Why AI still doesn’t have consciousness?

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Abstract
Consciousness is one of the unique features of creatures, and is also the root of biological intelligence. Up to now, all machines and robots haven’t had consciousness. Then, will the artificial intelligence (AI) be conscious? Will robots have real intelligence without consciousness? The most primitive consciousness is the perception and expression of self-existence. In order to perceive the existence of the concept of ‘I’, a creature must first have a perceivable boundary such as skin to separate ‘I’ from ‘non-I’. For robots, to have the self-awareness, they also need to be wrapped by a similar sensory membrane. Nowadays, as intelligent tools, AI systems should also be regarded as the external extension of human intelligence. These tools are unconscious. The development of AI shows that intelligence can exist without consciousness. When human beings enter into the era of life intelligence from AI, it is not the AI became conscious, but that conscious lives will have strong AI. Therefore, it becomes more necessary to be careful on applying AI to living creatures, even to those lower-level animals with only consciousness. The subversive revolution of such application may produce more careful thinking.

1 | INTRODUCTION

Since the Dartmouth conference in 1956, the concept of artificial intelligence (AI) has passed through more than 6 decades. A question has been raised again and again: can machines think? [1] One of the smart answers is a rhetorical question: can submarine swim? [2] This involves the understanding of ‘what is intelligence?’. So far, there is still no unified definition about intelligence. In general, intelligence is the ability to learn, explain and solve problems [3]. Guilford [4] proposed that there are at least 150 possible abilities of intelligence. And Howard Gardner, the founder of multiple intelligences, thought that people have eight and a half kinds of intelligence [5]. No matter how intelligences are defined or classified, it is commonly assumed that intelligence is conscious, and only a biological organism can have consciousness. The question is should we assume machine also have consciousness?

What is consciousness? This can be one of the most perplexing questions for thousands of years. From philosophers to physicists and then to biologists, mankind has experienced a long and hard journey to reveal the mystery. Although there is still no scientific explanation, an important consensus is that until now no evidence demonstrated that human beings can artificially create life without biological methods. Similarly, people haven’t artificially created consciousness yet. Until now, obviously, all machines and robots produced are not artificially created life, they are all unconscious. Then, will the AI be conscious eventually?

2 | THE BIOLOGICAL BASIS OF CONSCIOUSNESS

To answer the question raised above, we need to talk about the consciousness of living creatures first. For human beings, we know we are conscious since we are aware of the environment as well as ourselves. This subjective self-awareness demonstrates the existence of consciousness [6]. As the famous ancient Chinese thinker and philosopher Lao tzu, once said, ‘a person who knows others is intelligent, but a person who knows himself is wise’ [7]. This statement describes the important role of self-awareness and self-introspection in human cognition.

Although we can appreciate the consciousness, that doesn’t mean we know how it is generated. No one doubts that
3 | INTELLIGENCE AND CONSCIOUSNESS

INTRODUCTION

In 1950, Turing proposed a famous thought test [17] to answer whether machines can think, by asking whether machines can possess self-awareness. Turing’s test is the famous Turing test [18] to assess a machine’s ability to demonstrate human-like behavior. Human self-awareness is a complex ability that enables humans to be aware of their own mental states, beliefs, and desires. The ability to be aware of one’s own mental states is essential for human self-awareness. However, the question of whether machines can possess self-awareness has been a subject of much debate and discussion. Since the first Turing test was proposed in 1950, there have been many attempts to develop machines that can pass the Turing test. However, none of these attempts have been successful. The reason for this is that the Turing test is designed to evaluate a machine’s ability to simulate human behavior, but it does not evaluate a machine’s ability to possess self-awareness.

The question of whether machines can possess self-awareness is not only a philosophical question, but also a practical question. If machines can possess self-awareness, then they can be used to perform tasks that require self-awareness, such as diagnosing diseases, providing personalized counseling, and even writing poetry. However, if machines cannot possess self-awareness, then they cannot be used for such tasks.

The inability of machines to possess self-awareness is a significant challenge for the development of artificial intelligence (AI). AI researchers have been working on developing machines that can possess self-awareness, but so far, they have not been successful. The reason for this is that the nature of self-awareness is still not fully understood.

The nature of self-awareness is a complex and controversial topic. Some theories suggest that self-awareness is a property of the brain, while others suggest that it is a property of the mind. The debate continues, and it is unlikely that a consensus will be reached anytime soon.

CONCLUSION

In conclusion, the question of whether machines can possess self-awareness is a complex and challenging one. While there have been many attempts to develop machines that can possess self-awareness, none of these attempts have been successful. The reason for this is that the nature of self-awareness is still not fully understood. However, the importance of self-awareness for the development of AI cannot be ignored. Therefore, it is essential to continue to work on understanding the nature of self-awareness and to develop machines that can possess self-awareness.

FIGURE 1 The three levels of consciousness.
Human consciousness and intelligence are dynamic. When we were babies, we have a relatively weak consciousness and intelligence. Our consciousness and intelligence could increase rapidly as we grow up. But when a human’s brain is damaged or anaesthesia is applied during surgery, he may lose consciousness. Whether or not the vegetative patient’s consciousness has been completely lost is still uncertain [18].

Intelligence may hardly be separated from consciousness. May be there is a ‘consciousness switch’ in our body that controls the intensity of consciousness (just like an electrical switch that can control the intensity of electricity) throughout our lives. And the precision of the switch may wear away gradually during time. In childhood, the consciousness switch is in a good condition. Thus, children can enter a deep sleep that nearly impossible to be waken up. When people enter middle age, the precision of the switch tends to descend. Therefore, one may experience more dreams and sleep quality declines. As time goes on, the aging switch led to difficulties in sleeping for oldies. If the switch isn’t off tightly, people may enter into a subconscious state which means you may not fully aware of your mind which still influences your behaviours. The phenomenon of dreaming and sleepwalking shows that there is still intelligence in the subconscious state [19]. Among the numerous excellent literary and artistic works, a considerable number are created under the condition of people’s half-drunk state, and people even can be more creative in the subconsciousness [20].

The current robots are unconscious but present a degree of intelligence. They can learn from examples, follow procedures and also help solve some intelligent problems. Computational intelligence has reached a level far beyond that of human beings. AlphaGo’s Go intelligence has been beaten all strong human players [21]. Autonomous driving cars can perform human-like driving skills based on the perception of surrounding scenes, and control vehicles in real time, make correct responses and complete the driving task. But they are all unconscious, and have no idea on what they are doing.

In 1980, John Hiller, an American philosopher designed a thought experiment—Chinese room [22], trying to explain that it is impossible to judge intelligence only from the results of behaviour [23]. If there is a robot in the room, and it can correctly answer the questions which are raised by people outside the room written in languages of Chinese, English, Italian etc., and even can answer the question with voice in emotion, what the robot exhibited in the room is the great linguistic intelligence, though it does not consciously understand its context, pragmatics, semantics and grammar. Translation robots are still unconscious.

From the above discussion, we can see that there is no clear correlation between intelligence and consciousness (see Table 1). So, although for creatures, intelligence always exists with consciousness. That doesn’t mean intelligence can only connect to consciousness. The history of AI shows that intelligence can exist without consciousness [24].

### Table 1 Some examples to show the correlation between consciousness and intelligence

|                  | Consciousness | Intelligence |
|------------------|---------------|--------------|
| Inorganic substances | No            | No           |
| Biological organisms | Weak          | Weak         |
| Infants           | Weak, but is growing | Weak, but is growing |
| Adults            | Strong        | Strong       |
| Sleepwalker       | Weak          | Some         |
| Slightly drunken   | Weak          | Strong       |
| Drunkenness       | Weak          | Weak         |
| Vegetarian        | No or weak    | No or weak   |
| Current AI        | No            | Some         |

## 4 AI IS THE EXTERNAL EXTENSION OF HUMAN INTELLIGENCES

Being able to make tools is an important milestone in human evolution. In the process of shaping nature and enhancing ourselves, the available resources are mainly the material, energy in nature and the intelligence of ourselves. The existing history of the development of science and technology is almost the history that humans gradually understand material and energy and develop various tools.

By inventing powerful tools, mankind constantly conquers the nature. From simple shovel, knives, to complicated cars and heavy machinery, people’s strength, skill and ability are extended and surpassed. These power tools are the external extension of human physical energy. The invention of radar, camera, satellite positioning receiver and other sensors helps human feel the world with depth and breadthness. These sensor tools are the external extension of human senses. All of these tools are unconscious.

Nowadays, with the improvement of science and technology, human beings are gradually shifting from understanding matter and energy to understanding our own intelligence. Inspiring from human intelligence, people are inventing more intelligent tools. These tools, such as various kinds of robots, are agents of human intelligence. They extended and even surpassed human intelligence in some specific fields. These are what we called AI.

No matter power tools or intellectual tools, tools are unconscious. As the creators of tools, human beings neither need tools to be conscious, nor care whether tools are really understanding human intelligence. What human need is just correct and appropriate actions performed by tools (like robots) that can help people to release from amount of work. AI tools break the boundaries between intelligence and machineries. Those tasks, which cannot be accomplished only by power tools, may be accomplished with the help of intelligent tools today. With the power of intelligence, the ability of power tools also gets greatly increased. Lots of intelligent tasks that need to be done by people can now be completed independently by machines.
If we can formalize the cognitive ability of human brain in a specific problem domain, such as driving, chatting, playing chess etc., even if this formalization has no similarity in organizational structure with human in microscopic level, human can produce a robot that can finish a specific task. Then thousands of different field-specific robots can be connected with internet and enhanced by cloud computing and big data technologies. In this way, robot’s intelligence can be closer to or even surpassing human intelligence. But the most important thing is that they are still unconscious, and they are still produced by human beings, and they can only evolve under the design and control of human.

Today, mankind has entered into a new era by making robots to extend human intelligence. If we say, the early industrial revolution used people as machines [25], the new generation of AI uses turning machines into intelligent robots. Robots are expected to simulate the intelligent skills from talents and advanced workers such as the top professional drivers, surgeons etc. Robots are expected to compensate the lack of intelligence under special situations like losing control of emotions. Robots are expected to replace or even surpass human’s intellectual work with efficiency and accuracy.

5 | BE SERIOUS OF

No matter power tools or intelligent tools, they are created and invented by human beings. Without human intelligence, there is no intelligent robot, and there is no way to push the intelligence into various power tools.

Some people worry that the biggest challenge that the AI may bring is a sudden emergence of a new species that can transcend human beings. Will these robots become enemies of human beings? The fear of this ‘enemy’ is an unnecessary catastrophizing because there is no such ‘sudden’ at all. An unconscious robot can never become an enemy of mankind. To say the least, only when robots have self-awareness and then have different own languages and words, different collective values from human, may they constitute human heterogeneity. If this process is concerned, considering the evolutionary speed of human beings from Homo sapiens to humans took millions of years [26], even if AI is upgraded much faster than that of human being, at least a few hundred years or even longer is needed to achieve such AI.

All power tools and intelligent tools have two sides like many other things. The atomic energy can be used not only for peaceful purposes but also for war. Humans can create atomic bombs, and also the army robots. Robots may replace many jobs in society, and even make people lazy to think independently. This should not be considered as the problems of AI. But as the creator, mankind must make moral decisions for the use and choice [27]. This will impact the future world that we humans create.

With the development of science and technology in modern life, especially in the era of AI, human beings need to pay more attention to the ethics and morality and to promote social equity [28], need to be alert to apply AI technologies to living things, even to low-level living creatures that are only self-conscious. When human beings enter the age of life intelligence from the era of AI, it is not that AI has consciousness, but that conscious life has powerful intelligence. This possible subversive revolution requires more careful thinking by human beings.

The inheritance of human civilization, the rationality of the community of human destiny and the creativity of human intelligence have consolidated the status of human roles and formed a powerful control over robots which should not be underestimated. History has proven time to time that the human will become stronger and stronger after defeating our own partial ‘evil’. The AI will provide a new level of creativity for humanity. In the era of AI, human beings can live more intelligently, with dignity and grace.

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