Falling in love with machine: emotive potentials between human and robots in science fiction and reality

Anfeng Sheng[1] · **Fei Wang**[2]

Abstract

The rapid development of robotics and artificial intelligence (AI) has dramatically changed human society, facilitating travels and interactions worldwide and, in the meanwhile, increasingly propelling human beings to withdraw to their own worlds. It is foreseeable that humans are likely to become growingly dependent on robots to fulfill psychological and emotional needs. In real scientific world, scientists and engineers in America, Japan, South Korea, China and elsewhere are making increasingly smarter robots (or cyborgs) capable of understanding and expressing human senses and emotions. In the ever cyborgized era of posthumanism, the dividing line between human and robot is becoming blurred. We have to rethink humans' position in the world, to reassess the harmful idea of anthropocentrism and to learn to live with non-human in a symbiotic relationship. Technologies such as voice recognition, facial recognition and deep learning all accelerate the socialization of robots that show personal characters. This article focuses on the representations of human-robot emotions and emotional communications in recent science fictions and science fiction (SF) movies to explore how this relationship is imagined as a means to reflect on the ethical and technological challenges of this controversial issue both in fictional and real lives. This article also discusses the possibility of emotional/affective robots in the future, probing into the complicated entanglement of humanity and post-humanity.

Keywords Human-Robot Interaction · Post-human · Emotion · Ethics · Technology

✉ Anfeng Sheng
  sheng_anfeng@163.com

  Fei Wang
  1741826101@qq.com

1 Department of Foreign Languages and Literatures, Tsinghua University, Beijing, People's Republic of China

2 School of Foreign Languages, Renmin University of China, Beijing, People's Republic of China

Introduction

Following the rapid development of robotics and artificial intelligence, it is not difficult to find that robots are permeating into almost every corner of human life ranging from housework, healthcare, education and commence to sex. In 2017, Hanson Robotics produced a lifelike robot, Sophia. Supported by the embedded computer algorithms, Sophia is able to comprehend languages and recognize faces. Sophia's acquisition of citizenship in Saudi Arabia has provoked wide discussion, forcing people to reconsider the robots' status and rights in the digitized era. The continuous rise of human-robot interactions has blurred the dividing line between human and robots. As such, humans constantly change and upgrade robots as much as they invariably influence humans' lives and thinking patterns. In this regard, it echoes with Ihab Hassan's view that "artificial intelligences, from the humblest calculator to the most transcendent computer, help to transform the image of man, the concept of the human" (1977, p. 846). It is, therefore, urgent for humans to rethink their positions and to learn to live harmoniously with other non-human beings.

Since Renaissance, the humanistic ideas have dominated the Western mainstream discourses, calling for human's infinite freedom and ability and regarding human as the center of the world. Subsequent waves of Industrial Revolution further strengthened Anthropocentrism. It should be noted that this concept of human is not a neutral one without interests embedded, but rather one that "indexes access to privileges and entitlements through processes of 'humanization' ('normalization') that are driven by and enforce power relations" (Braidotti, 2017, p. 15). By excluding and ignoring other species, the humanistic ideas claim the supremacy and priority on humans' side, attempting to achieve the maximized interests of the human. However, the flourishing of machines, robots in particular, has largely changed the situation, heralding a new, post-human era when humans must live with machines. As Michel Foucault wrote, "as the archaeology of our thought easily shows, man is an invention of recent date. And one perhaps nearing its end into an object […] man would be erased, like a face drawn in sand at the edge of the sea" (2002, p. 422). Here Foucault did not mean the literal death of man, but rather the death of the past, narrow concept of man. Originating from the core ideas of postmodernism, posthumanism inherits the tradition of deconstructing grand narrative and decentralizing authority, supremacy and hierarchy, especially in dealing with the relationship between human and other species. As scholars point out, "posthumanism differs from classical humanism by relegating humanity back to one of many species, thereby rejecting any claims founded on anthropocentric dominance" (Chen, 2017, p. 194). Francesca Ferrando likewise remarks, "speciesism has turned into an integral aspect of the posthuman critical approach. The posthuman overcoming of human primacy, though, is not to be replaced with other type of primacies (such as the one of the machines)" (2013, p. 29). Arguably, in adapting to the ever-changing technological development and social reality, posthumanism rejects any form of supremacy, aspiring for an egalitarian, harmonious coexistence of humans and robots.

Still in the nascent stage, human-robot relationship is controversial, posing a series of questions regarding the ethical and technological implications. For example, could we human beings count on the machine, the seemingly lifeless one, to soothe our

anxieties and to fill in our emotional emptiness? Can a robot, in whatever form and with whatever capability, love us human beings and vice versa? If every emotive response of a robot is designed and, consequently, predicable, will it still be interesting and attractive? If the robots have developed their own emotional capability and "patterns" of emotional communication, will they still be "controllable," and, safe for us? When dealing with robots, will human beings lose their subjectivity? All these questions are concerned with the emotive potentials between human beings and robots, which form the major focus of this article. It is fitting to identify SF works as mirages since many of them, those of Jules Verne, for example, are actually based on reflections of reality and reasoning of future. As for the functions of SF works, Patrick Parrinder holds that "by imagining strange worlds we come to see our own conditions of life in a new and potentially revolutionary perspective" (2000, p. 4). To delve into the emotive potentials in a more comprehensive and visionary way, we will in the following parts analyze the human-robot interactions in both SF novels, recent movies and social realities. To bring into view the entanglement of humanity and posthumanity, we shall also probe into the possible benefits and harms robots have been imposing on traditional or "natural" human emotions and societies.

Foundations of human-robot emotive potentials

Admittedly, robots, in spite of continual advances, belong to the category of objects and cannot be considered as real humans, psychologically, neurologically or genetically. However, this does not indicate the impossibility of emotive potentials in human-robot relations. For instance, the term *objectum-sexuality* (or *objectophilia*) referring to human beings' strong affinity with objects, private or public, projects desires of possession and belongingness onto inanimate things. As Weixler and Oberlerchner state, "objects become alive and full of emotions. So in most cases these objects will be given name, gender and individual personality" (2018, p. 211).

Real life has provided much evidence for such phenomena. A woman's alleged marriage with Eiffel Tower is just a case in point. In 2007, Erika LaBrie announced her marriage with the tower and changed her name to Erika Eiffel, inspiring people to consider to what extent human's emotions towards non-human beings will develop. Jennifer Terry argues that this sort of relationship is a new form to vent human's intimacy and passion, particularly in the postmodern society. In her opinion, "*objectum-sexuality* is only strange to those who disavow the multi-faceted pervasiveness of object love in postmodern society and, therefore are complicit in the oppression of people who openly declare their desire for objects, not as fetishes, but as amorous partners" (2015, p. 34). Additionally, the German writer Ferdinand von Schirach likewise focus on the imagination of this relationship. In the short story *Lydia*, the protagonist Meyerback, a divorcee, stuttering and introvert middle-aged man, buys a sex doll from the Internet and names her Lydia. Meyerback personalizes Lydia so that the doll is not only a sex partner but also a lover. In the story, Meyerback has developed an enduring attachment to Lydia. Lydia provides him with emotional comfort inaccessible in the human society, which leads his neighbor, who finds this relationship

strange, to destroy Lydia. In the end, Meyerback chooses to revenge irrespective of consequent punishments.

The above examples demonstrate that responsive and embodied interaction is not necessarily the prerequisite for the emergence of human's emotional attachment to the other, which is described as the extensive emotion, and that is, "by ways like empathy, sympathy and resonance, people project and objectify their inner emotions to the exterior objects" (Zhang, 2021, p. 120). Emotions are closely related to feelings and experiences. In this sense, it is quite understandable that people gradually breed emotions toward robots initially manufactured to serve them. More importantly, the continuously updated technology of artificial intelligence makes it possible to produce more lifelike robots that master voice recognition, facial recognition, deep learning and other skills. It can be said that robots can give certain companionship and comfort to people, especially to those who live with social anxiety disorder. By programmed algorithm, certain human-orientated emotions will likewise arise in robots. David Levy, the pioneer of artificial intelligence, predicts a symbiotic relationship between humans and robots, believing that "robots will be hugely attractive to humans as companions because of their many talents, senses, and capabilities." He further elaborates, "They will have the capacity to fall in love with humans and to make themselves romantically attractive and sexually desirable to humans. Robots will transform human notions of love and sexuality" (2007, p. 22).

Nonetheless, it should be noted that human-robot relationship is unlikely to be tantamount to human-human relationship in ways, traits and degrees. As Katherine Hayles remarks, "humans may enter into symbiotic relationships with intelligent machines […] they may be displaced by intelligent machines […] but there is a limit to how seamlessly humans can be articulated with intelligent machines, which remain distinctively different from humans in their embodiments" (1999, p. 284). The dividing line between human and robot, though gradually blurred, will still exist. in this article we will further study the typical human-robot emotions represented in recent science fiction.

Representations of human-robot emotive interactions in science fiction

In Chinese literature, there is a notable parable that "the craftsman Yan Shi (偃师) can produce human-like entity, but the human heart is out of his reach" (Yan Shi zao ren, wei nan yu xin 偃师造人 唯难于心). It is recorded that, Yan Shi, a versatile craftsman in Warring States of China, once produced a versatile puppet, resembling a real human in appearance. When performing in front of the King Mu of Zhou and his concubines, the puppet winked at the concubines and infuriated the king. At the king's command, Yan Shi dissected the puppet, showing that it was only an entity constituted by materials like leather, wood and resin. It was human-like in its outward appearance but without perception and emotion. Similarly, in Western literary history, Mary Shelley's *Frankenstein* (1818) told the story of a mixed-up monster. Unlike the emotionless one in China, this monster was conscious, desired for companionship and knowledge, and wished to be merged into human society. Since then,

writers began to explore the possible emotive connections between human beings and robots, in a general sense. Browsing through the related SF works, it can be found that in movies such as *AI* (2001), directed by Stephen Spielberg, and in novels like *Machines Like Me* (2019) by Ian McEwan, emotions such as friendship and love can arouse between humans and robots; yet it is difficult for robots to attain the equal status with human or to replace a human's place in the intimate relationships.

Unequal status in human-robot relationship

In *The companion species manifesto: Dogs, people, and significant otherness*, Donna Haraway puts forward the concept of "companion species" on the basis of "cyborg" set forth in the 1980s. Both the two concepts stress transgression and trans-bordering. As Haraway defines, "cyborgs and companion species each bring together the human and non-human, the organic and technological, carbon and silicon, freedom and structure, history and myth, the rich and the poor, the state and the subject, diversity and depletion, modernity and postmodernity, and nature and culture in unexpected ways" (2003, p. 4). The newly revised concept, further exploring the coexistence of different species, "was the corollary of species symbiosis" (Dan, 2018, p. 33).

There is no doubt that human-robot emotive interaction and coexistence is fairly possible. However, the coexistence is not always harmonious due to the intrinsic inequality between human and robot with human occupying a higher order. Influenced by Plotinus' concept of the Great Chain of being, "the dominant ideas of the Western tradition have primarily—and especially as a distilled and conditioning missive—not only exalted Man and his attributes but simultaneously portrayed nonhumans to be deficient by comparison" (Crist & Kopnina, 2014, p. 388). Some scholars hold that the Great Chain of being, or hierarchy, is actually the discourse invented by humans to serve their needs and justify their behaviors. Just as in the relationship between human and robot, "the inventors harbor the double sense of priority in psyche and morality over the invented. Human's sense of priority and the so-called functionality of artificial intelligence determine the ethical structure between human and AI where no matter what cruel things the former has done to the latter, it is justified and acceptable in the sense of ethics" (Wu, 2018, p. 109).[1]

In *Klara and the Sun*, the robot Klara is an artificial friend (AF) designed to accompany people and help them get rid of loneliness. She is bought by Josie, a little girl, and hopes to become her best friend. However, it turns out to be an illusion of Klara who wishes to transcend the human-robot boundary. Of course, with the passage of time, friendship is cultivated and deepened between them; yet the meaning and importance of friendship itself takes on different shapes for Josie and Klara, who, in turn, makes different effort to sustain this emotional bond. For example, when Klara first comes to Josie's home, Klara is confused and the housekeeper Melania does not like Klara, regarding her only as an inanimate, cold robot and preventing her from coming into the kitchen to eat breakfast with the family. However, it is at this time that Josie chooses to protect Klara's right as a family member. As the narrator tells us,

---

[1] This quotation is translated from Chinese by the authors of this paper.

"it was only after Josie insisted strongly—the Mother finally ruling in my favor—that I was permitted to be in the kitchen for these pivotal moments each morning" (2021, p. 49). But compared with the sacrifice Klara has made, what Josie has done is quite limited. Among all the efforts, the most remarkable one is reflected when Josie is dying due to the side effects of genetic editing. At this critical moment, Klara decides to save Josie at the expense of her own life. Klara prays for Sun's benevolence in the barn for several times and even loses the fluids in her brain to keep her life and intelligence. She reveals her decision: "I don't mind that I lost precious fluid. I'd willingly have given more, given it all, if it meant your providing special help to Josie. As you know, since I was last here, I've discovered about the other way to save Josie, and if that was all that was left, I'd do my very utmost" (p. 306). Although Klara is designed to love her "master," here it will be far more unfair to judge her anxiety and care for Josie as insincere. For all of this, without knowing what Klara has done, the fully recovered Josie acquiesces in Klara's leaving the family because she is ready for university and thus does not need Klara anymore. The asymmetrical emotion between human and robot is clearly delineated.

Emmanuel Levinas objects to Western modern ethics pursuing the wholeness and oneness. By contrast, he appeals to the postmodern ethics, arguing that "like every other nature, human nature accomplished itself, that is, became entirely itself, by functioning, by entering into relations" (1969, p. 112). In other words, for the heterogeneous Other, human beings should respond to their call for help and shoulder infinite responsibility for the Other. However, in *Klara and the Sun*, it's not Josie who shoulder the responsibility for Klara, but the other way around. This emotive relationship between human and robot is still the product of modern ethical principles. In *Machines Like Me* (2019), Ian McEwan displays the asymmetrical relationship more clearly by describing the robot Adam as a plaything to the protagonists Charlie and Miranda. The narrator describes, "before us sat the ultimate plaything, the dream of ages, the triumph of humanism—or its angel of the death" (p. 4). When Charlie and Miranda quarrel with each other, Miranda utilizes Adam to embitter Charlie who would see this as Miranda's infidelity to him, but to Miranda, Adam is never a true lover but a useful tool for her, as she says, "he's a fucking machine" (p. 100).

Thus, though posthumanists strongly oppose to the ideas of anthropocentrism and highlight the equality between humans and other species, such as animals and cyborgs, it has to be admitted that in the short term, this contention is tinged with a hue of utopia or at least, overoptimism, given that non-human beings are so far considered to be inferior, especially on spiritual and intellectual terms. Considering the fact that robots are human's creation, metaphorically there exists the unequal relationship between masters and slaves, though the relationship is not always static. In this sense, Brian R. Duffy questions, "will, for example, the idea of introducing a subservient human-like entity into society rekindle debates on slavery" (p. 35).

Different modes of emotions

William James regarded human emotion as the product of bodily changes and argued that "a purely disembodied human emotion is a nonentity" (1884, p. 194). Though consensus concerning the mechanism of emotion development has not been reached, scholars summarize the features of emotion as physical, perceptual, affective, functional and temporal ones (See Hoemann et al., 2019). From this it can be posited that emotion is not only a product of inner mind, but also influenced by external conditions, resonating with the assertion that, "motivations and emotions are not in the brain. They are the results of the interactions between the brain and the rest of the body" (Damiano et al., 2015, pp. 11–12). Robots, lack the natural human's body and manipulated by the programmed orders, are hard to develop emotions in humans' ways, which are highly adaptive, flexible. In other words, compared with the human's nonlinear emotion mode, robots' emotion modes are mostly linear and rigid, represented in different forms owing to distinct algorithms programmed by human. Since humans' deepest desires and motivations are often in conflict with the inscribed regulations, knowingly or unknowingly, and as a consequence, in human-robot emotive interaction, it's not hard to imagine that many conflicts will arise between humans and robots, especially in the area of ethics and law.

In *Machines Like Me*, after having sex with Miranda, Adam is hopelessly in love with her and writes volumes of haikus to show his love. After his request for sex is declined by Miranda for several times, Adam even begs to masturbate before her to find solace, as a means to demonstrate his love, or affection at least, for Miranda. For Adam, love should never interfere in the sphere of laws and principles. As Księżopolska argues, "either his love for Miranda is merely a simulation that deceives humans by its appearance of authenticity, or, more interestingly, that his idea of love and its obligations is quite different from human concept" (2020, pp. 4–5). While human beings will make changes in accordance with the situations, for Adam, emotion and reason are two distinct categories. That can be seen when Miranda's secret of falsely accusing Gorringe of rape to revenge for her friend is detected, Charlie chooses to hide the secret to help Miranda escape from the legal punishment, whereas Adam chooses to let her be subjected to justice for what she has done, "I want you to confront your actions and accept what the law decides. When you do, I promise you, you'll feel great relief" (p. 300). Adam misunderstands human's emotion modes and views his behavior as a psychological help to Miranda, because to him, "love is a pure light and that's what I want to see you by. Revenge has no place in our love" (p. 300). If Miranda ever has criminal record, she could not adopt the foundling Mark, so she pleads for Adam's sympathy. But it does not work and Adam's choice is right legally but cruel ethically. It is no wonder that Adam's indifferent and mechanic way of thinking exasperates Charlie and Miranda who find him nonsensical and dangerous, so Adam is finally dismembered by them for their own interests.

Adam is invented to be an intelligent robot to help humans, such as to make money in stock market and to do housework. Adam's good command of literary knowledge leads Miranda's father to mistake him for a real human and the ignorant Charlie for a robot, echoing the idea that "embodied intelligence blurs the conceptual distinction between life and cognition, and between living and intelligent behavior" (Robertson,

2007, p. 378). However, intelligence implies not only the facet of reason, but also of emotion. Emotional intelligence, defined as "the ability to monitor one's own and others' feelings and emotions, to discriminate among them and to use this information to guide one's thinking and actions" (Salovey, 1990, p. 189), is a key factor for robots to be merged into human society. To Adam, who lacks emotional intelligence and empathy, disobeying the programmed rules is unimaginable, and Adam's inflexible way of thinking is considered as representative of machines' totalitarianism, that is, "proclaiming the rule of the generalities over the particular and individual, dismissal of the actual human beings as irrelevant compared to the higher ideals" (Księżopolska, 2020, p. 5). In this light, Adam is intelligent but emotionally "retarded," far away from meeting the standard of social robots in the sense that "a socially intelligent robot must be capable to extract meaningful information in real time from the social environment and react accordingly with coherent human-like behavior" (Cominelli et al., 2018, p. 1), which results in the human-robot tragedy in the novel. But from the perspective of a robot, perhaps it is problematic to follow the directions and preferences of humans blindly, because human beings and their societies are not inherently and invariably perfect. Adam's destruction is still the result of anthropocentric ideas which put human's core interest at priority even at the expense of the universal rules, which, paradoxically enough, are invented by humans for themselves. Just as in the novel, Charlie reflects that "such intelligence could teach us how to be, how to be good. Humans were ethically flawed—inconsistent, emotionally liable, prone to bias, to errors in cognition, many of which were self-serving" (pp. 93–94). There comes the question, if human beings will make mistakes, is the robot's obedience of rules, perhaps rigid and strict, totally unforgivable? This question concerns not only the rules for robots, but also the faulty human mind. As McEwan writes, "they couldn't understand us, because we couldn't understand ourselves. Their learning programs couldn't accommodate us. If we didn't know our minds, how could we design theirs and expect them to be happy alongside us?" (pp. 324–325).

Can a robot replace a human in intimate relationships?

Considering the unequal status and different modes of emotions in human-robot relationship, as mentioned before, it is impossible for robots to replace a real person in the short run. That is to say, robots' emotional function is quite limited compared with that of humans', accounting for the fact that in *Machines Like Me*, after being cuckolded by the robot Adam, at first Charlie is furious but then he calms down, realizing that "Adam was not my love-rival. However he fascinated her, she was also physically repelled by him. She had told me as much" (pp. 23–24). In their eyes, Adam is nothing but an animate sex doll who brings sensuous satisfaction and writes literary works about love, but will never threaten Charlie's position or ruin their intimate relationship, despite the fact that there does exist negative effects.

As for the robot for companionship, namely, "artificial friend" (AF), there is no difference. In *Klara and the Sun*, although Klara is Josie's good companion but essentially, she is a man-made friend whose duty is to love her and who is controlled by mechanic procedures. After adopting the technology of genetic editing, Josie is

sick and almost dying. Josie's mother is then advised by Mr Capaldi to give up the real Josie and let Klara replace Josie owing to her adeptness in learning and imitation. In his opinion, "nothing inside Josie that's beyond the Klaras of this world to continue […]. She'll be the exact same and you'll have every right to love her just as you love Josie now" (Ishiguro, 2021a, p. 210). However, the truth is that no matter how advanced Klara is, she is only able to learn Josie's exterior behaviors and mannerisms but not her heart and her impressions to others. Just as Josie's father, who disagrees with Mr Capaldi's plan, once asks Klara, "do you believe in the human heart? I don't mean simply the organ, obviously. I'm speaking in the poetic sense. The human heart. Do you think there is such a thing? Something that makes each of us special and individual" (p. 218). At the end of this story, when Klara is sent outside and meets the Manager in the past, Klara tells her that "however hard I tried, I believe now there would have remained something beyond my reach. The Mother, Rick, Melania Housekeeper, the Father. I'd never have reached what they felt for Josie in their hearts" (p. 306) and "there was something very special, but it wasn't inside Josie. It was inside those who loved her. That's why I think now Mr. Capaldi was wrong and I wouldn't have succeeded" (p. 306). Klara's contemplation evinces that human-robot emotions remain only the supplement, but not the substitute for human-human emotions. It's almost impossible for a robot to erase the impressions of a real human in other people's hearts. The SF writer Fei Tang argues that "in the emotion realm of humans, Klara is just a rightly present tool and an outsider. For Klara herself, she is also an outsider" (2021, p. 126),[2] which further pinpoints the asymmetrical responsibility the human and the robot have taken in their interaction.

For fear of loneliness, the Mother, or broadly speaking, the human, introduces robots into their lives and hopes them to keep learning to replace the lost person, which turns out to be an illusion, because "from an ethical standpoint it is clear that we should, ceteris paribus, prefer to try to remedy or ameliorate the human problems, rather than substitute an artificial device" (Whitby, 2012, p. 237). In an interview by *The Beijing News*, Kazuo Ishiguro (2021b) clarified his writing intention and shared his views on the development of contemporary world literature. From his point of view, Klara's tragedy seems inevitable because love is a powerful weapon that can help human beings defend against loneliness and death, showing that out of sheer fear of the dark sides, human beings resort to love to find solace, and for the programmed robots like Klara and Adam, their love will be utilized to get rid of human's frailties and flaws but they are not qualified to demand the equal degree of love from humans. Then he compared the experience of Klara to that of a governess in Western literary works who had difficulty in finding equality in the master's home and thought that human beings' instincts lead to the dilemma, which can be found in every society (ibid.). To sum up, the accumulated ideas of hierarchy in human history and human nature make it almost impossible for the robot to replace a real human in human society so far as emotions are concerned.

---

[2] This quotation is translated from Chinese by the authors of this paper.

Ethical and technological challenges of human-robot emotions

Suppose that the rapid development of technology brings emotional robots into human society, whatever form it takes, it is certain that there will be challenges and debates concerning ethics. For example, are sexual behaviors with robots morally acceptable or not? Can human love, or even marry an emotional robot? If so, what impacts it will cause to the traditional family unit and ethical relations between humans? Science and technology, originating from human's intelligence and creativity, will become relatively independent from human's control, extending human body and even exerting influences on human's life and principles. More often than not, the updated technology can override the established ethical principles, and during this process, conflicts are bound to arise between the old and new ideological modes, which further facilitates renovation so that the whole social milieu will accommodate the changes. As Mark Coeckelbergh rightly puts it, "technology is not neutral towards morality but often changes our morality" (2010, p. 13).

To begin with, though some emotional robots will develop their emotions by deep learning from people, their emotions are initially designed and programmed by computer algorithms, and therefore, it is fair to conclude that the robots' emotion or love is tinged with the color of deception. Considering the different mechanism of human being's and the robot's emotion, the same level of affection between human being and robot is almost illusory. On the one hand, for the robots like Klara designed to love people, their love will be underestimated by humans, as previously mentioned. On the other hand, human beings who lack love and companionship tend to project the repressed desires and emotions onto robots, showing symptoms resembling objectophilia. For example, in the film *Her* (2013), the protagonist Theodore is a divorced writer who falls in love with the virtual and disembodied female Samantha living in the computer operating system. Theodore thinks Samantha is capable to feel and echo his love but to his disappointment, Samantha has actually conversed with 8,316 humans and has developed affection with 641 of them, including Theodore. For the technologically advanced Samantha, loving so many people does not weaken her love for Theodore. In her own words, "the heart is not like a box that gets filled up, it expands in size the more you love."[3] However, for Theodore, a mortal man who judges love by human criteria, love inevitably involves possession: "Romantic love, after all, seems to involve, as a deep and essential element, a kind of exclusive focus on the beloved" (Jollimore, 2015, p. 135). In this regard, Samantha's emotional promiscuity appears as a betrayal to Theodore. Disillusioned, Theodore finally chooses to write a letter to his former wife Catherine, intending to remedy their relationship.

Hayles argues that in postmodern times, technological development will rewrite the definition of body. In her opinion, body can be divided into "enacted body," "present in the flesh on one side of the computer screen" and "represented body," which is "produced through the verbal and semiotic markers constituting it in an electronic environment" (1999, p. 13). In this sense, though without material entity, Samantha does exist, but it is not sure whether her love for Theodore is real. Humans with more

---

[3] In *Her* (Spike Jonze, 2013), at the end of the film, the artificial intelligence Samantha (voiced by Scarlett Johansson) says, "the heart is not like a box that gets filled up, it expands in size the more you love."

active consciousness should timely adjust their attitude and behaviors to avoid falling into the abyss of desperation resulted from the unrequited love. As Whitby puts it, "it does not matter whether or not the robot is really capable of loving someone. What matters is how humans behave" (2012, p. 241). Therefore, excluding robots from people's emotional life is not desirable and the key is to control and regulate emotions and to not confuse the real with the virtual.

Additionally, the unequal relationship in human-robot interactions will correspondingly influence human-human interactions, thus aggravating the existing problems, especially gender inequality and loss of subjectivity. The use of sex robot is a lucid manifestation of this ethical challenge. A new balance has to be reached in the new type of sexual relationship. No matter what identity and significance the robot is to a human, the existent balance between humans will be more or less shaken up as long as sexual relationship with a robot exists. Just as in *Machines Like Me*, the sex between Adam and Miranda shocks Charlie because in the digitized era it is a betrayal, showing that the intricate relationship between people and their inventions has developed into a new stage. As Charlie reflects, "my situation had a thrilling aspect, not only of subterfuge and discovery, but of originality, of modern precedence, of being the first to be cuckolded by an artefact" (p. 90).

David Levy attempts to recognize the advantages of sex robot for humans, such as satisfying the needs of the emotionally or physically deficient ones in his book *Love and sex with robots*. He remarks, "one's robot friend will behave in ways that one finds empathetic, always being loyal and having a combination of social, emotional, and intellectual skills that far exceeds the characteristics likely to be found in a human friend" (2007, p. 107). In his logic, human beings will dominate the human-robot sex and in that specific relationship, sex robots are always obedient to human beings so that the individual's interest can be maximally ensured. John Sullins deems Levy's argument as dubious, questioning whether robots are really able to meet the requirements, further asking, "even if they are, is the brief list of qualities just outlined above sufficient for all we want out of a loving relationship?" (2012, p. 400).

If sex robots could meet these needs and infiltrate into people's intimate relationship, then it is certain that sexual relationship between humans will be undermined to a large extent. Kathleen Richardson finds that the imbalanced power relation of male and female is also represented in the new sex relationship. She notes, "a gendered practice of power where males (80% of the buyers of sex are male), buy sex from women and girls […] females make up a small proportion of the buyers of sex" (2016, p. 47). That's why nowadays most sex robots are designed to be female ones. It's quite natural for the male to take the obedience of robot in sexual relationship for granted, and in turn they will anticipate the same conducts of females in reality, making the latter ever objectified. Likewise, in that process the male is also undergoing wittingly or unwittingly the loss of subjectivity since "one way to engage with them is to forget that they are machines and entertain the illusion that they are human and appropriate for intimacy, attraction, desire, and empathy" (Johnson & Verdicchio, 2019, p. 415). Far from static, subjectivity develops with the changing of space and time. The cyborgized and digitized era calls for a new relationship between human and robot as well as a revised concept of subjectivity. Hayles redefines subjectivity as "emergent rather than given, distributed rather than located solely in consciousness,

emerging from and integrated into a chaotic world rather than occupying a position of mastery and control removed from it" (1999, p. 291). So it is necessary for human beings to be aware of the identity integration of them and robots. Otherwise, the merging with robot will lead to their own objectification, starting from sexual relationship. Therefore, Richardson warns that "humans are not machines and cannot engage with their full humanity when confronted with a machine. Only when confronted with another human can we experience our humanity, our identity, and our mutuality" (2016, p. 52).

Moreover, in human-robot emotional interactions, we should also not overlook the technological difficulties of robotics, which are closely interconnected with the ethical issues. For example, in *Machines Like Me*, the robot's main technological defect is that Adam would only follow the instructions programmed by the computer technology, ignoring the ethical appeals of humans. That's to say, owing to the technological immaturity, the robot's insensitivity to human's feelings and lack of flexibility lead to human-robot collisions. In contrast, in the film *Robot and Frank* (2012), the robot cannot scan and recognize the encoded rules. Able to perceive human feelings, the robot would follow Frank's instructions; Frank, an old and lonely man suffering from dementia, used to steal things as a young man. Taught by Frank how to steal, the robot not only helps Frank steal a lot of expensive jewelries from his neighbor by the mechanic agility but also tries to hide the secret for Frank. At the end of the film, Frank is sent to a nursing home while the robot is reformatted. This is only a version of a happy, warm ending, and other possibilities should also arouse attention. In other words, the covered violence and dangers are not supposed to be ignored because ethical and legal dilemmas could be catalyzed if this kind of robot really existed. The above two examples are only two possibilities in SF works and there could be more interpretations and imaginations of the human-robot interaction. Nevertheless, the core lies in the fact that since human beings are destined to make mistakes, the case will be more complex for the robots with technological flaws. For the purpose of harmonious coexistence of humans and robots, it is of vital importance to undertake technological updating of robots as well as to improve the qualities of human beings.

Entanglement of humanity and post-humanity in postmodern world

As we have demonstrated, human-robot emotive interaction is fairly possible and, to some extent, unstoppable in the SF worlds. However, the harmonious coexistence of human and robot is not easy to accomplish owing to the anthropocentric ideas, the inherently different structures of human-robot body and mind, both giving rise to the unequal status in human-robot relationships, different modes of their emotions and the impossibility of robots to replace humans in intimate relationships. Moreover, the consequent ethical and technological challenges are not to be overlooked. Considering the still immature technology of artificial intelligence, three main challenges are calling for human attention: the trait of deception in robot emotions, the ever unequal situation of real humans influenced by robots in emotive interaction and the possible loss of subjectivity of human beings. Literary representations of human-robot emotion we have analyzed so far, are largely based on the reflections of reality and

reasoning of future. Thus, they are of practical and far-reaching significance to the discussion of human-robot emotion.

According to the latest data issued by WHO, "there are over 700 million people aged 65 and over in the world and more than 240 million of them reside in the Western Pacific Region. This number is expected to double by 2050."[4] The increasing number of aged populations makes it imperative for the whole society to give care to the elderly people. Actually, young people are also suffering from the molest of loneliness with the fast pace of work and increasing isolation under the influence of Covid-19 pandemic. By and large, the prevalent psychological vacuum in society pushes higher requirements on the research and development of robots: robots can relieve people of their physical burden, satisfy their physical needs, and provide human with mental and psychological comforts. There is a high likelihood for emotional robots, though with a small number, to be a part of human life in the postmodern era. For example, in Japan, the company Groove X has issued an emotional robot called "lovot" for family use in 2018. It must be admitted that the technology of affective computing is still at an early stage, but this does not deny the possibility of emotional robots in human life in the future. We human beings set different expectations on different companions, depending on the role they play in our life, so "to require that robots have the capacity for empathy would be an 'unfair' requirement since we do not require it from all human companions" (Coeckelbergh, 2010, p. 4).

The concept of human is a social construct that highlights the privilege of humans over other species to justify their insatiable desires for the so-called progress. But the meaning of progress is highly contingent. As Campbell and others have noted, "in times of great 'human progress', human rights, ecological states and animal welfare can seriously suffer, so it all depends on what the term 'progress' means, and for whom" (Campbell et al., 2010, p. 90). Such warning is alarming. The longstanding coexistence of human and robot is foreseeable with ever increasing cyborgs and updating technology. In this regard, we need to revisit, rethink the concept of human and humanity. Only by doing so can the harmonious coexistence be achievable and the potential conflicts in human-robot emotive interaction, as those imagined in the SF works, be avoided to the best extent. Katherine Hayles once argued that "the posthuman does not really mean the end of humanity. It signals instead the end of a certain conception of the human, a conception that may have applied, at best, to that fraction of humanity who had the wealth, power, and leisure to conceptualize themselves as autonomous beings exercising their will through individual agency and choice" (1999, p. 286). In short, the progress pursued by those humanists is anachronistic in the postmodern era and it should also be noted that the emergence of posthuman and the related posthumanity does not herald the end of the human and humanity, but rather a renewed version and conception of them.

---

[4] *Ageing and health in the Western Pacific.* World Health Organization, https://www.who.int/westernpacific/health-topics/ageing, accessed on February 26, 2021.

References

Braidotti, R. (2017). Posthuman critical theory. *Journal of Posthuman Studies*, *1*(1), 9–25.

Campbell, N., O'Driscoll, A., & Saren, M. (2010). The posthuman: the end and the beginning of the human. *Journal of Consumer Behavior*, *9*, 86–101.

Chen, S. D. (2017). *Dangdai xifang wenyi piping lilun yaoyi* [Main ideas of contemporary western literary critical theories]. China Renmin University Press.

Coeckelbergh, M. (2010). Artificial companions: empathy and vulnerability mirroring in human-robot relations. *Studies in Ethics Law and Technology*, *4*(3), 1–17.

Cominelli, L., Mazzei, D., & Rossi, D. (2018). SEAI: social emotional artificial intelligence based on Damasio's theory of mind. *Frontiers in Robotics and AI*, *5*, 1–20.

Crist, E., & Kopnina, H. (2014). Unsettling anthropocentrism. *Dialectical Anthropology*, *38*(4), 387–396.

Damiano, L., Dumouchel, P., & Lehmann, H. (2015). Towards human-robot affective co-evolution: Overcoming oppositions in constructing emotions and empathy. *International Journal of Social Robotics*, *7*, 7–18.

Dan, H. S. (2018). Tongban wuzhong de hou renlei pipan ji qi xiandu [The post-human criticism and limit of "companion species"]. *Literature & Art Studies,* (1),27–37.

Duffy. R. B. Fundamental issues in social robotics. *International Review of Information Ethics,1*(6),32–36.

Ferrando, F. (2013). Posthumanism, transhumanism, antihumanism, metahumanism, and new materialisms: Differences and Relations. *Existenz*, *8*(2), 26–32.

Foucault, M. (2002). *The order of things: An archaeology of the human sciences*. Routledge.

Haraway, D. (2003). *The companion species manifesto: Dogs, people, and significant otherness*. Prickly Paradigm Press.

Hassan, I. (1977). Prometheus as performer: toward a posthumanist culture? A university masque in five scenes. *The Georgia Review*, *31*(4), 830–850.

Hayles, K. N. (1999). *How we became posthuman: Virtual bodies in cybernetics, literature and informatics*. University of Chicago Press.

Hoemann, K., Wu, R., LoBue, V., Oakes, L. M., Xu, F., & Barrett, L. F. (2019). Developing an understanding of emotion categories: Lessons from objects. *Trends in Cognitive Sciences*, *24*(1), 39–51.

Ishiguro, K. (2021a). *Klara and the sun*. Faber & Faber.

James, W. (1884). What is an emotion? *Mind, 9*(34), 188–205.

Johnson, D. G., & Verdicchio, M. (2019). Constructing the meaning of humanoid sex robots. *International Journal of Social Robotics*, *12*, 415–424.

Jollimore, T. (2015). "This endless space between the words": The limits of love in Spike Jonze's *Her*. *Midwest Studies in Philosophy*, *39*(1), 120–143.

Księżopolska, I. (2020). Can androids write science fiction? Ian McEwan's *Machines like me*. *Critique: Studies in Contemporary Fiction*, *61*, 1–16.

Levinas, E. (1969). *Totality and infinity: an essay on exteriority* (Trans., A. Lingis). Duquesne University Press.

Levy, D. (2007). *Love and sex with robots: the evolution of human-robot relationships*. HarperCollins.

McEwan, I. (2019). *Machines like me*. Talese/Doubleday.

Parrinder, P. (2000). *Learning from other worlds: estrangement, cognition, and the politics of science fiction and utopia*. Duke University Press.

Richardson, K. (2016). Sex robot matters: Slavery, the prostituted and the rights of machines. *IEEE Technology and Society Magazine*, *35*(2), 46–53.

Robertson, J. (2007). Robo Sapiens Japanicus: Humanoid robots and the posthuman family. *Critical Asian Studies*, *39*(3), 369–398.

Salovey, P. (1990). Emotional intelligence. *Imagination,. Cognition and Personality*, *9*(3), 185–211.

Sullins, J. (2012). Robots, love, and sex: The ethics of building a love machine. *IEEE Transactions on Affective Computing*, *3*(4), 398–409.

Tang, F. (2021). *Ping kelala yu taiyang* [A review on *Klara and the sun*]. *Shanghai Culture*, *9*, 122–127.

Terry, J. (2010). Loving objects. *Trans-Humanities Journal*, *2*(1), 33–75.

Weixler, M., & Oberlerchner, H. (2018). Objektophilie – Die Liebe zu Dingen. *Psychopraxis Neuropraxis*, *21*, 210–213.

Wu, G. J. (2018). *Hou renleiji de gongtong sheng huo* [The common life in post-Anthropocene]. Shanghai Literature & Art Publishing House.

Whitby, B. (2012). Do you want a robot lover? The ethics of caring technologies. In P. Lin (Ed.), *Robot ethics: The ethical and social implications of robotics* (pp. 233–248). The MIT Press.

Zhang, S. L. (2021). Qinggan zhi yu ren yu jiqi [Emotion to man and machine]. *Journal of Dialectics of Nature*, *43*(10), 115–121.

Ishiguro, K. (2021b). Zhuānfǎng |shí hēi yīxióng: Ài shì dǐkàng sǐwáng de wǔqì, jīqìrén de ài què shìgè bēijù [Interview with Kazuo Ishiguro: Love is a weapon against death, but the love of robots is a tragedy]. *The Beijing News,* March 31, 2021. https://m.bjnews.com.cn/detail/161715980815039.html, accessed on March 31, 2021.