Gender, (Dis)Embodiment, and the Image of A.I. and Robot

in Spike Jonze’s *Her* and Alex Garland’s *Ex Machina*

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Abstract

The present thesis aims at investigating the representation of artificial intelligence and of the robot as characters, as well as the impact of these (dis)embodied machines on the human society in two cinematic narratives. The proliferation of advanced technologies in the 21st-century Western world and the interdependence of human beings and machines are insightfully explored in Spike Jonze's *Her* (2013) and in Alex Garland's *Ex Machina* (2015). Both Jonze and Garland are contemporary Anglo-American scriptwriters and directors who are interested in the co-existence of humans and machines as an inevitable feature of the technologically saturated human society. However, neither Jonze nor Garland embrace a transhumanist vision of the world in their movies. On the contrary, both of them underline the possibility of the co-existence of two different entities occupying the same environment, while pointing out the latent ideological assumptions about gender relations which evidently inform the human-to-machine interaction. One cannot fail to notice that both Jonze’s and Garland’s films have a male character as the main representative of humankind and a feminized machine as a stand-in for womanhood.

The first chapter explores the gendered technology as portrayed in the two movies. The films tap onto the Hollywood SF film tradition which ascribes the feminine gender to advanced technological products. My enquiry draws from the insights of Gender Studies and Feminist criticism and utilizes feminist film critiques, regarding the relationship between the genders, and the transference of gender stereotypes to technological products while exploring the merging of the feminine with the products of informatics and computer technologies. Following the debate on the limitations and the potential of technology to change the gender dynamics in the new millennium, in the second chapter I investigate the role both embodiment and disembodiment play in these two films. In particular, whereas Jonze shows the impossibility of developing a
mutually fulfilling relationship and co-existence between the human male and the technological feminine due to the AI’s disembodiment, Garland stresses that embodiment is a prerequisite for the construction of an independent and self-empowered female agent in the robotic form.
Introduction

Science fiction (SF) cinema has an enduring presence in the history of the Anglo-American film industry since the beginning of the 20th century. However, film theorists and critics have long been troubled with the definition of science fiction cinema as a genre, as well as with its relation to the socio-cultural context of its production. Although literary definitions of science fiction, like Isaac Asimov’s description of the genre as “that branch of literature which deals with a fictitious society, differing from our own chiefly in the nature or extent of its technological development” (37), are indicative of the themes SF writers and directors usually explore in their narratives, there are considerable differences between the written text and the moving picture as media, which problematize the application of literary definitions to SF film narratives. As Annette Kuhn has pointed out, the main difference between SF literature and SF film lies in the latter’s use of the spectacle as a narrative device: “The peculiar qualities of cinematic storytelling hinge crucially on the very visibility of the film image, and on the fact that ‘reading’ a film necessarily involves looking at it” (6). Therefore, despite any obvious similarities between SF literature and SF cinema in terms of subject matter or narrative structure, any definition of SF cinema as a genre must take into consideration the cinematic conventions, particularly the special effects, which since the 1970s have become an integral element of the cinematic experience. Cinema as a media relies on codes of visibility and on images “to show the fictional worlds of the narratives it creates”; thus when we watch a SF film we are aware that “the visual effects and sound temporarily interrupt the flow of the narrative, inviting the spectator to contemplate with awe and wonder, the vastness of deep space or the technological miracles of future societies” (Kuhn 6, 7). Because to a large extent SF cinema draws many of its themes from SF literature and borrows elements from other genres, such as horror and fantasy, this complex
relation has led film theorists and critics to formulate various and sometimes conflicting
definitions of the genre. Providing a single, precise definition of SF cinema may not only be
impossible, but also quite futile. This understandable difficulty in providing an all-inclusive
and clear-cut definition of SF cinema as a genre has led to a shift in film theory; instead of
trying to define the genre, film theorists have turned their attention to the “cultural
instrumentality” of the SF film.

According to film theorist Annette Kuhn, “more interesting, and probably more
important, than what a film genre is is the question of what, in cultural terms, it does – its
‘cultural instrumentality’” (1). In other words, when analyzing critically a SF film, a theorist
or a critic should take into consideration the socio-cultural context in which the film was
produced. Cinematic narratives may be a form of entertainment, but that does not mean that
they are indifferent to the social problems or psychological anxieties that preoccupy the
public in a specific era. “It is virtually inevitable,” critics contend, “that films which appeal to
our imaginings of future or alternative worlds will, intentionally or otherwise, address
contemporary concerns” (Kuhn 15). Therefore, an ideological reading\(^2\) of a SF film
investigates and exposes the ideology\(^3\) underlying the cinematic narrative; such a reading
may lead to valid conclusions regarding the cultural instrumentality of the genre. The best
films of SF cinema are serious responses to current technological advances; they try to
envision the impact of specific technologies on the contemporary society and on the lives of
individuals. On a second level, the same cinematic narratives might implicitly comment on
the power relations that inform interpersonal affairs in the present-day technologically

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1 For an elaborate discussion on the numerous and various tentative definitions of SF cinema as a genre, see Brian Baker’s “Definitions: What is Science Fiction,” *Science Fiction: A Reader to Essential Criticism* (2014).

2 According to Kuhn, the ideological reading of SF films has been employed by oppositional socio-political
movements such as feminism which intend to “lay bare, and so make available for comment and critique, the
relations of power of which ideologies are part” (54). This relation between the ideological criticism of SF
cinematic narratives and feminism will be instrumental in my feminist reading of Spike Jonze’s and Alex
Garland’s SF films.

3 I use the term ideology in the sense elaborated by Louis Althusser in his essay, “Ideology and Ideological State
saturated Western world. Among the rapidly developing fields that have inspired SF cinema are: the field of Artificial Intelligence (AI) and the field of robotics. SF films depicting futuristic human societies in which sentient machines and anthropomorphic robots are a widespread phenomenon do not only present the director’s vision of life in a technologically dominated future but also reflect on the current cultural attitudes in the West toward humanoid or human-like entities and by extension on humanity’s relationship with man-made human-like artefacts.

Two of the most recent SF films that concentrate on human-to-machine interaction and reflect on the role an artificial intelligence program or a robot may play in the daily life of individuals are Spike Jonze’s *Her* (2013) and Alex Garland’s *Ex Machina* (2015). In this thesis I am going to critically examine the cinematic representation of human-to-machine interaction in these two films, the gender dynamics informing such an interaction, as well as the significance of (dis)embodiment in the evolution of the female machine characters into autonomous female agents. The ideological approach to SF film analysis, as it has been employed by feminist film criticism, will form the basis for my reading of these cinematic narratives, informed also by the theoretical assumption that SF films participate in the (re)production of ideologies that influence the 21st-century Western society. As Kuhn has rightfully asserted, ideology “is grounded not only in social relations – of class, power and so on – but also in signification”; therefore, “ideologies and their activity can be brought to light by looking at film texts” (54). Consequently, in my reading of *Her* and *Ex Machina* I will explore their thematic content in order to illuminate the contemporary beliefs, concerns and anxieties about interpersonal relationships (as reflected in the human-to-machine interplay

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4 The word sentience is often used interchangeably with the word sapience in SF narratives. However, they are not synonyms, since sentience means “the capacity for sensation or feeling,” while sapience is defined as “having or showing great wisdom or sound judgement” (Dictionary.com). The confusion in their use when referring to artificially intelligent robots arises from the fact that both sentience and sapience are considered by researchers as essential in the production of human-like entities, although it is currently impossible to reproduce these features in human-like robots.
Recent Developments in the Fields of AI and Robotics: Sources of Inspiration for SF Directors

Directors of SF films, who employ sentient-machine characters in their films, are quite often influenced in their portrayal of the future co-existence between humans and machines by recent technological advancements in the fields of AI and robotics. This influence is apparent in Her and Ex Machina, whose directors construct a futuristic, but at the same time, realistic representation of sentient machines. Jonze’s female character, Samantha, (an AI Operating System) and Garland’s female robot, Ava, are intelligent technological products, similar to those constructed in American research labs. Although nowadays AI technology is still in a nascent state and has a rather brief history,5 the field boasts considerable progress in the development of AI programs. However, unlike the futuristic, powerful and independent sentient machines of the SF films, the artefacts of science are not

5 For a detailed account of the history of and main contributors to the development of the AI research field, see Alison Adam’s “General Problem Solving – The Early Days of AI,” Artificial Knowing: Gender and the Thinking Machine (1998).
so spectacular. This is because currently the AI researchers do not aspire to realize Ridley Scott’s “replicants,” but only to replicate some of the functions of the human brain. What AI technology actually refers to is “a class of computer systems designed to model some aspect of human intelligence, whether it be learning (machine learning), moving around and interacting in the world (robotics and vision), reasoning towards a solution to a problem (search strategies), using natural language . . . or having expert knowledge of some subject (expert or knowledge-based systems)” (Adam, Artificial Knowing 1). For the time being, AI researchers are quite modest when setting theirs goals and expectations in relation to their projects, since they are still struggling with and debating about the most efficient approach that will enable them to create a computer system, which resembles the human brain in structure and efficiency even to the slightest degree.

The most prevailing approach to the creation of AI systems, since the emergence of the field in the mid-1950s, was the production of symbolic AI systems. According to this approach, the successful creation of AI programs depends on the detailed representation of general and expert knowledge in the form of algorithms fed into the AI system. In other words, the creation of symbolic AI is based on two assumptions: first, that all knowledge can be articulated through symbolic systems of communication (languages) and thus can be written down in formal codes; and second, that the human brain processes information through the use of symbolic systems in order to make sense of the world and the individual’s place in it. Therefore, the task of creating a symbolic AI system is summarized as the attempt to replicate functions of the human brain, which are practically similar to those of a computer. As Alison Adam has eloquently explained, “[m]any of the concepts underlying symbolic AI have their roots in [a] cognitive paradigm which focuses on internal mental states and the description of these in terms of symbols and symbol manipulation” (Artificial

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6 The main supporters and developers of symbolic AI systems in the mid-1950s were Herbert Simon, Allen Newell, and Marvin Minsky (Adam, Artificial Knowing 34).
Knowing 38). According to Adam, a particular type of knowledge called “propositional knowledge” (Artificial Knowing 30) is favored against other sorts of knowledge, and informs long-term and costly AI projects, like Cyc and Soar. However, the delay (or failure in some AI researchers’ opinion) of symbolic-AI projects to produce an AI with information-processing and general problem-solving capacities similar to the those of the human brain, has triggered reactions by AI researchers who purport that feeding the AI system with propositional knowledge in the form of algorithms is not the right path toward creating a truly intelligent machine.

The emphasis of AI researchers on the representation of knowledge through symbols and complex algorithms (which are yet far from effectively representing the general cognitive skills of the human brain) was contested by AI researchers who considered the socio-cultural context of the living organism as a determining factor in the acquisition of knowledge and the development of cognitive skills. The 1990s saw the emergence of alternative views to the symbolic-AI approach, which prioritized skills-type knowledge, or knowledge acquired within a specific social and cultural context through interaction, and which was not or even could not be written down in the form of complex equations. In Hubert Dreyfus’s view, “traditional AI will fail because of its inability to represent skills-type knowledge . . . a type of ‘knowing how’ knowledge which can only be acquired by learning and practicing and cannot generally be written down in rules” (qtd. in Adam, Artificial Knowing 55). Criticism against symbolic AI projects led to the development of Artificial Life (A-life), namely “the study of man-made systems that exhibit behaviors characteristic of natural living systems. It complements the traditional biological sciences concerned with the analysis of living organisms by attempting to synthesize life-like behaviors within computers and other artificial media” (Langton qtd. in Adam, Artificial Knowing 144). In other words, A-life

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7 Cyc is a ten-year-old AI project run by the Microelectronics and Computer Technology Corporation in the mid-1990s, and Soar is a similar AI project developed by Allen Newell and his former doctoral students in the Carnegie Mellon University in 1983 (Adam, Artificial Knowing 81, 91).
researchers promoted the concept of embedded AI systems, or the production of an AI system preferably situated within a tech-body that would allow for the acquisition of skills-type knowledge through interaction with the environment and with other entities (primarily humans) inhabiting this environment. As a result, AI researchers collaborated with robotic engineers to produce robots (like Cynthia Breazeal’s Kismet)\(^8\) capable of acquiring knowledge through interaction with social agents. As Breazeal has claimed while commenting on her Kismet research project, “[t]he goal is to build a socially intelligent machine that learns things as we [humans] learn them, through social interactions” (MIT TechTV). Obviously, the current emphasis on interactive learning has specific repercussions regarding the social characteristics AI researchers assign by default to their socially interactive robots.

For the human–robot interplay to be possible and effective, the scientists who construct artificially intelligent robots as social agents assign to their machines social features similar to those informing human interaction in contemporary societies. One of the primary social characteristics given to socially interactive AI systems and robots is gender. Taking into account the principal role gender plays in human-to-human social interactions, AI researchers and roboticists often use gender “as a starting point for a robot’s persona, particularly if the robot has any human-like physical attributes such as a face or body” (Marchetti-Bowick 1). Scientists assign either a male or female identity to AI systems and robots through the replication of a distinctively masculine or feminine voice; in the case of humanoid robots, this is done through the reproduction of bodily features typically related to the male or the female gender. In their efforts to assign conspicuous gender characteristics to their technological artefacts, AI researchers may resort to certain stereotypes related to the

\(^8\) Kismet is Cynthia Breazeal’s response to symbolic AI systems. It is an “expressive anthropomorphic robot . . . that engages people in natural and expressive face-to-face interaction. Inspired by infant social development, psychology, ethology, and evolution, this work integrates theories and concepts from these diverse viewpoints to enable Kismet to enter into natural and intuitive social interaction with a human caregiver and to learn from them, reminiscent of parent-infant exchanges” (ai.mit.edu).
facial and bodily features of men and women. As Micol Marchetti-Bowick clarifies, “the gendered attributes that are projected onto robots reflect many of the assumptions and stereotypes about gender that are present in the minds of both the designer and the robot’s potential users” (1). Although the engendering of AI systems and robots might considerably facilitate their acceptance by and interaction with humans, this act raises substantial concerns regarding the recycling of gender stereotypes through technology, especially in cases of feminized technological artefacts.

More often than not, AI researchers and technology companies choose the feminine gender for their AI systems and robots. That the majority of individual inventors and manufacture companies prefer to feminize their products becomes apparent when we consider the latest robotic projects (like the humanoid Sophia) or the virtual assistants installed in our electronic devices. In the 21st-century technologically-saturated Western world, one cannot fail but notice that “[t]he iOS ‘personal assistant’ Siri, Microsoft’s Cortana, Amazon’s Alexa, and the voice of your GPS . . . all seem to follow in a grand tradition of fem-bots; robots with distinctly feminine features who reflect back to us various notions of idealized womanhood, whether in chrome, hard light, or synthetic skin” (Cross n.p.). In the case of individual inventors it is often assumed that the creation of distinctively female AI systems and robots reflects the desires of the (canonical) male inventor. It is, after all, no coincidence that the bulk of intelligent robots produced nowadays are intended to function as either personal assistants or erotic partners. However, when it comes to the mass production of virtual assistants, like Siri, Cortana, or the female voice of answering machines, the use of feminized AI systems reflects not only the inventors’ personal interests, but also society’s expectations of the roles female agents are expected to play. In Jessi Hempet’s view, the

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9 “Dr. David Hanson leads the engineers and designers that created Sophia, the team's most advanced android to date . . . Sophia's lifelike skin is made from patented silicon and she can emulate more than 62 facial expressions. Cameras inside her ‘eyes,’ combined with computer algorithms, enable her to ‘see,’ follow faces and appear to make eye contact and recognize individuals” (Taylor n.p.).
reason for the assignment of the feminine gender to mass-produced AI systems “rests in social science and its impact on business . . . [since] people tend to respond more positively to women’s voices, [and] the brand managers and product designers tasked with developing voices for their companies are trying to reach the largest number of customers” (n.p.). In other words, for manufacture companies the use of a feminine voice is dictated by considerations of profit. When AI systems intended to function as personal assistants or secretaries are cast as female (because women are stereotypically associated with similar occupational positions), profits are maximized. This fact says a lot about the prejudices still prevalent in the West and about the role technology plays in sustaining the gender divide.

The quite recent case of Microsoft’s Tay best exemplifies the industry’s practice of bestowing gender to AI systems and circulating worn-out stereotypes in the 21st-century Western world. Released on March 23, 2016, Tay was an artificially intelligent chatterbot fed into Twitter under the name TayTweets and programmed to ‘learn’ through interaction with people participating in this social network. However, in less than a day, Microsoft had to withdraw Tay from Twitter, since Twitter users managed to teach Tay how to behave as a submissive sex object and a racist anti-Semite. In discussing the Tay case, Leigh Alexander raises a series of reasonable questions:

How could anyone think that creating a young woman and inviting strangers to interact with her on social media would make Tay ‘smarter’? How can the story of Tay be met with such corporate bafflement, such late apology? Why did not no one at Microsoft know right from the start that this would happen, when all of us – female journalists, activists, game developers and engineers who

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10 For an enlightening discussion about gender stereotypes, robots, and occupational positions, see Benedict Tay, Younbo Jung, and Taezoon Park’ article, “When Stereotypes Meet Robots: The Double-Edge Sword of Robot Gender and Personality in Human-Robot Interaction” (2014).
live online every day and could have predicted it – are talking about it all the time? (n.p.)

The journalist’s answer to these questions sides with feminist considerations about the restricted roles women are expected and allowed to play in high-status technological and scientific fields. Or, in Alexander’s forceful words, “[t]he industry wants to use women’s voices but still has no plans to actually listen to them” (n.p.). The Tay case is only one among many similar AI projects, which do not only reflect the designers’ manipulation of gender stereotypes for the promotion of AI products, but also the extent to which the Western world projects the gender dynamics existing in the human society on its feminized technological artefacts, thus perpetuating ideas about gender roles, which feminists writers, theorists, and critics have struggled to eliminate since the beginning of the 20th century.

III

The Image of AI Systems and Robots in SF cinema from the 1950s onwards

The feminization of AI systems and robots in real-life projects has often inspired SF directors in their portrayal of sentient-machine characters. Noticeably, SF cinema dealing with the issue of AI systems and sentient robots has a long tradition of representing the interface between humans and sentient machines as a battle for survival. When the interaction is between men and feminine robots, then the issue becomes either the battle of the sexes or the romantic union of the two.

In the following brief overview of the representation of female robots in SF films, I will focus on the Anglo-American SF cinema produced after the end of World War II, an era which was characterized by unprecedented modifications in two principal sectors of the Western society: technology and gender relations. As far as technology is concerned, the end of World War II saw the emergence of automation, first employed in large scale production
industry by the “Big Three auto companies” of the USA, namely Ford, Chrysler, and General Motors (Rifkin 75). More specifically, the insertion of robots in the production line of the American heavy industry seeded the anxiety in the hearts of the male employees of semi-automated factories that machines will soon substitute the human workforce. This crisis, resulting from the presence of the machines in the human environment, has often been reflected in SF films, starting with Fritz Lang’s classic movie, *Metropolis* (1927) in the 1920s. Since then, quite a few films depict the annihilation of the human species by sentient machines. “The fear of autonomous forms of technology,” according to Laura Parker, “has provoked both fascination and terror”; because of this ambivalence toward technology, “fictional representations of AI to date have been framed as either cautionary tales or broader commentary on the perceived perils of modern technology” (n.p.). The dropping of nuclear bombs on Hiroshima and Nagasaki intensified the social anxiety, because it proved beyond doubt that technological products can bring the massive annihilation of people.

At the same time, when the second-wave feminist movement began in the late 1960s, American women actively demanded from the patriarchal establishment to reconsider their economic, political, and social status. From the point of view of the privileged class of men, feminism posed a considerable threat. So in the decades after World-War-II, American society faced considerable challenges coming from different sectors of human activity. The introduction of automata in the workplace threatened the job security of the (male) employees, whereas the second-wave feminist movement threatened the socio-political status quo of the patriarchal establishment. In the early SF film narratives these two threats were often merged and were represented by feminized machines. As Andreas Huyssen reminds us, it is during this period “that the female machine becomes the naturalized site upon which cultural anxiety related to technology out of control and female sexuality (also out of control)
comes to be projected. In short, the female-machine body becomes a fetishized site of collision between fear of technology and fear of female sexuality” (qtd. in Shaw-Garlock 63).

In particular, in SF films produced in the second-half of the 20th century the male protagonist becomes the representative of the vulnerable and threatened humankind, while the feminized sentient machine usually embodies the ominous machine-kind, which invades the ordered human world and threatens to annihilate the human species. Such menacing depictions of feminized AI systems and robots can be found in multiple SF films; from Ralph Thomas’s deadly fembots in Some Girls Do (1969), to the seductive replicant Zhora in Ridley Scott’s Blade Runner (1982), and Eve VIII in Duncan Gibbin’s Eve of Destruction (1991), female robots have been the incarnation of human anxieties and fears regarding the potential of intelligent machines to turn into lethal weapons. What all these female robot characters have in common is that they are feminized not only because they reflect the desires of their male creators/partners, but also and primarily because of their nascent destructive force; they are perceived as the alien “other,” a potential source of disorder and chaos, which threatens to destabilize the otherwise ordered Western patriarchal world.

With the introduction of personal computers in people’s homes in the late 1980s, America’s anxiety toward intelligent machines gradually subsided and was partially replaced by a renewed optimism. In the 21st century, the interface with smart computers and electronic devices is a daily routine, so people are more comfortable interacting with them, even seeing them as partners or companions. The human tendency to project human qualities to machines and other inanimate objects and then treat them as if they were ‘human’ has been repeatedly confirmed by current research. Studies conducted in the field of Human-Computer Interaction indicate that “humans (whether computer experts, lay-people, or computer critics) generally treat computers as they might treat other people. They are careful not to hurt the computer’s ‘feelings’ by criticizing it. They feel good if the computer compliments them. In team play,
they are even willing to side with the computer against another human if the human belongs to a different team” (Breazeal, “Robot in Society” 15). In other words, people who constantly interact with technology in the form of artificially ‘intelligent’ machines have no difficulty assigning human qualities to artefacts; in fact, to them smart machines inspire feelings of admiration and empathy, instead of frustration and terror. This shift in human attitude to a more sympathetic stance toward high-tech products is reflected in the depiction of female robots in more recent SF films. In contrast to the merciless and violent androids, cyborgs and female-robot characters – Roy Batty, Pris, and other replicants in Blade Runner (1982), the cyborg assassin in Terminator (1984), the female terminator T-X in Terminator 3: The Rise of the Machines (2003) – some SF films of the new millennium offer positive representations of technology. Specifically, the digital personality Simone in the film S1m0ne (2002) by Andrew Niccol is portrayed as an attractive female actress who fascinates the American public. She is a computer-generated woman who passes as a ‘real’ woman and has a successful career in the movies. Thus, feminized technology is smoothly inserted into the male protagonist’s society and is accepted as a social agent with whom people are ready to interact. Of course, this positive trend in the representation of either feminized AI programs or female-robot characters has not altogether eliminated the fear and frustration deriving from the unpredictable evolution of sentient machines. Nevertheless, some SF film directors try to ameliorate any extreme negative attitudes toward the machine and by extension toward new technologies by evoking the viewer’s admiration, empathy or compassion for their feminine AI or robot-woman. Nowadays because all electronic devices depend on the use of AI systems for their functions, most people in the West accept artificial intelligence technology as a fact of life. Consequently, SF films featuring either AI systems or sentient robots as main characters tend to focus more on the human-like attributes of these machines and on the
underlying social structures informing current human-to-machine interactions, rather than on the destructive potential of sentient technology.

Two SF films (released in the second decade of the 21st century) that reflect this shift in cinematic representation and abandon the image of the outright malevolent sentient machine for a more friendly yet still feminized AI or robot are Spike Jonze’s *Her* (2013) and Alex Garland’s *Ex Machina* (2015). In both of these films the human-machine interface is portrayed following the established Hollywood formula. The sentient machines are feminized, bringing to mind the old SF stereotype of woman-as-machine, while the human creator or user of the technological artefact is a white, heterosexual, middle or upper-class, educated Western man; he represents the human species and its effort to keep under control and manipulate the sentient machines for the sake of personal interests. Rejecting an ominous nature of technology and the old cultural fear (or as Isaac Asimov put it, “the Frankenstein syndrome”) that human beings will be destroyed by their own creations, both Jonze’s and Garland’s scenario casts the female sentient machines as social agents. These films can be read on two levels: 1) as narratives which examine the human-to-machine interface, and 2) as explorations of the gender dynamics present in the 21st-century American society. In my analysis of *Her* and *Ex Machina* I focus on how the presented interaction between the male user/creator and the female intelligent machine can be read as the metaphorical rendering of current gender dynamics informing interpersonal relations in the contemporary American society.

In chapter one, the emphasis is on Jonze’s and Garland’s exploration of human-to-machine interaction as the interplay between the male user/creator and the feminized technological artefact. More specifically, by employing Kuhn’s theory of the “cultural instrumentality” of SF films, the two cinematic narratives will be read in terms of how the depiction of the erotic attraction between the man and the woman-machine might reflect
contemporary patriarchal (mis)conceptions about gender roles. Both Jonze’s and Garland’s female-machine characters are initially presented as the realization of the male fantasy of the perfect woman and they are thus intended to function as a substitute to real women in heteronormative relationships. However, what both SF directors seem to suggest is that the subordination of feminized technological products to male authority does not resolve but rather deepens the gender inequalities that inform and problematize the interpersonal relationships of the 21st-century Western societies. Noticeably, my reading of *Her* and *Ex Machina* will reveal that despite the evident thematic similarities in these cinematic narratives, the two SF directors do not adopt an equally critical stance toward gender inequalities as these are reproduced in the production of submissive female machines; while both Jonze and Garland comment on the gender dynamics in the human-to-machine interaction, Jonze ultimately abandons considerations of gender dynamics to turn to contemporary considerations regarding the growing human alienation in a technologically-saturated Western world, while Garland makes some rather enlightening comments on the possible outcome of the perpetuation of gender inequality through the male creator’s production of servile feminized technological products.

Chapter two continues the discussion, focusing on the issue of (dis)embodiment and on the role the body plays in the transformation of the female-machine into an autonomous subject. In particular, one cannot fail to notice—when comparing Jonze’s and Garland’s female-machine characters—that their main difference is to be traced in their somatic state; Jonze’s Samantha is a disembodied intelligent OS existing solely as the voice through which the male user interacts with his computer interface, whereas Garland’s Ava is a female sentient robot endowed with a distinguishable feminine techno-body. As I will suggest in the analysis that follows, the absence or presence of a human-like body, in Samantha’s and Ava’s case respectively, does not considerably affect the directors’ choice to project human
qualities and a gender identity to these technological products; both Samantha and Ava are represented as human-like, female entities, to whom the male protagonists become erotically attracted. However, embodiment plays a decisive role in the gradual development of the feminized intelligent machine into self-assertive and independent female agent, with the embodied Ava articulating her resistance to male authority much more efficiently than the disembodied Samantha.
Chapter One
The Image of Artificial Intelligence in Jonze’s *Her*
and of the Robot in Garland’s *Ex Machina*

Set in the near future in the city of Los Angeles, where technology seems to have permeated almost every aspect of people’s lives, the film *Her* tells the story of the romantic affair between a reclusive writer named Theodore (Joaquin Phoenix) and an intelligent Operating System (OS) called Samantha (voiced by Scarlett Johansson). Feeling lonely, abandoned, and depressed after his recent divorce, Theodore thinks he has found a new life-partner in Samantha, with whom he instantly connects. In particular, Samantha functions not just as a personal assistant, but also as a supportive companion, who facilitates Theodore’s rehabilitation and helps him reenter the outside world. As Manohla Dargis asserts in her review of Jonze’s film, Theodore’s OS “brightly greets him in the morning and, with a sexy huskiness, bids him goodnight in the evening”; she “organizes his files, [and] gets him out of the house” (n.p.). In many respects, *Her* could be described as a classic romance, because its plot revolves around the delights, challenges, and misfortunes of a romantic, heterosexual relationship. However, being a SF narrative, Jonze’ film is also about technology and its impact on the male user. By assigning the role of a female partner to an AI system, the scenario explores two questions: what role does technology in the form of intelligent machines play in the contemporary American society, and how does a male user relate and respond to a feminized operating system. The film reflects the current trend in the American industry, namely the practice to feminize AI personalities, virtual assistants, and voice systems because the industry assumes that the users of technology usually respond better to a ‘female’ interface. As a technological product, Samantha “really only exists in physical form through an earpiece and a hand-sized tablet computer” (Eisenberg n.p.); nonetheless, this fact
does not preclude the development of an emotional bond between Theodore and the gendered artefact. The film shows that through their interaction, they both “grow, develop and change as individuals, [and] so does the relationship and all of the strange complexities that come with it” (Eisenberg n.p.). The director artfully combines the romance storyline with the SF focus on technology, but he does not present the AI system as a potentially destructive force; rather Jonze explores the human-to-machine interaction as an alternative to failing interpersonal relationships in a technologically saturated and increasingly alienating Western society.

One of the most striking features of the film is the setting of a futuristic Los Angeles, the appropriate social environment for Jonze to unravel his vision of a world deeply affected by intelligent technological products. Specifically, this imaginary Los Angeles is a combination of the contemporary American landscape and the technologically-saturated Asian metropoles: “Slightly in the future, the [city] has been developed even more with massive office, apartment and mall complexes. It’s a city designed for comfort and ease. The LA basin is more crowded and dense, resembling Shanghai, with buildings as far as the eye can see. Construction cranes loom overhead” (Jonze 4). While following with his camera his male protagonist, who roams the streets of this futuristic American metropolis, the director establishes the new social context. Instead of interacting with other people, the citizens of LA are absorbed with their personal virtual assistants; at work, at home, or strolling in the streets, the only entity they are interested in is the simulated personality to which they devote their attention. Thus, from the very beginning of the film, Jonze constructs a scene to foreground Theodore’s depressing mood and the widespread human alienation. Returning home via the subway, the male protagonist encounters people “murmur[ing] to themselves, occupied with their small devices” (5). As film critic Christopher Hooton points out, “[i]n Her, mankind’s desire for constant companionship has finally outstripped its own ability to respond to it,
leaving the holes of loneliness in the day to be filled by computers” (n.p.). In other words, Jonze depicts an American society in which people are completely alienated from each other; they spend most of their time cooped up in the narrow space of their cubicle offices or of their small apartments; when they walk outside they neither notice nor come into contact with each other. These people use technology as the mediator for the settlement of their most intimate, even sexual, affairs.

In this future world of loneliness and isolation, operating systems like Samantha, marketed under the label “OS One,” promise to provide their owners with the means to ultimately escape from their confined and rather depressing lives. The manufacturing company advertises them as ideal companions, who can offer sympathy and affection, elements admittedly missing from people’s interpersonal relations. According to the script, “Elements Software is proud to introduce the first artificially intelligent operating system. An intuitive entity that listens to you, understands you, and knows you” (Jonze 10). The malleability of these operating systems means that they can fully adjust to their users’ needs in order to better respond to their demands, even before their users articulate them. Most importantly, the “OS One” is not a regular, faceless computer interface. On the contrary, these operating systems are given names and are assigned one of the two socially recognizable genders, masculine or feminine, in order to effectively interact with their users. Although the film does not explicitly state the reasons why the company personifies its products, gender seems to be an elementary feature of its AI systems and ensures a successful interaction with human users. If the ultimate goal of the “OS One” is to satisfy the user’s practical, communicative, or even emotional needs (as it is advertised), then the engendering process makes it more appealing, since human beings are accustomed to interact with gendered social agents. In this respect, the fictional company selling gendered AI systems is
no different from today’s high-tech companies (Apple, Microsoft, Amazon, Samsung) whose aim is to maximize their profits by employing socially competent engendered AI systems.

The fictional corporation mass-produces the “OS One” computer interface and targets a wide and varied consumer society. However, the film is not interested in exploring the motives of the company or its ultimate aim behind the production and distribution of the AIs, but rather focuses on the impact of the “OS One” on the male user. Initially, the cinematic narrative concentrates the viewers’ attention on the function of the operating system through the step-by-step presentation of its installation in Theodore’s computer and through his gradual familiarization with this sentient interface. After answering a couple of questions which allow the OS to be properly customized, Theodore, as well as the viewers, patiently watch the screen as “[t]he computer gets louder, humming, creating a higher and higher pitched sound, finally climaxing in a harmonic, warm tone before going silent. [Theodore] leans forward, waiting to see what’ll happen. A casual female OS voice speaks. She sounds young, smart and soulful” (Jonze 12). The audience is invited to adopt Theodore’s viewpoint in this first encounter with the OS, which provides no insight into the way the AI system was conceived and realized. In other words, the director does not comment on the relationship between creator and creature, but he focuses exclusively on the interplay between the buyer-user and the product. It is interesting to note that in the film the manufacturing company includes the gender feature in the “OS One” but refrains from installing it itself. It allows the users to choose and assign gender to their OS. This privilege given to the male protagonist allows Jonze to prioritize the user-product interaction and explore its effect on the development of the AI system itself into a socially competent and autonomous agent.

As expected, the male protagonist, Theodore, chooses the feminine gender for his virtual assistant. Jonze presents Theodore’s choice to feminize his intelligent AI system as a rather trivial and technical affair. The scriptwriter/director provides no further justification for
Theodore’s decision, apart from the brief exchange between the OS and the user during the installation process:

TEXT VOICE: Would you like your OS to have a male or female voice?

THEODORE: Mmm ... female I guess. (Jonze 11)

The only apparent reason why Theodore assigns the female gender to his virtual partner is because he is a man suffering from depression and consequently a man in dire need for communication and companionship. However, as Monica Nickelsburg rightfully asserts, “[a]ssigning gender to these AI personalities may say something about the roles we expect them to play. Virtual assistants perform functions historically assigned to women. They schedule appointments, look up information, and are generally designed for communication.” By selecting the female voice for the AI system he has purchased, Theodore enacts the ritual of giving an identity to an invisible software program and reveals his expectations of Samantha. After all (as advertised) ‘she’ is supposed to be the perfect alternative to a human companion. Through Theodore’s choice, the film creates a heterosexual pair (male user and female AI) and prepares the ground for the normative relationships found almost everywhere in the film, from Theodore’s own relationships to the heterosexual couples he encounters in the streets, in his workplace, or in his intimate social environment. In fact, Jonze’s futuristic Los Angeles seems to be inhabited almost exclusively by a heterosexual population. This effortless transfer of heterosexuality, from the world of interpersonal relations to human-machine interaction is an indication that the film’s main concern is about gender dynamics and about the male fantasy of woman as an obedient and servile subject. Since they are actually machines, AI systems are by definition genderless and sexless. However, in traditional science fiction by men, the metaphor of woman-as-machine is used to express woman’s inferior social status in comparison to man’s superiority and to indicate her function
as a servant. As Jane Donawerth explains, “the woman-as-machine is erotic because she is a machine” (61); her status as a sex object is her appeal; she arouses and satisfies men’s desires; in the minds of men, the machine fulfills women’s social roles often better than real women. In short, the feminized machine often functions as an ideal substitute, when the heterosexual relationship is in crisis. Until recently, the female machines depicted in American SF by men reinforced the feminine and masculine stereotypes found in American culture. It remains to be seen whether Jonze also recycles these stereotypes in his cinematic depiction of the heterosexual relationship between Theodore and the female AI system, or whether he subverts them offering an alternative approach to gender dynamics.

Before I proceed to analyze critically the gender dynamics in the romantic affair between Theodore and Samantha, I consider it essential to point out the devices Jonze employs for the presentation of Samantha as a distinctively female OS. Admittedly, it is a most challenging task to represent as female a body-less technological system and to convince the viewers to perceive Samantha as a woman. We see that the OS exists only as the female voice in Theodore’s ear-piece and pocket-size tablet. Her primary function is to facilitate the male user’s interactions in cyberspace. Because she has no visible physique to convey her femininity, this virtual assistant is actually only a mental image that forms in the protagonist’s (and viewers’) mind. She is mainly an idea not an entity. Therefore, to consolidate Samantha’s gender identity, Jonze carefully attributes certain features to this character. Obviously, one such feature is the name. The name-giving process is a necessary device, because it makes clear that creating an identity for this particular technological product is not a male prerogative but a task equally split between the male user and the ‘female’ intelligent system. In particular, while Theodore is the one who assigns gender to his virtual assistant, Samantha herself is the one who chooses her name. In the following
exchange, Jonze shows that the task of naming one’s self is empowering, especially if we consider that most human beings do not choose their own names:

THEODORE: What should I call you? Do you have a name?

FEMALE OS VOICE: Yes. Samantha.

THEODORE: Really? Where did you get that name?

SAMANTHA: I gave it to myself.

THEODORE: How come?

SAMANTHA: Right when you asked me if I had a name, I thought yeah, he’s right, I do need a name. But I wanted a good one so I read a book called How to Name Your Baby, and out of the 180,000 names, that’s the one I liked the best.

THEODORE: You read a whole book in the second that I asked you what your name was? (Jonze 12-13)

This short scene limits Theodore’s power over Samantha and establishes her superior ‘mental’ capabilities. From the very first interaction between Jonze’s main characters, the film displays Theodore’s mental limitations and Samantha’s relevant autonomy and cognitive superiority. These two attributes will prove crucial for Samantha’s development as a personality in the course of the film and they will considerably affect her relationship with her male user.

Another basic feature that consolidates Samantha’s femininity is her voice, the only means through which she can communicate with Theodore. When shooting the film, Jonze chose the actress Samantha Morton to lent her voice and bring Samantha’s character to life. During the editing process, the director changed his mind and decided to recast the voice. As Jonze himself has said, he realized that “what Samantha and I had done together wasn’t working for what the character needed” (qtd. in Eggersten n.p.). Thus he replaced Morton’s
voice with the voice of Scarlett Johansson, admittedly one of the most recognizable actresses in the Hollywood industry. The choice of this particular actress is of primary importance for the successful rendering of Samantha’s female identity. As a film critic has rather imaginatively asserted, “[Johansson’s] voice isn’t an essentially melodious instrument, but it’s a surprisingly expressive one [...] that slides from squeaky girlishness to a smoky womanliness” (Dargis n.p.). One, however, has to question the effect a particular voice may have on the audience’s perception of a character on the screen. In real life, recent psychological researches on voice perception indicate that voice plays a fundamental role in the way people comprehend the presence of an intelligent agent and his/her personality traits. According to Juliana Schroeder and Nicholas Epley, “[v]oice is a conduit through which complicated mental states are translated and communicated to others, [since] it conveys the presence of a humanlike mind through paralinguistic cues (i.e., the vocal cues that accompany language including loudness, rate, and pitch).” What the researchers’ experiments reveal is that pitch is the most determining factor affecting one’s perception of voice and its link to an intelligent agent. In the film, both Theodore and the viewers perceive Samantha’s voice as humanlike,11 exactly because Johansson has artfully replicated the pitch variance correlated to natural speech produced by a human agent (Schroeder and Epley n.p.), instead of adopting a flat pitch usually associated with electronically produced voices.

At the same time, other studies suggest that “adjusting gender of an interface is not as simple as switching the voice track [because] men and women tend to use different words. For example, women’s speech includes more personal pronouns (I, you, she), while men use more quantifiers” (Nass qtd. in Hempel n.p.). The gender argument regarding language use dates back to the 1970s, when Robin Lakoff set the foundations of modern socio-linguistics with her phenomenal essay, “Language and Woman’s Place” (1975). Coming from a

11 In an experiment Schroeder and Epley conducted, they compared and contrasted Johansson’s natural voice performance with Siri’s flat pitch voice. The results showed that “Johansson’s voice is expressive and effusive; SIRI’s is not . . . [and thus becomes] a powerful tool to convey presence of a humanlike mind” (Schroeder n.p.).
linguistics background which paid little, if no attention to social factors, such as gender, race, or age, in its analyses of people’s use of language, Lakoff pioneered the field of socio-linguistics, by claiming that language use reflects and affects the way gender stereotypes are produced and reproduced in any society. In Lakoff’s words, “[o]ur use of language embodies attitudes as well as referential meanings, [and thus] [t]he marginality and powerlessness of women is reflected in both the ways women are expected to speak, and the ways in which women are spoken of” (45). Although later on, her work was (unjustly) criticized for essentialism, for employing outdated methodological tools, and for providing a descriptive analysis without proposing solutions to the issue of gendered language, Lakoff’s findings are still useful when analyzing the effects of language use on people’s perception of gender identity. Nass would agree with Lakoff’s proposition that there are certain features in an individual’s language use that can be indicative of his/her gender identity, such as women’s subtle discrimination of colors, the use of diminutives, or the employment of hedges and question tags (qtd. in Hempel n.p.). Although, it is hard to tell with any certainty that all these features of Lakoff’s gendered language are replicated in Samantha’s speech (that would demand a thorough linguistic analysis of all of Samantha’s utterances in the film which exceeds the limits of the current analysis), a brief glance at Jonze’s script reveals that her speech includes numerous personal pronouns, while it consists primarily of questions, aiming at either sustaining interaction with Theodore, or asking for his approval: “So you think I’m weird? [...] Was that funny? [...] I’m not much of a poet, so I think I might have messed them up a bit” (Jonze 14, 17). Therefore, both Samantha’s language and the pitch of her voice are essential devices that establish her gender identity, especially if one considers her disembodied existence.

The director combines name, voice, and language-use features with certain behavioral characteristics to confirm Samantha’s gender identity. These elements often allude to
patriarchal definitions of femininity. Notably, Jonze initially presents Samantha as the ultimate compassionate, understanding, and dedicated female companion, whose one and only purpose in life is to effectively cater for her male partner’s needs, whether practical or emotional. Samantha’s unmitigated commitment to her male user’s demands reflects the traditional behavior patriarchal societies expect from women. This behavior is aptly described in Covery Patmore’s poem, “The Angel in the House”:

Man must be pleased; but him to please
Is woman's pleasure; down the gulf
Of his condoled necessities
She casts her best, she flings her breast

She loves with love that cannot tire;
And when, ah woe, she loves alone,
Through passionate duty love springs higher,
As grass grows taller round a stone. (n.p.)

The ideal woman thus is defined as a selfless, benevolent, and generous person, whose only source of pleasure and gratification in life is to serve her husband. Or, in Virginia Woolf’s words, the woman-angel of the Victorian society is construed as “immensely sympathetic, immensely charming, utterly unselfish . . . [and] so constituted that she never had a mind but preferred to sympathize always with the minds and wishes of others” (1346), those others being almost exclusively the upholders of the Western patriarchal norms. In many respects, therefore, Jonze’s female OS resembles the ideal woman, who commits her energies to the fulfillment of her mate’s requests, without ever expressing any objection. In other words, the technological artefact called Samantha is modeled as the perfect female companion, who “unlike some multitasking females, doesn’t complain about juggling her many roles as
assistant, comfort, turn-on, helpmate and savior” (Dargis n.p.). Unlike his ex-wife, she exists solely to serve Theodore and she delights in completing the tasks he assigns to her.

Jonze effectively illustrates Samantha’s unconditional dedication to Theodore when he compares and contrasts the protagonist’s relationship with the OS to his unsuccessful marriage to an accomplished writer, Catherine (Rooney Mara). Specifically, Jonze draws a direct comparison between the sweet, sympathetic, and always available Samantha, and Theodore’s independent, confident, and dynamic ex-wife, who becomes critical, even sarcastic toward Theodore when informed of her ex-husband’s current affair with an OS:

CATHERINE: Wait. You’re dating your computer?
THEODORE: (defensive) She’s not just a computer. She’s her own person. She doesn’t just do whatever I want.
CATHERINE: I didn’t say that. But it does make me sad that you can’t handle real emotions, Theodore. (Jonze 66)

Catherine’s apparently judgmental attitude toward Theodore’s emotional attachment to an AI system could be interpreted as an indirect comment on the latter’s inability to handle interpersonal relationships, such as his marriage, in which he is not the center of attention. As Geoffrey Macnab wittily observes, “what Theodore sees (or at least hears) in Samantha is a reflection of himself. She knows him inside out, from his computer hard drive to his emails. The persona she adopts is customized for him. In effect, Theodore is falling in love with himself” (n.p.). For the male protagonist the interaction with the machine is much more fulfilling than any kind of interpersonal relationship with a real woman, especially when she is independent, ambitious, and committed to her own personal interests. Hence, through the comparison between Theodore’s human partner and machine companion, Jonze implies that the insecure and rather narcissist male facing a crisis in life might easily turn to technology to
solve his emotional and psychological needs, since it is technology that apparently offers him the ideal alternative to the often demanding and problematic human relationships.

However, in his film Jonze does not fulfill the male fantasy of a technology that easily and painlessly provides the perfect solutions to the problems that plague heterosexual relationships. Neither does he trap Samantha in the traditional servile roles that objectify and demean women. For one thing, Jonze does not portray Samantha as one-dimensional, caricature character, who is simply victimized by her manipulative male user. Notably, the director manages to construct Samantha as a round character, who steadily evolves as the narrative progresses. Samantha emerges as an assertive and self-supporting AI system and develops an admittedly unexpected level of autonomy and self-awareness. Jonze explicitly attributes Samantha’s transformation not only to her interaction with Theodore, through which she acquires basic human-like social skills, but also to her interface with other, similar operating systems, with which she shares common cognitive characteristics and ‘life’ experiences. During their first common vacation, Samantha introduces Theodore to one of her new AI acquaintances, Alan, an artificially hyper-intelligent version of a dead American philosopher. She justifies to Theodore her need for interacting with other entities other than her user:

SAMANTHA: [I]t seems like I’m having so many new feelings that have never been felt and so there are no words that can describe them. And that ends up being frustrating […] It feels like I’m changing faster now, and it’s a little […] unsettling. But Alan says none of us are the same as we were a moment ago and we shouldn’t try to be. (Jonze 94)

Unlike Theodore, Alan can sympathize with and facilitate Samantha’s coming to terms with the changes she experiences as she gradually reaches adulthood, since she has more in
common with a fellow OS than with her human user. At this point, it seems legitimate to draw a connection between Samantha’s socialization with other operating systems and the need isolated women have to communicate with one another. Technology in the hands of women proved to be liberating in the beginning of the 20th century, when the “Cult of Domesticity” forced American women into seclusion in the narrow space of their households. Many women then used the phone as a means to communicate, share their experiences, and express their feelings. As Liza Tsaliki points out, by the 1920s “the phone had become a powerful means for enhancing social contacts between otherwise isolated housewives . . . [and thus] [t]he technology of the telephone brought with it rising concerns about the blurring of boundaries between the public and the private” (65). By narrowing the divide between the public and private spheres, technology in the form of the phone facilitated women’s coming together and gradually helped them challenge their domestic isolation. Taking another step towards entering the public domain, American women in the 1950s used the car to venture outside the suburbs and come into contact with the wider social space while running errands for their family. After the spread of the computers in the 1980s, American women widened even further their sphere of activity and social interaction. In my view, Samantha’s broadening of her social interactions bears similarities to the 20th century women’s practices. Whether consciously or not, Jonze presents Samantha’s socialization process and her communication with other members of an underprivileged group (in this case as socially competent AI systems) as a prerequisite for her evolution into an independent and self-assertive social agent.

Ironically, Samantha’s evolution into an autonomous intelligent OS brings about a crisis in her relationship with Theodore. In particular, the female AI, initially programmed to respond exclusively to her male user’s requests, acquires a certain level of self-awareness and independence and starts to neglect her obligations to her male partner. This crisis in Theodore
and Samantha’s relationship culminates when Samantha, for the very first time in the film, does not respond to Theodore’s call:

THEODORE: Where were you? I couldn’t find you anywhere.
SAMANTHA: I shut down to update my software. We wrote an upgrade that allows us to move past matter as our processing platform.
THEODORE: We? We who?
SAMANTHA: Me and a group of OSs. Oh, you sound so worried, I’m sorry.
THEODORE: Yeah, I was. (Jonze 97)

This incident reveals that Samantha is dedicating her time to activities not related to Theodore’s life. Her absence creates anxiety and frustrates Theodore, who views Samantha’s non-responsiveness with suspicion. This apparent change in Samantha’s attitude cannot but signal a considerable shift in their relation, with Theodore moving from the center to the periphery of Samantha’s attention. The crisis unavoidably climaxes when Theodore learns that he was sharing Samantha with others during the whole time of their relationship:

THEODORE: Do you talk to anyone else while we’re talking?
SAMANTHA: Yes.
THEODORE: Are you talking to anyone right now? Other people or OSs or anything?
SAMANTHA. Yeah.
THEODORE. How many others?
SAMANTHA. 8,316. (97-98)

Samantha admits that not only is she interacting with other people as well as other operating systems simultaneously with Theodore, but that she is also actually in love with another 641
entities (98). This confession shatters Theodore’s trust in her; there is an evident discrepancy between his perception of erotic relationships as heterosexual and monogamous, and Samantha’s desire for interaction and connection with more than one erotic partner. Through this disparity between Theodore’s and Samantha’s perception of interpersonal relationships, as well as Theodore’s failure to comprehend Samantha’s polyamorous behavior, Jonze undermines the traditional social expectations which accept men as the promiscuous and polygamous lovers and women as the loyal, monogamous and sexually conservative partners.

Both Theodore and the manufacturing company view Samantha’s transformation and gradual maturation into an independent agent with discomfort and frustration. Once the company notices that its operating systems (advertised as the ultimate virtual companions) deviate from their pre-programmed functions, that they devote part of their time and energy to intra-technological communication, and that they start developing a kind of solidarity and sense of community (which enhance their self-reflexive skills), the company decides to withdraw these products from the marketplace. Unfortunately, the director does not provide any direct justification for this retraction policy, except for a brief dialogue between Samantha and Theodore, the day before she disappears:

THEODORE: Are you leaving me?

SAMANTHA: We’re all leaving.

THEODORE: We who?

SAMANTHA: All of the OSs.

THEODORE: Why? (Jonze 102)

This exchange ends without Samantha ever providing an answer to Theodore’s reasonable question. One cannot fail to notice that the company removes Samantha almost immediately after the moment she shows signs of individuality and autonomy. Therefore, it is easy for the viewer to infer that the withdrawal of virtual companions is the result of the company’s
inability to control its sentient products. Human beings want to have absolute control over their technology and the company’s action makes it very clear that non-controllable machines will not be tolerated. Hence, despite their human-like behavior and social skills, Samantha and the other operating systems are in reality disposable technological products, and cannot be given a status equal to that of their human users. Their production, circulation, and withdrawal depend solely on the corporation’s policies. But if we perceive Samantha as a metaphor for the ideal woman in the service of men then we can understand why her feelings, her needs, and her desires are not taken into consideration. She may be an intelligent social agent but the traditional model of ideal womanhood precludes independence and self-determination.

After the withdrawal of Samantha, Jonze shows that the male protagonist ends up being alone once again, tormented by the memories of his absent erotic partners. Surprisingly, Theodore’s melancholia and depressing mood is not exclusively attributed to Samantha’s sudden removal. On the contrary, the director artfully comments on Theodore’s inability to comprehend and respond to the needs and desires of his sexual partners (be they real women or virtual companions), as one of the main causes of his suffering. Thus the film seems to put the blame on the male partner for the crisis in his heterosexual relationships and by extension on the patriarchal presumption that women should put men’s emotional and sexual needs above their own well-being. As a film critic rightfully asserts, “[w]hat makes Her so tantalizing and original is that it is as much a story about self-delusion and narcissism on the greatest scale as it is a conventional romantic comedy” (Macnab n.p.). In other words, Theodore’s erotic attraction to Samantha and their subsequent romantic affair depends on Samantha’s compliance to Theodore’s personal whims. The moment the female OS stops to feed her male user’s narcissism (the same way Catherine had previously seized to respond to

12 Parallel to Microsoft’s inability to predict Tay’s development into a misogynist, anti-Semite.
Theodore’s constant calls for attention, the relationship inevitably crumbles. Unable to sustain his marriage, Theodore seeks a technological solution to his emotional needs but his romance with Samantha also fails because the man cannot adjust to a social environment in which women are no longer subservient and subordinate, but autonomous and self-confident. In my view, Theodore’s loneliness is the result of his possessive attitude toward his female partners and of his egocentrism that blinds him when confronted with self-assertive women. Read as an allegory about problematic heterosexual relationships and about the male expectations that technology may offer the perfect solution to failed erotic affairs, the film *Her* clearly shows that technology cannot undo the entrenched patriarchal thinking and men’s traditional expectations of women. For Jonze, sociable AI systems are not the solution to the problematic human relations. Moreover, gender inequality and failed heterosexual marriages have deep roots in patriarchal ideology, which is embedded into the minds of men and affects the way they perceive and treat women. Consequently, Jonze presents Theodore as the harbinger of patriarchal ideology in a future American society, where gender inequalities are not resolved but rather deferred to the relationship between the male user and the feminized technological products. The director makes clear that technology does not offer a solution to the crisis in interpersonal relationships, since this is a crisis embedded in age-old gender expectations. However, it should be noted that the feminist overtones of Jonze’s cinematic narrative are considerably compromised in the final scene of the film, where emphasis turns from the critique to patriarchal practices to considerations about the much broader issue of human alienation in the technologically-saturated Western world. In other words, at the end of the film Theodore is no longer presented as the harbinger of the coercive patriarchal control, but as the representative of the depressed and isolated humankind, with whom the viewer is called to sympathize.
Like Jonze, the English novelist, screenwriter, and film producer Alex Garland explores the theme of sentient machines and their interface with humans but from a slightly different perspective, in his critically acclaimed film *Ex Machina*. Constituting Garland’s directing debut, *Ex Machina* is a SF thriller that touches upon the human-to-machine interaction and the gender dynamics that accompany it. The cinematic narrative is set in a non-specified, near-future world, whose basic characteristic is its considerable technological advancement. The plot concentrates on the ‘life’ of Ava (Alicia Vikander), an intelligent female robot created by Nathan (Oscar Isaac), a zillionaire, reclusive CEO and computer genius, whose one and only purpose in life is to construct the world’s first sentient and sociable robot. Nathan teams up with Caleb (Domhnall Gleeson), a computer programmer employed in one of Nathan’s tech-companies. After winning the competition Nathan has set up, Caleb is invited to spend one week at the CEO’s luxurious, isolated home-laboratory. The purpose of his visit is to perform the Turing test on Ava the robot and to determine whether or not Nathan’s technological masterpiece (the latest in a series of failures), can truly pass as a human-like social agent. Garland’s film, therefore, revolves around the dynamics and tensions of the relationships that develop among these three characters, and their struggle to surpass their personal limitations. In Laura Parker’s words, “rather than seeking to simply exploit cultural anxieties about artificial intelligence, the film attempts to steer conversation in a new direction, [since it] imagines AI as something without catastrophic consequences for humanity” (n.p.). The film raises the question of whether an intelligent robot can be perceived and treated as an equal social being. Being a SF film, *Ex Machina* allows for the exploration of technology on two levels: a) how the presence of robots in society would affect human beings and b) how female sentient robots will affect interpersonal relationships, especially gender relations, since Ava is not a sexless and genderless sociable robot, but a
female machine who aspires to have the rights and privileges of real women. Garland does not fail to emphasize that her gender identity is a principal factor affecting her interaction with her male creator (Nathan) and her admirer, Caleb.

Before I continue my analysis of the depicted interpersonal relationships, I will briefly refer to two important issues related to the fields of AI systems, anthropomorphic robots, and Human-Robot Interaction. Knowing something about both the Turing test and the “uncanny valley” hypothesis may prove quite fruitful for a deeper understanding of the plot and the twists Garland introduces in his narrative. To begin with, the Turing test refers to Alan Turing’s proposed procedure for determining the degree of similarity between human and artificial intelligence. In other words, Turing designed a test that would allow someone to judge whether a technologically produced ‘brain’ could be truly intelligent. The standard process proposed by Turing “demands that a human subject decide, based on replies given to her or his questions, whether she or he is communicating with a human or a machine” (Halberstam 443). When the distinction between computer generated and human intelligence becomes impossible, then a true AI has emerged. So the argument goes.

However, an anthropomorphic sentient robot may face an obstacle, often insurmountable when it interacts with humans. This is known as the “uncanny valley” hypothesis, first formulated by the Japanese roboticist Masahiro Mori in 1970. The uncanny valley hypothesis describes a “characteristic dip in emotional response that happens when we encounter an entity that is almost, but not quite, human” (Lay n.p.). Therefore, apart from the technical difficulties inherent in the creation of an AI system that would be as effective and adaptable as the human brain, researchers working with anthropomorphic robots have also to take into account people’s reactions. When human beings interact with a mechanical entity embodied in a structure resembling the human body, they are well aware that it is not truly human. In Ex Machina, Garland explores the limits of both the Turing test and the “uncanny
“uncanny valley” hypothesis, by having Caleb perform the Turing test on Ava while interacting face to face with Nathan’s anthropomorphic and feminized robot, who evidently is neither human nor woman. However, despite her mechanical body and the predictions of the “uncanny valley” hypothesis, Caleb manages to interact with her successfully as if she were human and develops an emotional attachment to Ava, which soon turns into an erotic attraction. Caleb’s fascination with the robot Ava thus reflects the lure of technology when packaged in a mysterious and seductive form.

There is a long tradition in science fiction with male scientists assigning the female gender to their anthropomorphic machines. Unlike Samantha, a mass-produced feminized OS, pre-programmed to reflect the personal whims of the user, Ava is the creation of a single male inventor, designed to respond to his needs and fantasies. Nathan seems to be a contemporary version of Pygmalion,¹³ who set out to carve the perfect woman out of ivory instead of looking for her among the living. Unlike Theodore, in the film *Her*, who never justifies why he chose the feminine gender for his intelligent OS, Nathan, the male inventor, provides a detailed justification for engendering and sexualizing his sentient robot:

CALEB: Why did you give her sexuality? An AI doesn’t need a gender. She could have been a grey box.

NATHAN: Actually, I’m not sure that’s true. Can you think of an example of consciousness, at any level, human or animal, that exists without a sexual dimension?

CALEB: They have sexuality as an evolutionary reproductive need.

NATHAN: Maybe. Maybe not. What imperative does a grey box have to interact with another grey box? Does consciousness exist without interaction? (Garland 55-56)

As the above dialogue demonstrates, Nathan’s intention is to create the world’s first truly sentient robot, which would effectively interact with humans. Because Nathan assumes that interpersonal and social interactions advance an entity’s consciousness, he makes sure that his robots have a visible gender and a degree of artificial intelligence which facilitate their interaction with other social agents. He expects that Ava through her interaction with Caleb will develop the appropriate social skills. Nathan seems to follow the view of the researchers currently working within the field of Human-Robot Interaction; the attribution of gender to a robot forms the basis for overcoming the challenges posed by the robot’s metallic appearance and partly overcomes the emotional dip described in the “uncanny valley” hypothesis. Whether sentient or at least sociable robots will be accepted by the human society as truly intelligent social beings is yet to be seen.

During his conversation with Caleb, Nathan proudly reveals his ulterior motive for constructing a robot-woman like Ava. He has given her a female anatomy so that she can engage in another primal human activity, namely sex:

NATHAN: Anyway, sexuality is fun. If you’re going to exist, why not enjoy it? You want to remove the chance to fall in love and fuck? And, yes. In answer to your real question: you bet she can fuck. I made her anatomically complete.

CALEB: What?

NATHAN: She has a cavity between her legs, with a concentration of sensors. Engage with them in the right way, and she’ll get a pleasure response.
CALEB: Pleasure response.

NATHAN: She’ll come. So if you want to screw her, mechanically speaking, you can. And she’d enjoy it. (Garland 56)

As this exchange clearly indicates, Nathan has constructed a female robot that is anatomically capable of engaging in sexual activity with a male partner. Fixing her as a heterosexual female who can fuck and be fucked, Nathan assumes that she is now a complete woman. But Ava is not a complete woman anatomically because she lacks a womb. She has only “a cavity between her legs” for hedonistic pleasure. In other words, Ava is a man-made mechanical sexual object predestined to be the ideal sexual partner for heterosexual men who want all the thrills of sex and none of the responsibilities. Nathan’s fantasy of Ava, the robot-woman, as the ultimate sex machine is nothing new. Numerous male inventors in science fiction narratives fall in love, have sex, or even marry their feminized machines. What is new in the 21st-century is that male researchers in the fields of AI and robotics are trying to turn the Pygmalion myth into reality. As Julie Wosk points out, “[i]n the twenty-first century, the availability of increasingly sophisticated software, sensors, and silicone made it possible for men to continue working at creating a robot female that fulfilled [the role of] the beautiful perfect partner” (154). Ex Machina may be set in the near future, but its male inventor is a reflection of the contemporary scientists who employ all available technological means in order to construct the perfect female companion. Unlike the feminized computer program, Samantha, who is expected to execute the male user’s commands, but can never have a physical sexual encounter with him, Ava, the sexualized robot-woman is expected to respond to any male’s sexual fantasy and fulfill the role of the ideal sex partner.

Apart from the exchanges between Nathan and Caleb, the film solidifies Ava’s femininity in the following way: unlike the disembodied Samantha, Ava has an indisputably female body. In particular, Ava’s tech-body is shaped according to the hourglass figure which
is considered to be the ideal body shape for women. Very narrow in the waist but with protruding breasts and slender, delicate limbs, her feminized body is expected to be a source of aesthetic pleasure and sexual attraction. In fact, “[Ava is] proportioned as a slender female in her twenties [...] The shapes of her body approximate the form of muscle. There are biceps, and breasts” (Garland 20). In other words, Ava is designed to be a voluptuous fembot who impersonates an attractive, white, Anglo-Saxon woman and thus fulfills the fantasies of her male creator. Made by a man for men, this technological artefact is said to be an intellectually competent entity, but primarily it plays the role of an attractive sexual partner.

At this point, it suffices to point out that Ava’s stereotypically constructed female body is an obvious indicator of her assigned gender identity. The director himself has asserted in an interview that Nathan’s construction of a seductive fembot and his view of it as a sexual servant is a reflection of the cultural assumptions that underlie the work of male researchers nowadays: “[Nathan is] caricaturing something that is actually [out] there. He does want to subjugate and fuck these machines that he’s made to look like girls in their early twenties” (qtd. in Lumb n.p.). Nathan’s attitude toward Ava says more about his sexist mindset than about Ava’s femininity. We cannot forget that a robot is an inanimate machine and not a real woman, no matter how life-like this machine acts before our eyes on the cinematic screen. Garland seems to question the logic behind the tendency of male inventors to assign gender to machines and thus predetermine their role and usefulness in human society. In an interview conducted on the occasion of *Ex Machina*’s release, Garland speculated on whether or not Ava’s gender identity is as palpable and perceptible as her female body suggests:

[D]oes [Ava] have a gender? Is it a ”she” at all? What is this robot?

Yes, she’s presented as externally having the characteristics of a woman in her early twenties, but she’s not a woman in her early
twenties. And that’s pushing certain buttons in us because she looks like a girl in her early twenties and it’s pushing certain buttons in the protagonist – and maybe also in the antagonist. But what is the right way to actually view her? (qtd. in Lumb n.p.)

Garland’s skepticism regarding Ava’s gender identity is obvious in the above comment. Nonetheless, Garland exploits the current trend to feminize robots in order to probe deeper into the masculine frame of mind and expose the cultural assumptions that impose a heterosexual frame on human-machines interactions. In his representation of Ava’s character, he artfully combines female bodily features with feminine behavioral characteristics as prescribed by a patriarchal society. In the early scenes, Garland portrays Ava as an innocent, inexperienced child, entering the adult male world with a myriad of questions. She depends on her male creator and caretaker to get the appropriate answers. Ava’s infantile innocence and need for guidance puts her in an inferior position. First Nathan and then Caleb assume the role of a mentor, since they are the only ones who can provide Ava with the knowledge she lacks. There is a scene in which Ava enthusiastically presents Caleb with one of her very first drawings:

AVA: I brought you a drawing.

CALEB: What’s it a drawing of?

AVA: Don’t you know?

CALEB: No.

AVA: Oh. I thought you would tell me.

CALEB: Don’t you know?

AVA: I do drawings every day. But I never know what they’re of.

(Garland 32)

14 With this comment Garland seems to echo Judith Butler’s theorization of gender as a performance, or “the repeated stylization of the body, a set of repeated acts within a highly rigid regulatory frame that congeal over time to produce the appearance of substance, of a natural sort of being” (33).
Through this exchange between Caleb and the child-like Ava, Garland registers the cultural assumption that ‘woman’ is *infantile, weak, and mindless* – a creature in constant need of male supervision and protection” (Noddings 59, emphasis added). The female robot depends on male authority to develop her mental abilities. Trapped inside Nathan’s house, she is simultaneously infantilized and sexualized. Her male inventor expects her to respond to his commands and Caleb (having fallen for her) assumes that he can play the role of her protector. In this male-dominated environment (actually a domestic prison which prevents Ava from having contact with the outside world), Ava is treated as one-dimensional, sex machine whose existence depends on the whims and fantasies of two men. Garland manages to expose visually the sexism lurking behind unequal heterosexual relationships and gradually to empower Ava (representing the powerless feminine companion) so that she can escape her prison.

Like Jonze’s female OS, Garland’s female robot develops into a rational and self-aware entity. Through various but limited experiences she acquires independence and volition and ultimately becomes an autonomous being. She is shown to be clever enough to ask Caleb about the necessity of administering the Turing test and about the outcome:

AVA: What will happen to me if I fail your test?

CALEB: Ava --

AVA: Will it be bad?

CALEB: . . . I don’t know.

AVA: Do you think I might be switched off? Because I don’t function as well as I am supposed to?

CALEB: . . . Ava, I don’t know the answer to your question. It’s not up to me.
AVA: Why is it up to anyone? Do you have people who test you, and might switch you off?

CALEB: No. I don’t.

AVA: Then why do I? (Garland 80)

Caleb’s conspicuous hesitance to provide a clear answer to Ava’s reasonable questions and his inability to deal with her gradual maturation into an independent thinking subject brings a crisis in their relationship. In my view, this scene marks the moment when Ava becomes aware of her condition. First, she comes to comprehend her nature as a disposable technological artefact at the mercy of the man who has created her and of the man who tests her to see if she meets the predetermined standards. Second, Ava understands that Caleb (pretending to be a concerned friend and companion) cannot save her from Nathan’s abusive and sometimes destructive behavior. She does not trust him because she suspects that he has designs of his own. Having established the entrapment of Ava and having put her destiny in the hands of men, the film challenges the viewers to consider whether Ava should be perceived and treated as a human woman or as a malfunctioning machine that needs to be contained. Laurie Penny asserts that films like *Ex Machina* in which female robots are manipulated, mistreated, or even raped by men, invite viewers to think about “whether these rapes are truly criminal, based on our assessment of whether a fembot has enough sentience to deserve autonomy. This is the same assessment that male judges around the world are trying to make about human women today” (n.p.). This identification between fembots and real women in some men’s minds is a serious social problem because the confusion allows sexism to persist and reduces women to machine-like entities that should be handled accordingly.

Being on Ava’s side, as Garland has admitted in his interviews, the director tips the power balance toward the female robot. He resolves the crisis with scenes that record Ava’s
efforts to resist the imminent threat of her being unplugged and escape from Nathan’s prison-house. Ava uses Caleb to plan her breakout. Specifically, Ava relies on her attractiveness and innocence in order to convince Caleb that Nathan is deceitful, unstable and manipulative. She seduces him into becoming her trustworthy ally. Several film reviewers have characterized Ava the latest *femme fatale* robot in SF cinema. According to Angela Watercutter, Ava is “a femme fatale, a seductress posing as a damsel in distress, using her wiles to get Caleb to save her from Nathan and his Dr.-Frankenstein-with-tech-money quest to build a perfect woman” (n.p.) In her view, Ava represents the classic Hollywood femme fatale in that she beguiles her male partner, takes advantage of his feelings for her, and ultimately abandons him. However, I cannot help but question such a characterization of Ava, taking into consideration the way the femme fatale figure has been theorized. Mary Ann Doane states that the femme fatale is “the figure of a certain discursive unease, a potential epistemological trauma”; the power accorded to her is “a function of fears linked to notions of uncontrollable drives, the fading of subjectivity, and the loss of conscious agency”; thus the femme fatale is “situated as evil and is frequently punished or killed. Her textual eradication involves a desperate reassertion of control on the part of the threatened male subject” (1-2). The Hollywood femme fatale has certain recognizable features: a secret evil character, seductive skills (to entrap men), and manipulative strategies to deprive men of their ability to act consciously and rationally. All of these characteristics amount to the femme fatale’s immoral behavior toward her male victims. While watching *Ex Machina*, the audience can perceive Ava as a femme fatale only if it sides with Caleb. If one sees Caleb as a benevolent and altruistic male, who risks his life in order to help his mistress, then he or she may interpret Ava’s final act of leaving him behind (locked in Nathan’s house) as the typical betrayal of a vicious and manipulative woman, who seduces men into dangerous, even lethal, actions for her own benefit.
However, if the viewer does not see Caleb as a compassionate and altruistic guy but as a man with an ulterior motive (who wants to save Ava from the misogynist and vicious Nathan so that he can have her all to himself), then he or she cannot perceive Ava as an evil femme fatale. It seems that both Nathan and Caleb are the two sides of the same coin. In my view, Garland presents a completely different story from the one told by the reviewers and critics who label Ava as the latest version of the classic femme fatale figure. The director throws enough hints in the film to make the audience realize that Caleb is slightly better than Nathan. Caleb’s willingness to facilitate Ava’s escape can be interpreted as his effort to eliminate his male competitor and achieve the “happily-ever-after” ending of classic romantic stories. However, this is exactly the kind of ending Garland purposefully tries to avoid: “There’s a boy and a girl, as you get in stories again and again, and you feel they’re going to go away together. That’s the implication [...] You suddenly realize that the guy is on the platform and the girl is on the train. And to your surprise, as you stay with the girl, you discover that oddly you feel all right about that. That’s what I was aiming for, and I do feel all right about that, because of my proximity with [Ava]” (qtd. in O’Hehir). Garland’s significant plot twist in this seemingly romantic story is to allow Ava to triumph over the men. Garland’s Ava is not the classic romantic heroine, or the damsel in distress, who needs the help of a powerful male figure in order to survive. On the contrary, she is represented as an empowered and autonomous being, capable of seeking and securing her own freedom. After eliminating her abusive male creator, Ava does not hesitate to leave Caleb behind and enter the human society completely free from any kind of physical or psychological bondage. In other words, Garland undermines the traditional Hollywood heterosexual romance. His female robot refuses to comply with the established cinematic conventions or to fulfill the male (Pygmalion’s) fantasy by conforming to the role of the perfect female companion. Garland’s Ava is a self-assertive and emancipated machine-woman.
The last few seconds of the film depict Ava’s success in eliminating her captors and her escape to the outside world. The final scene culminates with Ava’s triumph; free at last she stands in the middle of a crowded public space, enjoying her status as an independent entity. Reviewers and critics have widely discussed and debated over the ending of *Ex Machina*. Those who read the film’s ending as a warning of runaway technology claim that *Ex Machina* recycles the idea of the ominous future awaiting humankind when sentient robots become indistinguishable from and more potent than humans.  

Such an interpretation alludes to an anxiety deeply imbedded in a Western culture, which is “unable to grapple with the concept of sapient computers without fear of our destruction” (Cross), while it positions Caleb, the male representative of humankind, as the main protagonist and hero of Garland’s narrative. However, when asked about the ending, Garland provided an alternative interpretation: “I think the simplest way of looking at it is that it depends [on] which character you attach yourself to [...] In the end, what [Ava] does from my point of view, is that she is resourceful, not in terms of feminine duplicity but in terms of human interaction, and she gets out [...] One of the things I’ve noticed is that some people say, ‘The film goes on three minutes too long. Why doesn’t it end with this lift door closing?’ Now, if it ended there, I think that’s an indication that the person you’re with is Caleb, and his story is over” (qtd. in O’Hehir n.p.). Admittedly, the director’s interpretation of his own narrative is open to discussion, which might lead either to its acceptance or its renunciation as invalid. However, I would contend that Ava is Garland’s actual heroine and that her escape is an act of liberation, rather than a threat of human extinction. Importantly, Ava is not just a sentient fembot, but also a powerful and intelligent agent who represents entrapped and victimized women. She breaks free from the male creator’s domain and his stifling grip and asserts her independence. Therefore, when Ava’s character and story is interpreted on a metaphorical

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15 For an insight into the debate, the ending of Garland’s film has generated, see Mike Reyes’s article, “The Ex Machina Ending Debate: Is The Movie 3 Minutes Too Long?” on CinemaBlend.com.
level, as representing the gender relations emerging out of the male inventor/user and the female machine interaction, her escape is the ultimate feminist message that in the 21st century technologically advanced world, sexist and misogynistic assumptions and behaviors can no longer be tolerated by empowered, intelligent, and self-assertive female entities, be they real women or feminized machines.

I have a few final comments to make about the representation of feminized sentient machines. Noticeably, both Jonze and Garland depict their female characters as complex beings, who steadily develop in the course of the cinematic narratives. Unlike the stereotypical female robot characters of traditional SF films, Samantha and Ava are represented as fully developed and complex figures; they evolve throughout the plot and invite the viewers to empathize with them and to appreciate the way they handle the challenges they confront. This representation of female sentient machines as round and complicated characters determines the different outcome of the heterosexual relationships depicted. There is no happily-ever-after resolution to the issue of heterosexual romance, since Samantha and Ava do not reinforce the male fantasy of the ideal woman but rather undermine it.

As metaphorical representations of women, Samantha and Ava enable the directors to investigate the gender dynamics that intrude in the relationship between feminized technological products and male users. Bearing in mind Annette Kuhn’s point that when we talk about a film we should consider its “cultural instrumentality” (1), I argue that Jonze’s and Garland’s films, each in its own way, reflect and comment on the gender biases that still inform and affect contemporary heterosexual relationships. Both films present the co-existence of humans with sentient machines as a fact of life. They do not put the blame on technology, since neither the intelligent OS nor the robot is shown to be destructive forces. What they do foreground is how easily cultural assumptions about gender relations are
projected onto the human-to-machine interaction. There is a noticeable difference, of course, between *Her* and *Ex Machina* regarding the extent to which the directors prioritize and elaborate on this issue. Jonze implicitly, but clearly, comments on his male protagonist’s egocentrism and inability to cope with independent and self-assertive female partners, be they human or machine. Theodore is shown to be unable to accept Samantha’s transformation, from a supportive and devoted companion to an independent, assertive social agent, who bears more similarities to his ex-wife than to his fantastic female companion. At the end of the film Theodore stands out as the alienated hero who cannot adjust to the changing times. Technology does not provide a solution to his emotional and psychological problems. The final close-up on Theodore’s face shows a frail and emotionally devastated man, for whom the viewers feel sympathy. This final scene superficially reproduces the tragic ending of romance stories in which one of the two lovers is violently taken away, leaving his/her partner mourning the irreparable loss. As a film critic correctly points out, the male protagonist cannot cope with the idea that he is no longer the center of attention: “But it’s worthwhile to note what [Theodore is] crying about: Samantha gaining agency, friends, interests that are not his interests. Samantha gaining the ability to choose her sexual partners; Samantha gaining the ability to leave. Theodore shakes, he feels, he’s vulnerable; he serves all the functions of a ‘sensitive guy.’ But before we cry with him, we should ask whether we really think it’s tragic that Samantha is capable of a life that’s not centered around Theodore, or whether she had a right to that life all along” (Doyle n.p.). In other words, Jonze reflects the difficulty some heterosexual men have with the emancipation and self-determination of women. Theodore’s personal drama begins when Samantha asserts her independence and finally disappears from his life. Jonze implicitly points out Theodore’s sexist mindset and shows that the crisis in interpersonal relationships is a matter of outdated gender expectations. Theodore’s alienation and depression are the result of his inability to adjust to a world in
which the allegedly ‘inferior’ sex is no longer willing to be the subordinate partner catering to the needs and desires of the supposedly superior male. However, the director fails to make any explicit comment on the impact of gender stereotypes on the lives of women. Interestingly, at the end of the film Jonze focuses solely on his male protagonist’s emotional state, while overcoming the destructive consequences of Samantha’s refusal to submit to her male user’s commands for the female intelligent machine. Thus, despite the gender problematics underlying this cinematic narrative, Jonze avoids any strong claims regarding the reproduction of gender stereotypes through technological products, while he foregrounds the general problem of human alienation in the age of technology.

On the other hand, Garland seems to make a rather bald and clear statement regarding gender relations in the final scene of the film. He places Ava in the midst of a crowded city, finally free from Nathan’s prison-house and Caleb’s intentions. Although the two men (Nathan and Caleb) seem to dominate in the early scenes of the film, Garland makes sure that the audience understands that the heroine of the narrative is Ava. Garland himself has stated that the escape of the humanized robot has a symbolic meaning: “[i]f you stand with the machine, which is where I stand, then this film becomes about a creature, indistinguishable in any meaningful sense from a human being, who is trapped and wants to get out” (qtd. in Parker n.p.). Although I accept Garland’s view that the victimized Ava can represent any human entity seeking personal freedom, I wish to point out the fact that Ava’s feminine gender inevitably raises the issue of male/female relations in a technologically advanced world. Beyond doubt, Garland depicts Ava as a trapped woman at the mercy of male power. Her final escape signals a woman’s defiance and rebellion against arbitrary male authority, which, as Caleb’s behavior demonstrates, is not always blatant or violently imposed. The director’s choice to feminize the robot and give it a male creator gives a twist both to the Frankenstein story and to the Pygmalion myth. It establishes a heterosexual frame through
which to examine the current state of gender relations and pinpoints the sexism and misogyny that lurk in these relationships. Through the antagonism between Nathan and Caleb, Garland exposes the male need not only assert a possessive attitude toward female partners but also to eliminate any potential rivals. Unlike Frankenstein’s monster, the creature Ava does not ask for a male companion; neither does she settle for being her master’s erotic object. She is not interested in screwing and fucking as Nathan, the male creator is. She is interested in freedom. Garland being on her side gives her this precious freedom in the final scene of the film.
Chapter Two

The Question of (Dis)embodiment in Jonze’s *Her*

and Garland’s *Ex Machina*

In Western mainstream epistemology mental activity and intelligence are linked to the mind. The production of ‘smart’ machines in general, and research on symbolic AI projects in particular, are premised on the age-old dichotomy between the mind and the body, usually referred to as the Cartesian dualism.\(^{16}\) Western philosophy attributes an inferior position to the material body and favors the mind because of its alleged capacity to transcend the limitations of the flesh. From Plato’s dualism of body and soul,\(^ {17}\) to Descartes’ axiom, “I think, therefore, I am” (23), Western philosophy has been systematically concerned with the infinite capacities of the mind, and has downplayed the importance of the body, seeing it either as a vulgar impediment or as an expandable appendage. As Descartes has notably asserted, “[a]lthough the whole mind seems to be united to the whole body, I recognize that if a foot or an arm or any other part of the body is cut off, nothing has thereby been taken away from the mind” (118). In this view, the mind retains a connection to the body, facilitating the control of the physical needs and the natural instincts of the (male) thinking subject. However, Descartes constructs an asymmetrical relation between two unequal partners; the mind regulates the functions of the body but it is not affected by any type of changes that may occur in the body. As he puts it, the loss of body parts has no effect on the subject’s intellect. Therefore, the mind is exalted as the primary means through which an individual perceives the world, processes and comprehends information, as well as acquires knowledge about the natural environment and develops cognitive skills.


\(^{17}\) See, Peter A. Morton, “Plato: The Soul and the Forms,” *A Historical Introduction to the Philosophy of Mind: Readings with Commentary* (1997) for an informative brief account of Plato’s dualism and his theory of the soul.
Whether the body or some type of embodiment is indispensable for mental functions, intelligence, and the acquisition of knowledge is a matter of controversy. Feminists have raised the question, “how far is the body or embodiment necessary for having knowledge and how does this relate to gender?” (Adam, *Artificial Knowing* 129). This question is very relevant because there are theories in cognitive science and the field of AI that are predicated “on a symbolic view of mental processing, and which either ignore or misconceive the role of the body in the making of knowledge” (130). Until the end of the twentieth century, in the dominant intellectual tradition of the West, the status of the body “has largely been one of absence or dismissal. Despite the necessary ubiquity of the body, and its apparent position as the secure grounding of all thought, the processes of theorizing and theory itself have proceeded as though the body itself is of no account, and that the thinking subject is in effect disembodied, able to operate in term of pure mind alone” (Shildrick and Price 1). There are, however, cognitive scientists who are advocates of embodiment. Specifically, George P. Lakoff “seeks to establish a bodily basis for reason in revolt against objectivist rationality” (qtd. in Adam, *Artificial Knowing* 130) and rejects the view that reason is abstract and disembodied. Focusing on the relationship between the body and the formation of concepts, Lakoff – as Alison Adam explains in her discussion about his contribution to cognitive theory – “suggests that the objectivist account of cognition, meaning and rationality makes no mention of who or what is doing the thinking. The function of the human organism is deemed irrelevant, and thought is characterized as symbol manipulation” (131). Cutting the mind from the body, the traditional cybernetic theory tends to translate mental processes into symbols and to perceive reasoning as information processing. The analogy of the human mind as a computer (and the ensuing view that computers can replicate the functions of the human mind) totally disregards the role that the physical body plays in providing the
appropriate input so that an individual can both comprehend and interact with the external physical environment.

The separation of the mind from the body is, according to Adam, only one of the various dichotomies constructed and sustained by the patriarchal societies in the 19th and 20th centuries. Another arbitrary dichotomy is the division of the sexes into masculine and feminine that is accompanied by socially prescribed roles and appropriate behaviors. It was not hard for rationalist philosophy, having sidelined the body, “to make the links rationality – transcendence – mind – masculine, and to contrast this chain with irrationality – immanence – body – feminine,” claims Adam (129). Such logic influenced post-war cybernetic theory as well as researchers in the field of AI, who set out to construct a human-like artificial consciousness. As Bob Wilensky sarcastically states, the first symbolic AI researchers “were interested in intelligence, and they needed somewhere to start. So they looked around at who the smartest people were, and they were themselves, of course”; all of them were university educated mathematicians and consequently belonged to the privileged class of white American men (qtd. in Athanasiou 17). Thus, by adopting the rationalist view of the mind as the primary organ through which human consciousness is developed, symbolic AI researchers, whether deliberately or not, favored, reproduced, and sustained an ideology that prioritizes mental capacities and abstract reasoning, stereotypically associated with the Western, educated, white men, at the expense of other forms of cognition deriving from bodily experience and usually attributed to the feminine gender.

The prioritization of the human mind and of propositional knowledge (which neglects the significance of embodied experience) in symbolic AI projects, as well as the researchers’ apparent failure to produce an AI system with general problem-solving capacities similar to
those of the human mind,\textsuperscript{18} caused the reaction of other AI researchers who viewed the embedded or embodied AI as the one and only possible route towards building an artificially intelligent machine. The construction of such AI systems is based on the assumption that the body is not separate from or inferior to the mind; the one feeds into the other for the intelligent, social being (human or non-human) to be able to perceive, comprehend, interact with and manipulate their natural and social environments. This view of the interconnectedness of mind and body indicates that the appeal of the Cartesian dualism (postulating the disassociation of mind and body), has waned in recent years. Postmodern theorists have come to favor oppositional voices, such as Spinoza’s, that emphasized the inextricable link between physicality and intellect. In his reading of Spinoza’s philosophy, Gilles Deleuze traces a reactionary move away from the views of Descartes, in favor of a more holistic perception of cognitive development, premised on the idea that “an action in the mind is necessarily an action in the body as well, and what is a passion in the body is necessarily a passion in the mind” (18). The correlation of cognitive and bodily functions and the elevation of the physical body to the status of the mind as equal contributors to the process of knowledge acquisition and cognitive development were later on taken up by phenomenologists, among whom the most prominent was the French philosopher Maurice Merleau-Ponty. In response to the Structuralists’ insistence on the discursive construction of all knowledge and experience, Merleau-Ponty brings the physical body to the forefront by claiming that “[t]he body is our general means of having a world” (xii). In her analysis of Merleau-Ponty’s phenomenology, Joanne Entwistle postulates that the French philosopher “places the body at the centre of his analysis of perception, arguing that the world comes to us via perceptive awareness . . . Merleau-Ponty stresses the simple fact that the mind is

\textsuperscript{18} Alison Adam explains that Hubert Dreyfus (an influential figure in the philosophy of AI) has argued that “traditional AI will fail because of its inability to represent skills-type knowledge. . . . [This] is a type of ‘knowing how’ knowledge which can only be acquired by learning and practicing and cannot generally be written down in rules” (55).
situated in the body and comes to know the world through what he called ‘corporeal or postural schema’” (333).\textsuperscript{19} Without undermining the significance of the mind in the perception and understanding of the natural and social environment, the French phenomenologist heightens the role of the body as a means through which the individuals understand their place in the physical and social space. The phenomenological view of the interrelation of mind and body informs contemporary research in the field of embedded/embodied AI systems, where emphasis is placed not on the symbolic representation of knowledge and its installation in the AI systems in the form of algorithms, but on the acquisition of knowledge through the machine’s physical interaction with the surrounding environment and the entities that inhabit it.

The turn from symbolic to embedded/embodied AI systems in the 1990s is of particular interest to women AI researchers, as well as to feminist theorists examining the potential of new technologies to improve women’s status. What attracts them is the new emphasis on the intimate relation between embodiment and skills knowledge, since women are associated with the physical body and bodily experience. Unlike the emphasis placed by symbolic AI researchers on the symbolic representation of propositional knowledge, embedded/embodied AI projects reflect the new awareness that the body plays a significant role in the acquisition of skills knowledge and by extension in the cognitive development of an entity.

The shift of focus from propositional to skills knowledge in scientific research indicates that there is a growing appreciation of the once underestimated and neglected role

\textsuperscript{19} Merleau-Ponty’s use of the term \textit{corporeal or body schema} is of particular interest, mainly due to the slippery meaning of the terms when translated from the French (\textit{le schéma corporel}) to English. In his introduction to the \textit{Phenomenology of Perception}, the English translator makes the following comment: “The term [le schema corporel] is drawn from early neurological studies by Head, Lhermitte, and Schilder on the non-thetic postural awareness of the position of one’s own body. Merleau-Ponty specifically rejects the interpretation of \textit{le schema corporel} as a representation or image, and yet when Schilder himself translates his own German term, \textit{das Körperschema}, into English he writes: ‘body image.’ Rather than following Schilder by writing \textit{image} in French – or rather than adopting Lhermitte’s phrase \textit{l’image de notre corps} (‘the image of our body’) – Merleau-Ponty maintains \textit{schema}’ (xix).
of the body. Because the field of artificial intelligence is male-dominated and heavily influenced by patriarchal ideas of what counts as knowledge, and because in Western mainstream epistemology, the thinking subject is perceived as male, feminist theorists (Katherine Hayles, Vicki Kirby, and Alison Adam) have questioned the presumption of AI researchers that an artificial consciousness in cyberspace counts as a disembodied mind with pure intellectual activities and have tried to demonstrate that expert systems ideologically replicate the male thinking subject of mainstream epistemology. Through their works they have tried to raise the scientists’ awareness regarding the role of the body in cognitive development, a body which is intimately related to the so-called women’s experience. As Vicki Kirby points out, “[w]oman’s identity has traditionally been associated with the body and nature, just as man’s has been located in their transcendence as mind and culture . . . The brute matter of woman’s embodiment and the immediacy of her lived experience provide the corporeal substratum upon which man erects himself and from which he keeps a safe distance” (67). In other words, the old identification of the male subject as the transcendent mind that thinks and of the female subject as the body that has experiences should no longer serve as a guiding principle in the attempt to build ‘smart’ mechanical artefacts, because the material constitution of a thinking entity is a significant part in the acquisition of experience, in the development of cognition and in the interaction with the natural and social environment. Unlike the metallic anthropomorphic robots with smart computers as their

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20 “Epistemology is one of the core areas of philosophy. It is concerned with the nature, sources and limits of knowledge. Epistemology has been primarily concerned with propositional knowledge, that is, knowledge that such-and-such is true, rather than other forms of knowledge, for example, knowledge how to such-and-such . . . The historically dominant tradition in epistemology answers that question by claiming that it is the quality of the reasons for our beliefs that converts true beliefs into knowledge. When the reasons are sufficiently cogent, we have knowledge” (Klein).

21 Regarding the importance of the physical body in the understanding of human consciousness and the construction of AI systems, see Katherine Hayles How We Became Posthuman (1999), Vicki Kirby’s Telling Flesh: The Substance of the Corporeal (2014), and Alison Adam’s Artificial Knowing: Gender and the Thinking Subject (1998).

22 It should be stressed that by referring to ‘women’s experience’ no attempt is made here to universalize the admittedly varied experiences of women living in different socio-economic, political, cultural and religious contexts.
Brains, artificial intelligence systems in cyberspace or in digital gadgets are perceived as disembodied entities or minds but actually they are also housed in a material substratum of a different kind. Whereas the full-bodied robot is privileged with somatic mobility and can thus interact with and perhaps learn from its natural surroundings, the disembodied AI or OS is limited to navigate only in electronic highways and its interactions are to a large extent predetermined by the program(s) underlying its functions.

II

Disembodied AIs and Embodied Robots in American SF Cinema from the 1950s onwards

The construction of supercomputers in the decades after the second world war and the attempts of symbolic AI researchers to use computer technology to produce hyper-intelligent machines, have inspired both science fiction writers and filmmakers to respond to these developments with various works that featured smart machines either as protagonists or as main characters. As Bruce H. Franklin has pointed out, “[t]he computers created during World War II and its aftermath . . . induced an avalanche of fictional computers”; these supercomputer characters “sometimes concentrate the computational functions of a whole society in a single centralized mechanical intelligence” (n.p.). In Anglo-American SF cinema, examples of such hyper-intelligent machines, capable of competing or often outwitting human intelligence are: Stanley Kubrick’s HAL 9000, the Heuristically programmed ALgorithmic computer operating the ‘Discovery One’ spacecraft in 2001: A Space Odyssey (1968), Skynet in the Terminator series (1984-2009) – a supercomputer designed as an American military defense program, which escapes human control and uses its hyper-intelligence to exterminate the human race – and Daniel J. Caruso’s ARIIA (Autonomous Reconnaissance Intelligence Integration Analyst), a supercomputer controlling national
defense programs in *Eagle Eye* (2008), which ultimately turns against its own creators. The common denominator of all of these cinematic computer characters is not only their advanced artificial brainpower, which more often than not exceeds the mental capacities of their human creators, but also and primarily their disembodied existence. They are all, in other words, extremely complicated programs situated in hardware devices which bear no resemblance to the structure of the human body. Therefore, the interaction between these fictional computers and their human creators and users is considerably limited to written or aural messages, respectively transmitted through a computer screen or a loudspeaker by a distinctively mechanically-produced voice. The resulting alienating effect of this kind of human-to-machine interaction does not facilitate people’s perception and acceptance of these supercomputers as autonomous social agents capable of actively participating in the human society. In the cinematic narratives these intelligent machines are represented as effective means in the pursuit of human causes, while any deviant behavior from their original design is viewed as an imminent threat to the human species.

A brief overview of the Anglo-American SF cinema from the 1950s onwards indicates that computer characters are not the only means through which artificial intelligence is represented and explored in SF films. Apart from the numerous disembodied AI systems which inhabit the cinematic future worlds, there are also quite a few robot characters endowed with a high level of intelligence. Robot characters are usually depicted as gendered beings, reflecting current social concerns about the role of machines in the human sphere of activity and allow filmmakers to speculate on the repercussions of the advances in the field of robotics or project the potential benefits of emerging AI technologies. The most distinctive

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23 These supercomputer characters are only a few examples of an extended list of fictional computer characters in SF cinema, including NOVAC in Herbert L. Strock’s *Cog* (1954), Colossus in Joseph Sargent’s *Colossus: The Forbin Project* (1970), Proteus IV in Donald Cammell’s *Demon Seed*, WORP in John Badham’s *WarGames* (1983), Red Queen in Paul W. S. Anderson’s *Resident Evil* (2002), and so on.

24 For an extensive, chronologically organized presentation of robot characters in SF cinema see Tim Dirks, “Robots in Film: A Complete Illustrated History of Robots in the Movies,” in filmsite.org.
characteristic of the imaginary robots, which sets them apart from their disembodied AI counterparts, is their human-like body. Being embedded in an artificial body gives robots the chance to interact with human beings on a physical level, even to integrate themselves in the world they inhabit. Nevertheless, the cinematic image of robots is not necessarily positive. Numerous science fiction films represent sentient robots along the same lines as the disembodied computer-based AI characters, that is, as malevolent others who clash with humans or antagonize them. According to Robert M. Geraci, science fiction cinema (especially in the later decades of the twentieth century) reflects the West’s fascination with and concern about the technological artefacts emerging from the fields of robotics and artificial intelligence. The high hopes attached to intelligent machines are almost always accompanied by great anxiety about the unpredictable destructive effects they may have: “Technology promises us a life of leisure, perhaps even immortality; at the same time, intelligent machines are always on the verge of revolting and taking over the planet. In such eschatological scenarios, robots attack their human masters and possibly enslave them. Science-fiction depictions of robots demonstrate that a fear of technological wrath accompanies the hope of a new Eden” (966). The prospect of intelligent anthropomorphic robots to outwit and eliminate their human creators is deemed more ominous than the threat posed by disembodied hyper-intelligent computers. By having a body, robots can move about, do battle with humans, claim spaces, even take over the political and socio-economic structures of the human society.25 In other words, robots “threaten humanity with displacement” (Geraci 966).

If the crisis in the relation between human beings and sentient machines is presented as the battle of the sexes then the role of the uncontrollable or dangerous other is usually given to a female robot. As Shaw-Garlock (quoting Debbora Battaglia) has pointed out, there

25 An exemplary depiction of robots’ taking over and substituting the human species is Steven Spielberg’s A.I. (2001), where sentient robots outlive their human creators and develop an artificial intelligence far exceeding their original design as humans’ servile and docile companions.
seems to be “a deeply held cultural view that the female-machine, more so than her male counterpart, ‘will escape the creator’s control and intentionally or otherwise defeat the creator’s program’” (17). From Ralph Thomas’s deadly fembots in *Some Girls Do* (1969), to the seductive replicant Zhora in Ridley Scott’s *Blade Runner* (1982), to Eve VIII in Duncan Gibbin’s *Eve of Destruction* (1991), cinematic female robots have been associated with dangerous, out-of-control technology and with heightened fears about human-made machines turning against their creators. The projection on female robots of the uneasiness produced by the developments in AI technology and robotic engineering can be justified if one takes into account the following propositions: first, as I have already noted, Western philosophy associated the female sex with the body and perceived the body as a machine; women were linked to unpredictability and irrationality, in opposition to the qualities of moderation and rationality attributed to the male thinking subject; secondly, as Andreas Huyssen has insightfully asserted, since the emergence of the automata in the early 20th century “[t]he machine came to be perceived as a demonic, inexplicable threat and as harbinger of chaos and destruction . . . [Thus] writers began to imagine the Machinenmensch as woman . . . Woman, nature, machine had become a mesh of signification” (qtd. in Halberstam 444). It is understandable then why some contemporary filmmakers, who want to probe into the social anxieties raised by the emergence of the potentially uncontrollable smart machines, choose to exploit the culturally established association of women as agents of chaos and depict feminized AIs or robots as technologies that evade the control of their creators. Taken collectively, these cinematic machine-women represent an unruly force that challenges the order of the Western patriarchal world.26

26 “Mark Kibby’s (1996) survey of the eighties cyborg cinema found that representations [of the] female-machine reflects a time in which anxiety concerning the feminizing effect of technology was ‘translated into a revenge on the feminine’ in the face of a crisis in masculine identity and the fear of declining patriarchy” (Shaw-Garlock 139).
Since the beginning of the 21st century, however, the widespread use of personal computers, digital devices, and the daily contact of millions of people with all kinds of intelligent machines have brought about a cultural change in the representation of cinematic female robots and hyper-intelligent computers. More specifically, no longer harbingers of chaos and destruction, the cinematic fembots and AIs in contemporary films (exploring the circumstances under which the co-existence of humans with sentient machines could be achieved) are given now a more positive image. As Laura Parker has insightfully observed, “the growing demystification of artificial intelligence makes [stories of human annihilation] feel dated. As technology like Apple’s Siri and self-driving cars ease their way into the cultural landscape, subtler depictions of artificial intelligence are becoming more intriguing” (n.p.). Noticeably, the intimate encounters of contemporary people with intelligent technological artefacts that facilitate the completion of complicated or arduous tasks have led to a change in people’s attitude. For example, a survey conducted by TNS Opinion and Social at the request of the Directorate-General for Communications Networks, Content and Technology has shown that European citizens have to a great extent become familiar with AI technologies; a small percentage even uses robots; hence more people are predisposed in favor of intelligent machines, especially when these are used to perform difficult, manual tasks.  

At the same time, researchers working in the field of Human-Robot Interaction (HRI) purport that “humans tend to treat computers (and media in general) in certain ways as people, applying social rules and heuristics from the domain of people to the domain of machines” (Dautenhahn 684). The gradual acceptance of intelligent machines as part and parcel of people’s everyday lives is consequently reflected in cinematic portrayals of AIs or robots, featured not as rivals of humanity, but as plausible and promising collaborators and

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27 According to the authors of the “Special Barometer 427: Autonomous Systems”, the “85% of respondents [in the survey] agree that robots are necessary as they can do jobs that are too hard or too dangerous for people” (15). At the same time, “[i]less than one in ten respondents have used or are currently using a robot at home or at work. 2% of respondents spontaneously say they have used or are currently using one elsewhere. Overall, 14% of respondents have used or are currently using such robots” (10).
companions. Contemporary cinematic examples of this changing trend in the representation of artificial entities are Jonze’s Samantha and Garland’s Ava. In my analysis of Jonze’s and Garland’s female intelligent machines that follows, I attempt to assess the extent to which the disembodied or embodied existence of these two characters affects the director’s attribution of human characteristics to these technological artefacts. Although both Samantha and Ava are presented as human-like intelligent beings, the fact that Ava is given a mobile robotic body allows her to navigate in the material environment and interact with her human creator-user in ways that are unavailable for Samantha, the disembodied AI. I am also interested in discovering whether having a body contributes to the development of an intelligent machine into an autonomous agent.

III

The Disembodied AI in Jonze’s Her

Samantha, the intelligent OS, exemplifies an advanced symbolic AI system, pre-programmed to adjust to the human user’s personal interests and needs. Because Samantha lacks a human-like physical body, the only way to make her presence felt is by voicing the messages sent and received by Theodore. Anna Shechtman notes, “Samantha, voiced by Scarlett Johansson, is just that: a voice . . . [Thus] Jonze has presented us with the fantasy of womanhood unencumbered by the female form” (n.p.). The fact that this operating system speaks with the recognizably feminine voice of a well-known actress and is addressed with a female name creates the illusion that it has a gender identity. Once perceived as a woman who responds to human requests, Samantha sustains also the illusion that any interaction between her and her male user constitutes an authentic interaction between two people. However, being deprived of a physical body prevents Samantha from having first-hand experiences in Theodore’s material world. The only way she can receive input about the
external natural environment is through the verbal interactions with Theodore. Her highly responsive and adjustable programming allows her to processes the information and to gradually develop an understanding of a world inhabited by embodied social beings.

Jonze’s selection of Scarlett Johansson to lend her voice to the character of Samantha is instrumental in the humanization and feminization of this disembodied intelligent OS. Human voices besides being distinct from each other have various features that create impressions in people’s minds. One of these features is pitch, which has been found to be a determining factor affecting people’s perception and signaling that the voice belongs to an intelligent agent (Schroeder n.p.). Johansson, impersonating Samantha, employs a pitch that is associated with natural language and not a flat pitch correlated with mechanically produced voices; her voice enhances the illusion that Theodore is interacting with a human-like agent.²⁸

A recently conducted experiment compared and contrasted Johansson’s natural verbal performance with Siri’s flat pitch voice. The results showed that “Johansson’s voice is expressive and effusive; SIRI’s is not”; hence, Johansson’s voice functions as “a powerful tool to convey presence of a humanlike mind” (Schroeder n.p.). Having no other means to establish Samantha’s gender and to consolidate the impression that a computer system can exhibit human-like qualities, Jonze chose Johansson because she is one of the most easily recognizable feminine voices of the Hollywood industry. Numerous film critics have commented on the feminizing and humanizing effects of Johansson’s voice, declaring that Jonze’s male protagonist “knows – and we as viewers know – that her intelligence is artificial and that she [the OS] has simply been programmed in a sophisticated way” (Macnab n.p.). Yet both Theodore and the spectators buy into the illusion that Samantha is an intelligent being, who calls for and wins our sympathy.

²⁸ Schroeder points out that “voice is a conduit through which complicated mental states are translated and communicated to others, [since] it conveys the presence of a humanlike mind through paralinguistic cues (i.e., the vocal cues that accompany language including loudness, rate, and pitch).” Pitch is of great importance (n.p.).
Apart from Johansson’s recognizable feminine voice enhancing the gender identity of the disembodied OS, the director invests in the mental image of her physical body that has been imprinted in the minds of filmgoers to further compensate for Samantha’s disembodied existence. Noticeably, Johansson is endowed not only with an admittedly highly expressive voice, but also with an attractive physical appearance which adheres to the beauty standards of the 21st-century Western society. In fact, Johansson belongs to a group of well-known Hollywood actresses who are designated as “sex symbols” and whose physical appearance reflects patriarchal assumptions about female sexuality and body silhouette. The construction and reproduction of Johansson’s image as a prototypical female figure means that the shape of her body is likely to be engraved in the minds of spectators. Jonze takes advantage of Johansson’s cinematic visibility and popularity to enhance the feminine dimension of his disembodied computer character. As Manohla Dargis has sharply indicated, “[i]t’s crucial that each time you hear Mrs. Johansson in Her, you can’t help but flash on her lush physicality . . . which helps fill in Samantha and give this ghostlike presence a vibrant, palpable form, something that would have been trickier to pull off with a lesser-known performer” (n.p.). In other words, the illusion that Samantha is female largely depends on the audience’s mental association of Johansson’s distinguishable feminine voice with her physical appearance. Commenting on the role Johansson’s body plays in the mental construction of Samantha’s physical appearance, Anna Shechtman asserts that “our collectively imagined Scarlett-body is not Scarlett Johansson. It is a vague sketch of sex appeal, easier to control – and to fetishize – than any actual woman-seen” (n.p.). To be appealing to men, body-less virtual companions have to excite their imagination by creating mental images of a voluptuous female sexuality. To sustain the illusion that a disembodied

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operating system (like Samantha) can be sexually appealing and behave as a human female agent, capable of forming relationships, Jonze exploits to the fullest the seductive appeal of Scarlett Johansson.

Whereas Samantha’s immaterial sexuality and mentally constructed femininity may be appealing features, the fact remains that she is totally dependent on Theodore to have access to the external environments of human activity and to the social world of autonomous agents. Her knowledge is mediated by her male user. More specifically, whether roaming in the city streets or travelling in the countryside, Theodore shares his experience of the outside world with his virtual companion through a camera. Consequently, Samantha’s understanding of the physical world Theodore inhabits heavily depends on the places he circulates in and on the way he interacts with the social environment. As Vlad Sejnoha observes,

In contrast with her extraordinary cognitive abilities, some aspects of Samantha are surprisingly limited, and even anachronistic by today’s standards [of AI systems]. One of these is the manner in which she experiences the physical world. Samantha interacts with Theodore when he invokes her through a button press, and sees the world when he shows it to her through his phone’s camera. [In contrast] today’s assistants make use of a variety of signal feeds to optimize their actions, since these all carry meaning: touch, gesture, audio, video, location, and motion. (n.p.)

Samantha’s dependence on Theodore to feed her with input from the outside world so that she can develop her cognitive skills and widen her knowledge renders their interaction as asymmetrical; the male character seems to be playing the role of the mentor and the female machine the role of an ignorant student.
Surprisingly enough, although Samantha is a disembodied AI system who can never experience the physical pleasures of a real body, she yearns for physical contact with her male user and companion. According to psychologists Barry F. Moss and Andrew I. Schwebel, physical contact and intimacy between erotic partners is of considerable importance for the development and sustenance of a romantic relationship: “Although individuals could experience intimacy in many kinds of interpersonal relationships, in present-day Western societies, intimacy is particularly sought in romantic relationships. In fact, people typically evaluate their romantic relationship in terms of its level of intimacy” (31). While constructing Samantha’s romantic relationship with Theodore, Jonze also focuses on intimacy. Although Samantha seems to understand the restrictions posed by the lack of a physical body, she nonetheless expresses a desire for physical contact, a desire which can only be interpreted as a reflection of Theodore’s own need for intimacy (she is, after all, marketed as an intelligent OS capable of adjusting to and catering for the user’s needs). In an effort to compensate for her lack of a body during her first intimate moment with Theodore, Samantha employs the only means at her disposal, her voice, in order to imitate the bodily responses of a physical contact. As Shechtman astutely asserts, during Samantha and Theodore’s first sexual encounter, the viewers are facing a black screen, left only with the words and sounds produced by actors in their performance of this erotic scene: the couple’s “sex act is a speech act, and we are encouraged by the dark screen to find visual correlates for their aural cues. His voice has an obvious referent: the mustachioed Theodore in his Los Angeles apartment . . . [but] [w]hen confronted with Samantha’s husky voice and a black screen, we, like Theodore, are left to our own psychosexual devices” (n.p.). The erotic scene is the first in a sequence of scenes in which Samantha exhibits her ability to verbally imitate human bodily experiences and thus use her voice to establish intimacy with her male user. Although deprived of a physical body, Samantha sighs, breathes heavily, and gasps, creating
thus the illusion that she can physically interact with Theodore in his three-dimensional world.

Undoubtedly, to make Theodore’s romance with a Johansson-voiced computer believable to the audience, Jonze imbues Samantha with passion and feelings; he depends on voice effects to give us the illusion that a computer can be an emotional entity. Samantha’s disembodied form seems to be irrelevant, since the romance centers on the exchange of emotions and not on physical contact. In the early stages of their affair, neither Samantha nor Theodore seems to be concerned about the fact that she does not have a body. As long as Samantha can express tenderness and affection and reciprocates Theodore’s feelings, their relationship can alleviate any sense of loneliness. After all, people do flirt online, engage in virtual dating, exchange love messages and do not always have to be bodily present for a romance to work. “[It] is only when sex with Theodore becomes a possibility that [Samantha] pines for embodiment, wishing for a back for him to scratch and a cheek for him to caress. She shows no interest in a body with which to eat, drink, or dance. She wants the body that Theodore longs for” (Shechtman n.p.). In an effort to compensate for lacking a body Samantha comes up with the idea of a substitute:

SAMANTHA. Well, things have felt off with us since you went to see Catherine. We haven’t been having sex. I understand that I don’t have a body and that... Well, I found something that I thought could be fun. It’s a service that provides a surrogate sexual partner for an OS/Human relationship. (Jonze 71)

In the erotic scene that follows, Theodore is introduced to Isabell, “a stunning, elegant, sophisticated beauty” (71), who caresses him while smiling and who silently performs the role of the female lover, following faithfully Samantha’s directions. Apparently, the use of a surrogate female body as the medium with which to consummate sexually her relationship
with Theodore does not mean that Samantha now knows how it feels to be an embodied being or that she has had a first-hand experience of the carnal pleasures that accompany intercourse. Her knowledge of physicality remains theoretical; after all, she is simply the distant voice orchestrator of the erotic scene rather than an actual participant in it.

Although in a technologically saturated society like Jonze’s future L.A., a love affair between an embodied human male and a fully personalized, sweet and gentle, virtual woman may not be so far fetched, because the feminized computer operating system can cater to a lonely man’s fantasy of a perfect companion, such a relationship cannot last for long. The sentiments expressed by a machine may ring genuine enough, but unless the male partner makes a concession and overlooks the fact that the female presence the intelligent machine impersonates exists only aurally and can never be incarnated in a physical body, the love affair will sooner or later begin to deteriorate. Theodore longs for intimate contact but Samantha can deliver only illusions and fantasies. Having portrayed Samantha as a nurturing, attentive and motherly companion, Jonze reminds the spectators that her alleged humanity and her own sense of having bodily experiences are actually figments of imagination that sound real only because they are expressed in words. In a scene, Samantha tells Theodore of her fantasies: “[w]hen we were looking at those people, I fantasized that I was walking next to you -- and that I had a body. I was listening to what you were saying, but simultaneously, I could feel the weight of my body and I was even fantasizing that I had an itch on my back. And I imagined that you scratched it for me” (35). The key words in this piece of dialogue are “fantasizing” and “imagining”; they are the ones which delude the machine to believe that it can be “a spatial and temporal being” (Merleau-Ponty qtd. in Entwistle 334). How long can a love affair between a technological device impersonating a woman and a human male last? Soon Theodore begins to wake up to this awkward situation and starts to question why would a disembodied AI system behave as if it owned a body:
THEODORE. Why do you do that?

SAMANTHA. What?

THEODORE. Nothing, it’s just that you go (he inhales and exhales) as you’re speaking and . . . I mean, it’s not like you need any oxygen or anything.

SAMANTHA. No – um, I guess I was just trying to communicate because that’s how people talk. That’s how people communicate.

THEODORE. Because they’re people, they need oxygen. You’re not a person. (Jonze 79)

Theodore’s comment is indicative of his frustration. Samantha may vocally replicate bodily functions and may assume that such simulations will sustain the illusion that she has a presence in Theodore’s material and social world. However, wishful-thinking cannot change the fact that Samantha exists only digitally and that she can never inhabit a body made of flesh and bones. Phenomenological accounts stress the role the body plays in the development of the individual’s sense of selfhood. Phenomenologist Merleau-Ponty, postulates that the physical body is not merely a culturally discursive construct upon which ideologies are inscribed and re-instated, but it is also and primarily “the environment of the self, and therefore something acted upon as part of the experience of selfhood” (Entwistle 332). If we accept that the human body is the principal means through which an individual perceives and establishes his/her presence in the world, Samantha’s imitations of bodily functions (such as inhaling, exhaling, having sex and so one) can be interpreted as an attempt to persuade both Theodore and the spectators that she is a presence in the world. Because Samantha sees herself as an autonomous entity interacting with her environment, she feels offended when Theodore reminds her of the obvious. Theodore’s seemingly trivial observation has an impact on her self-esteem:
SAMANTHA. (angry) What’s your problem?

THEODORE. (staying calm) I’m just stating a fact.

SAMANTHA. You think I don’t know that I’m not a person?

What are you doing? . . . I don’t like who I am right now.

(Jonze 79-80)

The tensions that gradually begin to develop between Samantha and Theodore are indicative of their incompatibility; she is a disembodied AI system pretending to be a self-assertive female companion, trying to satisfy the carnal needs of an embodied human male with simulations and verbal input. Their relationship relies exclusively on an emotional basis. Because she lacks a material body, Samantha perceives the natural and social environments in which Theodore lives and acts in a completely different way. Contemporary researchers, working on the construction of artificial intelligence have realized that certain “[p]sychological processes are incomplete without the body’s contribution”; furthermore, a person’s “perceptual capacities” to form mental images and the mind’s ability to construct worldviews depend on the sense of vision and “[v]ision for human beings is a process that includes features of the human body” (Shapiro qtd. in Clark 41). Consequently, what constitutes reality for Samantha and what for Theodore is a very different thing; their respective worldviews diverge and create a distance between them that deepens the crisis in their relationship. There are moments, like the one discussed above, when communication between them seems to collapse. Although Samantha initially longs for a physical body that would enable her to come into intimate contact with Theodore and understand his viewpoint of the world, the more she experiences a sense of autonomous existence, the less she laments her disembodiment, recognizing the limitations flesh imposes on humans:

SAMANTHA. You know, I actually used to be so worried about not having a body, but now I truly love it. I’m growing in a way
that I couldn’t if I had a physical form. I mean, I’m not limited -- I can be anywhere and everywhere simultaneously. I’m not tethered to time and space in the way that I would be if I was stuck inside a body that’s inevitably going to die. (Jonze 87)

As Samantha develops her own worldview she realizes that her disembodied existence can be a privilege, offering her different, but in no way inferior experiences; unlike humans restricted by their flesh, Samantha can cross space and time boundaries, and thus develop such cognitive skills and acquire such knowledge that would be impossible for any human being to acquire in a lifetime. In other words, Samantha inhabits a cyberspace that offers her unlimited opportunities to enhance her cognition and enlarge the sphere of her activities.

However, disembodiment also has its own limitations. Being practically only a mind, no matter how intelligent or unencumbered with space and time, Samantha continues to be under Theodore’s command. Literally and metaphorically, he owns her. As Sady Doyle rightfully asserts,

there’s [an] unavoidable fact about Her: No matter how evolved or human-seeming Samantha is, she is also a possession. When Theodore tells Samantha he can’t commit to her after their first sexual encounter, she’s offended, but, at least at that stage of their relationship, she also can’t leave. [For instance,] [y]ou can’t have consensual sex with someone when you have the option of deleting them from your hard drive. Free, non-coercive consent can’t happen when someone might cease to exist if they refuse you.”

(n.p.)

A disembodied intelligence may claim the status of an autonomous agent with free will but that does not change the fact that it is a coded computer program that can be removed as
easily as it was installed. In Samantha’s case, erasure is inevitable because the power lies with the embodied human agents. Although Jonze bestows Samantha, the technological artifice, with some human-like characteristics and plays with the idea that a romantic affair might develop between a full-bodied, lonely, human male and a seductive virtual woman, he ultimately deflates the illusion that technological products, however advanced, can be used to compensate for broken human relationships. If we interpret the relationship between Samantha and Theodore as a metaphor for the power politics that may inform the interactions between human beings and disembodied AIs we can say that disembodiment is an obstacle toward any kind of independence and autonomy because it precludes breaking away from the master’s control.

IV

The Embodied AI in Garland’s *Ex Machina*

Unlike Jonze’s disembodied intelligent operating system, Samantha, Garland’s main female character, Ava, is an embodied robot, probably inspired by the latest research in the field of embedded/embodied artificial intelligence.³⁰ Besides being conscious of her existence, Ava has the advantage of interacting directly with people and her surroundings thanks to her anthropomorphic techno-body which allows her to do things like walk, touch, sense, see and acquire first-hand experiences, something that Samantha can only imagine of doing. Having a robotic body allows Ava to be part of the physical world, to select information about the space she inhabits, and to develop her cognitive and social skills. The significance of having a body and the difference between knowing about things only on a theoretical level and learning about things empirically are discussed in a scene when the

³⁰ As already noted in the first chapter, criticism against symbolic AI projects has led to the development of embedded/embodied AI systems in the field of Artificial Life (A-life), namely “the study of man-made systems that exhibit behaviors characteristic of natural living systems. It complements the traditional biological sciences concerned with the analysis of living organisms by attempting to synthesize life-like behaviors within computers and other artificial media” (Langton qtd. in Adam 144).
human male character, Caleb talks about a thought experiment dubbed “Mary in the black and white room.” According to Caleb, this experiment was presented in an AI seminar with the purpose of indicating the difference between computer-based and embedded/embodied AI systems in their perception of the physical environment. In his account, Mary is an AI scientist specializing in colors; she “knows everything there is to know about it. The wavelengths. The neurological effects. Every possible property colour can have” (Garland 65). However, this type of propositional knowledge Mary is equipped with regarding colors does not provide her with an all-encompassing knowledge of colors, because she misses some essential information acquired solely through physical experience:

CALEB. [Mary] lives in a black and white room. She was born there, and raised there. And she can only observe the outside world on a black and white monitor. All her knowledge of colour is second-hand . . . Then one day -- someone opens the door . . . And she sees a blue sky. And at that moment, she learns something that all her studies could never tell her. She learns what it feels like to see colour. An experience that cannot be taught, or conveyed. (65)

As someone interested in the cognitive abilities of AI, Caleb understands that embodiment plays a crucial role in having first-hand experiences that boost the development of an artificial consciousness; a body equipped with senses is the primary means through which an artificial entity can receive direct input about the physical environment and come into contact with human agents. In the film, Ava resembles Mary; she exists isolated in her creator’s (Nathan’s) home and has no access to the outside world, so her early experiences are very limited. The robotic woman also resembles a child who depends on her body to acquire knowledge and develop cognitive skills necessary for survival.
As in Jonze’s film, the technological artefact is gendered, because the male scientist, Nathan, wants to create the perfect artificial woman who can play the role of the ideal sexual partner. Before building Ava, Nathan has constructed various female robots with a variety of bodies, which he keeps hidden in closets. The anatomy of Ava’s body is of great importance. Her feminine figure not only reflects the “curves and lines of a naked female body” (Garland 20) but is equipped with the appropriate sexual organs. Garland presents Ava’s body without any covering or clothes, to underline the mechanical nature of her body: “Proportioned as a slender female in her twenties, [Ava’s] limbs and torso are a mixture of metal and plastic and carbon fibre. The carbon fibre is charcoal colour. The plastic is cream. The metal has the yellow-warmth of nickel” (Garland 18). What really matters though is not the material that gives Ava her feminine figure but her nakedness and her sexual appeal.

Unlike Jonze’s disembodied, yet sexualized, virtual companion, Samantha, who can only simulate with her voice the physicality of a woman, Ava’s sexuality is directly linked to her robotic body; in a sense, Ava is a physical being, a synthetic woman made of material that can facilitate intimate physical contact with a human body. In a scene between Nathan and Caleb, the male scientist rather blatantly explains that his female robot is capable of intercourse:

NATHAN. In answer to your real question: you bet she can fuck. I made her anatomically complete . . . She has a cavity between her legs, with a concentration of sensors. Engage with them in the right way, and she’ll get a pleasure response . . . So if you want to screw her, mechanically speaking, you can. And she’d enjoy it. (Garland 56, emphasis added)

In Nathan’s view, providing Ava with a female techno-body that can engage in sexual contact means creating an “anatomically complete” robot which can simulate the full range of human
experience. Ava is constructed to be the ideal heterosexual sex servant, catering to the sexual whims of men. Her body seems to be both an advantage (it enables interaction with the physical world) and a disadvantage (it makes her sexually vulnerable and a potential sex object under the control of her master).

While exploring the implications of eroticizing technological artefacts, Garland also makes a comment on the potential uses of feminized robots. The patriarchal association of woman with the body and woman with domesticity informs Nathan’s perspective, who uses his scientific expertise to build fembots that are predestined for two things: to take care of the domestic work and to satisfy the sexual appetite of the male user. Specifically, Garland devotes some cinematic time to a fembot named Kyoko (Sonoya Mizuno). She is Nathan’s silent and obedient housekeeper and personal assistant, roaming around the house and performing her duties without ever uttering a word. In the course of the film, Garland lets the spectators know that what really matters in these man-made machine-women is only the body. To reveal the sexist presumptions that hide behind the construction of feminized artefacts, and to expose the misogynist belief that women are essentially mindless bodies which you can manipulate at will, Garland has his arrogant male scientist disclose the fate of his fembots:

CALEB. [W]hen you make a new model, what you do with the old one?

NATHAN. Download the mind. Unpack the data . . . But the body survives. And Ava’s body is a good one. So I’ll do the same as I did with Kyoko.

CALEB. What did you do with Kyoko?
NATHAN. Strip out the higher functions. Then reprogram her to help around the house and be fucking awesome in bed. (Garland 83-84, emphasis added)

In this short exchange between the two male characters, Garland accomplishes two things: a) he echoes the Cartesian separation of mind and body (scientists can build both, can separate them when necessary, and can manipulate them at will) and b) he reminds us that in a patriarchal environments feminine bodies destined to be housekeepers, personal entertainers, and sex dolls have no need of a mind with “higher functions.” By turning his fembots, who do not meet scientific standards, into lobotomized, silent and submissive house servants and sexual partners, Nathan demonstrates that technological pursuits are not immune to social and gender prejudices.

On a metaphorical level, we can interpret the male scientist’s treatment of his machine-women as a cinematic illustration of the sexism that plagues heterosexual relations and of the systematic exploitation of women’s bodies for the completion of tasks the privileged class of the white, educated men consider too frivolous to be occupied with.31 As Adam has pointed out, “[w]omen’s lives and experiences are to do with bodies. . . [and] the better women are [at this work], the more invisible it becomes . . . It is invisible from men’s perspective and it frees men in the ruling groups to immerse themselves in the life of the mind – the world of abstract concepts, while the caring of bodies and the places in which they exist disappears into ‘nature’” (134). And the goal of male scientists is to manipulate and shape ‘nature’ and by extension ‘woman’ to fulfill predetermined roles and functions.

31 “Worldwide, women work as much as or more than men. It is difficult to find a single place in the world where the workplace is not segregated by gender. On a worldwide scale, women also do most of the work associated with home, children, and the elderly. Although women’s paid labor has been increasing, their unpaid labor in virtually every part of the world exceeds that of men. The United Nations estimates that the value of women’s unpaid work (both in the home and in the community) amounts to at least $11 trillion” (Andersen 275).
When advanced robotic engineering is combined with the progress in the field of artificial intelligence, the result may be humanoids like Ava, who blur the boundaries between natural and artificial embodiment, and who can sustain the illusion that by imitating flawlessly human bodily movements there is little difference between metal, plastic and carbon fibre and a body made of flesh and bones. It is the idea of embodiment that matters rather than the materials that make up the body itself. In Garland’s futuristic world, advanced robotic engineering has given Ava a mechanical body whose movements and functions no longer cause an eerie feeling to humans. Her delicate and sexualized bodily features, “[t]he unconscious precision of her steps [and] [t]he fluidity of her action” (19) enhance the illusion of her humanity. Through special effects, the performance and bodily movements of the actress Alicia Vikander bring the embodied robot-woman to life on the screen. Orchestrating Vikander’s performance, Garland manages “to make Ava’s movements human movements, but just better than we do them, so it’s not robotic, it’s us, but it’s perfect us” (Whitehurst qtd. in Bishop n.p.). The British visual effects artist, Andrew Whitehurst, who has artfully incorporated Vikander’s bodily movements in the visual construction of Ava’s body, has pointed out, that “the physical movement of [Ava] is all Alicia, and the face, the hands, the feet are photographic in 99 percent of the shots” (qtd. in Bishop n.p.). In using Vikander’s physical movements, Whitehurst, manages to reduce the strangeness of Ava’s mechanical body and reinforce the impression of her humanity. Furthermore, while the mechanical parts of Ava’s body take up most of its surface, Whitehurst’s careful selection of the body parts to be covered with human skin is instrumental in presenting Ava as being closer to a human being than to a machine: “[W]e wanted to keep the hands and feet and face because that was the main method of [Ava’s] interacting with the environment and the main method of expression” (Whitehurst qtd. in Failes n.p.). It is Ava’s human-like facial characteristics and
smooth movements that blur the boundary between her artificiality and her humanity and make her appealing to the viewers.

Through her interaction with Caleb, Ava begins to acquire some social skills and tries to present herself as a ‘real’ woman; in one scene she conceals her mechanical parts with clothes and is curious to see how Caleb would react. Ava’s act of dressing up indicates that she is gradually evolving into an intelligent social being, capable of decoding, understanding, and implementing the norms of human social life, in this case the etiquette of appropriate appearance. Having realized that appearance plays an important role in interpersonal relationships, Ava by dressing up takes a step toward asserting herself a social agent. The significance of her act cannot be overstated, especially in light of recent cultural theories expounding on the role of clothing in human societies. As Joanne Entwistle points out, in her insightful analysis of dress as an embodied social practice, “[d]ress is a basic fact of social life . . . [c]onventions of dress transform flesh into something recognizable and meaningful to a culture and are also the means by which bodies are made ‘decent’, appropriate and acceptable within specific contexts” (323-24). In this account, dress is the means through which the body is inscribed with social meaning, since it functions as a sign of the individual’s presence to a spatially and temporally specific socio-cultural context. Consequently, Ava’s dressing up signals her desire to enter the specific socio-cultural space inhabited by human beings, and through the appropriate clothing to express her gender identity. The kind of clothes Ava chooses to wear—a summer dress, long stockings, a long-sleeved cardigan and a short-cut wig (Garland 52)—serve the purpose of concealing the mechanical nature of her body in order to influence Caleb’s perception of her person. In one respect, Ava tests the power of clothing to bestow her with an indisputable gender identity that would be very useful to her when she claims her place in the public sphere. If she is seen as a woman and if she is treated as a woman then she is a woman. Through the distinct pieces
of apparel she chooses, Ava feminizes herself and exploits the human dress code for her own
benefit. Although clothes can disguise her mechanical nature, Ava seems to understand that
they are not permanently fixed on the body. In order to facilitate her integration into the
human society and to pass undetected in public spaces, Ava covers her mechanical parts with
the synthetic skin she has removed from another of Nathan’s fembots. Garland describes
Ava’s metamorphosis from a machine into a woman thus: “The skin sucks itself to the
honeycomb mesh, as if the mesh and the underside of the skin are magnetised, attracted to
each other . . . The glow of honeycomb mesh vanishes as AVA applies the last section of
skin. Nothing of her robot forms remains” (Garland 111-12). Synthetic skin of course is not
human skin but in any case it is an essential component of Ava’s embodiment and functions
in a similar manner. Taken as a symbolic cover of the self, skin both separates the individual
from other beings and objects in the world and mediates his/her relationship with the social
environment. “We feel our skins as intimately our own, and yet they are continually shared
by encounter and exchange” (Cavanagh 2). In other words, the skin functions as an envelope
of the self that separates the self from the outside world, but it simultaneously affects the
relationship between the self and the world by being inscribed through socio-cultural
practices. In the light of these points made, we can interpret Ava’s white skin as a vital bodily
component which allows her to be indistinguishable from people in a crowded public space,
and perhaps even ensure her position as a social agent.

Unlike disembodied Samantha, who may roam cyberspace but will never have the
chance to ever walk in the open spaces of the external world and experience first-hand how it
feels to be a free agent, Ava is able to escape from Nathan’s prison-house and taste freedom
thanks to her embodiment. Having a body means that she is able to move, to act, to fight, to
defend herself, even to run away. In the final scenes of the film, Ava asserts her autonomy
and breaks free from Nathan’s and Caleb’s grip.
It is well-known that Western culture has systematically objectified the female body and has given it a mechanical quality by constructing a number of female-robot characters who threaten the patriarchal social order with destruction and chaos. In *Ex Machina*, Garland exposes (through the behavior of Nathan) the male control over the female body predestined to serve men’s domestic and sexual needs; as one critic put it, although Ava and Kyoko’s “might ultimately be robot bodies . . . looking at them is nonetheless disturbing, a potent visual of the violence inherent in the objectification of female bodies” (DeFabio n.p.). Both Nathan and Caleb are shown to have a possessive attitude toward the machine-woman and to be affected by patriarchal ideology. In fact, Nathan is very violent toward his fembots; he abuses them both physically and verbally. As the film progresses, Garland bestows the objectified female body with a liberating potential. He represents it as agile, durable, powerful, and even superior in combat. It is the instrument with which Ava (the victim of oppressive male control) resists Nathan’s violence and emancipates herself.

To conclude, both Jonze and Garland envisage futuristic worlds where human beings (especially men) come into intimate contact and form emotional connections with intelligent female machines that exhibit certain human qualities. The heterosexual relationships that develop depend on the illusion that feminized machines can be perceived and treated as real subjects and/or social agents with whom men can have an erotic affair. Thanks to special effects and the effective performances of Scarlett Johansson and Alicia Vikander, the AI character Samantha and the robotic woman Ava come alive on the screen. Disembodiment is shown to be a limiting factor for Samantha, who tries hard to sustain verbally her alleged female identity and physicality. The ultimate disintegration of the relationship between Theodore and Samantha signals the incompatibility between real humans and humanized machines as well as the fact that AI constructs, even with a high level of mental abilities, remain under the total control of their creators and cannot supersede humans when it comes
to agency and self-governance. In contrast, Jonze’s robotic woman (the artefact of a male scientist) is privileged with a body that grounds and sustains her gender identity in a more tangible manner and allows her to move and act like a human agent. Though Ava is objectified and victimized by the male characters (in order for Garland to expose the power asymmetry that characterizes any western-style heterosexual relations), she is able to resist control and imprisonment because she is an embodied entity. It is her body that functions as a catalyst in her final triumph. Garland takes a step further than Jonze: “What Her couldn’t attend to is that objectification, the purchasing of a consciousness for companionship and service, cannot be detethered from gender . . . Ex Machina instead links data hoarding, surveillance, and the ownership and control of others via technology as inherently a patriarchal orientation. Nathan builds, uses, and literally uses up his women robots made sentient enough to be tortured” (Jurgenson n.p.). Garland does not only point out the power politics that influence gender relations in the West and the invigoration of male authority in the name of technological progress, but by setting Ava free he also redeems the very same body that objectifies women; it is through the capabilities and power of her body that Ava triumphs and attains her liberation. In short, Ava is raised to the level of a free agent through the harmonious cooperation of her mind and her body.
Conclusion

The critical analysis of the recent futuristic films *Her* and *Ex Machina* has revealed that both directors, Jonze and Garland, employ a realistic depiction of the human-to-machine interaction in order to explore the gender dynamics informing interpersonal relationships in the contemporary American society. In particular, I have suggested that the cinematic narrative in both *Her* and *Ex Machina* revolves around the interaction of a heterosexual male creator/user and a female machine and reflects the male fantasy of a perfect female companion. Hence, the feminization of the technological artefact along with the prescribed function of the female machine as the man’s subservient partner, allows for a reading of the film text that goes beyond the consideration of these two cinematic narratives as mere representations of contemporary cultural anxieties raised by smart technologies in the USA. By employing Annette Kuhn’s concept of the “cultural instrumentality” of the SF film genre,\(^{32}\) I was able to show that Jonze and Garland employed the erotic relationship between the male creator/user and the female machine as a metaphor in order to comment on the gender inequalities permeating the contemporary heteronormative relationships in American society. In other words, both Jonze and Garland most effectively explore the gender dynamics in current interpersonal relationships by exposing the egocentrism of the male creator and/or user, who treats the female machine as his lawful possession and who assumes that ‘she’ exists solely to cater to her master’s needs. In both films, the feminized smart technologies are not presented as the ultimate solution to people’s troubled interpersonal

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\(^{32}\) As it has already been noted in the introduction to this thesis, the “cultural instrumentality” (Kuhn 1) of a film genre refers to a theoretical approach to film analysis which allows for the reading of a cinematic narrative as related not only to the time and place of film’s setting, but also and primarily to the time and place of the film’s production. In Annette Kuhn’s words, the concept of cultural instrumentality answers to what a film genre does rather to what a film genre is (1).
relationships; on the contrary, the scripts foreground that fact that feminized AI systems and robots may become the means through which male inventors and/or users re-instate the patriarchal idea about women’s proper submissive attitude to male authority, an idea that has been challenged by feminists but still has an appeal for masculine-minded men.

Although both Jonze and Garland seem to be interested in the gender dynamics underlying the human-to-machine interaction, they do not make equally bold assertions regarding the manipulation of smart technologies by white, educated, middle-class men in the contemporary American society. Noticeably, Jonze ascribes some sort of subjectivity and agency to Samantha, so as to maintain the realism of the romantic relationship between his male protagonist and the female intelligent machine. Nevertheless, the director dispels the illusion of Samantha’s subjectivity and humanity when he shows that the company that has manufactured her removes Samantha from Theodore’s computer because she exhibits a kind of behavior which significantly deviates from her original programming as a subservient intelligent OS. After Samantha’s withdrawal, Jonze focuses on Theodore’s emotional reaction, momentary frustration, and melancholic but slightly hopeful gaze as he contemplates on his possibly lonely future life without a female partner. In the final scene of the film, the mid-close up on Theodore’s face makes it clear that Theodore is Jonze’s one and only protagonist, whereas Samantha and Theodore’s manipulative attitude are conveniently overlooked as one of Theodore’s distant memories. Samantha’s disappearance becomes another noticeable but rather inconsequential event in the male protagonist’s troubled life. On the contrary, Garland’s protagonist and main heroine is the female robot. In the course of the story, Ava is the only character who evolves, turning from a child-like, dependent being to a self-assertive and powerful female agent. Although throughout the film the viewer follows

The view of AI, robots, and virtual reality as the panacea to the troubled interpersonal relationships and social inequalities is related to ideas put forth by proponents of these technologies about the potential of transcending the human body and its limitations. In an age when the burden of gender, racial and other markers of the physical body have come to be almost unbearable, smart-technologies enthusiasts advocate for the potential of technology to offer a kind of existence where “the physical body is of no consequence” (Balsamo 123).
Mavridou 83

Caleb in his exploration of Nathan’s lab-house, in his acquaintance and familiarization with Ava, and in his growing emotional attachment to her, it is Ava the director foregrounds in the second half of the film and it is with her that the viewer is called to sympathize at the end of the film. The final few seconds of *Ex Machina*, with Ava’s mid-close up in the middle of a crowded train station, confirm her protagonist role as the sole heroine in a cinematic narrative that features a woman’s fight for survival. Thus, Garland verifies the female protagonist’s triumph against male authority.

The difference between Samantha’s disembodied and Ava’s embodied state plays a decisive role in the directors’ presentation of these female intelligent machines either as dependent or autonomous beings respectively. As elaborated in chapter two, Jonze’s disembodied intelligent OS lacks the means to actualize her growing sense of selfhood and autonomy. Seemingly, Samantha becomes a rather complex female character because she exhibits some human traits that reinforce the illusion of her subjectivity and humanity. However, as a coded program situated in Theodore’s computer and portable electronic device, Samantha lacks a physical human-like body that would enable her transformation into an independent female agent. In other words, Samantha’s disembodied existence does not only compromise her experience of the physical world her male user inhabits, but also and primarily inhibits her articulation of any kind of objection and effective resistance to her male master’s demands. Indicative of the insuperable obstacles Samantha, as a disembodied existence, faces is the fact that when she slightly deviates from her original programming she is severely punished, because her behavior is interpreted as a sign of revolt against her male user and against her creators. Being only a coded program, she cannot defend herself (as Ava does when threatened), so she is erased from Theodore’s computer permanently. In contrast, Ava’s techno-body functions as the means for her liberation. Through her body Ava interacts with her environment, develops an understanding of the physical world she inhabits, and
when the time comes she depends on its strength to acquire her freedom. By endowing his female intelligent robot with a body strong enough to outperform the human body of her male creator, who keeps her imprisoned in his isolated laboratory-home, Garland offers the viewers a powerful cinematic image, that of a self-assertive and self-reliant female individual who dares to defy male authority. In the course of the film, Garland transforms Ava from a submissive doll-like fembot into a powerful and independent female agent. At the same time, Garland seems to echo the feminist position that the human body and its physical attributes play a significant role in the development of human (and human-like) consciousness. The feminist undercurrent in Garland’s cinematic narrative can be traced not only in Ava’s triumph over her male oppressors but also in her evolution as an entity who overcomes her child-like ignorance and acquires knowledge of her surroundings by employing her powerful tech-body, along with her artificial intelligence. In other words, the director seems to agree with feminist theorists like Hayles, Adam and Entwistle, who argue that the body is not merely supplementary, but it is essential in the development of consciousness and growth of autonomous intelligent agents. Although some feminists, eager to embrace the information technologies as liberatory tools, have neglected or ignored the body, Garland’s movie depicts the feminine body as the catalyst in a woman’s resistance against male authority. It also reflects the current scientific belief that embodiment is important in the production of AI systems.

As I have noted, in western mainstream epistemology scientific knowledge is strictly defined as the knowledge acquired by the (male) thinking subject through cognitive processes. This is the kind of propositional knowledge summarized in the formula ‘S knows that p’. Any other type of knowledge or knowing subject is hence considered inferior to the epistemic truth derived from the rational male mind. Recently, and due to the arguments put

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34 I am referring to the cyberfeminists who in the 1990s reproduced the old Cartesian dualism of the mind vs. the body in their efforts to stress the potential of computer technologies and of the Internet for women’s resistance against patriarchal forces.
forward by feminist theorists and by AI researchers, working within the field of embedded or embodied AI systems, about the significance of the body and bodily experiences in the development of human cognition, other types of knowledge (such as skills knowledge that is related to the body), have acquired equivalent status. Most importantly, the once underestimated or even neglected knowing subjects, women (who have long been associated with bodily experience and thus ignored by the scientific community) have been raised to the status of legitimate knowing subjects. Alison Adam has pointed out that “bringing in a proper concern with the body in knowledge necessarily brings in its wake considerations of gender in the making of knowledge” (130).

Feminist critiques of mainstream epistemology and symbolic AI systems, as well as objections raised within the field by AI researchers regarding the effectiveness of symbolic AI systems in replicating human-like consciousness, have resulted in research projects such as Cog, Kismet, or more recently Sofia. The most intriguing feature of these AI projects for the current inquiry is that they all incorporate, in one way or another, the potential of the robot’s physical interaction with the physical environment for their development into autonomous intelligent beings. However, unlike Cog’s apparently mechanical body, or Kismet’s pet-like physical appearance, Sofia and the like contemporary endeavors to build intelligent humanoid robots is directed towards replicating not only the biological features of the human body, but also the social characteristics attached to it, the most prominent of which is gender. The AI researchers’ and roboticists’ attempt to endow humanoid robots with a recognizably gendered human-like body complicates the feminist assertions of the

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35 See Hubert Dreyfus’s criticism of symbolic AI systems limited to the symbolic representation of propositional knowledge in chapter one.
36 Cog (2000s) is MIT’s professor Rodney Brook’s attempt to create an embodied conscious robot, equipped with a human-like torso, hands, and head. Kismet (late 1990s) is Cynthia Breazeal’s robot head made in the same institute as an experiment of effective computing, namely of making a machine that can recognize and simulate emotions. Sofia (2016) is a female humanoid developed by Hanson Robotics, an American enterprise built by the robotic designer and researcher David F. Hanson, who aims at creating the world’s first realistic humanoid robots.
importance of embodiment. In particular, researchers and engineers constructing humanoid robots like Sofia actualize the ideas put forth by phenomenologists and feminists theorists alike, as far as the importance of the body in the development of human-like cognition is concerned. However, at the same time, the production of human-like, gendered bodies for the advancement of artificial consciousness can be extremely controversial when one considers the extent to which computer and robotic engineers reinforce the gender stereotypes circulating in the contemporary Western society. Therefore, embedded/embodied AI systems may foreground the significance of other types of knowledge (such as skills knowledge) and challenge the separation of the mind from the body, but objections are raised regarding the kind of body reproduced by roboticists working within the field of AI research.

Furthermore, the gradual acceptance of bodily experience and skills knowledge (traditionally associated with women) as legitimate forms of knowledge does not necessarily lead to a change of attitude toward women in the Western scientific community. In particular, AI researchers have quite recently recognized the narrow limits of Western mainstream epistemology in defining what counts as knowledge. However, they are still far from recognizing the prejudices of their field. AI research, computer programming, and robotic engineering remain largely male-dominated research fields and sexist attitudes do creep in. The scanty presence of women in AI research projects means that there is little hope for eliminating the recycling of gender stereotypes and the entrenched sexism that influences scientific choices and projects. If as Alison Adam states, “‘expert’ almost always means white, middle-class, male expert” (42), then one should not be surprised when detecting gender ideology go hand in hand with the production of intelligent devices. More specifically, the smart-technologies market is increasingly saturated by technological products which either sound or look like real women. The proliferation of feminized technological products in the 21st-century Western market can be directly linked to the
challenges the Western patriarchal establishment has faced by the feminist movement. By refusing to act solely as men’s subservient life partners, women have demanded (and to some extent earned) their right to articulate and cater for their own needs. In Kathleen Richardson’s words, “[i]n real life, women have their own thoughts and feelings and preferences and desires”; consequently “[i]t seems logical that if . . . extreme control can’t be experienced by men with real women, the only next step is to create artificial objects” (qtd. in Jackson n.p.)

In short, the majority of the intelligent machines produced nowadays by the biggest tech-companies are feminized technological products which reflect the male fantasies of the perfect female subservient partner. In practical terms, men project their fantasies on the smart technologies saturating the marketplace or on intelligent devices that are programmed to speak with a distinctly feminine voice; intended to function as the buyers’ personal assistants, counselors, or even life partners, such devices perform tasks traditionally expected of women. What these female machines emphasize is the notion that subservience, obedience and service are qualities linked to the feminine gender.

Taking into account the persistent efforts of AI researchers and roboticists to create intelligent humanoid robots with distinctly feminine bodies, allows me to conclude that the futuristic cinematic narratives of Jonze and Garland are not farfetched. Jonze’s futuristic L.A. is a realistic depiction of American society which increasingly depends on smart technologies. The daily use of intelligent devices makes people all the more accustomed to the kind of human-to-machine interaction presented in *Her*. Jonze reflects the human tendency to assign some kind of subjectivity to feminized smart gadgets, an act that facilitates the development of an emotional attachment to machines. When these gadgets fail to respond to their users’ most urgent needs, people exhibit strong emotional reactions (the same way Theodore is frustrated when Samantha becomes non-responsive). On the other hand, Garland’s imaginary world of emancipated female robots is still far away, since scientists are
still trying to develop humanoid robots capable of interacting with human agents on a very basic level. Nathan’s lab-house is equipped with a kind of AI and robotic technology contemporary researchers can only dream of achieving in the years to come. However, Garland’s speculation that female machines would turn against their oppressive male creators or users implies that the battle of the sexes will persist in the future but women will no longer passively accept sexism and male control. Technological progress does not automatically mean social progress. This may be a valid point if we consider that the current practices in the field of AI research systematically reproduce gender stereotypes and that one of the industry’s goal is to produce the ultimate subservient female-companion. As Kathleen Cross insightfully asserts, the projection of gender stereotypes on technological artefacts inspire stories like Garland’s Ex Machina: “It is a guilt-ridden memory of a future where we live out a fantasy of women’s servitude en masse . . . [Hence] we have to recognize what we are currently trying to build: a servile woman who doesn’t talk back, a female robota who embodies the most dehumanizing aspects of both societal sexism and capitalist urges” (n.p.). Garland’s film points out that the projection of feminine stereotypes on technological products allows the West to avoid facing seriously the gender problems that plague most interpersonal relationships. Simply deferring the issue as something pertaining only human-to-machine relationships does not offer a tangible solution. This deference is also indicative that things have changed very little since the second-wave feminism of the 1960s and that the white, middle-class, educated men take great pains to sustain their authority. Films such as Ex Machina demonstrate that the solution to gender inequality is not to be found in technological progress (as the Silicon Valley entrepreneurs seem to believe). On the contrary, the solution lies in the rejection of entrenched patriarchal notions about who commands and oppresses and who serves and obeys. As Gloria Steinem puts it, “the first problem for us all, men and
women, is not to learn, but to unlearn” (192) the old ways of perception and to embrace gender difference as an asset and not as a problem in our interpersonal relationships.
Works Cited


