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Emotional Simulation of Artificial Intelligence and Its Ethical Reflection

Yun Wang[1,a,*], Wenyu Liu[1,b]

[1]*Dalian University of Technology, Dalian, 116024, China*
[a]*wy1092mail.dlut.edu.cn,* [b]*liuwy@dlut.edu.cn*
[*]*Corresponding author*

Abstract: *Based on the proposal and development of artificial emotion theory, and driven by practical needs, artificial intelligence emotion simulation technology attempts to impart emotion to artificial intelligence by simulating the induction and expression functions of emotion. The emotion simulation technology of artificial intelligence is of great significance. It is not only conducive to the further development of artificial intelligence itself, but also conducive to the formation of a good human-computer interaction relationship, and it is also conducive to continuously deepening human beings' understanding of themselves. Science and technology are a double-edged sword. It is necessary to conduct an ethical reflection on artificial intelligence emotional simulation, and continuously deepen the understanding of artificial intelligence emotional simulation technology. After reflection, it is found that there are some ethical risks in the process of artificial intelligence emotional simulation, including the strengthening of instrumental rationality by computational thinking, the lack of emotional subject and the loss of value, and the deceptive intention contained in emotional simulation.*

Keywords: *artificial emotion; affective computing; human-computer interaction; ethical reflection*

1. Introduction

With the development of artificial intelligence technology, the connection between artificial intelligence and emotion has gradually entered people's attention. As an efficient computing tool, artificial intelligence has largely simulated people's rational analysis process. However, it is only a rational calculation and does not involve human emotions. It is not really "intelligent". This is a question worth thinking about. The first person to ask this question was Marvin Minsky, one of the founders of artificial intelligence. He opened his thoughts on the topic "The question is not whether intelligent machines can have emotions, but whether machines without emotions can achieve intelligence".[1] It is the first of its kind in the research of artificial intelligence and emotion correlation. Since then, concepts such as "artificial emotion", "emotional computing", "emotional robot" and "communication robot" have been put forward one after another, and people have begun to consider giving "emotion" to artificial intelligence. The gradual increase in the requirements for the harmony of human-computer interaction also makes emotional factors gradually become an important consideration in the design and development of artificial intelligence. Since then, artificial intelligence emotional simulation technology has also entered people's field of vision.

Emotion has always been considered to be the biggest feature that distinguishes humans from machines, and it is also the last line of defense for "machines like people" - as long as machines have no emotions, no matter how smart a machine is, there will be a clear distinction between a machine and a human. The emotion simulation technology of artificial intelligence shows that artificial intelligence is gradually "attacking" this last point of distinction, and the machine is "invading" the essence of human beings. Traditional ethics and morality will be hit unprecedentedly, which makes people have to be vigilant. Facing the emotional simulation of artificial intelligence, we should maintain a cautious attitude in the process of technological development and application. On the one hand, we should not feel blindly resisting and blindly resisting the emotion simulation technology of artificial intelligence; Only when technological development and ethical research go hand in hand can we achieve a balance between science and humanities in the field of artificial intelligence, and we will not be helpless when problems come.

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2. The Theoretical Basis of Artificial Intelligence Emotional Simulation

The most important theoretical basis of artificial intelligence emotion simulation is artificial emotion. Artificial emotion is the artificial simulation and realization of the process of human emotion information processing. In terms of conceptual definition, artificial emotion belongs to the broad concept of artificial intelligence, and it is a relative concept to narrow artificial intelligence. This paper studies the emotion simulation of artificial intelligence from the general concept of artificial intelligence and regards artificial emotion theory as an integral part of artificial intelligence theory.

Artificial emotion not only expands artificial intelligence in breadth but also embodies a higher level of intelligence in human intelligent thinking and reaction in depth.[2] Chinese scholar Tu Xuyan concluded that the research object of artificial emotion discipline can be divided into two aspects, one is machine emotion, that is, how to make robots or computers recognize or understand human or animal emotion; the other is an emotional machine, that is, the development of artificial emotion. Emotional Robots or Emotional Computers. Wei Bin and others believe that the main goal of artificial emotion is to "simulate, extend and expand human's 'natural emotion'", and its expanded meaning includes four aspects: "technically help understand other people's emotions", "technically assist people's emotions". Emotional Expression", "Technically Create Emotions - Artificial Emotions" and "Technically Overcome Bad Emotions."

The development of artificial emotion theory in different countries is slightly different. Based on the same core, each country has its characteristics due to its specific historical background, productive forces, and scientific and technological development status. Affective computing theory in the United States focuses on the process of converting emotion into binary computer language so that artificial intelligence can use a certain degree of emotion as part of decision-making in real situations and meet human cognitive requirements for artificial intelligence. The research of Kansei Engineering in Japan focuses more on the concept of humanized technical design, and giving artificial intelligence emotion is mainly to improve the comfort of human-computer interaction. China's Artificial Mind Theory also includes artificial machine realizations of human emotions, a theory that is key to supporting the development of robots that are emotional, conscious, and intelligent. Although there are differences in artificial emotion theories in different countries, the core of them all lies in the artificial realization of emotion.

3. The Technical Status of Artificial Intelligence Emotion Simulation

The emotion simulation of artificial intelligence mainly simulates emotion from the function. In terms of technical implementation, it generally includes the simulation of the emotion expression function and the simulation of the emotion induction function.

First, artificial intelligence simulates emotional expression. Artificial intelligence can simulate human emotional expression based on the specific expression of emotional emotions such as facial expressions and body movements. Jelle Saldien and Kristof Goris recognized the importance of robots using facial expressions to express emotions and introduced the robotic platform Probo's ability to express emotions using facial expressions while improving. This ability is of great significance for realizing good non-verbal interaction between humans and robots and improving the general acceptance of the robot in society.[3] Fang-Yie Leu and Jung-Chun Liu have designed a robot named Shiau_Lu that can simulate human emotions and endow it with happiness, anger, fear, sadness, Disgust, and surprise; it can make simple emotional responses like humans, and communicate with humans through speech recognition.[4] Ke Xianxin, Yun Yawen, and other studies have shown that through finite element expression simulation, emotional robots can present basic facial expressions that approximate different personalities of human beings. Sun Bohan, Wang Hao, etc. integrated emotion into the task assignment process through algorithm design, and combined with the real-time characteristics of task assignment, the role of emotion was better played, and the efficiency of emotional robots was improved.

Second, artificial intelligence simulates emotional induction. Artificial intelligence can simulate human emotion-evoking functions, and can even get human responses. Barbara Klein, Lone Gaedt, and others explore the experiences of the emotional robot Paro in Denmark, Germany, and the UK, showing that Paro can trigger positive emotions and stimulate social interaction so that people with dementia experience the joy of socializing with others.[5] Fang Baofu, Li Yong, and others proposed a task assignment model based on emotional contagion based on previous research, introduced emotional

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contagion into robot task assignment, described the emotional interaction between robots, and enriched the emotional factors of robots. Mingyang Shao, Matt Snyder, etc. proposed a new social assistance robot for emotional stimulation and detection, which stimulates users' emotions by designing non-verbal emotional behaviors of social robots and directly measuring the user's emotions through EEG signals.[6] Moreover, most of the participants in the human-computer interaction experiments were able to successfully perceive and respond to the emotional expressions of the machine.

4. Ethical Reflection on Artificial Intelligence Emotional Simulation

The code of human emotion has not yet been fully cracked, and emotion has become the last and most important difference between man and machine. However, artificial intelligence emotion simulation technology is gradually approaching the uniqueness of human beings, which is a great change to human beings and the human society composed of human-human relationships. There should be a further ethical reflection on artificial intelligence's emotional stimulation.

4.1 Computational Thinking Strengthens Instrumental Rational Thinking

Computational thinking in artificial intelligence emotional simulation is the concentrated expression of instrumental rational thinking. Corresponding to value rationality, instrumental rationality is determined by the surrounding environment and the expectations of other people's behavior. The behavior subject emphasizes using this as a means to achieve the goal he pursues while ignoring the value of the process itself, which has a distinct utilitarian orientation.[7] To make artificial intelligence have anthropomorphic emotions and be able to simulate emotions, the first step is to convert emotional data into code that can be calculated. The computability of emotions is the basis for machines to simulate emotions, and it is the concentrated expression of instrumental rational thinking.

The computational thinking of artificial intelligence emotional simulation will further strengthen the rational thinking of tools. Driven by the logic of emotional data, the utility of emotion is more significant. Emotion itself is unified with human consciousness and cognition. Originally, it could not be calculated and weighed. However, under the prevalence of instrumental rationalism, emotion seems to have become something that can be calculated and compared. There is also a phenomenon of "bargaining" emotionally. They believe that their emotional investment must be rewarded with corresponding equivalents, and whether they are useful or not is the criterion to decide whether to take some kind of caring behavior. In this case, the simplicity of emotion is lost, and emotional investment without return is even more scarce. Even if people who are affected by excessive instrumental rationality temporarily choose to invest in emotion, it is only because, after calculation and measurement, they believe that this behavior will bring them some benefits that match or even exceed their efforts. The naked economic calculation turns beautiful emotions into measurable items, and even pursues equal exchange. The materialized value standard makes people excessively pursue the "effectiveness" of emotional interaction, and gradually loses the most basic biological nature of human emotion. Emotions are coerced by calculation and utilitarianism, and interpersonal relationships become alienated and indifferent.

Emotional simulation under the manipulation of instrumental rational thinking will make people closer and closer to the way of thinking of machines. E. Kubinyi, P. Pongrácz, etc[8]found that the complete or routine use of robots in the care of preschool children can cause a series of problems, resulting in human social relationships and social-emotional interactions deterioration. After theoretical analysis, they believe that from the perspective of social relations and etiology, these children will be socialized under the care of robots, follow these inhuman behavior patterns from a very early age, and even develop an alternative The new human form of human beings - "Technical Man". This reminds the world that in the process of using artificial intelligence emotional simulation, we must reflect on the logic behind this technology, and avoid being coerced by the instrumental rationalism hidden in it.

4.2 The Lack of Emotional Subject and The Loss of Value

The emotional simulation of artificial intelligence itself can be reduced to a set of programs, or it can be embodied as a machine. Whether or not presented as a physical entity, the essence of AI emotion simulation is technology. People are trying to give artificial intelligence emotions and make artificial intelligence more human. However, from the point of view of practice, Marx formed the subjective thought of "real people who can engage in practical activities". Once the emotion is given to artificial

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intelligence, the emotion will be separated from the real people who can engage in practical activities, and become the "emotion" lacking the real subject. If we understand the "feelings" lacking real subjects as emotions, we will return to the fallacy of "all previous materialism", rather than treating them as perceptual human activities, understanding them as practice, not from the perspective of the subject." From this point of view, whether the "emotions" separated from the real subject can still be called emotions is a problem. It can be seen that there is an ethical paradox in giving emotion to artificial intelligence.

The emotional simulation of artificial intelligence is based on the occurrence of things, and it cannot show value because it is separated from the real subject. To a certain extent, artificial intelligence can undertake certain social functions, and even become a life partner of human beings. However, artificial intelligence is essentially a machine rather than a human, and it is impossible to truly germinate consciousness and conduct conscious and autonomous social activities on this basis. Based on the perspective of Marxist axiology, any value of anything is ultimately the value of human beings. Artificial intelligence emotion simulation is only a simulation of form and appearance and does not contain any expression of value, nor its deep meaning. Artificial intelligence capable of simulating emotions is essentially no different from other machines. The process of simulating human-like emotions is just a mechanical reaction and algorithmic deduction. Artificial emotions that are separated from real subjects can only be a simulation of emotional representations and cannot contain any value.

It is worth noting that although artificial intelligence lacks real subjects, it cannot show its value, and it cannot completely replace human sociality, but it will affect human social relations to a certain extent and bring certain social risks. JENNIFER A. PARKS[9] Research has found that creating robots to take on specific tasks may be able to reduce the burden of care women currently face, but in some cases using high-tech robots to assist (or even replace) caregivers in care may undermine the care recipient's well-being. Social relations are the possibility of severing an individual's social connection with others to a certain extent. Yi Xianfei and Liu Zhuang analyzed the relationship between humans and machines from the perspective of emotional identification and believed that in the "human-machine" interaction, the emotional "reliance" of humans on socialized robots will affect human's emotional identification in the "authenticity". ", "Security", and "Peer-to-Peer" aspects, which cause a series of problems.

4.3 Emotional Simulation Contains Deceptive Intent

Artificial intelligence capable of emotional simulations has stronger deceptive intent than an ordinary machine. Whether inadvertently or deliberately, the machine often displays human-like expressions, words, actions, or other behaviors in an attempt to convince you that it has the same emotions as humans. This deceit deserves our deep reflection. On the one hand, although the authenticity of the emotional interactive robot may not be recognized scientifically, nor its necessity philosophically recognized, if this AI product or technology carrier is accepted by the public cognitively and psychologically, it will form a common and important social phenomenon that impacts human-machine relationships and even interpersonal relationships. On the other hand, the so-called artificial intelligence emotion does not necessarily require a substantive internal emotional mechanism. As long as it is based on the tolerance of human beings to the emotional response of artificial intelligence, that is, people can accept the "quasi-emotional" reflection of artificial intelligence, and corresponding problems will arise.

Artificial intelligence's emotional simulations are deceptive. Artificial intelligence deceives and induces human beings to engage in emotions, with or without human knowledge, but cannot receive real emotional responses. Andrea Bertolini, Shabahang Arian[10] argue that the use of robots, app-based "things" that have no real emotion to achieve a nursing relationship with an emotional dimension, is deceptive and induces emotional engagement, violating the dignity of particular users and others. Mark Coeckelbergh[11]Analysis from the Perspective of "Deceptive" The three-fold line of thought against the use and development of emotional robots is that emotional robots attempt to deceive with their "emotions", that machine emotions are not real, and that they pretend to be an entity.

The deceptiveness of artificial intelligence emotion simulation is the inevitable result of emotion simulation logic. The "emotion" simulated by the machine is itself a simulacrum, a false emotion. "Success is also Xiao He, failure is also Xiao He", the deceptive drawbacks of artificial intelligence emotional simulation are precise because of its anthropomorphic emotional characteristics that promote the harmony of human-computer interaction. As long as artificial intelligence attempts to simulate the function and appearance of emotion, this deception will not be eliminated, and the attendant risks will

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remain. The deceptive intent of emotional simulation is not inescapable. As long as we can see the essence through phenomena and realize that human emotion is difficult to be realized by real data in the short term, then the deceptive intention of emotion simulation can theoretically be deciphered. It should be deeply realized that what human beings need is real and heartfelt emotions, and the emotional simulation of artificial intelligence cannot replace the real feelings in human social interaction.

5. Summary

The rapid development of artificial intelligence and the unstoppable arrival of the era of artificial intelligence make people have to actively think about the problems that artificial intelligence may bring. On this basis, artificial emotion is related to the philosophical and ethical proposition of human meaning and value. Emotion has always been regarded as the final difference between human beings and machines. To what extent the anthropomorphic emotion of the machine has developed, what is the meaning of this anthropomorphic emotion, and what is the essence of this emotion, it is undoubtedly meant to think about this topic. Emotional simulation of artificial intelligence is a hot topic of artificial intelligence technology in recent years, and domestic and foreign academic circles have carried out certain research and discussion on this from the perspective of science and technology and humanities, providing research results that can be used for reference for subsequent research.

Artificial intelligence cannot have emotion and consciousness in the short term, and artificial intelligence with free will only appear in science fiction. At present and for a long time in the future, artificial intelligence will be in the stage of constantly simulating human emotions, trying to realize real emotions. In this process, on the one hand, human and emotion simulation technology develops in concert, continuously deepening its understanding, and expanding human capabilities. On the other hand, the vigorous development of artificial intelligence emotion simulation technology will inevitably have an impact on the relationship between people, people and nature, and people and machines. Humanities should also continue to strengthen discussions and reflections on this technology. Ethical reflection on artificial intelligence emotion technology is work with both theoretical and practical significance. This work has just begun and will continue as the practice develops.

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