchers that human intelligence depended on the manipulation of symbols (McCorduck, 2004, p.211). "In each case," Dreyfus writes, "the assumption is taken by workers in artificial intelligence as an axiom, guaranteeing results, whereas it is in fact one hypothesis among others, to be tested by the success of such work." (Deryfus, 1979, p. 156)

The Biological Assumption: the brain processes information in discrete operations by way of some biological equivalent of ON/OFF switches. When digital computers became widely used in the early 50s, this argument was extended to suggest that the brain was a vast physical symbol system, manipulating the binary symbols of zero and one. Dreyfus was able to refute this biological assumption by citing research in neurology that suggested the action of timing of neuron firing had analogy components.

The Psychological Assumption: The mind can be viewed as a device operating on bits of information according to formal rules. He refuted this assumption by showing that much of what we 'know' about the world consists of complex attitudes or tendencies that make us lean towards one interpretation over the other. He argued that even when we use explicit symbols, we are using them against an unconscious background of common sense knowledge and that without this background our symbols cease to mean anything. This background, in Dreyfus' view, was not implemented in individual brains as explicit individual symbols with explicit individual meanings.

The Epistemological Assumption: All knowledge can be formalized. Even if we mean that the psychological assumption is false, artificial intelligence researchers could still argue (as artificial intelligence founder John Macarthy has) that it was possible for a symbol processing machine to represent all knowledge, regardless of whether all human beings represented knowledge the same way. Dreyfus argues that there is no justification for this assumption since so much of human knowledge is not symbolic.

The Ontological Assumption: The world consists of independent facts that can be represented by independent symbols. The question of what exists is called ontology, and so Dreyfus calls this the ontological assumption. He avers that ontology is more than can be represented by symbols. This, he admits, raises doubt about what we can ultimately know, and what so-called intelligence machines will ultimately be able to help us to do depend on what we can ultimately know.

Knowing-how versus Knowing-that: The Primacy of Intuition

In *Mind over Machine* (1986), Dreyfus analyzed the difference between human expertise and the programs that claim to capture it. Dreyfus argues that human problem solving and expertise depends on our background sense of the context, of what is important and interesting giving the situation, rather than on the process of searching through combination of possibilities to find what we need. He describes this as the difference between 'knowing-that' and 'knowing-how,' based on Heidegger's description of present-at-hand and ready-to-hand (Dreyfus, 1986, p. 233).

Knowing-that is our conscious step by step problem solving abilities. Dreyfus argues that artificial intelligence program adequately imitated the skills he calls knowing-that. Knowing-how, on the other hand, is the way we deal with things normally. We take actions without using conscious symbolic reasoning at all, as when we recognize a face, drive ourselves to work or find the right thing to say. We seem to simply jump to appropriate response, without considering any alternatives. This, for Dreyfus, is the essence of expertise, namely that our intuitions have been trained to the point that we forget the rules and simply "size up the situation" and react.

The human sense of the situation, according to Dreyfus, is based on our goals, our bodies and culture - all of our unconscious intuitions, attitudes and knowledge that is not stored in our brains symbolically, but intuitively in some way. It affects what we notice and what we do not notice, what we expect and what possibilities we do not consider: we discriminate between what is essential and inessential. The things that are inessential are relegated to what William James calls fringe consciousness: the millions of things we are aware of, but we are not really thinking about right now. Dreyfus does not believe that artificial intelligence programs could capture this "background." He argues that our unconscious knowledge could never be captured symbolically. If artificial intelligence could not find a way to address these issues, then it is doomed to failure, an exercise in 'tree climbing with one's eyes on the moon' (Dreyfus, 1992, p. 119).

General Evaluation

There are several philosophical problems related with the study of artificial intelligence: is artificial general intelligence possible? Or are there limits to what machines can accomplish? Can a machine have a mind, consciousness and mental states in exactly the same sense that human beings do? Can a machine be sentient and thus deserve certain rights? Does it have a will, for instance, can a computer refuse not to do something that it has been asked to do under normal condition?

Concerning the question whether artificial intelligent can think, we may turn to Turing polite convention. According to this view, we do not have to decide if a machine can 'think,' we only need to decide if a machine can act as intelligently as a human being. This approach to the philosophical problems associated with artificial intelligence forms the basis of the Turing test (Graham, 1993, pp.82-97). From here, a conclusion was reached that every aspect of learning or any other feature of intelligence can be so precisely described that a machine can be made to stimulate it. According to this view, a physical symbol system has the necessary and sufficient means of intelligent action. For, according to Bundy (1980, p.112), intelligence consists of formal operations on symbols. For Hubert Dreyfus (1965, p. 89), on the contrary, human expertise depends on conscious symbol rather than unconscious symbol manipulation, and on having of feeling for the situation rather than explicit symbolic knowledge.

Now, the question is: are humans reducible to Turing machine? According to Graham (1993, p.86), humans are not reducible to Turing machines. For it is always possible to create statements, and formal system could not prove unlike human beings which can employ his thinking ability to detect the truth of any statement. Any Turing program designed to search for these statements can have its method reduced to a formal system, and so will always have some statements derivable from its program which it can never discover. However, if human beings are indeed capable of understanding mathematical truths, it does not seem possible that we could be limited in the same way. This is quite a general result, since it can be shown that hardware, and computers based on random processes can all be reduced to Turing machines. All they do is to reduce the complexity of the tasks, not permit new type of problem to be solved.

Joseph Weizenbaum wrote that artificial intelligence applications, cannot, by definition, successfully simulate genuine human intelligence, and that the use of artificial intelligence in technology was deeply misguided. Weizenbaum, was therefore, worried that artificial intelligence researchers were willing to view the

human mind as nothing more than a computer program - a position now known as computationism. This development, for him is a devaluation of human life (Graham, 1993, p.103).

If an artificial intelligence system replicates all aspects of human intelligence, will that system also be sentient - will it have a mind with some conscious experiences. Computationalism is the position developed by the *mechanists* arguing that the human mind or the human brain (or both) is an information processing system and that thinking is a form of computing (Dreyfus, 1972, p. 97). According to Dreyfus, Computationalism argues that the relationship between mind and body is similar or identical to the relationship between software and hardware and thus may be a solution to the mind body problem. They thus conclude that the appropriately programmed computer with the right inputs and outputs would thereby have a mind in exactly the same sense human beings have minds (Dreyfus, 1972, p. 98). John Searle counters this assertion with his Chinese room argument (Graham, 1993, p. 112), which asks us to look inside the computer and try to find where the 'mind' might be. Any attempt to do this would be an exercise in futility.

John Pollock purports to defend the conception of man as an intelligent machine. But, as Omoregbe (2001, p.50) rightly observes, Pollock seems to be ignorant of the fact that the intelligent machine he is talking about is a creation of man, and the so-called 'intelligence' in the computer or any other machine is a product of human intelligence. Hence, Oladele (1995, cited in Omoregbe, 2001, p.50) argues that machines do not possess that irreducible quality in man, namely self-consciousness. For him, the human consciousness is something unique which is not reducible to artificial intelligence.

"When we talk of artificial intelligence," Oladele observes, "we are not talking of computers or machines per se, but the intelligence that comes out as a result of the activities of such computers or machines" (Omoregbe, 2001, p.50). Responding to Pollock's attempt to equate machines with human beings, Oladele points out that machines do not have the mind-body problem which human beings have because machines lack the ability to look into their own thoughts and feelings. Machines are not capable of reflection to make them aware of the mind-body interaction problem. Again he notes that machines are not capable of forming intention because, again, they lack self consciousness (Omoregbe, 2001, p.51). Also, machines have been said to lack biological constitution, and this naturally follows from the fact that they are not

living things. Furthermore, no one would dare to talk about machines being morally right or wrong since it does not act from freewill of choice but swallows whatever is giving to it by its programmer. Granted though, these programmers have done quite fantastic jobs in the research and improvement of machines and computers. But this is enough reason to ascribe human intelligence to it. For as Omoregbe (2001, p.51) rightly observes, no matter its degree of sophistication, a work of art remains an imitation of nature and it can never be the same as nature itself.

Conclusion

This study has attempted to examine the components of the human mind alongside the claim that machines are intelligent object. It has also reviewed the positions of those attributing intelligence to the machines (the mechanistic view) and that of some philosophers who insist that intelligence is an exclusive attribute of the human person (the vitalists). It highlighted John Pollock's argument that machines can be equated to human beings refutation of which was basically the purpose of Oladele's *Can Machines be Equated with Man?* Dreyfus argued that human intelligence and expertise depend primarily on unconscious instincts rather than conscious symbolic manipulation, and that these unconscious skills could never be captured in formal rules. Man is able to do this because he is intelligent and such skills of the human person can never be imitated or artificialized.

The researcher finally observed that although a great deal of achievement has been recorded in the field of cybernetics, it is altogether unreasonable to attribute intelligence to machine. For, in the first place, it lacks self-consciousness, and we do not find in it the tripartite powers of the human mind. Computers cannot be moral agents since they lack free will. Indeed, they do not have minds of their own, and this is seen in the fact that they cannot originate their own ideas; they lack creative and innovative capacities. Only human beings are truly intelligent. The so-called intelligence of machines is simply artificial in every sense of the word.

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