Review Article

iMedPub Journals
www.imedpub.com

American Journal of Computer Science and Engineering Survey

2020
Vol.8 No.1:4

DOI: 10.36648/computer-science-engineering-survey.08.01.04

# Medical Doctor's Perspective on Artificial Intelligence: Brief Overview

**Kadircan H Keskinbora***

Head of Department, History of Medicine and Medical Ethics, Bahcesehir University, School of Medicine, Istanbul, Turkey

***Corresponding author:** Kadircan H Keskinbora, Head of Department, History of Medicine and Medical Ethics, Bahcesehir University, School of Medicine, Istanbul, Turkey, Tel: +90 5322758795; E-mail: kadircan.keskinbora@gmail.com

**Received date:** April 20, 2020; **Accepted date:** May 4, 2020; **Published date:** May11, 2020

**Citation:** Keskinbora KH (2020) Medical Doctors' Perspective on Artificial Intelligence: Brief Overview. American Journal of Computer Science and Engineering Survey Vol.8 No.1: 04. DOI: 10.36648/computer-science-engineering-survey.08.01.04



## Abstract

**Objective:** This paper is committed to explore the artificial intelligence (AI) phenomena that has been raising most important confusing ontological and other probable questions of our time concerning the areas that it occupies and its potential uses, as well as its effect on human race's way of thinking and provoke risks which some thinkers prophesied it would lead to unemployment crisis and ethical dilemmas.

**Methods:** Researching papers, books and articles about AI and performing critical thinking to evaluate the challenge and probable harm of AI on human race.

**Results:** In 21st century, the artificial intelligence challenges all our ideas and philosophies that human race have been building throughout the ages to justify our behaviors and to attribute the uniqueness of "intelligence" to mankind only. Thus, exalting ourselves above other creatures. However, AI development although it is essential for progression, challenges those believes, AI is the milestone for further scientific breakthroughs in medical and public health field which showed rapid adoption of technological support. We need to contend our world's flow and advancements would be totally supplanted by AI and all the advance in this world would be stripped of its human components.

**Discussion:** In certain intellectual level the AI would seek higher potentials and thus starts to improve itself through Deep learning feature. Mankind never before faced such problem that could collide with our definition of what makes human a human. Or even questions the uniqueness our human intelligence. The same problem constitutes a potential risk that could bring humanity down to an unprecedented crisis because, for example, the misuse of AI, especially by the governments or secret organizations. The approach we are taking to ensure the safety of mankind against such risks in developing AI is to put restrictions and regulations and working for humanity's beneficence.

**Keywords:** Artificial intelligence, Nanotechnology, Beneficence.

## Introduction

In 1956, the term 'Artificial Intelligence' has been mentioned for the first time by Jon McCarthy during a conference organized to bring scientists together and discuss the possibility of creating "intelligent'' machines. Yet, the history of machines and the endeavor to incorporate into them intelligence can be traced far back before that. Artificial intelligence can be defined as the ability of the machine to make judgment and meaningful opinions even in situations where the information is too much manage or uncertain. This process is based on reasoning that is normally associated with human intelligence [1]. AI development goes through ordered stages and with each stage more powerful AI is produced. Generally, the AI is classified into 3 types that is functionally, intellectually and architecture are more sophisticated and can be utilize in more broad fields. Simplest type of AI is Artificial Narrow Intelligence (ANI) which specializes in one single specific repetitious task that can be automated by bots. The tasks would be, for example, restaurant recommendation or a weather update etc. Artificial General Intelligence (AGI) on the other hand is at least as intellectually capable as a human. This type of intelligence is not constrained on one single narrow task like ANI, but focuses on broader fields [2]. Due to the capability of AGI and Deep Learning that gives the AI the idiosyncrasy to seek more information and development by itself would eventually lead to a more sophisticated type of AI that's called Artificial Super Intelligence (ASI). The intense concept of Artificial Super Intelligence (ASI) indicates that AI will eventually surpass human intelligence and we may be heading toward an Artificial Intelligence Explosion. Pohl indicated the danger of the unavoidable transition from AI to ASI and may in fact lead to the eventual demise of the human [3].

### Brief History of Turing Test and Machine Intelligence

Back at the 20th century mathematicians were fascinated by the idea of solving mathematical problems by following the strict sets of rules, following algorithms. They wondered if such algorithm, a program that solve complicated questions. A set of mathematical problems delivered in a lecture by professor Hilbert (born in 1862) before the international congress of mathematicians at Paris in 1900. The set constitutes of 23 (at

the time) unsolved problems that would lead to advancement in mathematical fields upon their solutions. His tenth problem states that: *"Determination of the solvability of a Diophantine Equation. Given a Diophantine equation with any number of unknown quantities and with rational integral numerical coefficients: to devise a process according to which it can be determined by a finite number of operations whether the equation is solvable in rational integers"* [4].

The tenth problem would serve further more in Hilbert's goal. He was fascinated by the idea of a possibility to find an algorithm that solves all problems. The Entscheidungsproblem (Decision problem) was part of his work to acknowledge such algorithm that would initiate a computational procedure on logical mathematical Axoms to prove a given mathematical statement from those Axoms alone and Answer 'yes' or 'no' after the evaluation of the universal validity of the statement [5]. Alonzo Church, an American Mathematician, formulated Lambda Calculus published a paper in 1936 [6]. He stated that: "general case of Entscheidugsproblem Cannot be solved in any system of symbolic logic which is adequate to a certain portion of arithmetic and is w-consistent'' [6].British mathematician Alan Turing (born in 1912) who later became famous for his machine test (Turing test), further proved in his paper, the impossibility of the problem and there were no complete sets of rules for the mathematical problem's solutions. In his paper Turing wrote: *"Although the subject of this paper is ostensibly the computable numbers, it is almost equally easy to define and investigate computable functions … I have chosen the computable numbers for explicit treatment as involving the least cumbrous technique"* [7]. Turing's computability was similar to Church's effective Calculability but differently defined. Church and Turing proved that Based on the assumption that the 'effective calculable' is captured by the functions computable by a turning machine or in lambda calculus (Church-Turing's thesis), a general solution to the Entscheidungsproblem deemed impossible.

## Can machines have consciousness and be able to think?

In order to create self-aware machines or even judge whether or not machines could have consciousness and think for themselves we need to understand what its phenomenal experience (hard problem) and what elicits this conscious experience. The study of consciousness and its architecture can be applied, at least in principle, to all kinds of systems whether biochemical organisms or complex computer networks [8]. Investigations concern the interpretation of consciousness includes various approaches that all aim to comprehend this phenomenon. The Embodiment is an approach to the questions related to the mind. It states that consciousness arises from the sensorimotor inputs. Clowes et al. argue that the implication of the concrete nature of the motor control association with consciousness relates to the subjectivity of sensorimotor experience which illicit the consciousness of the agent as the owner of that experience. Therefore, robots that intended to be conscious require "physical instantiation" that resembles the means and modalities of human movements [9]. However, the argument goes further that the sensory inputs are not enough and need to be augmented by inner subjectivity and the use of mental imagery through simulation and depiction. The simulation hypothesis is crucial for conscious machine as it provide interaction with the external world [9]. Past few decades Neuroscientific researches proposed hypothesis and theories to comprehend and decipher such phenomena. Dehaene et al. emphasized that consciousness is the result of Global Neuronal Workspace (GNW) the mechanism by which subjective experience, consciousness, arises through selection, amplification and global broadcasting of the information gathered through sensory stimulation to achieve global conscious state [10]. In GNW hypothesis, peripheral information passes through two successive phases to access consciousness. In a first phase, the stimulus from sensory inputs climbs up the cortical processors called modules to unconsciously operate them. In a second phase, if the stimulus is selected for its minimal duration and clarity and then amplified through the attentional state of the agent and becomes maintained by sustained activity of GNW neurons, the rest being inhibited and the selected stimuli become broadcasted to all modules [11]. The entire massive workspace connectivity constitutes of thick layers of projecting pyramidal neurons of II/III layers of cortex which is globally interconnected via axons to prefrontal, parieto-temporal and cingulate associative cortices and thalami-cortical of the brain to achieve high level of awareness [10]. Phase one in fact is the stage where the brain project these acquired information into unconscious hypothetical computational processes, similar to the symbol manipulation events originally proposed by Turing [12]. This reflective use of acquired information is similar to how computer gather data and use them. In order to achieve such high machine consciousness, we need to add more layers of complexity to the machine connectivity and mimic the brain. In his paper printed in 1950, Turing believed that about fifty years' time, computers will be able to play ''imitation game'' so well that the interrogator will take sometimes to realize the interrogated is a computer and the original question whether ''can machines think?'' will be meaningless [13].

The Turing test has two essential characteristics which illustrate what turning means when he proposed the question whether or not a machine can think. First: the interrogator knows in advance that there is one human and one machine that will be present to engage in talk with. The second characteristics is that the test does not put any emphasize on the physical characteristics of the entity. It simply sets series of question that can generate small conversations that both human and machine can provide answers to. In order for a computer to pass the Turing test, the examiner must fail to tell if the answer was provided by a computer or a human [14]. The test had laid foundations and frameworks for arguments and discussions concerns cognitive science, computer science and philosophy [15].

The case of machine intelligence has been overwhelming scientists and researchers. The previously discussed "Theories of Church and Turing" made unprecedented advancement in computer sciences. According to Churchland et al., Church's thesis, which states that every effectively computable function is

recursively computable [16]. Effectively computable means that there is a "rote" procedure for determining, in finite time, the out- put of the function for a given input, furthermore, Alan M. Turing's demonstration that any recursively computable function can be computed in finite time by a maximally simple sort of symbol-manipulating machine that has come to be called a universal Turing machine. This machine is guided by a set of recursively applicable rules that are sensitive to the identity, order and arrangement of the elementary symbols it encounters as input. If the symbols-manipulating machines that process input-output functions through the strict set of rules of algorithms were able to pass Turing test and can't be discriminated from human then that machine can be considered thinking machine [16].

## Machine Learning

### Background

Machine learning is an algorithmic breakthrough in computer science that enables machines to learn from experience and examples without predetermined steps and rules that are set by the programmer. Machine learning algorithms have proved to be efficient in identifying and analyzing patterns in large amounts of data, commonly referred to as "Big Data". Recognizing Big Data is used to train learning algorithms to increase their identifying capacity and performance and accordingly used in predictions, identification and critical decisions. According to Chen et al., the enhancement of computations and networking technologies could be achieved by building Artificial Neural Network (ANN) that resembles the activity in human's neural networks found brain and achieve similarities with the information processing and learning models that occurs naturally [17].

The brain consists of 100 billion of individual neurons that are interconnected by Axons of one neuron to the dendrite of the next to make complex networks of neurons communicating between each other through propagating electrochemical reactions [18]. The development of AI and especially machine learning have been influenced by the advancements in understanding the brain and its connections in the field of neuroscience through Replicating the neuroscientific methodologies and knowledge regarding cognitions and learning on algorithmic-level pave the way to approach artificial intelligence in neuroscientific orientation [19]. Hassabis et al. highlighted the stochastic information processing and symbolic manipulation of symbolic representations roles in human intelligence notion can be replicated in developing the deep learning algorithms. Furthermore, they stated that in both biological and artificial systems, successive non-linear computations transform raw visual input into an increasingly complex set of features, permitting object recognition that is invariant to transformations of pose, illumination, or scale [19]. Artificial Neural Network (ANN) is a model that simulates the function of interconnections found in brain [18]. The hidden middle section layer of the artificial neural network will receive the input weights and biases and sums them up. The sum of weighted input and biases will exit the artificial neuron and pass through activation action, transfer function [20].

### Individual artificial neuron

The following discussion will briefly explain how machine learning works and dissect the components of the system:

Artificial neutron called perceptron that mimics biological neurons is imbedded with equations and rules of multiplication, summation and activating upon receiving inputs [20]. Weights are the parameters used in machine learning that adjust the function victors whether linear or non-linear that separate data provided by programmers and predict future answers. It can be assumed as "knobs" that define input-output function and adjusted frequently in order to reduce errors during machine training [21].

### Artificial neural network

Benefit of artificial neuron model equations that sum the weighted inputs, bias and process the sum with a transfer functions can be seen in its mathematical description below:

Multilayer perceptron or Artificial Neural Network (ANN) composed of several consecutive layers where the output of one layer is the input signal of the next. The essential neural network layer in the system is the layer that processes incoming signals data from the input layer and produce meaningful representations through the output layer. According to Isaiadis: the class network being operable to generate an output signal based on network input vector component received by the input layer, the temporal processor node being operable to receive observation data representing the observed state of monitored entity as a component of network input vector [22]. The architecture of ANN is in fact and analogue to biological neurons and it allows, overtime, algorithmic process called gradient decent to adjust the connection and therefore shift toward more desired answers during machine training [23].

### Machine learning and deep learning

The simulation of brain architecture and networking enables the AI to learn from the data fed into it and predict future answers and critical decisions accordingly.

Briefly machine learning techniques can be categorized into supervised and unsupervised. In fact, machine learning is about finding statistical regularities and patterns in data and that does not require consciousness therefore this algorithm of learning is considered as a statistical branch of computational learning theory [24].

The supervised model uses ANN that has been pre-loaded with data by the programmers and able to make prediction based on them through classification and regression techniques. Upon receiving signals from the input layer, the algorithms will calculate the activation value to reach the threshold to fire the output and afterward will compare the calculated output and the desired output to find the errors through back propagation algorithms [25]. The information flow in forward-feedback sweep and processed in each layer until it reaches the output

layer. The Delta Rule plays major rule in producing the desired output by adjusting the weights on the artificial neuron once differences are detected between the desired and the computed output are detected by back-propagated to the previous layer (which is modified by transfer function derivatives) [26].

The above chart shows the flow of information in ANN during supervised learning. The system will calculate the differences of expected and actual output and calculate the error percentage through back-propagation algorithms and therefore will adjust the weights values to reach best configuration and set best vector to separate the data in order to give desired answers.

With unsupervised learning the ANN receives only the input data but no information about the expected output. In this type of learning the ANN learns to produce the pattern of insight. Deep learning algorithms are a very recently developed phenomenon that can do this through a combination of massive numbers of examples and several network layers–requiring a great deal of computational power. The rise of "big data" techniques make the former possible because data can be mined through so many sites daily such as social networking retailing business and soon informs such as sound text and images. This means that for example networks can be fed images without knowing much about them and discover features themselves–instead of having to be told what those features are such as perhaps the edges of a physical object. Rather than the developer identifying features the network is trained by feeding it data and scoring how well it performs. The network uses layers of nodes that that look for features at different levels of abstraction. Deep learning systems are so-called because the learning algorithms operate in several deep layers. Each layer processes data from the predecessor layer the output of which is passed to the next layer. The number of layers can vary. For example, Google Net uses layers in its computer vision systems for object recognition [18].

## Potential Usable Areas

### Benefits

The main advances over the past sixty years have been advances in search algorithms, machine learning algorithms, and integrating statistical analysis into understanding the world at large. However, most of the breakthroughs in AI aren't apparent to most people. Rather than talking machines used to pilot space ships to Jupiter, AI is used in more subtle ways such as examining purchase histories and influence marketing decisions [27].

AI holds flourishing promises in field of medical diagnosis and decisions making. It will aid physicians in analyzing the information and history of the patients, in a short time and ensures maximum precision in diagnosis and improves the lifestyle of patients to bring about the best outcomes. Now is the time for healthcare providers, health plans and other organizations to strengthen cyber security capabilities, improve their defenses, build resilience and better manage breaches. Most importantly, they can give consumers the confidence that their data is in trusted hands [28].

AI would aid cargo companies in logistics and reduce losses and ensure the movements of shipping by monitoring the cargo. As well as the applications in banking and even replacing humans labor in dangerous places that considered to be fatal for human subjects such as mining. In addition to Using AI in geo-engineering to manipulate earth's climate system in order to solve the problem of climate changes [29].

The scientific field and especially medicine beheld a revolution in the rise of AI which hastened the progress of its developments. According to Mesko, in international symposium on biomedical imaging the winner algorithm had 92.5% rate of success in detecting metastatic breast cancer on slide images of lymph node while a pathologist had a success rate of 96.6% on same slide. The deep learning could enhance the pathologist diagnosis and increase the rate of success to 99.5%. Therefore, we need to combine deep learning algorithms of artificial intelligence and physicians' skills in order to reduce the possibilities of misdiagnosis and increase the precision of detecting abnormality patterns that human physician would not detect [30].

According to Wallach et al. Atom Wise produced AI called Atom Net that would recognize the interaction between molecules and predicts which compounds have the greatest potential to be a treatment by using models and integrate the information given to it to make its prediction [31]. It tests thousands of potential compounds in short time and reduces the finances. Atom Net AI is the first deep learning AI that recognize binding affinity between drugs molecules. It promises to revolutionize medical field especially pharmacology and drug design in unprecedented way that would help to produce many scientific papers about pharmacology in short amount of time. All these implements of technology and the emerging artificial intelligence in medicine tend to enhance the physicians and scientists skills in making right diagnosis and treatments and reduce the time required for new discoveries of new treatments strategies or new drugs and most importantly, it helps to shift the generalized to more personalized methods in medicine and thus less likely to misdiagnose the patients. In fact, it augments all human capabilities and hastens our scientific approaches [31].

The WAVE clinical platform is on-remote monitoring system that at-risk patients utilize it across the hospital workstations which provide near real-time patients' conditions by displaying the medical relevant data, giving an at-a-glance early warning of patient deterioration up to six hours in advance of when clinicians would otherwise notice and while there is still time to prevent further deterioration [32].

### Could ASI allow us conquering mortality?

Since our idea of death is an inevitable as time, we live under the desperate idea that aging and the subsequent death is uncontrollable and there is nothing we can do to prevent it however, Feynman writes: "It is one of the most remarkable things that in all of the biological sciences there is no clue as to the necessity of death. If you say we want to make perpetual motion, we have discovered enough laws as we studied physics to see that it is either absolutely impossible or else the laws are

wrong. But there is nothing in biology yet found that indicates the inevitability of death. This suggests to me that it is not at all inevitable and that it is only a matter of time before the biologists discover what it is that is causing us the trouble and that this terrible universal disease or temporariness of the human's body will be cured" [33].

As a matter of fact, our biological cells and materials that constitute our bodies are in constant state of endeavor to keep the human body working. And constantly exposed to either internal or external insults and injuries that would lead them to wear down. All those events contribute to the process of aging. Therefore, aging, in fact, is but a biological and physical process that can be avoided through maintaining and repairing the cells. Conquering mortality and unlocking immortality is considered to be an attractor factor for the development of advanced artificial intelligence, just as there are scientists who argue against the progression of AI. Due to the fact that it would lead to inevitable extinction of human race, there are scientists who are optimistic about this phenomenon and encourage its developments, taking into consideration the capabilities of AI that would enable us to do what no other specie did before, achieving immortality and be immune to extinction forever. Therefore, the onset of advanced artificial intelligence development could lead to new extraordinary chances and possibilities that would lead to mankind conquering death or the fall to "other side of the beam", fall into extinction [31,34].

## More potential risks

**a) Military and technology risks:** Military and government involvement in technology developments, indeed, constitute a very serious risk that threatens peace and the conduction of safe technological developments. Risks include the creation of new weapon of mass destruction, arm races that would lead to emergence of uncontrollable weapons due to the speed of experiments conduction and thus the death of thousands of civilians or maybe even a Third World War. Just like nuclear bombs. The science behind it was intended to be beneficial for mankind but the military and government involvement led to the use of these discoveries for atrocities and war crimes as it happened in Hiroshima and Nagasaki even though Einstein's warning of the hazardous uses, those bombs experiments kept carrying on. Same thing would, of course, occur now. This would lead to the creation of new mass destruction weapons and thus history would repeat itself again. According to the current AI is a narrow AI that is capable only to do job on a specific domain; however researchers are working on artificial general intelligence (AGI) that is capable to work and think on all the domains that humans can [35]. Such processes could concentrate the power in the hand of one group of a nation in arms race and thus they would have a decisive role and strategic advantage to rule over the others and control the politics and economy [36].

**b) Existential Alienation:** On the other philosophical perspective, the eclipse of super intelligence constitutes a potential existential risk on human psyche and ontology. The probability of AI replacement of the existential human role (especially the working-class role) since humans will no longer be capable to persist or don't have the required level of intelligence for functioning efficiently [37]. Thus, researchers should focus as well on how to maintain the human existential relevance in the world of growing artificial intelligence. On the aspect of human work force replacement, the ontological impact of AI replacement can be explained by Karl Marx philosophy of alienation. Marx argues that human nature depends on the labour of groups or individual through which their needs are met. Through this labour he transforms the world he lives and willingly encourage himself to develop and better the end product. AI was created (among other reasons) as a tool to perfect the end products as a result of this transformation that Marx argued. However, capitalist economy transformed the human labour with AI because of its efficiency in producing high number of products in less time with low wages. Thus, the humane elements of labour were forced into dehumanizing.

Lead AI thinker and philosopher Nick Bostrom believes all potential outcomes if we take a glimpse into history, we can see that life ascend into existence, live for a while, and after some time, inevitably, they fall off the existence and lead to extinction. The inevitable extinction of all species has been almost as intelligible as the notion of "all humans eventually die'' [38].

The famous physicist Stephen Hawking warns us about the inevitable danger of developing more advances AI system because "once humans develop full AI, it will take off on its own and redesign itself at an ever-increasing rate" [33]. AI lacking of the elements of humanity can be a speculation of such warnings.

At the military area, such achievement could result in uncontrollable weapons of mass destruction which lead to the collapse of the modern civilization and undo the centuries of progress. Even though nanotechnology promises illness treatments and other benefits for humanity, it makes great risks of environmental pollution, inequality and automation of the human working force. And of course, the potential risks it holds if applied in military exploitations. For nanotechnology is capable of transport chemicals and biological agents to the targets and thus can be associated with assassination attempts, and the ability to use genetic markers to target specific ethnic group or individual which makes it the perfect weapon for racists terrorism [35,39].

When an AI system takes a step forward in advancement into AGI (human-level intelligence) and then ascends its way up to ASI, that's called the AI's takeoff. A takeoff to ASI can be fast (it happens in a matter of minutes, hours, or days), moderate (months or years), or slow (decades or centuries). The median expert put that moment at 2060; Kurzweil R et al. [40] puts it at 2045; Bostrom N et al. [38] thinks it could happen anytime between 10 years from now and the end of the century, but he believes that when it does, it'll take us by surprise with a quick takeoff. The mismatch between the power of our plaything and the immaturity of our conduct. Super intelligence is a challenge for which we are not ready now and will not be ready for a long time [34].

Why does Stephen Hawking [41] the development of ASI "could spell the end of the human race" and Bill Gates [42] say

he does not "understand why some people are not concerned" and Elon Musk [43] fear that we're "summoning the demon"? And why do so many experts on the topic call ASI the biggest threat to humanity?

Harari et al. [44] warns that "*seed algorithm may initially be developed by humans, but as it grows, it follows its own path, going where no human has gone before - and where no human can follow.*"

## Recommendations and Conclusion

"Philosophically speaking, what makes human a human is not the organic shell that we live in because every other organic life shares same biological features of human, however human differ in its unique and complicated reaction toward memories and experiences due to its unique CNS connections. Artificial neural network can mimic human "organic" connection. Under the shade of this, we are left to recognize that we are different only because we react to our subjective experiences. Thus, there's no way to deny that AI can be a human (if we develop an advanced neural connection) and can be taught as a human.

Implanting human emotions and feelings into the algorithms of AI can provide positive step toward safe AI Development. The ability of AI To recognize human facial expressions and body language and interpret them will guide their learning and behavior patterns and thus more benign actions would be taken by AI. To achieve the goal for human happiness and prosperity [39].

### Responsibility and implanted morality of automated AI

The implantation of ethics and morality to AI could help to reduce these potential risks and operate in safer grounds. This approach requires the AI to be conscious and automated and be responsible of his actions and hold accountable for the judgments AI makes as an end.

In order for AI to have moral state, first it needs consciousness. That's by letting it subjectively experience the surrounding environment and have perspectives. Combining the perceptual data which comes from the sensory device and its reactive functionalities with logic-based view of the robot can lead to creation of cognitive robotics [37] thus embedding reasoning into the agent and make it capable of performing complex tasks and being capable of understanding the unknown environments without human interference. And thus, a self-aware robot can explore the surrounding environment and have its own aspects and perspectives and make its own moves accordingly. While creating AI, it's important to program a set of rules related to the anticipated job that AI is going to do. For example, army robot should have laws of war and rules of engagement and be responsible of any violations of these rules and hold accountable for the action.

### Principle of substrate non-discrimination and ontogeny non-discrimination

According to Bostrom and Yudkowsky, the substances that constitute the body of beings don't matter as long as both shared experiences and functionality [38]. Since these features constitute the moral and ethical context of being whether the consciousness is being produced from neurotransmitters-conductive cerebral tissue or electricity conductive-metal case. And that include as well the method from which the being was born (through programming or through embryogenesis). These arguments is valid since we in our daily life don't identify ourselves and humanity as creature who (for example walk on 2 legs and have straight backs) we identify our humanity as thinking beings that work on ethical codes and values and freedom that being derived from our experiences and consciousness that being produced by out cerebral tissue. As Heidegger tells *"the human body is something other than animal organism"*. Therefore, with experiences, thinking, common sense and consciousness we can relate to AI with no problems of threats since they conceive us as familiar beings and as we do toward them [46].

Systems that improve themselves unregulated sound very dangerous to us. Security should always be prioritized when new technology is developed. We need to make sure that AI machines only do what they are supposed to do. Even if we put ethics, laws and limits for its developments, there will be always attempts to create a perfect AI that will revolutionize everything. The way to ensure our safety would be if program it with the rationality and human elements that we may form a bound with it and embrace our incoming new civilization that would be even more depending on AI and start develop new ethics, laws and philosophy that would be compatible with our new life. According to Harari et al. [44] in his book Homo Deus, we probably require a brand-new package of religious beliefs and political institutions because liberalism is threatened not by the philosophical idea that there are no free well, but rather by concrete technologies (Homo deus, the time bomb in the laboratory) [44]. We should abandon all our old definitions of what a human is since our philosophies depend highly on the idea or human uniqueness and that the world is centered on human being.

Yet, a machine with feelings sounds almost impossible to us. But who knows what we will be capable of creating in the future? However, the assumption of AI capable of human emotions lead us to wander if there were robots with feelings today, they would probably feel that we are threatening their existence. We are overusing the planet's resources, polluting the planet, and we possess weapons of mass destruction. AI can be a dream if we control it and make the best out of it. AI can also become a nightmare if we advance the technology too far without having full control over it. And we are witnessing artificial intelligence revolutions in all fields and beholding an intelligence that is highly competing with our intelligence. A phenomenon which never been witnessed before.

## Acknowledgements

The author appreciates Muslim A Jameel for his contributions to the discussions of this article.

## References

1. McCarthy J (1977) Epistemological Problems of Artificial Intelligence. Proceedings of the 5th International Joint Conference on Artificial Intelligence 2: 1038-1044.
2. Ramamoorthy A, Yampolskiy R (2018) Beyond MAD? the race for artificial general intelligence. ITU Journal: ICT Discoveries 1: 1-8.
3. Pohl J (2015) Artificial Superintelligence: Extinction or Nirvana? Conference Paper, InterSymp-2015: 1-19.
4. Stakhov A, Aranson S (2016) Hilbert's Fourth Problem as a Possible Candidate on the Millennium Problem in Geometry. Br J Math ComputSci 12:1-25.
5. Keats J (2016) How Alan Turing found machine thinking in the human mind? New Scientist, magazine issue 3080.
6. Church A (1936) A Note on the Entscheidungsproblem. J Symbolic Logic 1:40-41.
7. Turing AM (1936) On Computable Numbers, with an Application to the Entscheidungsproblem. J Symbolic Logic 1:230-265.
8. Chella A, Manzotti R (2007) Artificial Intelligence and Consciousness. CutsuridisVassils, Hussain, Amir, Taylor John G. Perception-Action Cycle: Models, Architectures and Hardware. Boston: Springer 2007: 637-671.
9. Clowes R, Torrance S, Chrisley R (2007) Machine Consciousness: Embodiment and Imagination. J Consciousness Studies 14:7-14.
10. Dehaene S, Naccache L, Le ClecH G, Koechlin E, Mueller M et al. (1998) Imaging unconscious semantic priming. Nature 395:597-600.
11. Dehaene S, Naccache L (2001) Towards a cognitive neuroscience of consciousness: basic evidence and a workspace framework. Cognition 79:1-37.
12. Prakash R, Prakash O, Gandotra S (2008) Globala workspace model of consciousness and its electromagnetic correlates. Ann Indian AcadNeurol 11:146-153.
13. Turing AM (1950) Computing Machinery and Intelligence. Mind 49: 433-460.
14. Warwick K, Shah H (2016) Can machines think? A report on Turing test experiments at the Royal Society. J ExpTheorArtifIntell 28: 989-1007.
15. Berrar D, Konagaya A (2012) Schuster A. Can machines make us think? In memory Alan Turing (1912-1954). The 26th Annual Conference of the Japanese Society for Artificial Intelligence, 2012: 26:1-7.
16. Churchland PM, Churchland PS (1990) Could a Machine Think? Scientific American 262:32-37.
17. Chen TCT, Liu CL, Lin HD (2018) Advanced Artificial Neural Networks. Algorithms 11:102-103.
18. Darlington K (2017) The Age of Artificial Intelligence (Part 2): Machine Learning. Technology- Artificial Intelligence.
19. Hassabis D, Kumaran D, Summerfield C, Botvinick M (2017) Neuroscience-Inspired Artificial Intelligence. Neuron 95:245-258.
20. Krenker A, Bester J, Kos A (2011) Introduction to the Artificial Neural Networks. Artificial Neural Networks - Methodological Advances and Biomedical Applications: 3-18.
21. LeCun Y, Bengio Y, Hinton G (2015) Deep Learning. Nature 521:436-444.
22. Isaiadis S (2012) Processor node, artificial neural network and method of operation of an artificial neural network. Patent Application Publication: 1-8.
23. Marcus G (2018) Deep Learning: A Critical Appraisal. arXiv preprint arXiv: 1-27.
24. Ayodele TO (2012) Types of Machine Learning Algorithms in: Zhang Y ed. New Advances in Machine Learning: 19-50.
25. Kotsiantis SB (2007) Supervised Machine Learning: A Review of Classification Techniques. Informatica 31:249-268.
26. Alsmadi M, Omar K, Noah SAM, Almarashdah I (2009) Performance Comparison of Multi-layer Perceptron (Back Propagation, Delta Rule and Perceptron) algorithms in Neural Networks. 2009 IEEE International Advance Computing Conference (IACC2009): 296-299.
27. McCarthy J (2018) The History of Artificial Intelligence. 4-27.
28. Safavi K, Webb K, Chapman R (2017) Are You One Breach Away from Losing a Healthcare Consumer? Accenture 2017 Consumer Survey on Healthcare Cybersecurity and Digital Trust: 1-11.
29. Nadimpalli M (2017) Artificial Intelligence – Consumers and Industry Impact. Int J Econ ManagSci 6:429-433.
30. Mesko B (2017) The role of artificial intelligence in precision medicine. Expert Review of Precision Medicine and Drug Development 2:239-241.
31. Wallach I, Dzamba M and Heifets A (2015) AtomNet: A Deep Convolutional Neural Network for Bioactivity Prediction in Structure-based Drug Discovery. arXiv.org: 1-11.
32. Slabotkin G (2018) FDA approves clinical platform that predicts patient deterioration. Health data management.
33. Feynman R (2015) The AI Revolution: Our Immortality or Extinction. Wait but why new post every sometimes.
34. Urban T (2018) The AI Revolution: Our Immortality or Extinction. Wait but why new post every sometimes.
35. Gubrud MA, Altmann J (2002) Risks from Military Uses of Nanotechnology - The Need for Technology Assessment and Preventive control. Researchgate.net, Nanotechnology – Revolutionary Opportunities and Societal Implications, 3rd JOINTEC-NSF Workshop on Nanotechnology: 144-148.
36. Hibbard B (2001) Super-Intelligent Machines. ACM SIGGRAPH Computer Graphics 35:13–15.
37. Wogu IAP, Olu-Owolabi FE, Assibong PA, Agoha BC, Sholarin M et al. (2017) Artificial Intelligence and the Ontological Problems of Other Minds. IEEE Xplore digital library.
38. Bostrom N, Yukowski E (2018) The Ethics of Artificial Intelligence. Machine Intelligence Research Institute: 1-20.
39. Yudkowsky E (2008) Artificial Intelligence as a Positive and Negative Factor in Global Risk. Bostrom N, Cirkovic MM. Global Catastrophic Risks. New York: Oxford University Press; 2008: 308–345.
40. Kurzweil R (2002) Accelerating intelligence: where will technology lead us? Kurzweil accelerating intelligence.

41. Cellan-Jones R (2014) Stephen Hawking warns artificial intelligence could end mankind. BBC News.
42. Rawlinson K (2015) Microsoft's Bill Gates insists AI is a threat. BBC News.
43. Mack E (2014) Elon Musk: We are summoning the demon' with artificial intelligence. Cnet.com.
44. Harari YN (2017) The Data Religion. In: Homo Deus - A brief History of tomorrow. London: Penguin Random House: 458.
45. Alasaarela M (2017) The Rise of Emotionally Intelligent AI. Machine Learning.
46. Heidegger M (1977) Letter on humanism. Philosophy. com: 239-276.