

Uncanny Beauty: Aesthetics of Companionship, Love, and Sex Robots

Paolo Euron*

European International University –
Bangkok
euronpaolo@gmail.com

Abstract In the last few years there has been a lively debate on humanoid robots interacting with humans in fields where human appearance and likeness may be essential. The debate has been bolstered by advancing AI technologies as well as increasing economic interest and public attention. The feasibility, inevitability, or ethical opportunity of companionship, love, and sex robots has been discussed. I propose a philosophical and cultural approach, applying the strategies of aesthetics and literary theory to the field of artificial beings, in order to understand reasons, use, limits, and possibilities expressed by the technology applied to companionship, love, and sex robots in the contemporary cultural and social context. In dealing with aesthetics, I will state how cognitive, biological, and ethical aspects are involved, how beauty is relatable to a robot's physical appearance, and how the aesthetics of artificial beings may offer new existential experiences.

Keywords

Aesthetics, robots, sexbots, artificial life, sex, beauty

The blessed unity, Being, in the only sense of the word, is lost to us and we had to lose it if we were to strive for it and win it.

—Friedrich Hölderlin, First Preface to the *Hyperion* (Henrich, 1997, p. 84)

I Companion, Love, and Sex Robots: Aims of This Research

In his account on the ethics of love-robots, Whitby (2012, pp. 236–237) writes: “a real robot lover might not be much like the pretty, human-sized, very human resembling robot of the movies. However, it is likely to be a slightly different, but just as effective, sort of artificial companion.” He also gives three main dimensions along which robots can be humanlike: physical appearance, behavior, and performed tasks. The first characteristic is the one considered in this article. In the case of robot lovers, carers, and companions, the aesthetic dimension has a special importance (Zanatto et al., 2020). It is the basis of social interaction and conveys human, social, and cultural meaning. Danaher (2017, p. 4) gives a more detailed definition:

A sex robot is any artificial entity that is used for sexual purposes . . . that meets the following three conditions: Humanoid form, i.e., it is intended to represent (and is taken

* Corresponding author.

to represent) a human or human-like being in its appearance. Human-like movement/behavior. . . . Some degree of artificial intelligence.

The human-like appearance is again in the first place if we deal with companionship robots, love robots, or sexbots, to adopt the usual terminology.

This article is a philosophical, argumentative essay that provides a conceptual account of artificial life by focusing on aesthetics. It is based on philosophical and literary sources, as well as on studies on companionship, love, and sex robots. In line with the philosophical tradition, this is a speculative article that deals with the attractiveness of artificial life. It should be noted that this is not an article about the current products and attitudes of the sex industry. It does not deal with the porn industry and pornography (Tyler & Quek, 2016), even if the “visual similarity [of sexbots] to pornography immediately activates people’s strong feelings about pornography” (Su et al., 2019, p. 2). Pornography alone does not justify the fascination with artificial beings. Sexuality in human-artificial relationships has implications beyond sex. It concerns other forms of social engagement, appreciation of beauty, and cultural experience. Nevertheless, we will consider studies about current technology and models of sexbots that help to understand this fascination, the future of sexbots, and what they can offer. I highlight that this article is about the aesthetics of sexbots and that it does not give any final answer to ethical questions raised by the issue. This does not mean that the questions raised by this issue are not important. They are important and deserve a serious discussion. As Su et al. (2019) write, “in addition to the usual taboos surrounding sexuality, there are suspicions that the research is in support of obscenity and perversion or perpetuates the subjugation, objectification, and oppression of women” (p. 2). Does a feminine robot necessarily objectify and oppress real women? Actually, we will state that objectification of the body and power relationships are carried out in real human relations, without the need of robots. Gender issues are important and deserve a specific consideration and discussion (Andreollo & Chesher, 2019; Robertson, 2010). Is it inevitable that “robot gender effectively reproduces a sexist division of gendered labor among humans and humanoids alike” in which social conventions are experienced as natural conditions? (Robertson, 2018, p. 82). Can gendering robots change our perception of beauty or our relationship to other genders? This discussion would be very interesting, but it is somehow out of the scope and possibilities of this study. Here we will consider physical beauty according to the artistic, cultural, and philosophical traditions, with reference to a biological explanation of beauty that allows a connection between exapted indicators of fitness and aesthetic pleasure.

We will restrain from displaying current models and projects of sexbots, for which there is a rich bibliography (Danaher, 2017, pp. 6–9; Devlin, 2018, pp. 101–118; Levy, 2007, pp. 242–253), as well as from proposing an overview of academic debate thus far (Nyholm & Frank, 2017, pp. 222–225). In this way, we will see that a sexbot is not just a “human-like robot for the fulfillment of sexual needs” (Szcuka & Krämer, 2018, p. 323) but that it also “challenges what it means to be human and simultaneously enables us to reflect on human nature itself” (Lee, 2017, p. 1). In this perspective, we will take account of how sexbots elicit a cultural and philosophical reflection on human concerns, when human nature is questioned by the experience of the sexbot’s beauty. In discussing the beauty of artificial beings, we will consider the cultural and literary experience of artifice as opposed to naturalness. We will evaluate how the experience of works of art and literature can display helpful analogies and how aesthetic and literary theories offer some useful conceptual tools to understand the use of artifice. We will survey the importance of beauty and artificiality in our cultural context and philosophical understanding and evaluate how the artificialized body (as opposed to the natural one) becomes a paradigm of a different idea of beauty.

In doing so, we will also reflect on the nature and function of beauty, its biological origin, and its relationship to attractiveness, and how the sexbot, as a representative of artificial beauty, can be considered a driving force of human evolution. It displays a concept of non-natural beauty that is not a simple imitation of existing beauty but that, like in the case of the work of art, somehow answers basic human drives. We will reflect on the connection of art experiences and artificiality,

empathy, and deception. In the perspective offered by this research, artificial companions, in line with the western attitude to beauty and aesthetic experience, can provide a new range of existential experiences.

This discussion raises some important issues about how a sexbot should imitate human appearance, the role of empathy in human-robot relationships, and the deception of a relationship based on a one-way empathy. We have to consider on one hand the importance of the physical appearance of the robot and the need for sharing a physical dimension and, on the other hand, we have to determine when deception is allowed and when it is a dangerous manipulation.

At this point we can ponder what attractiveness with robots could mean and, provided that it is possible, what can foster or hinder this sentiment. We will see how the social, cultural, and philosophical background has often been neglected by researchers more focused on human psychological reactions and a robot's possible, technical features.

2 Beauty and Artifice

In dealing with robots that can interact with humans as companionship, love, or sex partners, the physical aspect and the beauty of the robot are decisive in creating the possibility of a human-robot relationship (Coeckelbergh, 2010, p. 3; Sullins, 2012, p. 404). On one hand, beauty determines the social acceptance and the commercial success of the robot; on the other hand, it allows a special empathy or attraction towards the robot. Before we engage in the specific discussion of the human-robot relationship and its possibilities, problems, and dangers, we need to clarify what we can understand as beauty in this context and why it matters.

There are essays about robot ethics (Szczuka & Krämer, 2017, p. 2) but robot aesthetics does not seem to be worthy of specific, philosophical attention. Actually, since the beginning of western tradition, beauty has had a deep moral and cognitive meaning. Plato (ca. 370 BCE/1964, *Phaedrus*, 250–1) said that beauty is the first step in the knowledge of a superior reality. When we appreciate a beautiful body, we make the first step towards the knowledge of the superior order of reality, the world of ideas, which appears in the material world as beauty. Only if I know the highest reality of forms, can I then act according to reason, that is to say, morally. I start to know reality and to act morally when I enjoy the beauty of the highest material object of aesthetic appreciation: the human body. This is quite a delicate issue: If I like a body, it may be because of my sexual interest, but when it happens, this fact marks a first experience of beauty as something that goes beyond the material and immediate presence of the body and its physical experience.

In Plato's perspective, a body was beautiful, whereas a work of art could not immediately be related to beauty. A human body offered the experience of beauty. Conversely, modern aesthetics, according to the idealistic, Hegelian tradition, primarily considers beauty as a quality of the work of art. Actually, nature, art, and artifice entertain a complex relationship: Not only is artwork beautiful, but the artifice in itself offers the experience of beauty. The Early German romantic thinkers proposed that "art is a production of spirit, and reality is an artistic result" (Euron, 2019, p. 90), an artifice that has little to do with the immediacy of nature.

Following this line of reasoning and defending the moral value of artifice, in 1863, Charles Baudelaire praised the use of cosmetics because it "witnesses to the disgust of the real and the immateriality of the soul." The maquillage or makeup has a "spiritual significance" because it is a "permanent and repeated attempt at reformation" of nature. "Evil happens without effort, naturally, fatally; Good is always the product of some art" (Baudelaire, 1965, p. 32). In this way, the artificialized body (as opposed to the natural one) becomes a paradigm of a different idea of beauty and of a new existential condition.

Why should we prefer an artificial body to a natural one? Some writers have suggested the advantages of artifice for humanness. In 1801, Heinrich von Kleist, after reading Kant and experiencing the intrinsic limits of human knowledge, had a creative crisis and doubts about the possibility of understanding the world. In his essay, *On the Marionette Theatre*, von Kleist (1810/1972, p. 26) suggested

the superiority of the mechanical puppet, “that human bodily structure that has no consciousness at all,” over the dancer. Humans have consciousness and act with affectation; their self-consciousness and intentions prevent them from being natural.

Also, the poet Rainer Maria Rilke in 1923 proclaimed the superiority of the puppet over the human being. The puppet is not any instrument in the hand of man. “I won’t endure these half-filled human masks; / better, the puppet. It at least is full” (Rilke, 1989, p. 169). Puppets are what they are, without pretense. Their non-natural bodies have their own appeal and the lure is inherent to their artificial nature. The artifice reveals the true essence of what is concealed by nature. Artificial beings do not promise anything and, in this way, they become a paragon of existential wholeness. Artificial life is sincere: It does not hide any disguised essence.

3 Why Do We Enjoy a Beautiful Appearance?

Why should we appreciate an artificial beauty and, on this basis, engage in a relationship with a robot, provided that this relationship is not just instrumental? First, we should understand what we can appreciate as beautiful in the humanoid robot’s appearance. In order to do it, we have to consider the conditions of a beautiful, physical appearance.

Despite the fact that we have few difficulties recognizing someone who is considered beautiful, physical beauty is an elusive notion. A cultural approach denies that physical beauty can be reduced to physical, sexual attractiveness. Physical beauty “typically presents a genuinely aesthetic character to the human world,” so that a beautiful appearance, abstracted from the process of mate selection, “persists as a frame through which we view the human social realm as a whole” (Davis, 2012, p. 116). We find beauty in people as we find beauty in the world. Beauty, as Plato put it, is the origin of love because it promises the lost wholeness after we have been cut in two parts: Love is the desire for the whole and pursuit of it.

It is highly likely that sexual attractiveness and beauty share a common origin and a close relationship based on biological reasons. Facial and body beauty are based on indicators of fitness and fertility. More precisely, “men orient to signs of fertility in women. Women orient to signs of masculinity in men, which . . . may signal the quality of the genes they carry” (Chatterjee, 2014, p. 23). According to an evolutionary-adaptationist perspective, a beautiful body indicates the fitness and the reproductive potential of the individual. Symmetry, typicality or averageness, and sexual dimorphism are properties revealing the health and fitness visible in the face. Symmetry “suggests the bearer is more robust in dealing with environmental stressors” (Getov & Winston, 2015, p. 112; Chatterjee, 2014, p. 40). Interestingly, the feminine appearance is not only justified by direct, sexual reasons. “Feminized female faces are judged as more attractive, while masculinized male faces are perceived as more dominant and dishonest but less attractive” (Getov & Winston, 2015, p. 113). Too, masculine features may backfire: “women find masculinized features attractive only to a point. If men’s faces are too masculine, woman experience them as domineering” (Chatterjee, 2014, p. 14). In other terms, we find a feminine appearance more appealing, even in the case where we judge a male: “feminized male faces predict more cooperative, honest, and caring behavior, and may thus indicate willingness to invest in a long-term and stable relationship” (Getov & Winston, 2015, p. 113). Regardless of our gender and sexual orientation, we may prefer feminine traits because we trust more females and we rely more on them to face the difficulties of the environment. In general, we can imagine that in the future we will see more gynoids than androids on the market for mere aesthetic reasons. Even dealing with robots, we judge feminine appearance more beautiful, because it promises a trustworthy companionship and, in doing so, an adaptive advantage.

In fact, speaking of sex dolls like Harmony (produced by Realbotix/Abyss Creation), so far the closest prototype of a sexbot (Szczuka & Krämer, 2018, p. 323; Szczuka et al., 2019, p. 4), we state that “the models being made today are overwhelmingly womanshaped” (Devlin, 2018, p. 12). According to Matt McMullen, the CEO of Abyss Creation, one male model has been produced for a kind of political correctness. “McMullen says he created Henry in order to ‘represent both genders’

and put to rest complaints that his company was objectifying women. In other words, Henry is not a response to known market demand” (Davis, 2018, p. 28).

This could be explained by the fact that “research has shown that men have a higher need for sex compared to women, who tend to have a stronger need for affiliation” (Szczyka & Krämer, 2017, p. 3). Accordingly, men are “significantly more in favor of sex robots, or the idea of using one, compared to women; and the product sector focuses more on the male consumer by producing mainly female sex dolls or (first) sex robots” (p. 7). Feminist critiques question these experimental results, which are seen as the effect of a representation intended to fulfill male physiological and psychological desires (Andreollo & Chesher, 2019). At any rate, heterosexual men are attracted by women as well as by robots, and the experimental studies conducted by Szczyka and Krämer (2017) do not show any difference “between women and robots in the associative strength with regard to the concept of attractiveness” (p. 6).

Now, such concepts as adaptive advantage and reproduction seem to be at odds with robots. Actually, they are not: Artificial beings, as well as all created things, mirror what humans feel. Even reflecting on works of art, we can relate the appreciation of the artwork we judge beautiful to “palatable food and attractive mates” (Agnati et al., 2015, p. 426) so that beauty works as a “positive reinforcer” or as a rewarding stimulus that encourages an adaptive behavior (for example, the pleasure when we eat). Beauty is necessary to human beings and is closely relatable to the fundamental drives of food and sex (Chatterjee, 2014, p. 39). Even if evolutionary usefulness accompanies beautiful objects and aesthetic pleasure, evolution alone does not cause their beauty. “Our individual histories shape our experience of pleasures. What we know, or even think we know, profoundly influences our likes and dislikes. . . . Aesthetic pleasures are influenced profoundly by our cognitive systems” (Chatterjee, 2014, pp. 111–112). To explain this point we need to introduce the concept of “exaptation,” meaning the reuse of an adaptive structure for a new function, for a use other than the one for which natural selection has allowed it. Exaptations are evolutionary by-products that become useful in a new environment. For example, the earliest feathers belonged to dinosaurs incapable of flight, but they have been reused, with success, by birds. Enjoyment of art can be understood as an instinct-like need and the appreciation of beauty becomes a very serious issue, presenting individual and social adaptive advantages.

The brain areas that mediate aesthetic responses to artworks overlap those that mediate the appraisal of objects of evolutionary importance, such as the desirability of food items or the relative attractiveness of potential mates. Hence, it is likely that artworks are appreciated by exaptation of neural systems that evolved to evaluate objects of more primary survival importance. (Agnati et al., 2015, p. 442)

In other terms, the appreciation of artistic beauty is relatable to an adaptive and sexual meaning, deeply intertwined with the aesthetic one.

A humanoid robot displays a concept of non-natural beauty that is not a simple imitation of existing natural beauty but that, like in the case of the artwork, somehow answers basic human drives. It is likely that we prefer female-looking gynoids but their beauty may not necessarily mirror a given, compelling human model. It is not only nature’s imitation that rules. Sexbots challenge our very idea of sexual attractiveness and beauty and their likely common origin.

Most humanlike robots (Danaher, 2017, pp. 6–9; Devlin, 2018, pp. 101–118; Levy, 2007, pp. 242–253) have the aspect of hyper-sexualized dolls. If the aim of the physical aspect is arousing sexual desire, the function of the robot is merely instrumental and its beauty is mimetic. Nevertheless, we should not limit our idea of artificial beauty to the display of imitated, secondary sexual characteristics to ensure attractiveness. As we have stated, beauty is a complex matter. The sexual need originates from an array of drives; adaptive, individual, social needs, as well as cognitive and moral issues, are an intrinsic part of the experience of beauty. The robot should convey them, if

it has not just an instrumental function, because it can be the most recent result of a process of exaptation. A robot, created as a tool, can answer our new, deepest needs for beauty.

This discussion does not specifically include Real Dolls, which are the current antecedent of sexbots. Nevertheless, the attitude to sex dolls can foreshadow the way a sexual tool allows meaningful relationships which go beyond sex. As Su et al. (2019) have illustrated in their study, Real Dolls may “support creative self-expression and self-actualization in highly personal ways.” It happens “not only because of their lifelike faces but also because of the imaginative stories their owners construct and tell about them. The dolls become diegetic props” (p. 27). Narratives created starting from the Real Doll are almost a by-product of its explicit aim, with socialization and self-expression as a possible consequence. They are used for more than just sex and provide “fertile ground for embodied fictions and care of the self. . . . Everyday sexual intimacy is seen as contiguous with, not separated from, other forms of social engagement and wellness,” since “people regularly form intimate (both sexual and nonsexual) relationships with, derive wellness from, and engage in fantasies about the technologies around them” (p. 2).

A robot can represent a driving force of human evolution. In the past, vital reinforcements related to food and sexual activity have been used, through exaptation, for other kinds of enjoyment, like art and creativity. Today, these activities detain a different but no less important value in our social and cultural life. Socialization, creativity, intellectual activity, courtship, technology, and so on, are through (and not despite) more cogent adaptive needs. They are the final result of human evolution, and a robot can have a similar function.

4 Universality and Interestedness of the Beauty Experience

The experience of beauty connects what is not connected by reason, and, in doing so, confirms our humanity. Already Kant (2007, p. 49) has considered the aesthetic judgment based on a peculiar kind of universality. In aesthetic judgment, we enjoy belonging to humanity by the sharing of a common set of cognitive structures (imagination and intellect) working in the same way in all individuals. When encountering beauty, the subject discovers “harmonious relations that are in the manifestation of the unrestricted play of its own faculties” (Lee, 2017, p. 10). The aesthetic enjoyment has an intrinsic, social value which creates the feeling of belonging to humanity and that your interior world (mind, desires) fits the exterior one (nature, physical laws). Knowledge and morals find their completion in this harmony.

As Kant put it, aesthetics affirms a universality which is not given but negotiable, which is broader and more fluid than the ones required by knowledge and morals. In the aesthetic experience we find out that we share something with the others; looking for similarities between humans and robots is a way to strengthen this bonding and open a social dimension, in the same way the exaptation of instinct-like drives has created the aesthetic appreciation of beauty. The way we want to live together (and not the meaning or the morality) is the primary issue in the human-robot relationship. This relationship is basically an aesthetic experience of “broadened” universality in which we stress “how” we want to live and not “what” the robot is.

According to the Kantian perspective, beauty connects what belongs to the different horizons of knowledge and desire. We can argue that, in Kantian terms, a sexbot’s beauty represents an object of interested desire, so that sexbots are attractive and not beautiful (Kant, 2007, p. 37). Actually, physical attractiveness is the condition of the sexual drive. We have seen that the very origin of aesthetic pleasure can be referred to as exaptation of evolutionary needs. Nevertheless, as Jessica Szczuka and Nicole Krämer (2019) concluded in their experiment on visual attention on gynoids, “heterosexual men do not transfer evolutionary psychological perceptual mechanisms of mate selection to robots” (p. 16). The measurement of the gaze of heterosexual males in the experimental condition indicated more interest for a woman and then for a non-humanlike sexbot than for the humanlike sample. A robot is considered interesting in itself because of curiosity toward sexualized technologies or because of the difficulties it poses in processing “the visual information

of a human-like machine,” and not because it is a substitute. The humanlike appearance alone is not enough. “Humanity evokes more deep-rooted processes of visual attention compared to robotic replications of human-like cues” (p. 16). In this perspective, the image of a woman has characterized Western art not as an object of desire but as a paragon of beauty that draws its strength from its sexual origin. Now, in a similar way, it gives a model to robots: “while the shape of the female body has been of aesthetic interest for centuries, it now also serves as a paragon for robots” (p. 2). Robots are more like works of art than deceptive human substitutes. As works of art, they convey cultural, social, and emotional qualities.

It seems that our attention to the beauty of a sexbot can be less “interested” (meaning, in Kantian terminology, *more universal*) than expected. Beauty and pleasure are deeply intertwined and may share an adaptive origin, but the enjoyment of beauty is not the result of a specific instinctual drive. The enjoyment of beauty has outpaced our adapted brains. Beauty does not have any adaptive function, today. It rather proposes a complex and new experience which involves our cognitive system, which is imbued with our culture and emotions. Plato stated it a long time before the advent of neurosciences. In the next section we will consider emotions.

5 Empathy and Deception, Emotions and Knowledge

Empathy can be considered a cognitive awareness of the emotions of another, related to a vicarious emotional response to the emotional experience of the other. The first point in a human-robot relationship is a non-symmetrical empathy that humans exercise towards robots. Considering empathy an imaginative-emotional function, “we imagine how the other (human or robot) *feels*” (Coeckelbergh, 2010, p. 5).

In this relationship that requires new cognitive processes, Coeckelbergh emphasizes that “rather than rational choice, our conduct towards others is a matter of feelings for others.” The moral or ontological point (“what the robot is”) is secondary to the aesthetic one: “how we want to live together, given that we *already* engage in particular social relations with them in particular contexts” (2010, p. 5).

A beautiful appearance and physical attractiveness are fundamental in a perspective which stresses the social understanding in human-robot relationships and makes them recipients of our empathy. Granted that beauty has a primary cognitive and social importance in creating a human-robot relation and that a non-symmetrical empathy is possible, can this situation lead to deception? Human beings are prone to feel empathy and develop caring relationships even with creatures outside of our species (pets) (Sullins, 2012, p. 399) and to show emotional attachment even to artificial objects (electronic dolls and toys) (Levy, 2017, p. 15). Humans respond to artificial life with sympathy (Evans, 2001, p. 112) and are ready to develop an effective relationship with a robot that makes them believe it to be a human (Szczuka & Krämer, 2017, p. 3) or shares a human behaviour like hugging (Shiomi et al., 2020, p. 45). In our everyday experience of technology, “the evidence points to a human tendency to relate to computers in much the same way as the same human would relate to other humans in comparable social situations” (Levy, 2007, p. 81). The more the non-human relates to the human in a human way, the more the human relates to the robot in an emotional way. In other terms, the relationship deepens if the robot creates the opportunity for an empathic connection (Szczuka et al., 2019, p. 6).

The human availability to develop an empathic relation with a robot can be considered problematic. Robots are not living beings. They do not share human feelings, even if humans can easily believe they do. Philosophy should deal with this issue (Sullins, 2012, p. 399) before market strategies and technological advancement decide what can be done. Even without human-like robots, there are enough technologies that deliberately create addiction (e.g., games, socials, TV series) for corporate profit without providing any personal and social advantage for individuals. Technologies “employed to make systems more seductive, more sexual, or more emotionally indispensable” (Whitby, 2012, p. 237) can have a disruptive effect on society, for example, by creating a programmed addiction or

proposing always new upgraded robots. This is a very sensitive issue, since it is easy (and unethical) “to play on deep-seated human psychological weaknesses” (Sullins, 2012, p. 408). We have to determine when deception is allowed and when it is a dangerous manipulation.

Coeckelbergh (2010, p. 7) argues that empathy is fostered if the robot mirrors our human vulnerability. “We can feel empathy towards the other because we know that we are similar as vulnerable beings.” An immortal and invulnerable machine cannot share anything with us. Empathy is based on the recognition of similarities such as vulnerability, doubts about the meaning of existence, problems, possibilities, and choices. These issues are human, but they can also be mirrored by an artificial counterpart. Vulnerability concerns humans and non-humans as well. “We should not conceive similarities in terms of properties alone but also consider the active, practical side. The etymology of *companion* links the word to ‘eating the same bread’: it refers to shared needs in addition to shared practices of fulfilling these needs” (p. 7). In other terms, humans and robots have to do something together, develop common needs, a fact that requires the physical presence of both. The need for sharing a physical dimension and for the material presence of the other is a basic requirement for the fulfillment of affective and social life.

Now, if a robot imitates a human behavior to win empathy, is it deception? Actually, appearance is a socially accepted value. “Appearance is the glue of social life and involves learned, often involuntary, salient ‘deception’. . . Moreover, part of social learning is imitation and it is not *obvious* why imitation of social behaviour by a robot is more problematic than (learning by) imitation by humans, for instance by children” (Coeckelbergh, 2010, p. 10). We can object that children’s imitation is aimed at development of a true, sincere adult behavior. But, again, the adult behavior is the result of imitated actions.

By engaging in an empathic or affective relationship with a robot, the basic point to keep in mind is to remember that we are dealing with a robot. We have to know what we are dealing with and deception has to be revealed as such. The aesthetic experience provided by a work of art can be the model of the human-robot relationship. A companionship robot that does not have any instrumental function is an object of empathy not because it imitates or triggers human feelings, but rather because it presents something “accomplished in itself” or, as Karl Philipp Moritz put it, because “it possesses its entire value and the goal of its existence in itself” (Moritz quoted in Todorov, 1984, p. 155). This is a proto-romantic definition of beauty and we can apply it to artificial beauty as well, if we consider it in its artistic essence.

We do not feel deceived by a work of art, even if we know that it is not real. A novel can trigger our feelings and explain what love is, though we know that characters are not real and that the facts we read never happened. We can experience real emotions when we watch a movie, even if we know that we are watching a movie. A work of art is exemplar and instructive because *we know* that it is not real and that it presents life under a light of necessity and consistency that we cannot expect from a real situation, and in doing so it offers a new, meaningful insight in us. Experiencing a work of art always has a cognitive aspect: Knowledge is a constitutive part of aesthetic pleasure (Danto, 1981, p. 15). Moreover, as Aristotle wrote (ca. 330 BCE/1981; *Poetics*, 1448b), we enjoy imitated things and situations we would not enjoy in real life, provided we know that we are experiencing a work of art. Friedrich Schlegel (1797/1980, p. 80) wrote that “every work of art brings its frame to the world. It must make us notice the art.” Nevertheless, we believe in the truth of the work and in the feelings we experience through it. The work of art represents *something more* added to our life, not a deception or a trick to steal our real experience. Fiction and knowledge are the elements of a new experience of reality, provided we know the specific nature of this experience. In an analogous way, “humans *know* that the robot is a machine, a non-human and at the same time, they *feel* that the robot is more than that—and know that they feel in this way—and they do not have any psychological or moral problem with this. Being highly social animals, we are used to living by appearance and we can cope with different levels of experience” (Coeckelbergh, 2010, p. 12).

In the case of companion robots, we need the perspective we adopt in the enjoyment of a work of art: The “willing suspension of disbelief, which constitutes poetic faith,” as Coleridge (1817/1969, p. 6) wrote in his *Biographia Literaria*, has to be accompanied by the awareness of its artificial nature.

People watching a movie “are not deceived as long as they are aware of the line between reality and fiction” (Musiał, 2019, p. 27). Sexbots always require the same suspension of disbelief: You have to believe that they are real in the context they propose. At the same time, you have to know that they are not human beings, and they have to present themselves as an artifact, as a work of art, as a painting delimited by its frame. In this way, “willing suspension of disbelief . . . might explain how conscious knowledge about the artificial entity’s nature is overcome” (Szczuka et al., 2019, p. 6). Under this condition, interaction with robots can give an insight into behaviours and expectations of humans.

In 1909, the philosopher William James (1909/1997, p. 189) claimed that an “‘automatic sweetheart,’ meaning a soulless body which should be absolutely indistinguishable from a spiritually animated maiden” would not be considered an equivalent of a real girlfriend with a soul and a consciousness. Hauskeller (2014, p. 23) claims that such a “sweetheart,” despite her mechanical loving and caring, proves to have what we consider a soul. Since the real human lover is the one who can be soulless, the one that turns out not to be completely reliable, completely with us, completely there for us, then “only an automatic sweetheart, one whose eyes will always gaze lovingly at us and will never lose their shine, whose lips never tighten, but are always soft and welcoming, and who will never have to stifle a yawn, only such a one can be said to have a soul.” The behavior of the artificial girlfriend offers a paradigm of love that is never fully accomplished by human actors. It does not mean we have to prefer the automatic sweetheart or that she is a possible substitute for a real girlfriend. It means that she shows consistency and a necessity which elicits new cognitive processes and helps us to understand what we are and need.

6 The “Uncanny Valley” and Artificiality

The beauty of a robot is a tricky issue. The first human-like, interactive sexbots are gynoids (Danaher, 2017, pp. 6–9; Devlin, 2018, pp. 101–118; Levy, 2007, pp. 242–253). As we have stated above, sex is the most profitable market (Levy, 2007, p. 244). Harmony, created by Realbotix with the body produced by Real Doll, a brand of Abyss Creations (Kleeman, 2017, p. 27), has the hyper-feminine body of a porn star. The exaggeration of secondary and tertiary sexual characteristics qualifies Harmony as a sex toy and confirms the instrumental nature of the doll, but its integrated AI hints at something more: an interactive companion.

A possible objection to sexbots is that their beauty will further objectify women’s bodies (Nyholm & Frank, 2017, p. 221) and sexualize our society. In fact, women’s sexual objectification does not occur because of robots. As Kate Devlin (2018, p. 104) wrote: “I am not threatened by these dolls.” Such artificial bodies do not belittle the woman, they represent something different. A true-to-model realism may sound more uncanny than exaggeration. “To avoid this creepiness, Abyss deliberately gives its products larger, rounder eyes and more symmetrical faces than humanly possible; they’re closer to cartoons than real faces” (Davis, 2018, p. 31). Unlikeness grants a new kind of realism and of aesthetic pleasure. The mentioned concept of “suspension of disbelief” suggests how “sexualized robots might allow for experiences that are stimulating not only in a physiological sense but also with regard to the necessity to render reality and illusion compatible” (Szczuka et al., 2019, p. 9). As suggested by Szczuka and Krämer (2017, p. 3), it is possible that robots “might evoke even stronger reactions, in the sense of actual sexual arousal”; provided that they are attractive, they offer something more than simple visual clues and exaggerated imitation of secondary sexual characteristics. In other terms, a companion robot should inspire empathy, show that it has something in common to share with us, and that it cannot be perceived as a competitor or a substitute for a human partner. In this perspective, a hyper-realistic imitation of feminine characteristics could backfire.

Masahiro Mori (2012, pp. 33–35) describes how the physical appearance of a humanlike artificial being can shift from empathy to aversion if it approaches human appearance but it fails to attain it. He remarks that the more humanlike the robot is, the more affinity (also translated as “familiarity”)

we feel. But, beyond a certain point, the human likeness becomes creepy—Mori named this sudden fall in affinity the “uncanny valley.” Mori suggests keeping “a moderate degree of human likeness” so that we can “create a safe level of affinity by deliberately pursuing a nonhuman design.” Extreme realism can be counterproductive. It is better to create a robot that, like a work of art, offers an opportunity for the “suspension of disbelief.” Mori referred to the hand of a Buddha statue which, since not too realistic, did not give any sensation of eeriness.

A not too realistic robot can be an object of empathy with less difficulty than a perfect replica of a human. The unlikeness of physical aspects of sexbots (e.g., skin tone, body size, hair colour, limited array of movements, limited facial expressions) can deliver a new aesthetic attractiveness to the companion. We also have to consider that the emotional reaction to uncanniness changes over time (Laue, 2017, p. 7) and that repeated exposure diminishes its effect, shifts our limit of acceptance, or overcomes it (Danaher, 2017, p. 10).

In fact, our idea of beauty is not stable. As we have seen, it is likely that our appreciation of beauty originates from characteristics that favor survival and sexual selection (Davis, 2012, pp. 102–105; Chatterjee, 2014, pp. 109–112). Then, through exaptation, we relate these characteristics to environment, society, and creations, and, in doing so, we appreciate new forms, meanings, and functions of beauty. Flexibility and hybridity are in the DNA of beauty appreciation. “Aesthetic and artistic behaviors, preferences, and habits are neither completely *given* at birth nor encoded in our genome; rather, they are the hybrid result of a mutual interaction between humans and their multifaceted world” (Portera, 2016, p. 46). One of the functions of sexbots could be to accustom humans to a new environment, to new social and cultural stimuli, to new forms of interaction and of beauty. It is likely that beauty has developed from a biological function to a social one. Now beauty can be perceived as a quality that hints at something that is beyond the body. In Plato beauty restores the lost wholeness and shows our true self, and in Baudelaire beauty attests the superiority of the artifice over nature. In the case of the sexbot, beauty may redeem its blatant artificiality and show its continuity with nature.

7 The Materiality of the Body

Technology has often been used to make the materiality of the body disappear. TV, the telephone, SMS, the internet, chat lines, and virtual reality have deleted the physical presence of the other and transformed interaction and sex into a commodity easily at hand. It seems that, in this way, technology has placed more power and control in the hands of the consumer, who has the possibility to choose and decide the narrative in which they want to live. Actually, this may be a way to move the consumer far away from the real world and from its drives. They have the illusion of an infinite power and possibility of choice, but the choice is limited to an array of non-real options. As the artist Mike Mosher (1998) wrote about sex and the computer industry: “A computer distills all experience into work by alienating us from the physical interaction as completely as the factory or office alienates us from the products of our labours” (Mosher, 1998, quoted in Ferguson, 2010, p. 66). The delusion that the virtual reality *is* reality may be a way to control people, imposing a world of payable, disposable, and immaterial commodities that promote a self-centered hedonism. In fact, the freedom promised by the virtual reality and the internet could be to the detriment of the individual, of its material and bodily dimensions, of real experiences and relationships.

Nowadays, in a world of increasing social distancing, also imposed by the emergency of pandemic and lockdown, social and dating apps propose the idea that “your digital life is as important as your social life in the physical world” (Shaw, 2020). In this way, the entire physical dimension of life is repressed, the person is weaker, and human wholeness is endangered. In such circumstances, the artificial body of a robot can help to restore the need for, or the presence of, a real world with its limits and possibilities.

The physical presence means that robots can be companions if they are embodied and share our physical dimension. We do not consider virtual reality, remote interaction, and electronic devices

that have no physical body an essential part of the interaction. The internet, social media, and virtual reality grant a delusory, unlimited power. They destabilize the notion of a fixed personal identity, a body, and offer the opportunity to live your life through somebody else. In this way, the human mind loses the body and “explores new ways of experiencing vicarious pleasure” (Ferguson, 2010, p. 69). On the contrary, the physical presence of the sexbot recalls our corporeal and aesthetic dimension through which the challenge takes place.

At the same time, technology can be imagined to present the physical beauty, to create something that is not just an instrument for depowering the body and making it a commodity. Paradoxically, the presence of an artificial body can teach us what a natural one is, like Baudelaire, von Kleist, and Rilke, the forerunners of the culture of artifice, predicted. Physical beauty should hint at something that is beyond the body, even in an artificial and mechanical form. As Terry Eagleton (1990, p. 7) wrote: “A recovery of the importance of the body has been one of the most precious achievements of recent radical thought. . . . A certain style of meditation on the body on pleasures and surfaces, zones and techniques, has acted among other things as a convenient displacement of a less immediately corporeal politics, and acted also as an *ersatz* kind of ethics.” The body is the new, political arena of communication and confrontation. The body offers the opportunity to take back, on a cultural level, what belongs to us and was (or may be) taken away.

Paradoxically, a certain open-endedness and transformability is part of our natures, built into what we are; that the human animal is able ‘to go beyond’, make something creative and unpredictable of what makes it, its condition of historicity and the consequence of a ‘lack’ in our biological structure which culture, if we are to survive at all, has at all costs to fill. But this creative self-making is carried out within given limits, which are finally those of the body itself. . . . Human society is in this sense natural, even if all particular societies are artefacts. (Eagleton, 1990, pp. 409–410)

In fact, all human beings require warmth, rest, nourishment, shelter, and the need to engage in labour and sexuality “in various forms of social association” (Eagleton, 1990, p. 410). We are bound together by means of our material conditions, which also opens the opportunity for friendship and love. Despite possible advantages of virtual reality and distancing technologies, we need our material and biological dimension, which does not coincide with a natural, original condition but which is a cultural construct we experience as rituals of social interaction, closeness, physical presence, enjoyment of beauty, sociality, and so on. “If we have to survive at all, it is necessary that we separate ourselves to some extent from nature in order to control and regulate its threats to our existence” (Eagleton, 1990, p. 411). This swerving away from biological needs makes the aesthetic pleasure separate to a certain extent from adaptive instincts in the phenomena we experience as culture and artefacts but it does not revoke its material and biological necessity.

Now, advocating the beauty of an artificial body and the need for its physical presence seems to be at odds with the proposal of defending the individual dimension and social relationships. In fact, it is not. Artificial beauty should be considered in the cultural context we have outlined, in which artificial is not antithetical to natural. The sexbot’s artificial beauty proves how we can reshape nature into culture and go beyond by being creative. As exaptation may be the origin of art from biological drives, artificial beauty may reveal a different adaptive aim. The choice of a companion is not primarily and necessarily a sexual choice even if it derives from the mating drive.

Artificial beauty can become a complement and enhancement of the natural kind. Contemporary transformations of intimacy provide people with more freedom to shape their relationships, but also with more uncertainty and less stability. Sexbots express our unstable condition and offer what we are longing for; they provide ontological security and practical advantages and, in doing so, they prove more human than we suppose. The alleged disruptive potential of sexbots relies on the emotional devastation of current social relations (Morris, 2018) and not on the intrinsic power of robots.

From a certain point of view, we can state that, despite the plethora of opportunities to connect and to meet others (Shaw, 2020), and despite the constant proposal of hyper-sexualized objects of desire and life models (Wolf, 2002), today we actually live in a dehumanized and de-sexualized world. For example, Naomi Wolf reveals the mechanisms of power and control behind an apparent sexually liberal culture in her book, *The Beauty Myth*:

We are asked to believe that our culture promotes the display of female sexuality. It actually shows almost none. It censors representations of women's bodies, so that only the official versions are visible. Rather than seeing images *of* female desire or that cater *to* female desire, we see mock-ups of living mannequins. (pp. 135–136)

Why does consumer society sponsor this eroticization of values, stressing the sexual function of beauty and sexual freedom? The sexualization of society is not aimed to sell sex (or sex-related goods) but, on the contrary, to make merchandise of all the rest.

The last thing the consumer index wants men and women to do is to figure out how to love one another: The \$1.5-trillion retail-sales industry depends on sexual estrangement between men and women, and is fueled by sexual dissatisfaction. Ads do not sell sex—that would be counterproductive, if it meant that heterosexual women and men turned to one another and were gratified. What they sell is sexual discontent. (Wolf, 2002, p. 143)

In this perspective, dissatisfaction with our own body and with another's body is likely the fuel of consumerism, by means of which our sexual drives are redirected towards material items we are supposed to buy. The sexbot can be an opportunity to give back a sexual (and, in doing so, human) meaning to what is not human; in other terms: to recognize the irrepressible and inalienable power of humanity and human values, even in what is artificial. A sexbot makes us tell apart the related elements of beauty, sexual attractiveness, and social needs. Sexual discontent cannot be a reason for social competition and consumerism any longer. In this way, sexual satisfaction would gain a social and even political meaning.

In the hyper-sexualization of our society, sexbots can bring the idea of sex (and its practice) to a more human level. “Now that society is best served by a population of women who are sexually available and sexually insecure, ‘beauty’ has been redefined as sex” (Wolf, 2002, p. 151). But we have stated that beauty is far more than sex; beauty conveys a large array of meanings, social and existential issues. In a world of commodification, the artificial beauty of a sexbot can deliver sexual pleasure without being an instrument either of power or of control. A robot can enrich the options and break the mechanism of power; beauty is not only for sexual advantages since sex is not only relatable to human, narcissistic, and commodified beauty. In this way, the sexbot may grant freedom from the market. In a society which is increasingly more hyper-sexualized and in which sex is bound to become more and more a strategy of power, sexbots can reshape and re-dimension the idea of sex which has been imposed by our consumer system in order to deliver a more realistic and human dimension of sex, emotions, and, necessarily, love.

Feminist critiques of sexbots claim that for male roboticists “the conventional and normative relationship of sex, gender, and sexuality constitutes commonsense knowledge, a cognitive style in which social conventions are experienced as natural conditions.” In this way, “they tend to uncritically reproduce and reinforce dominant archetypes and stereotypes attached to female and male bodies” (Robertson, 2018, p. 8). We think that the subject of this study justifies a critical attitude and a deep reflection. We need to be very careful and critical with commonsense assumptions and notions of sex and gender that are often taken for granted and used as instruments of repression. At the same time, as we stated before, this study does not propose any moral evaluation; ethics, gender, and possible alternatives are out of the scope of this article. Issues such as pornography (Tyler & Quek, 2016), porn industry (Andreollo & Chesher, 2019), ethical concerns about “how

things reflect back to us gendered notions of sexuality” and prostitution (Richardson, 2015), as well as consent and robot rape (Sparrow, 2017), are not in the specific field of this essay. We have outlined the origin of beauty as the result of evolutionary and biological factors, which create (through exaptation) a cultural and social need for natural, human, and artificial beautiful objects. Nature is a construct subject to change. The relationship with companionship, love, and sex robots may change this construct. We can define new boundaries between natural and artificial and learn from artificial agents.

The perspective of learning naturalness from artificial creations sounds uncanny. But it sounds so because of our self-centered, anthropocentric, and limited point of view. Robots can teach how humans ought to behave, how emotions work, and what sex means. We accept finding answers concerning our existence in books. Books are not human beings, yet despite this fact we confide to them our deepest humanity. Truths contained in books go far beyond our plans and expectations. Flaubert’s *Madame Bovary* can tell us about love more than a human being in flesh and bones can do. Plato would have thought that *Madame Bovary* is a perverse way to get knowledge about love, since the book has no connection with oral teaching. Today, Plato’s distrust towards written words sounds questionable.

We can even imagine that the sexbot has a function similar to that of any other industrial machine provided by technology. Actually, Marshall McLuhan (1951/2011) foresaw this interfusion of sex and technology a long time ago, in 1951. He noticed our “curiosity to explore and enlarge the domain of sex by mechanical technique, on one hand, and, on the other, to *possess* machines in a sexually gratifying way” (p. 94). This led to a dissociation of sex from the human person and, even, from the unity of the body. In advertising, women’s legs and busts are presented as parts of a “success kit” rather than erotically or sensuously. In an industrial and consumer contest, sex became an instrument of power in a competitive environment, and a liability that makes the display of personal affection difficult (pp. 98–100). Now, the stress related to hyper-sexualization (like the hard labour needed for industrialization) is not a burden to be carried by humans alone. Artificial devices can share it, alleviate it, and, in doing so, diminish its existential relevance and social impact. The same reason that originated the connection between sex and technology offers now the option of the sexbot as a technological escape. The sexbot is certainly a consequence of techno-consumerism but, maybe, it can be a part of the solution. “Sex has been exaggerated by getting hooked to the mechanisms of the market and the impersonal techniques of industrial production” (p. 100). The sexbot can be considered a device that recreates the balance between the hyper-sexualized world of consumerism and the human world devoted to human relations.

8 Conclusions

Now we can sum up some points about what makes a sexbot attractive: a feminine appearance; a non-exaggerated realism; a cautious display of its artificial nature; the ability to elicit empathic reactions, for example, by mirroring human vulnerability. As a work of art, a sexbot should make clear that it is not there to deceive us and, at the same time, it should be consistent enough to allow the suspension of disbelief, and to support new emotions and a narrative that allow closeness, imagination, and interaction with human and non-human agents. Its artificial beauty should be perceived as a complement and enhancement of the natural one. Like a work of art, it reveals something about human nature but it is not (and does not pretend to be) human. The fact that sexual attractiveness can be trusted to an artificial being suggests that sex (at least, at this stage of human evolution) is not the essence of human relationships and grants more space to other forms of interaction between humans.

There is no human shortage that justifies sexbots, but we can choose them because they express human qualities in a different, clearer, or even more refined way. Sex should not be necessarily turned into a strategy of power. Robots can satisfy needs or contrast manipulation and imposed values; it depends on the use or, in other terms, it depends on us. The sexbot is not a value in itself.

We have stated how Baudelaire praised makeup in an anti-naturalistic way. Maquillage, clothes, objects, enhance sexual characteristics; they are not a decoration but they constitute the sexual tertiary characteristics of the body. All these unanimated things are not meant to replace and delete the presence of the body, but to enhance (Lee, 2017, p. 5) its charm and empower its attractiveness; they are to improve the object of desire, not to suppress it; they prove (as Baudelaire put it) the superiority of culture over nature. In the same way the beauty of the artificial body should not be meant as a substitute for the natural body. It offers a different experience.

What needs to be understood fully is that it is the chaos and the mistakes of our wounded nature that makes us human that brings joy and creativity. . . . The aim, therefore, should not be to reduplicate the human perfectly. We need to be more creative than this, despite any existential loneliness. (Lee, 2017, p. 59)

A sexbot should not be any substitute of the beauty of the natural body but an enhancement of it, harking back to the “animistic” and pre-differentiated origin of beauty, when instinctual drives, social conventions, and artistic creations were not yet differentiated forms of the same need. In this way, a sexbot harks back to a contiguity between biological and cultural levels of attractions.

In fact, what matters is how sexbots fit into the social and cultural context and how humans feel about them. If they are *instruments*, they have little philosophical relevance. In case they are not simple instruments, they possess their entire value and the goal of their existence in themselves and question our contemporary culture, our society, and our idea of the human being.

The fact that we choose them, independently from the instrumental value of our choice and according to their aesthetic features, means that they tell us something about ourselves, and give an “opportunity to learn about our humanness” (Carpenter, 2017, p. 273). Like a work of art, the sexbot is an intellectual creation that cannot be separated from its physical presence; it is open to our interpretation; and its experience requires a constant reflection.

References

- Agnati, L. F., Guidolin, D., & Fuxe, K. (2015). Art as a human “instinct-like” behavior emerging from the exaptation of the communication processes. In J. P. Huston, M. Nadal, F. Mora, L. F. Agnati, & C. J. Cela-Conde (Eds.), *Art, aesthetics, and the brain* (pp. 426–441). Oxford University Press. <https://doi.org/10.1093/acprof:oso/9780199670000.001.0001>
- Andreallo, F., & Cheshier, C. (2019). Prosthetic soul mates: Sex robots as media for companionship. *M/C Journal*, 22(5), Article 1588. <https://doi.org/10.5204/mcj.1588>
- Aristotle. (1981). *Poetics* (D. W. Lucas, Ed.). The Clarendon Press. (Original work published ca. 330 BCE).
- Baudelaire, C. (1965). In praise of cosmetics. In J. Mayne (Ed. & Trans.), *The painter of modern life and other essays by Charles Baudelaire* (pp. 31–34). Phaidon Press. (Original work first published in 1863).
- Carpenter, J. (2017). Deus sex machina: Loving robot sex workers and the allure of an insincere kiss. In J. Danaher & N. McArthur (Eds.), *Robot sex: Social and ethical implications* (pp. 261–288). MIT Press. <https://doi.org/10.7551/mitpress/9780262036689.003.0014>
- Chatterjee, A. (2014). *The aesthetic brain: How we evolved to desire beauty and enjoy art*. Oxford University Press. <https://doi.org/10.1093/acprof:oso/9780199811809.001.0001>
- Coeckelbergh, M. (2010). Artificial companions: Empathy and vulnerability mirroring in human-robot relations. *Studies in Ethics, Law, and Technology*, 4(3), Article 2. <https://doi.org/10.2202/1941-6008.1126>
- Coleridge, S. T. (1969). *Biographia literaria*, vol. 2. Oxford University Press. (Original work published in 1817).
- Danaher, J. (2017). Should we be thinking about robot sex? In J. Danaher & N. McArthur (Eds.), *Robot sex: Social and ethical implications*. MIT Press. <https://doi.org/10.7551/mitpress/9780262036689.003.0001>
- Danto, A. (1981). *The transfiguration of the commonplace*. Harvard University Press.

- Davis, A. P. (2018, January 23). Are we ready for robot sex? *New York Magazine*. <https://nymag.com/press/2018/05/on-the-cover-are-we-ready-for-robot-sex.html>
- Davis, S. (2012). *The artful species: Aesthetics, art, and evolution*. Oxford University Press. <https://doi.org/10.1093/acprof:oso/9780199658541.001.0001>
- Devlin, K. (2018). *Turned on: Science, sex and robots*. Bloomsbury. <https://doi.org/10.5040/9781472950888>
- Eagleton, T. (1990). *The ideology of aesthetics*. Blackwell.
- Euron, P. (2019). *Aesthetic, theory and interpretation of the literary work*. Brill. <https://doi.org/10.1163/9789004409231>
- Evans, D. (2001). *Emotions. A very short introduction*. Oxford University Press.
- Ferguson, A. (2010). *The sex doll: A history*. McFarland.
- Flaubert, G. (2008). *Madame Bovary: Provincial manners* (M. Mauldon, Trans.). Oxford University Press. (Original work published in 1856). <https://doi.org/10.1093/owc/9780199535651.001.0001>
- Getov, S., & Winston, J. S. (2015). Neural mechanisms for evaluating the attractiveness of faces. In J. P. Huston, M. Nadal, F. Mora, F. L. Agnati, & C. J. Cela-Conde (Eds.), *Art, aesthetics, and the brain* (pp. 111–137). Oxford University Press. <https://doi.org/10.1093/acprof:oso/9780199670000.003.0006>
- Hauskeller, M. (2014). *Sex and the posthuman condition*. Macmillan. <https://doi.org/10.1057/9781137393500>
- Henrich, D. (1997). The course of remembrance and other essays on Hölderlin (E. Förster, Ed.). Stanford University Press. <https://doi.org/10.1515/9781503623866>
- James, W. (1997). *The meaning of truth*. Prometheus Books. (Original work published in 1909).
- Kant, I. (2007). *The critique of judgement*. (N. Walker, Ed.; J. Creed, Trans.). Oxford University Press. (Original work published in 1790).
- Kleeman, J. (2017, April 27). The race to build the world's first sex robot. *The Guardian*. www.theguardian.com/technology/2017/apr/27/race-to-build-world-first-sex-robot
- Laue, C. (2017). Familiar and strange: Gender, sex, and love in the uncanny valley. *Multimodal Technologies and Interaction*, 1(1), Article 2. <https://doi.org/10.3390/mti1010002>
- Lee, J. (2017). *Sex robot: The future of desire*. Macmillan.
- Levy, D. (2007). *Love + sex with robots. The evolution of human-robot relationships*. Collins.
- Levy, D. (2017). The ethics of robot prostitutes. In P. Lin, K. Abney, & G. A. Bekey (Eds.), *Robot ethics: The ethical and social implications of robotics*. MIT Press.
- McLuhan, M. (2011). *The mechanical bride: Folklore and industrial man*. Duckwork Overlook. (Original work published in 1951).
- Mori, M. (2012). The uncanny valley. *IEEE Robotics & Automation Magazine*, 19(2), 98–100. <https://doi.org/10.1109/MRA.2012.2192811>
- Morris, A. (2018, September 25). Prediction: Sex robots are the most disruptive technology we didn't see coming. *Forbes*. <https://www.forbes.com/sites/andreamorris/2018/09/25/prediction-sex-robots-are-the-most-disruptive-technology-we-didnt-see-coming/>
- Mosher, M. (1998, December). Teledildonic temptations: The rise and fall of computer sex. *Bad Subjects*, 41.
- Musiał, M. (2019). *Enchanting robots. Intimacy, magic, and technology*. Macmillan. <https://doi.org/10.1007/978-3-030-12579-0>
- Nyholm, S., & Frank, L. E. (2017). From sex robots to love robots: Is mutual love with a robot possible? In J. Danaher & N. McArthur (Eds.), *Robot sex: Social and ethical implications*. MIT Press. <https://doi.org/10.7551/mitpress/9780262036689.003.0012>
- Plato. (1964). *Phaedrus*. The Clarendon Press. (Original work published ca. 370 BCE).
- Portera, M. (2016). Why do human perceptions of beauty change? The construction of the aesthetic niche. *RCC Perspectives*, 5, 41–48. <https://doi.org/10.5282/rcc/7728>
- Richardson, K. (2015). The asymmetrical 'relationship': Parallels between prostitution and the development of sex robots. *ACM SIGCAS Computers and Society*, 45(3), 290–293. <https://doi.org/10.1145/2874239.2874281>

- Rilke, R. M. (1989). *The selected poetry of Rainer Maria Rilke*. Vintage. (The *Duino Elegies* was originally published in 1923).
- Robertson, J. (2010). Gendering humanoid robots: Robo-sexism in Japan. *Body & Society*, 16(2), 1–36. <https://doi.org/10.1177/1357034x10364767>
- Robertson, J. (2018). *Robo sapiens japonicus: Robots, gender, family, and the Japanese nation*. University of California Press. <https://doi.org/10.1525/california/9780520283190.001.0001>
- Schlegel, F. (1980). *Literarische Notizen 1797–1801*. Ullstein.
- Shaw, D. (2020, May 21). Coronavirus: Tinder boss says ‘dramatic changes’ to dating. BBC News. <https://www.bbc.com/news/business-52743454>
- Shiomi, M., Nakata, A., Kanbara, M., & Hagita, N. (2020). Robot reciprocation of hugs increases both interacting times and self-disclosures. *International Journal of Social Robotics*, 13, 353–361. <https://doi.org/10.1007/s12369-020-00644-x>
- Sparrow, R. (2017). Robots, rape, and representation. *International Journal of Social Robotics*, 9(4), 465–477. <https://doi.org/10.1007/s12369-017-0413-z>
- Su, N. M., Lazar, A., Bardzell, J., & Bardzell, S. (2019). Of dolls and men: Anticipating sexual intimacy with robots. *ACM Transactions on Computer-Human Interaction*, 26(3), Article 13. <https://doi.org/10.1145/3301422>
- Sullins, J. P. (2012). Robots, love, and sex: The ethics of building a love machine. *IEEE Transactions on Affective Computing*, 3(4), 398–409. <https://doi.org/10.1109/T-AFFC.2012.31>
- Szczuka, J. M., Hartmann, T., & Krämer, N. C. (2019). Negative and positive influences on the sensations evoked by artificial sex partners: A review of relevant theories, recent findings, and introduction of the sexual interaction illusion model. In Y. Zhou & M. H. Fisher (Eds.), *AI love you* (pp. 3–19). Springer. https://doi.org/10.1007/978-3-030-19734-6_1
- Szczuka, J. M., & Krämer, N. C. (2017). Not only the lonely: How men explicitly and implicitly evaluate the attractiveness of sex robots in comparison to the attractiveness of women, and personal characteristics influencing this evaluation. *Multimodal Technologies and Interaction*, 1(1), Article 3. <https://doi.org/10.3390/mti1010003>
- Szczuka, J. M., & Krämer, N. C. (2018). Jealousy 4.0? An empirical study on jealousy-related discomfort of women evoked by other women and gynoid robots. *Paladyn, Journal of Behavioral Robotics*, 9(1), 323–336. <https://doi.org/10.1515/pjbr-2018-0023>
- Szczuka, J. M., & Krämer, N. C. (2019). There’s more to humanity than meets the eye: Differences in gaze behavior toward women and gynoid robots. *Frontiers in Psychology*, 10, Article 693. <https://doi.org/10.3389/fpsyg.2019.00693>, PubMed: 31068845
- Todorov, T. (1984). *Theories of the symbol*. Cornell University Press.
- Tyler, M., & Quek, K. (2016). Conceptualizing pornographication: A lack of clarity and problems for feminist analysis. *Sexualization, Media, & Society*, 2(2), 1–14. <https://doi.org/10.1177/2374623816643281>
- von Kleist, H. (1972). On the marionette theatre. *The Drama Review*, 16(3), 22–26. <https://doi.org/10.2307/1144768> (First published in *Berliner Abendblätter* 12–15 December 1810).
- Whitby, B. (2012). Do you want a robot lover? The ethics of caring technologies. In P. Lin, K. Abney, & G. A. Bekey (Eds.), *Robot ethics: The ethical and social implications of robotics*. MIT Press.
- Wolf, N. (2002). *The beauty myth: How images of beauty are used against women*. Harper Collins.
- Zanatto, D., Patacchiola, M., Cangelosi, A., & Goslin, J. (2020). Generalisation of anthropomorphic stereotype. *International Journal of Social Robotics*, 12, 1–10. <https://doi.org/10.1007/s12369-019-00549-4>