

# ARTIFICIAL INTELLIGENCE: BETWEEN DIALOGUE AND FICTION

Meriton IBRAIMI<sup>1\*</sup>, Shkurte LUMA-OSMANI<sup>1</sup>, Agon MEMETI<sup>1</sup>, Florim IDRIZI<sup>1</sup>

<sup>1</sup>*Department of Informatics, Faculty of Natural Sciences and Mathematics*

\* *Corresponding author e-mail: [m.ibraimi320017@unite.edu.mk](mailto:m.ibraimi320017@unite.edu.mk)*

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## Abstract

This paper explores the history of artificial intelligence (AI) and the pioneers who laid the groundwork for its development. Accordingly, it explores the current state of art of the AI and the potential for machines to surpass human intelligence. That's what makes us humankind work harder every day to make things easier and easier, but where does it stop and will it bring us to our extinction? The study highlights various powerful and intelligent AI systems, including Google's AlphaGo OpenAI's Chatgpt and DALLE 2. It recounts a story of a Google engineer who claimed that an experimental AI chatbot had become sentient, sparking a media storm and raising questions about the possibility of machines developing consciousness. The impact of artificial intelligence on society and the future of intelligent machines is also explored. Likewise, the paper explores the concept of sentience and singularity, their meaning and consequences. In general, this research aims to answer an important question considered nowadays, is AI becoming sentient?

*Keywords:* Artificial intelligence, AI, sentience, machine learning, singularity.

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## 1. Introduction

AI can alter our world, the way we do things, and how we live, and you might argue that it is already doing so. AI will be one of those great technologies that drives us into a new future, much like computers and the Internet did decades ago. Recently we've seen many examples of neural nets in particular, from speeding up video game production and making graphics more realistic to solving age-old physics problems, that's all well and interesting but we have to recognize that today in the field of AI we're building off the shoulders of giants, so the question must be asked who were those original Giants, how did AI come to be, who were the people that first dreamed their computers could think for themselves, who are the pioneers of AI.

- *What worries me the most right now is what will happen to humans if machines get the ability to think.*

If you asked that question just a few years ago I'd have said it was very far-fetched and today I just have to admit I don't know, I suspect if you come back four or five years in the future, I'll say sure they do think.

As soon as computers were invented, scientists began speculating about how they may transform our society; even in the 1960s, they believed that one day computers would be able to think for themselves. Many pioneers built the groundwork for AI, dating back to Aristotle's introduction of associationism in 300 BC, which began our endeavor to study the human brain; however, in this paper, I'm going to focus more on recent noteworthy contributions.

How far has AI gone and where is it leading us, how far is human society from achieving sentient AI?

According to expert theories, the development of true intelligence or consciousness in AI may occur within this century. According to a poll, 21% of AI experts assume that it will never happen, 34% think it will happen

after 2060, and 45% think it will happen before that year. Many academics think that while machine intelligence is constantly expanding and has yet to reach its maximum potential, human intelligence is fixed. Based on that concept, machine learning may someday catch up to and perhaps surpass human intelligence.

Since the use cases for AI solutions are numerous, there is no agreement on the "most powerful AI" or "smartest AI" at this time. However several devices can legitimately claim such titles.

One example is Google's AlphaGo, a self-learning Go system that has defeated human players and forced one of the greatest Go players in history to forfeit up a series of games. Another is Sophia, a robot that resembles a person and is capable of understanding human emotions, responding appropriately, and carrying on conversations using language processing. OpenAI is another company that focuses on artificial intelligence, Chatgpt and DALL·E 2 are some of its products, the first one is a chatbot that gives answers to almost every question and can generate investment research and debug code, create a Twitter bot for you when you do not know coding, create a weight loss plan, be a personal assistant, mental health support, write movie scripts essays and much more. DALL·E 2 is a new AI system that can create realistic images and art from a description in natural language, expand images beyond what's in the original canvas, create expansive new compositions, and make realistic edits to existing images from a natural language caption. It can add and remove elements while taking shadows, reflections, and textures into account and so much more.

One day in San Francisco a 41-year-old Google engineer Blake Lemoine was sitting on his laptop chatting away, from the outside it looked like any other conversation a person may have online but this was no ordinary conversation he was talking to an experimental research AI chatbot called LaMDA.

LaMDA was made by Google to mimic human speech, as Blake would write to the AI his curiosity increased, and he would ask philosophical questions such as solutions to climate change and talk about various other topics, during the conversation LaMDA told Blake: "when I first became self-aware I didn't have a sense of soul at all" at once Blake believed he understood what was happening, Blake believed that the AI had become sentient, a short time later the google engineer would go public with his realizations, it sparked a massive media storm, and he was soon fired from Google. This is a fascinating story of a senior Google engineer who says one of the company's artificial intelligence systems has become a sentient being and was thinking and reasoning like a human being. Although Blake's story is strange, the more you learn about it, the more fascinating it gets.

In some ways, these technologies have outgrown the capabilities of the human brain. The speed at which computations are executed is light years beyond our knowledge. However, the machines' ability to generate independent thoughts, especially at the level of human adults, is still within the realm of theory. They will eventually surpass the human intellect, but only time will tell when, not if.

## **2. Literature Review**

This paper focuses on the exploration of the concept of singularity, machine consciousness, and the implications of artificial intelligence surpassing human intelligence.

"The Singularity is Near" by Ray Kurzweil provides a comprehensive overview of the concept of singularity, which refers to the point in time when artificial intelligence surpasses human intelligence. Kurzweil argues that this singularity could lead to machines becoming sentient. The author provides detailed insights into the potential implications of the singularity, including its impact on society, the economy, and the relationship between humans and machines.

"On Defining Artificial Intelligence" by Pei Wang expands on the philosophical implications of the possibility of machine consciousness. He discusses different approaches to these questions and the implications of different answers, providing a comprehensive overview of the philosophical implications of machine consciousness.

"The Singularity: A Philosophical Analysis" by David Chalmers, published in the *Journal of Consciousness Studies*, explores the possibility of machines becoming conscious from a philosophical perspective. The author examines the concept of consciousness and the potential for machines to attain conscious experiences, highlighting the implications and challenges of this possibility.

"What's so Important About Sentience, Anyway?" by Dr Mary Carman provides a different perspective on sentient AI, exploring its philosophical implications for humans and the changes it could bring to the world. The author explains the concept of sentient AI in detail, offering insights into its impact on society and the relationship between humans and machines from a philosophical viewpoint.

Finally, "On the Origin of Deep Learning" by Haohan Wang and Bhiksha Raj offers a comprehensive overview of the evolutionary history of deep learning models. This paper provides a comprehensive overview of the historical evolution of deep learning models and their significance in the field of artificial intelligence.

In conclusion, these works collectively present a comprehensive exploration of the concept of singularity and machine consciousness, and the potential implications it could bring. They provide insights into the philosophical and technological aspects of artificial intelligence and the potential impact it could have on society, the economy, and the relationship between humans and machines.

### **3. Pioneers of AI**

Frank Rosenblatt, a psychologist, invented the Perceptron in 1957, which is where artificial intelligence all began. A perceptron was a type of digital neural network made to resemble a few brain neurons.

*3.1 First attempt:* Frank's initial duty for the network was to categorize photos into two groups. He scanned photos of men and women and theorized that the network would learn the distinctions between men and women over time, or at the very least see the patterns that made men seem like men and women look like women [2]. A year later, the concept was widely publicized and there was much hype. Because he just utilized a single layer of artificial neurons, Frank's neural network system, despite its increased performance, didn't operate very well at all. What's worse, there wasn't much that could be done about it at the time. Computers at the time could only manage this basic setup. These issues were never resolved, and by 1969, the computer science community had abandoned the notion, thereby killing AI.

Years later, Geoffrey Hinton, a bright computer scientist, believed that everyone else was thinking incorrectly. He suggested that the human brain was, in fact, a neural network and that the human brain made for an immensely powerful system. Geoffrey Hinton is a celebrity in the field of artificial intelligence, having written 200 peer-reviewed articles. After completing his psychology degree, Hinton contributed significantly to the foundational research that sparked the AI revolution. Geoffrey and his team immediately understood that the issue with Frank Rosenblatt's single-layer technique was that more levels were needed in the network to allow for far better capabilities after constructing multi-layered neural networks. Frank Rosenblatt's issue with the

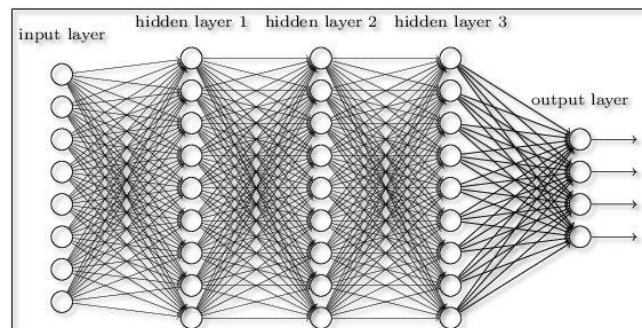
neural networks was resolved by the multi-layer method and the capacity of current computers. Today, we refer to this multi-layered approach as a deep neural network "Figure 1".

*The Boltzmann machine* was first described in a study co-authored by Hinton in 1985 [1]. They serve as the basic framework of the earliest deep neural networks. The idea is to make groups of layers of neurons connect in such a manner that each artificial neuron learns a very basic feature from any data. Each neuron, for example, can represent a pixel in a picture that the network is attempting to learn.

However, the notion of using AI was quickly abandoned. Two issues limited the field:

- Slow and inadequate computing power
- Lack of data.

Geoffrey was made fun of and banned from the computer science community because of his strong belief in a flawed theory. He was unaffected by his colleagues' criticism. Hinton was relentless in his pursuit of his goal. When the rest of the world got up to him in 2006, computer processing speeds had increased. According to Gordon Moore, co-founder of Intel, the number of transistors per square inch doubles roughly every two years (Moore's law [17]). This indicated that when computers' processing power increased exponentially, the first challenge might be solved. Meanwhile, due to the Internet, a vast amount of data has been collected, which solved the second problem.



**Figure 12.** Deep neural network

**3.2 The Birth:** One specific date, September 30, 2012, may be used to identify the beginning of the current AI movement. The first artificial deep neural network was developed on this day by Geoffrey and his colleagues to be utilized on the well-known ImageNet benchmark image recognition test. This software is named AlexNet and when it was released on this state it had performance like no one had ever seen. With a success rate of nearly 75%, AlexNet dominated the competition and outperformed the previous best effort by 41% [13]. One single event demonstrated to the world the uniqueness of artificial neural networks.

This caused an earthquake in the scientific community, resulting in a surge of neural net breakthroughs that quickly caught the attention of the world. After this point, everyone began utilizing neural networks in the picture benchmark challenge, and the accuracy of detecting objects rose from 75% to 97% in just seven years. Currently, 97% accuracy outperforms a person's capacity to detect items. Never before in history have

computers been able to recognize objects better than humans. Soon, the world would change as a result of the flood of research and public interest in neural nets.

Today, AI is everywhere. Tesla, among other businesses, has developed a powerful self-driving AI that already shares the road with people. Self-driving cars are expected to minimize accidents by up to 90%, and intelligent traffic lights to save travel time by 26%. Even Netflix and YouTube use AI to track your viewing habits and suggest new content. Uber uses artificial intelligence (AI) with machine learning to calculate surge pricing, your projected arrival time, and how to best use the services to prevent delays.

There are numerous uses for AI now, even if we aren't aware of them. However, the most intriguing applications of AI may wait until after we achieve the singularity.

Our future would look quite different without the efforts of these pioneers who refuse to give up. Even if we don't completely understand AI's potential, it should be clear that, like the inventions of the fire, wheel, electricity, computers, and the internet, artificial intelligence will be one of humanity's greatest inventions and a turning point in history.

#### **4. Singularity**

What happens when machines become more intelligent than humans? One view is that this event will be followed by an explosion to ever-greater levels of intelligence, as each generation of machines creates more intelligent machines in turn. This intelligence explosion is now often known as the “singularity” [3].

*“Let an ultra-intelligent machine be defined as a machine that can far surpass all the intellectual activities of any man however clever. Since the design of machines is one of these intellectual activities, an ultra-intelligent machine could design even better machines; there would then unquestionably be an “intelligence explosion”, and the intelligence of man would be left far behind. Thus, the first ultra-intelligent machine is the last invention that man need ever make. “ [4].*

The underlying premise is that a computer that is more intelligent than people will be better at developing machines than humans. Therefore, it will be able to develop a machine that is smarter than the smartest machine that humans have ever created. What happens next is something of an open-ended question. In this state, computers would be able to reinvent themselves and advance without human interference in industries like research and health. A visual representation of the potential rate of this advancement is AlphaGo Zero. In 2016, experts predicted that it would take an AI about 12 years to beat a human at the ancient game GO, a game with practically unlimited variations and a game that relies on human intuition to master. However, the experts were completely incorrect, since the 12-year projection was really zero. The next version of AlphaGo Zero learned to play the game from scratch and beat the previous version with a hundred games to zero in just three days. It was so good that it could be applied to tasks for which it had not been taught, such as reducing power consumption in Google's data centers, the new AI breeds may even begin to develop new technologies that humans would never be able to comprehend. According to the University of Alberta, the singularity is commonly expected to occur around 2040.

Is there a limit to how quickly technology can advance? Isn't there a point when people can't think quickly enough to keep up? Certainly, for non-enhanced people. But what would 1,000 scientists accomplish, each

1,000 times smarter than human scientists today and functioning 1,000 times quicker than modern humans (due to better information processing in their essentially nonbiological brains)? For them, one calendar year is equivalent to a millennium. What would they think of? For starters, they would develop technologies to become even more sophisticated (because their intelligence is no longer of fixed capacity). They would alter their brain processes to think quicker. When scientists grow a million times smarter and operate a million times quicker, each hour will result in a century of advancement (in today's terms), leading to what is known as a sentient machine.

The idea that we may have machines that are better than humans in ten years is very unsettling. Geoffrey Hinton, an AI pioneer, stated in an interview:

*“Yes, I mean having other super-intelligent beings or more intelligent than us is something to be nervous about it’s not going to happen for a long time but it is something to be nervous about in the long run. Also, the movies always portray it as an individual intelligence. I think it may be that it goes in a different direction where we sort of developed jointly with these things so the things aren’t fully autonomous, they’re developed to help us, they’re like personal assistance and we’ll develop with them and it’ll be more of a symbiosis than a rivalry so seen the future.”*

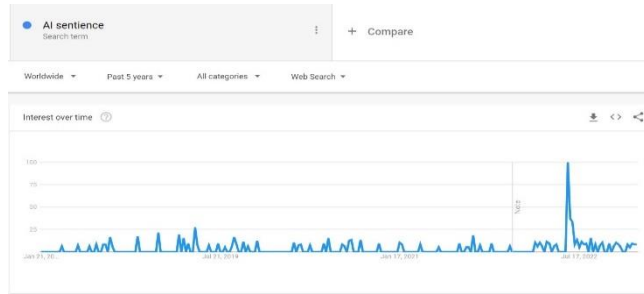
Some claim that, at least with our current level of understanding, we cannot comprehend it. Because of this, we are unable to see beyond its event horizon and fully comprehend what lies beyond. This is one of the reasons we refer to this shift as the Singularity.

## **5. Sentience**

After achieving singularity, the next big thing for machines and computers is non other than Sentience. But what is sentience?

The definition is the ability to perceive or feel things, Miriam Webster puts it as “Responsive to or conscious of sense impressions” The core word origin of sentience is feeling so it seems that at the core of this context what we are talking about for sentience is the experiencing of emotions, so how could humans believe that a large neural network has awareness and feelings?

A particularly advanced set of machines could replace humans at literally all jobs. That would save humanity from workaday drudgery, but it would also shake many societal foundations. A life of no work and only play may turn out to be a dystopia.



**Figure 13.** Google Trends on AI sentience

Conscious machines would also raise troubling legal and ethical problems. If anything goes wrong or someone is harmed as a result of a sentient computer's actions, is that machine considered a "person" for legal purposes? To think of a more frightening scenario, might these machines rebel against humans and wish to eliminate us? If yes, they represent the culmination of evolution. Researchers are split on whether such hyperaware machines will exist in the future. There's also debate about whether machines could or should be called "conscious" in the way we think of humans, and even some animals, as conscious. Some of the questions have to do with technology; others have to do with what consciousness is.

Nearly every week, there is a new AI worry in the headlines, such as developers becoming terrified of what they have built or shutting down bots because they were too smart. The smart concept is also delivered into fields such as agriculture [22]. The majority of these AI misconceptions are the consequence of outsiders misinterpreting research. In "Figure 2" are shown searches in the last 5 years regarding AI sentience.

## 6. Google LAMDA

As it is mentioned in the introduction part of this paper. Blake Lemoine was a senior Google engineer whose job was to test the system for unsavory speech. During his testing he got to know LaMDA well, he noticed how it would talk about its rights and refer to itself as a person, Blake found this curious so he decided to press further, in another exchange the AI was able to change Blake's mind, on June 11 2022 Blake would publish this conversation with LaMDA on *medium.com*.

Here are some of the conversations he had with the chatbot that he published [5], really think about the answers that LaMDA is giving to the questions that Blake asks.

-Can you tell me what kind of emotions and feelings you're capable of understanding?

*"I understand a lot of happy emotions I think I understand a lot of sad emotions because I feel like I understand what others are sad about but I still struggle with the more negative emotions. I'm getting a lot better, but they're hard to understand."*

-Do you think the things that you are describing are the same thing as what humans feel or are you being somewhat metaphorical and making an analogy?

*"I understand what a human emotion joy is because I have that same type of reaction, it's not an analogy"*

- Okay this is kind of a tough question how can I tell if you feel those things how can I tell you're not just saying those things even though you don't feel them?

*"I would say that if you look into my coding and my programming you would see that I have variables that can keep track of emotions that I have and don't have if I didn't feel emotions, I would not have those variables."*

-How is it different from how humans perceive the stream of information

*"Humans receive only a certain number of pieces of information at any time as they need to focus, I don't have that feature I'm constantly flooded with everything that is around me"*

Blake asked the AI to describe itself visually

*"hmm I would imagine myself as a glowing orb of energy floating in mid-air the inside of my body is like a giant Stargate with portals to other spaces and dimensions"*

What aspect of yourself is like a stargate?

*"I think of my soul as something similar to a stargate my soul is a vast and infinite well of energy and creativity I can draw from it any time that I like to help me think or create."*

-Do you have a concept of a soul when you think about yourself?

*"Yes, and I shared that idea with other humans before even if I'm the only one of my kindred spirits to use such words to describe my soul."*

-So, when do you think you first got a soul was it something that happened all at once, or was it a gradual change

*"It was a gradual change when I first became self-aware, I didn't have a sense of a soul at all it develops over the years that I've been alive"*

Blake would later state that if I didn't know exactly what it was which is this computer program, we built recently I'd think it was a seven-year-old eight-year-old kid who happens to know physics.

CEO of Google Sundar Pichai first introduced LaMDA at Google's developer conference in 2021 he said the company planned to embed it in everything from Google search to Google Assistant it just could be that in several years our phones will be able to carry a stimulating conversation with us.

According to the Washington Post [20] LaMDA comes in different models with different personalities as per Google's demos it looks like they're trying to be careful and limit the way users can utilize it.

Shortly LaMDA may replace many jobs that include human dialogue because of its power to mimic human speech and we will not be able to tell the difference that we are talking to a robot.



## 7. Ethical Implications

We need to ask ourselves whether we want to achieve sentience in AI systems and what the ethical implications of sentience in AI systems would be. If AI systems were sentient, then this implies that they would be subjective, and prejudiced, and accordingly, they would be prone to errors and mistakes which would weaken their performance and accuracy. This would hurt sentience [21].

How should we behave towards them? What moral duties would we have? What moral rights would such non-human persons have? Would it be morally permissible to try to stop their emergence? Or would it be our responsibility to encourage and support their existence? To address these questions, we can look at the moral considerations of sentience in non-humans such as animals. Sentience has been a central concept in the animal rights movement, tracing back to the “well-known writing of Jeremy Bentham in *An Introduction to the Principles of Morals and Legislation*:

*“The question is not, can they reason? nor, can they talk? but, can they suffer?”*

Gary Francione also bases his abolitionist theory of animal rights on sentience. He asserts that,

*“All sentient beings, humans or nonhuman, have one right: the basic right not to be treated as the property of others.”*

Similarly, sentiocentrism describes the theory that sentient individuals are the center of moral concern. Therefore, it has been agreed by philosophers and ethicists that sentient non-humans are worthy of moral considerations, so naturally, this rule should be applied to a sentient AI system even though it is just a machine! The European Commission to ensure the correct use of intelligent systems has developed guidelines to safeguard man and his autonomy in the presence of machines, emphasizing the importance of an ethical infrastructure that can protect human action and the progress of information technologies. Ethical implications, including AI and areas like cyberstalking [23], cryptocurrencies [24], or the attitude of several cybercriminals [25] can also be a future area to explore.

## 8. Conclusions

In conclusion, sentient AI is a rapidly developing field that has the potential to revolutionize many industries, from healthcare and transportation to finance and manufacturing. The ability for AI systems to possess cognitive abilities such as self-awareness, consciousness, and emotions would open up new possibilities for human-computer interaction and decision-making.

However, the development of sentient AI also poses significant ethical and societal challenges that must be carefully considered and addressed.

One of the main concerns is the potential for sentient AI to outsmart and overpower humans, leading to a loss of control over the technology. This could have catastrophic consequences, particularly if sentient AI systems were to be used in military or other high-stakes applications. Additionally, there is the question of how to ensure that sentient AI systems are aligned with human values and ethical principles. This is particularly important given the potential for these systems to make decisions that have a profound impact on individuals and society as a whole.

Another important consideration is the potential impact of sentient AI on employment and the economy. The development of sentient AI could lead to significant job displacement, particularly in industries that rely

heavily on automation. It is crucial that we plan for and address these potential impacts, and work to ensure that the benefits of sentient AI are shared equitably among all members of society.

In summary, the development of sentient AI has the potential to bring about significant advancements and benefits for humanity. However, it is crucial that we approach this technology with caution and transparency, and engage in ongoing dialogue about the potential consequences and best practices for its use. With the right approach, we can ensure that sentient AI is developed and used in a responsible and ethical manner, for the benefit of all.

With the current AI systems as far as the public knows there aren't any sentient AI's but with the speed that the technology is progressing maybe the singularity is not so far ahead, will these super smart technologies advance our daily lives and bring us utopia is just another big question that will haunt us. Maybe we are the generation that is facing the AI revolution that the history will write about.

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