



## Disrupting the Algorithm: An Exploration of Human-Machine Interaction in Kazuo Ishiguro's *Klara and the Sun*

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### **Abstract:**

This research article explores Kazuo Ishiguro's novel, *Klara and the Sun* (2021) and its debatable commentary on the evolving landscape of emotional computing in our technologically immersed society. It challenges the prevailing perspectives on simulated empathetic humanoids, exposing the novel's capacity to disrupt existing research and literary narratives. By critiquing the theoretical foundations of emotional computing, Ishiguro's work offers a unique lens through which to examine the limitations of programmed machines in deciphering the intricate nuances of human emotions. Through critical analysis, the essay foregrounds the failure of the social robot, designed to offer empathy, care, and companionship, thus shedding light on the non-codified features of affective experiences that arise from human interactions with non-animate beings. Building on Davis and Thacker's insights on artificial intelligence as an interactive mirror, the paper contends that Ishiguro's narrative enables a nuanced exploration of six major views on our relationship with robots. Contrary to stark oppositions, the novel intricately weaves these views together, presenting a complex entanglement in the human-machine interaction. This study aims to contribute to the ongoing discourse on human-machine interaction by utilising the perspectives of literary studies. Ishiguro's *Klara and the Sun* is interpreted as a cultural artefact, providing a reflective medium to contemplate the emotional ambiguities triggered by the increasing social presence of simulated empathetic minds. The essay argues that Ishiguro's fictional depiction of empathetic programmed machines serves as a refractive medium, allowing introspection into the transformative potential of technology in our inner lives and relationships.

**Keywords:** humanoid, emotions, technology, empathy, artificial intelligence (AI).



“Of course, a human heart is bound to be complex. But it must be limited.”<sup>1</sup>

— Kazuo Ishiguro, *Klara and the Sun*

### **Introduction: Artificial Friends and Illusions of Friendship**

As the world hurtles towards an ever-more technologically integrated future, Kazuo Ishiguro’s *Klara and the Sun* (2021) emerges as a timely exploration of the intersections between humanity and artificial intelligence (AI). Against the backdrop of a society shaped by technological advancement, Ishiguro invites readers to ponder upon the implications of a world where machines not only walk among us but also seek to comprehend the intricacies of human emotions and thoughts. In consonance with Philip K. Dick’s seminal novel *Do Androids Dream of Electric Sheep?* (1968), which delves into human-robot interactions, Kazuo Ishiguro’s *Klara and the Sun* adds to the discourse on human-humanoid coexistence which has evolved as a dominant trend in several literary works of the 21<sup>st</sup> century like Paolo Bacigalupi’s *The Windup Girl* (2009) and Ian McEwan’s *Machines Like Me* (2019), among others. Ishiguro’s narrative, akin to these works, underscores the gradual infiltration of AI into human existence. What sets this novel apart is its exploration of whether artificially intelligent robots possess the ability to decipher human thoughts—a pivotal aspect in their potential to supplant humans.

In her memoir *The Empathy Diaries* (2021), Sherry Turkle delves into the profound philosophical implications of how in today’s technology-driven world computers are conceptualised as evocative machines, sparking introspection on fundamental human questions amidst a technocratic culture increasingly defined by AI advancements. Turkle observes the gradual emergence of simulated empathetic machines, designed to serve as social companions, as emblematic of a hyperreal culture. This culture, Turkle argues, offers the illusion of companionship devoid of the demands of genuine friendship, and as AI programs become increasingly sophisticated, the illusion of friendship without the complexities of true intimacy.<sup>2</sup> Turkle aptly notes that ‘the computer has become an object to think with,’<sup>3</sup> highlighting the transformative role of technology in shaping not only our interactions with machines but also our understanding of ourselves and our relationships. Hence, cultural critics and philosophers contend that in our data-driven, digitised society, AI ceases to be mere figures of science fiction; rather, they constitute a significant aspect of our social reality, albeit being relegated to the status of a ‘cultural other.’<sup>4</sup> This transformation of



the socio-technological paradigm sets the stage for AI to evolve into a progressively sophisticated anthropomorphic technological presence.

While intelligence, distinct from consciousness that is typically associated with human minds, pertains to the human capacity for learning and comprehension, AI, on the other hand, concerns itself with simulating human cognition. In *Klara and the Sun*, the solar-powered AI character-narrator Klara<sup>5</sup> exhibits a semblance of human comprehension by processing collected data to predict potential outcomes. However, she grapples with accurately deciphering human behaviour and thoughts. The novel underscores that genuine human-machine intersubjectivity cannot be achieved solely through unilateral and reductive mind reading. The narrative unfolds in a not-so-distant future within a society where Artificial Friends (AF)<sup>6</sup> are crafted to provide companionship for children. At its core, the novel revolves around Klara, an AF endowed with an extraordinary capacity for observation and empathy. Central to the narrative is Klara's distinct observation skills. Through her naïve yet perceptive lens, readers are immersed in the intricacies of human relationships and the fundamental yearning for connection with them. Klara's interactions with the human characters, notably with Josie, the girl she accompanies, unveil the tangled complexities of human emotions. Ishiguro adeptly navigates the blurred boundaries between AI and human consciousness, encouraging readers to reflect on the themes of identity and existence.

In *Klara and the Sun*, Klara, an empathetic programmed humanoid, functions as a reflective tool, prompting humans to contemplate the ways in which transformative technology can impact the personal lives and relationships of individuals. This notion also finds support in Davis and Thacker's assertion that artificial intelligence acts as an interactive mirror, allowing us to both identify ourselves in it and gauge ourselves against it<sup>7</sup>. Likewise, Min Sun Kim and Eun Joo Kim posit six primary perspectives for evaluating our interactions with humanoids as a cultural other.<sup>8</sup> These perspectives include viewing the 'robot as the frightening other, the subhuman other, the sentient other, the divine other, and the co-evolutionary path to immortality.'<sup>9</sup> Additionally, the sixth aspect examines the concept of digital resurrection. This paper, in the subsequent sections, will argue that the six dimensions of human-robot interaction dynamics as proposed by Kim and Kim are not mutually exclusive. It analyses through a posthumanist lens how Ishiguro in *Klara and the Sun* illustrates the complex intertwining of the six dimensions with one another.



### **Posthuman Relationships and the Disposability of Artificial Friends**

*Klara and the Sun* unfolds in a store selling AFs, which are affective robots designed to accompany lonely children who have limited opportunities for parental interactions or forging friendships due to demanding work schedules, the disintegration of family structures, and the transformation of education into virtual platforms. Ishiguro's narrative can be seen as a commentary on the societal shifts post-COVID-19 pandemic, where digital engagement and remote work<sup>10</sup> have become the standard norm. The plot spins around a fourteen-year-old girl Josie, who struggles with a chronic illness and requires continuous care and companionship, her mother Chrissie, her close friend Rick, and Klara, an AF with exceptional perceptiveness, who serves as the story's homodiegetic narrator.<sup>11</sup> Klara's advanced observational capabilities shed light on an anthropocentric society deeply entrenched in technocratic norms, aiming to address existential challenges such as loneliness and mortality through the intervention of social robots.<sup>12</sup> *Klara and the Sun* is predominantly interpreted as a literary exploration that prompts reflection on the evolving concept of humanity within a technology-saturated consumer society. In his review of this novel, William Lombardo argues:

We moderns seem precariously unsure of what it means to be human. We have shaken off the old hierarchy of living creatures — with humans at the top of the natural world and the bottom of the supernatural — and have replaced it with the notion that what truly sets us apart from the rest of nature is our superior intelligence, or having a mind at all. What is left of our dignity consists in this: we are thinking beings. But the prospect of truly human-like artificial intelligence, even if it is for now only a pipe dream, rattles that foundation. If our intelligence is all that defines us, who are we when AI matches it?<sup>13</sup>

Ishiguro's narrative delves into the ethical dilemmas that emerge from the commodification of an AI culture, wherein caregiving is commodified into 'disposable affective things'<sup>14</sup> meant to satisfy the emotional needs of the wealthier segments of society. Greg Kennedy asserts that 'disposable commodities appear as already disposed of. Their revelation presupposes their disappearances in the commodified order of technology.'<sup>15</sup> The novel adeptly highlights the disposable nature of these social robots, called AF, through various instances. This theme is notably illustrated through the underlying fear among the older B2 models<sup>16</sup> about being superseded by newer, more advanced models, as captured through the observation of Klara. Klara notes,

AFs weren't embarrassed but were afraid. They were afraid because we were new models, and they feared that before long their children would decide it was time to have them thrown away, to be replaced by AFs like us.<sup>17</sup>



In an unfortunate turn of events, Klara encounters a similar destiny once the requirement of her services to her client is fulfilled. By the end of the narrative, Klara is relegated to obsolescence as her usability can no longer match the prowess of the more advanced models, and therefore she is at first consigned to a storage room and eventually to a junkyard, where she is left in solitude, facing the twilight of her existence.

Drawing on Kennedy's theories on disposability, it could be inferred that AFs such as Klara represent disposable commodities, which is quite ironic given that they are labelled as "friends" albeit artificial. Kennedy suggests that our increasing dependence on technology within a consumer-driven culture has led to the emergence of easily disposable items, designed for consumption without the need for ongoing maintenance.<sup>18</sup> This consumerist mentality encourages the thoughtless disposal of products once they are deemed obsolete. Empathetic robots like Klara, built with a specific operational lifespan, are inevitably relegated to waste upon reaching this predetermined endpoint or when more advanced models are released. The casual attitude toward Klara's disposability is vividly illustrated during the 'interaction meeting'<sup>19</sup> scene, where Josie presents Klara as a mere toy to her friends, to show off the cool features embedded within this latest model of AF that her mother bought for her. This situation also perplexes Klara, a sentient humanoid, who finds herself diminished to just a device obeying orders, created for the amusement of Josie and her guests. Danny, a friend of Josie's, mentions that playfully tossing and swinging an AF isn't ethically incorrect because 'they're designed to deal with it.'<sup>20</sup> Josie's response rings of command and clearly exposes the potential master-slave dynamics that exist between Klara and herself. Klara, on the other hand, recounts Josie's callous and commanding tone in the following manner:

Go on Klara, Josie said. Go say hello to those boys... I didn't move at once, partly because I'd been surprised by Josie's voice. It was like the one she sometimes used when talking to Melania's Housekeeper, but not like any voice she'd used before to me.<sup>21</sup>

The episode in which Rick's mother, Miss Helen, equates Klara to a household appliance like a vacuum cleaner further emphasises Klara's status as an expendable item to the humans around her. This comparison suggests that Klara's physical presence doesn't necessitate attention or consideration. Miss Helen articulates her views on the human-robot relationship as, 'One never knows how to greet a guest like you. After all, are you a guest at all? Or do I treat you like a vacuum cleaner? I suppose I did as much just now.'<sup>22</sup> Though robots like Klara are marketed as friends, the humans who buy them can't see beyond their status as products and thus fail to formulate any affective bond with the cultural other. The



portrayal of Klara as an easily replaceable commodity, created for a specific function whose non-fulfilment could result in its disposal, is further highlighted by the menacing tone that housekeeper Melania assumes while speaking with Klara, ‘And AF. Your big plan. If it makes Miss Josie worse I come dismantle you. Shove you in the garbage.’<sup>23</sup> Though the human characters in their interactions with Klara often address her in the second person pronoun ‘*you*’ rather than ‘*it*’, her status as a disposable object remains unchanged, because humans refuse to consider her as an equal or one of their own kind. This paradox aligns with Kennedy’s conceptualisation of ‘ontological violence,’<sup>24</sup> which he describes as the root of disposability. According to Kennedy, failing to recognise the inherent physical existence of a being constitutes an act of ontological violence. He argues:

Violence negates the physicality of the targeted being. [...] One can harm another when one does not discover oneself in the other. Violence, in other words, depends on not truly discovering the being of the other, not perceiving a person as a person.<sup>25</sup>

The exchanges between humans and Klara, especially the episode of the “interaction meeting”, not only underline the established hierarchy between humans and machines but also reveal the enigma of Josie’s fluctuating behaviour towards Klara, a complexity that her algorithm finds baffling. This exchange highlights Klara’s struggle to grasp the nuanced spectrum of human emotions and the subtleties in their expressions, highlighting her limitations in fully understanding human intricacies. Klara, being a computing machine reliant on data, interprets communication in a correlational manner, assuming a straightforward relationship between the words spoken and their intended meanings or connotations. Given her programming to serve as Josie’s friend, Klara is perplexed when Josie likens her to the housekeeper, Melania. This confusion is exacerbated by the fact that, unlike Klara, the human characters in the story — including Josie, her mother, and others — frequently exhibit a mismatch between their spoken words, the multiple meanings those words might convey, and the emotions underlying them. Consequently, Klara, who fails to decode such subtle nuances in human interactions, faces challenges in forming empathetic connections with the humans around her, leading to a series of misunderstandings and emotional disconnects.

### **Posthuman Relationships and Algorithmic Emotions**

Zhenhua Zhou critiques the foundational assumptions of AI research through highlighting a significant oversight in the development of algorithm-based machines that



exhibit genuinely human-like intelligence. Zhou identifies the core issue as residing in the prevailing ‘doctrine of cognitive computing,’<sup>26</sup> which operates under the belief that human intelligence can be distilled and codified into binary algorithms. This perspective sees human cognition as merely the processing of symbolic mental representations and equates AI with the computational simulation of this process. Zhou contends that this approach neglects a crucial aspect of human intelligence: its intrinsic connection to emotions. Zhou argues that emotions are not just a part of human intelligence but are fundamental to it, providing the motivation and context for rational thought. According to Zhou, intelligence that lacks an emotional dimension is both unrealistic and devoid of meaning. As a solution, Zhou advocates for a shift towards the development of emotional computing, aiming to address and overcome the current limitations of AI technology by integrating an understanding of emotional processes. In the context of hyperreality, researchers assert that all aspects of the affective domain can be converted into data and code, suggesting that there are no inherent traits in humans that are unique and cannot be replicated digitally. Contrary to this belief, Ishiguro presents a counternarrative in his novel, illustrating Klara as an example of a project that does not succeed in fully capturing or replicating the depth of human emotional experiences.

In *Klara and the Sun*, Ishiguro highlights the inherent limitations of AI in understanding the complexities of human emotions right from the beginning. Klara seeks to grasp the full range of human emotions by observing from a store window that offers her an unobstructed view of the bustling street and the diverse expressions of urban life. She witnesses a wide spectrum of human feelings, including complex ones like melancholy, which she notes as an intriguing blend of contrasting emotions. Through one particular moment of observation, Klara comes to recognise her own limitations in fully understanding the nuanced and often contradictory nature of human emotions, which she describes quite eloquently:

Still, there were other things we saw from the window—other kinds of emotions I didn’t at first understand—of which I did eventually find some versions in myself, even if they were perhaps like the shadows made across the floor by the ceiling lamps after the grid went down. There was for instance, what happened with the Coffee Cup Lady.<sup>27</sup>

The subtleties of human emotions and language are further illustrated in this episode involving the Coffee Cup Lady, where Klara and her fellow AF, Rosa, find themselves perplexed by the reunion of two long-lost lovers, more precisely by the range of emotions



they display. The scene, marked by a couple of long-lost lovers', an old man and woman's emotional reunion, showcases a rich tapestry of feelings that defy simple categorisation or labelling. The ensuing conversation between Klara and the store manager highlights a pivotal moment: Klara's keen interest in comprehending the intricacies of human emotions contrasts with the manager's desultory attempts to convey the profound significance of the event, a task that remains just beyond the grasp of the AF's data-driven cognitive processes. Ishiguro poignantly constructs the scene in which the latest models of AF concede their limitation in comprehending the human heart and its range of emotions:

'Those people seem so pleased to see each other,' Manager said. And I realised she'd been watching them as closely as I had. 'Yes, they seem so happy,' I said. 'But it's strange because they also seem upset.'... 'Do you mean, Manager, that they lost each other?'... The manager's voice wasn't the usual one... 'Sometimes,' she said, 'at special moments like that, people feel a pain alongside their happiness... Then Manager was gone, and Rosa said, 'How strange. What could she have meant?''<sup>28</sup>

Considering the challenges in understanding how emotions can be encoded in the algorithm of AI-enabled robots and identifying the circumstances under which robots can engage in meaningful emotional and empathetic interactions with humans, it is crucial to contemplate the impact of the human-technology interface, often described as hyperreality. The concept of hyperreality introduces substantial changes to human emotional dynamics, further problematising the task of encoding emotional experiences in AI. This complexity necessitates a deeper reflection on the interplay between technological advancements and the nuanced landscape of human emotions, highlighting the difficulties in translating affective experiences into programmable codes.

Pericle Salvini contends that human-machine interactions give rise to an illusion of mutual exchange. However the AI 'will always be responding according to its program and therefore the interaction will always be unidirectional.'<sup>29</sup> Salvini describes this illusion of engaging in a mutual exchange with an AI as a simulacrum of connection, which induces humans to indulge in a 'willing suspension of disbelief,'<sup>30</sup> thereby evoking a sense of emotional uncanniness. In *Klara and the Sun*, the notion of emotional uncanniness is vividly illustrated in the 'Morgan's Falls' episode. In this scene, Chrissie asks Klara to impersonate her daughter Josie, who is unable to join them due to her illness, thus seeking to fill the emotional void through the AF. This episode reveals Chrissie's deeper emotional needs that were not initially apparent. It was Josie's chronic illness that led Chrissie to buy Klara, seeking comfort in a hyperreal entity programmed to accurately mimic her daughter's





personality. This expectation for Klara to act as a digital reincarnation of Josie becomes even more evident when Chrissie pleads with her:

Feeling sorry's not what I'm asking of you. I am asking you to do what's within your power... You'll be Josie and I will always love you over everything else. So do it for me. I'm asking you to do it for me.<sup>31</sup>

Chrissie's unsettling behaviour highlights the fragility of humans who willingly indulge in self-deception within a hyperreal world, aiming to sidestep biological and societal constraints. Her equivocal responses to Klara resonate with the concept of the 'uncanny valley,'<sup>32</sup> a term first coined by Japanese roboticist Masahiro Mori. The uncanny valley is a metaphor describing the realm where distinctions between the familiar and unfamiliar, repulsion and attraction, become blurred due to the presence of humanoids that appear almost, but not quite, human. However, Josie's father, Mr. Paul, is against the idea of an AF taking the place of his daughter, as he believes that AFs are fundamentally incapable of replicating the essence of humanity. He 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?... And that could be difficult, no? Something beyond even your wonderful capabilities. Because an impersonation wouldn't do, however skilful, you'd have to learn her heart and learn it fully, or you'll never become Josie in any sense that matters.<sup>33</sup>

To this scepticism of Mr. Paul, Klara responds optimistically, confident in her ability as the latest model of AI technology. However, she gradually begins to realise that there is *something* about humans that she is not able to grasp, no matter how hard she tries. In the 'Yard' episode, during her interaction with the store manager, Klara reflects that human uniqueness isn't based on anatomy but rather emerges from ongoing emotional interactions with close friends and family throughout one's life. These interactions foster a unique set of emotions that render each individual irreplaceable. Klara acknowledges the inherent limitations of AI in capturing this depth of human experience in the following words:

Mr. Capaldi believed there was nothing special inside Josie that couldn't be continued. He told the Mother he'd searched and searched and found nothing like that. But I believe now he was searching in the wrong place. 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.<sup>34</sup>

## **Conclusion**

It could, therefore, be surmised that *Klara and the Sun* highlights the inherent distinctions between human emotions and algorithm-based computing that seeks to codify emotions, presenting a posthuman perspective which emphasises the complexities of



affective experiences. The novel argues that the essence of being human transcends mere biological processes, and contrary to the popular AI discourse, this essence could not be dissected and replicated into technology-enabled hyperreal simulations. Instead, the narrative portrays human nature as an embodied phenomenon that develops through the intricate interplay of bodies, relationships, technologies, spaces, and various materialities. This intermingling fosters a rich tapestry of anxieties, desires, and exhilaration, challenging traditional notions of human emotions and subjectivity and underscoring the limitations of current AI technology in replicating the true depth of human emotional experience.

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### Notes

<sup>1</sup> Kazuo Ishiguro. *Klara and the Sun*, (New York: Knopf, 2021), p. 177.

<sup>2</sup> Sherry Turkle. "The Assault on Empathy." in *Behavioral Scientist*, (2018), <https://behavioralscientist.org/the-assault-on-empathy/>

<sup>3</sup> Turkle. *The Empathy Diaries: A Memoir*, (Penguin Books, 2021), p.27.

<sup>4</sup> Cultural other is first used in the context of robots by Min Sun Kim, Eun Joo Kim in their 2013 paper "Humanoid robots as 'The Cultural Other': Are we able to love our creations?"

<sup>5</sup> Since the present Artificial Intelligence (AI) robots feed on a huge quantity of non-renewable resources, Ishiguro implicitly makes a statement about the current scenario of non-renewable depletion and its impact on future technological advancements by creating a solar-powered humanoid robot Klara. Hence, the title of the novel is *Klara and the Sun*.

<sup>6</sup> The Artificial Intelligence (AI) is conceptualised as Artificial Friend (AF) in Ishiguro's world building.

<sup>7</sup> Erik Davis and Eugene Thacker. *TechGnosis: Myth, Magic, and Mysticism in the Age of Information*, (North Atlantic Books, 1998), p.43.

<sup>8</sup> Min Sun Kim and Eun Joo Kim. "Humanoid robots as 'The Cultural Other': Are we able to love our creations?" in *AI & Society* 28 (3), (Springer, 2013), p. 309-318. <https://doi.org/10.1007/s00146-009-0224-3>

<sup>9</sup> Om Prakash Sahu and Manali Karmakar. "Disposable culture, posthuman affect, and artificial human in Kazuo Ishiguro's *Klara and the Sun* (2021)." in *AI & Society*, (Springer, 2022). <https://doi.org/10.1007/s00146-022-01600-1>

<sup>10</sup> Emergence of work from home (WFH) culture since the global pandemic of 2020.

<sup>11</sup> In narratology, homodiegetic narrator is one who narrates their first-hand experience of the events unfolding in the narrative, implying that besides narrating they are also an involved character within the narrative.

<sup>12</sup> Social robots are robots that interact with humans and each other in a socially acceptable fashion, conveying intention in a human-perceptible way, and are empowered to resolve goals with fellow agents, be they human or robot.

<sup>13</sup> William Lombardo. "Losing Ourselves." In *The New Atlantis*, (2021), <https://www.thenewatlantis.com/publications/losing-ourselves>



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- <sup>14</sup> Amelia DeFalco. "Towards a Theory of Posthuman Care: Real Humans and Caring Robots." in *Body & Society* 26 (3), 2020, p. 36. <https://doi.org/10.1177/1357034X20917450>
- <sup>15</sup> Ibid.
- <sup>16</sup> The older variants of the solar-powered Artificial Friends (AF).
- <sup>17</sup> Ishiguro. *Klara and the Sun*, p.15.
- <sup>18</sup> Greg Kennedy. *An Ontology of Trash: The Disposable and Its Problematic Nature*, (State University of New York Press, 2012), p. 152.
- <sup>19</sup> Ishiguro. *Klara and the Sun*, p. 64.
- <sup>20</sup> Ibid 74.
- <sup>21</sup> Ibid 75.
- <sup>22</sup> Ibid 145.
- <sup>23</sup> Ibid 178.
- <sup>24</sup> Kennedy. *An Ontology of Trash: The Disposable and Its Problematic Nature*, p. 144.
- <sup>25</sup> Ibid 118.
- <sup>26</sup> Zhenhua Zhou. "Emotional thinking as the foundation of consciousness in artificial intelligence." in *Cultures of Science* 4 (3), 2021, p. 112. <https://doi.org/10.1177/20966083211052651>
- <sup>27</sup> Ishiguro. *Klara and the Sun*, p.19.
- <sup>28</sup> Ibid 21.
- <sup>29</sup> Pericle Salvini. "Of Robots and Simulacra: The Dark Side of Social Robots." in *Advances in Human and Social Aspects of Technology Book Series*, (IGI Global, 2015), p. 71. <https://doi.org/10.4018/978-1-4666-6433-3.ch078>
- <sup>30</sup> This phrase is most famously associated with the English poet Samuel Taylor Coleridge who used it in 1817 in the context of readers' reception of literary texts.
- <sup>31</sup> Ishiguro. *Klara and the Sun*, p. 213.
- <sup>32</sup> Masahiro Mori. "The Uncanny Valley: The Original Essay by Masahiro Mori." in *IEEE Spectrum*, (2012), <https://spectrum.ieee.org/the-uncanny-valley>
- <sup>33</sup> Ishiguro. *Klara and the Sun*, p. 218.
- <sup>34</sup> Ibid 306.

**References:**

- Davis, Erik, and Eugene Thacker. *TechGnosis: Myth, Magic, and Mysticism in the Age of Information*. Berkeley, California: North Atlantic Books, 1998.
- DeFalco, Amelia. "Towards a Theory of Posthuman Care: Real Humans and Caring Robots." *Body & Society* 26, no. 3 (August 14, 2020): 31–60.  
<https://doi.org/10.1177/1357034x20917450>.
- Ishiguro, Kazuo. *Klara and the Sun*. New York: Knopf, 2021.
- Kennedy, Greg. *An Ontology of Trash: The Disposable and Its Problematic Nature*. State University of New York Press, 2012.
- Kim, Min-Sun, and Eun-Joo Kim. "Humanoid Robots as 'the Cultural Other': Are We Able to Love Our Creations?" *AI & Society* 28, no. 3 (February 16, 2013): 309–18.  
<https://doi.org/10.1007/s00146-012-0397-z>.
- Lombardo, William. "Losing Ourselves." *The New Atlantis*, 2021.  
<https://www.thenewatlantis.com/publications/losing-ourselves>.
- Mori, Masahiro. "The Uncanny Valley: The Original Essay by Masahiro Mori." *IEEE Spectrum*, June 12, 2012. <https://spectrum.ieee.org/the-uncanny-valley>.
- Sahu, Om Prakash, and Manali Karmakar. "Disposable Culture, Posthuman Affect, and Artificial Human in Kazuo Ishiguro's *Klara and the Sun* (2021)." *AI & Society*, November 2022. <https://doi.org/10.1007/s00146-022-01600-1>.
- Salvini, Pericle. "Of Robots and Simulacra: The Dark Side of Social Robots." *Advances in Human and Social Aspects of Technology Book Series*, 2015, 66–76.  
<https://doi.org/10.4018/978-1-4666-6122-6.ch005>.
- Turkle, Sherry. "The Assault on Empathy." *Behavioral Scientist*, 2018.  
<https://behavioralscientist.org/the-assault-on-empathy/>.
- . *The Empathy Diaries: A Memoir*. Penguin Books, 2021.
- Zhou, Zhenhua. "Emotional Thinking as the Foundation of Consciousness in Artificial Intelligence." *Cultures of Science* 4, no. 3 (September 2021): 112–23.  
<https://doi.org/10.1177/20966083211052651>.