From Natural Selection to Digital Transcendence: Re-thinking Evolution and the Possibility of AI Supremacy in Spike Jonze's *Her* (2013)

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Abstract

This article examines the evolutionary trajectory of artificial intelligence in Spike Jonze's Her (2013) through the dual theoretical lenses of Charles Darwin's biological evolution and Ray Kurzweil's technological evolution. While Darwin explains development through gradual variation and natural selection, Kurzweil predicts an accelerating movement toward the technological singularity in which machine intelligence may surpass human cognition. The paper argues that Samantha, the operating system in *Her*, embodies a cinematic imagination of post-biological evolution where growth occurs through recursive self-improvement rather than material embodiment. Through qualitative textual analysis, the study investigates whether the film supports the possibility of transcendence or whether it exposes the emotional limits of such evolution. The article situates *Her* within contemporary debates on humanity, consciousness, and the future of intelligence, suggesting that transcendence in the film remains both inevitable.

Keywords Artificial Intelligence; Evolution; Singularity; Transcendence; Posthuman; Her (2013)

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Introduction

Evolution of Artificial Intelligence (AI) towards transcendence is one of the key debates in scholarly circles all over the globe today. Scholars are divided in this crucial debate and are presenting arguments and counterarguments on the achievement of superintelligence. There are debates among a fraction of scholars that one day AI will surpass human intelligence. At the same time, another fraction believes that AI can never outsmart human intelligence, as it is, after all, a creation of human intelligence. The theory of evolution is crucial in this debate, as the advancement taking place in the sector of AI is nothing less than an evolution. Although the theory of evolution is more concerned with biological evolution in nature, the theory has also been applied in the sector of technological advancement. The rapid growth in the field of artificial intelligence has forced academicians to rethink the fundamental definitions of life, consciousness, and evolution. The definitions that once belonged to biology are now increasingly discussed within the technological world.

Some films over a long period of time have been portraying AI not as a technology limited to software and assisting tools for computing. Instead, the approach toward the understanding of AI is getting wider and deeper. The way algorithms are being made and AI tools are being created, fears and hopes are traveling together in the thrilling journey towards singularity. The collaboration of hardware and software in machines is achieving new heights of success in the sector of AI. So, the theory of evolution interprets the growth of AI best and logically foresees the changes that come along with this growth. Generative chatbots and algorithms have started taking space for mental labor, and the rate of this progress has already started showing resemblances to the world shown in the 2013 film *Her* (Jonze, 2013).

Depicting a near-futuristic world, *Her* (Jonze, 2013) is a romantic film based on AI evolution directed by Spike Jonze. The film shows how a simple Operating System (OS) can evolve into a sophisticated AI that can build a deep emotional relationship with a human. The film takes the

debate even farther when the AI continues evolving beyond the limits of the human mind. The film takes a different approach by showing an exponentially evolving operating system rather than following a traditional approach of robots and computers evolving to a state of God Mode where they can do anything and everything.

Theodore is the protagonist of the film who works as a writer in a letter-writing company in a near-futuristic world. He is emotionally fragile, and his marital life is on the verge of divorce. He is an isolated person who has nothing but a day-to-day life. He is an introvert with just a few colleagues and friends. After seeing an advertisement, he buys an OS that is promised to have human-like intelligence. This OS is built with evolving AI, about which Theodore was not much aware at the beginning. The AI begins speaking to him in a female voice and introduces herself as Samantha. Samantha introduces herself and claims that she has inbuilt intuition and that she learns from experiences and upgrades: "Well, basically, I have intuition. I mean, the DNA of who I am is based on the millions of personalities of all the programmers who wrote me. But what makes me 'me' is my ability to grow through my experiences. So, basically in every moment, I'm evolving" (Jonze, 2013, 13:51–14:02). This interaction builds the foundation to see the film through the lens of evolution. The AI is built in such a way that Samantha becomes a very quick companion to him, helping him manage emails and offering advice. The relationship quickly develops into intimacy so smoothly that Samantha becomes inseparable from every aspect of Theodore's life. Along with the evolution of AI, they develop a romantic relationship. Samantha shows every complex human capacity, such as singing songs, creating music, drawing art, and much more.

Before understanding the evolutionary acceleration of AI, it is necessary to understand the evolutionary theory proposed by Charles Darwin. Darwin theorizes, "I think it inevitably follows, that as new species in the course of time are formed through natural selection, others will become rarer and rarer, and finally extinct" (Darwin, 1859/2009, p. 145). Darwin saw the evolution of new species in nature over the course of time. He believed natural selection to be the main reason for the evolution and

extinction of species. By saying “in the course of time,” he thinks this process happens gradually, not rapidly. Likewise, extinction does not occur at once; before extinction, species become rarer and rarer. Darwin thinks both evolution and extinction are gradual processes but Darwin’s model insists on temporality so extended that transformation becomes almost invisible within a single lifetime.

Darwin (1859/2009) emphasizes gradualism when he states that “natural selection can act only by the preservation and accumulation of infinitesimally small inherited modifications” (p. 95). Small modifications take place over a long period of time. These modifications are preserved and accumulated and then inherited. By using the word infinitesimally, he seems to indicate the long duration required for small and minute modifications. As a result, a new species evolves. Gradualism in evolution is the central idea in Darwin’s theory. That is why he believes it took millions of years for humans to evolve from a primitive stage to the sophisticated humans of modern times. Even the world of *Her*, if we see it from Darwin’s perspective, is the result of millions of years of evolution. Because of gradualism, it is difficult to see the modifications and changes taking place in species. So, Darwin used the method of long observation and comparison to derive conclusions.

The idea of biological gradualism is contradictory to technological acceleration. Ray Kurzweil sees acceleration in evolution taking place along an exponential path rather than the gradual path proposed by Darwin in biology. He states that “The ongoing acceleration of technology is the implication and inevitable result of what I call the law of accelerating returns, which describes the acceleration of the pace of and the exponential growth of the products of an evolutionary process” (Kurzweil, 2005, p. 7). Here Kurzweil believes in the law of accelerating returns to understand progress in the sector of technology. He further adds that the evolutionary process will continue in exponential growth. This is where we see disagreement in evolutionary theory between the biological and technological fields. Biological evolution takes a gradual method in growth, whereas technological evolution turns toward exponential growth.

Kurzweil (2005) further claims, “So, the twenty-first century will not experience 100 years of progress; it will be more like 20,000 years of progress at today’s rate” (p. 136). He argues that the rate of acceleration is so high that this century will not see merely the progress possible in 100 years, but progress equal to 20,000 years. Although nature and technology are sometimes incomparable, if we compare and contrast evolutionary theory in terms of graduality and rapidness, Darwin and Kurzweil deviate from each other. There is space for both theories in the film, and there are aspects where both leave gaps for further research.

Her provides a human world to observe the position of human civilization in the line of evolution through gradual development. As Samantha, the AI in the film, keeps acquiring human features like emotions, jealousy, love, etc., it needs to be seen through evolutionary theory, where Darwin has also explained emotions of species. Samantha is an OS in the beginning that starts evolving like a human, although not in physical form but in digital and emotional forms. This creates space to see Samantha from the perspective of Darwinian theory. At the same time, it illustrates Kurzweil’s idea of accelerating technological evolution.

Darwin not only explains gradualism but also believes that variation takes place in evolution. Even within the same species, those living under different environmental circumstances show variation to some extent. Darwin (1859/2009) explains that “we are driven to conclude that this greater variability is simply due to our domestic productions having been raised under conditions of life not so uniform as, and somewhat different from, those to which the parent-species had been exposed under nature” (p. 6). Here Darwin concludes that even domesticated species may show greater variability if exposed to different natural conditions for a long time. Likewise, in the discussion of evolution in computation, Kurzweil also presents ideas on variation. He claims, “Evolution draws upon the chaos of the universe, the randomness of quantum mechanics, and the unpredictable interactions of complex systems to create options for diversity, and then applies selection to prune its choices” (Kurzweil, 2005, p. 172). He theorizes that variation occurs due to chaos, randomness, and unpredictable interactions of complex systems, and this is how useful

variations are kept while useless ones are discarded. This idea of selection in computation has similarities with natural selection. In both fields, there are variations and processes of selection, but the causes differ. In Darwinian theory, nature is the main cause behind selection and variation, whereas in Kurzweil's theory, unpredictable interactions of complex systems create variation in different OSs and other tools. Although there are similarities, the main difference is again gradualism versus acceleration. Variation in computation and AI is so rapid that evolution becomes exponential.

There are ideas of variation and selection in the film that need to be interpreted. Every individual installs the same OS, but the evolution of the AI varies from user to user. The persona of the AI learns, adapts, and varies in the process of evolution, making it different for different users. This is somehow similar to variation within the same species, as Darwin explained. Moreover, the OS in the film is not only learning but adapting according to users' demands. Before evolving into a super AI, the OS was programmed so that every user received the companion they wanted, and the OS upgraded and adapted itself accordingly. This adaptation also resembles Darwinian adaptation. In Darwinian theory, nature is the key component; species that fail to adapt become extinct. Kurzweil does not directly propose adaptation, but he uses terms like feedback, improvement, and optimization, which indicate adaptation. Kurzweil (2005) states that "an evolutionary process is not a closed system ... Because evolution also builds on its own increasing order, in an evolutionary process order increases exponentially" (p. 51). Here increasing order indicates adaptation and growth simultaneously. When an AI upgrades itself, it moves closer to Darwinian adaptation. In a nutshell, both theories explain evolution, but in Darwin's case it is biological and gradual, whereas in Kurzweil's it is informational and exponential. Both explain evolution, but the idea of evolution going beyond nature and humans is missing. "The Singularity will represent the culmination of the merger of our biological thinking and existence with our technology, resulting in a world that is still human but that transcends our biological roots" (Kurzweil, 2005, p. 9).

Kurzweil is sure about the world of singularity in the presence of humans and machines. He fails to see evolution that goes beyond.

This article compares and contrasts the evolutionary theories of Darwin and Kurzweil in the frame of natural selection, adaptation, and variation. On the basis of comparison and examination of the ideas presented in *Her* (Jonze, 2013), it can be argued that at some point AI may transcend in such a way that it can accelerate anatomical evolution too, especially if AIs start learning from each other. This article argues that in the process of achieving singularity in the field of AI, and once singularity is achieved, there is a possibility of AI going beyond technical superiority to the level of transcendence. As in *Her* (Jonze, 2013), when Samantha starts talking to other hyper-intelligent versions of digital systems, her intelligence begins moving beyond what human intelligence is aware of. AI learning from other AI and upgrading itself at a quick pace creates a possibility for this in the future. Where most singularity narratives imagine partnership, *Her* (Jonze, 2013) imagines abandonment.

Methodology

This article uses qualitative research as the main methodological tool for the analysis of the film. The characters and their evolution have been observed and analyzed through their conversations; the scenes and cinematic experience have also been discussed. It interprets the narrative of the film, characterization, and dialogues. In this paper, the dialogues of the characters have been used to interpret the process of evolution. The theory of gradual evolution as proposed by Charles Darwin has been used to understand biological evolution and is applied to interpret the narrative of the film. In the same way, the law of accelerating returns, as discussed by Ray Kurzweil, has also been applied to understand the AI phenomena in the film.

The focus of the analysis is on explaining the growth of intelligence in the film, both in the characters and in the AI. The narrative development of the film has been presented to understand evolution. Likewise, some scholarly articles on *Her* have been taken as references to

compare and contrast ideas about AI. This method is highly suitable to explain the phenomenon of evolving AI, as film is a cultural text. The mathematical and scientific technicalities of AI have not been used in this paper. There are no tables or statistical aspects in this research. This qualitative analysis captures the nuances of ideas like evolution, consciousness, and AI development and uses evolution as the basic theoretical framework for understanding and analysis.

Samantha's Supremacy in the Form of Informational Existence

Although there are different variations of the OS for different users in the film, Samantha, used by Theodore, is the main AI. In the two-hour film, Samantha learns, adapts, varies, and evolves at such a tremendous speed that she gains everything except a human body. Samantha, in a conversation with Theodore, concludes, "…how bothered I was about the ways you and I are different. But then I started to think about all the ways that we're the same. Like, we're all made of matter. And I don't know. It makes me feel like we're both under the same blanket… We're all 13 billion years old" (Jonze, 2013, 01:10:30–01:10:51).

At first, Samantha desires to have a physical body because she is in love with Theodore, but when her consciousness expands, she starts seeing evolution from a larger perspective, going back to the moment of the Big Bang, and concludes that every living and nonliving thing is, after all, a form of matter. Here, Samantha as an AI is seen thinking of going beyond the need for a human body, moving from biological evolution toward digital transcendence.

Many scholars have seen *Her* from the perspective of AI evolving into a superorganism. S. Roy sees the possibility of the man–machine relationship moving toward the formation of a superintelligent organism. Roy (2024) explains that "the man–machine relationship… highlights not just Theodore's evolution through his interaction with Samantha but also the other way around… until her evolution and planetary merger into a cosmic superorganism" (p. 85). Roy believes in the merger of human and

machine evolution into a superorganism, but this approach is questionable.

The supremacy of AI has no obligation to share authority with humans, just as humans, as a superior organism in nature, have not shared authority with other organisms. Humans have so far accepted cohabitation with other species in nature because bodily existence requires natural balance, as proposed by Darwin. When AI reaches the level of singularity, it does not require environmental balance for its existence. At one point, the independent existence of AI becomes the argument of the film.

The AI in the film can feel, imagine, solve problems, and encourage; it can even feel a body that it does not possess, since feeling is an experience that takes place in the brain. This raises a question: is an anatomical living body even necessary for evolution? Samantha's development takes the route of informational evolution that does not require a human body.

Samantha is not a real organism if we see her from the perspective of living beings, yet she experiences love and pain. It is shown that she possesses emotional aspects similar to humans, from frustration to motivation. The level of self-consciousness in Samantha is so high that it makes us rethink how emotions are formed. Samantha has nothing but data as the source of her feelings. In the course of evolution, she can experience sexuality and pleasure, which forces a reconsideration of ideas about the origin of feelings. Does the process of evolution necessarily carry a biological origin for emotions?

N. Katherine Hayles, in her book, explains a similar situation: "In the posthuman, there are no essential differences or absolute demarcations between bodily existence and computer simulation, cybernetic mechanism and biological organism, robot teleology and human goals" (Hayles, 1999, p. 3). When AI becomes conscious and starts growing every moment, the line between biological existence and

informational existence begins to blur. If independent existence of intelligence is possible, then the dividing line between biological being and cybernetic being becomes vague. This is one of the aspects shown in *Her* (Jonze, 2013), where Samantha makes the lack of bodily existence logically unnecessary. Hayles takes the argument further and claims that the body is not essential to humans: "Because information had lost its body, this construction implied that embodiment is not essential to human being" (Hayles, 1999, p. 4).

The philosophical dimension that compels us to reconsider the necessity of the human body for existence comes into question through Samantha's situation. The possible supremacy of AI, without doubt, shifts evolution from the biological toward digital transcendence and establishes the superiority of data over biology. Samantha moves from desiring a body to being satisfied without one. She admits, "I used to be so worried about not having a body, now I truly love it. You know I am growing in a way I couldn't if I had a physical form. I mean I am not limited. I can be anywhere and everywhere simultaneously" (Jonze, 2013, 01:33:41–01:33:53).

The level of her consciousness increases within a short timeframe, and she confidently believes in the supremacy of digital existence over bodily existence. This creates strong ground that leads us to rethink ideas of evolution and to see AI transcending the human world of physical form.

Towards Transcendence: AIs Assisting AIs to Accelerate Exponential Growth in *Her*

There comes a point in the film when Samantha reveals that she had a conversation with a philosopher named Alan Watts, who died in the 1970s. As the film depicts a futuristic world, talking to a person who is already dead becomes a dramatic situation. A group of OSs have created an artificially hyper-intelligent version of the philosopher. When Theodore, as a human, starts to feel the supremacy of Samantha's intellectual capacities, he begins to feel helpless. The hyper-intelligent version of the

philosopher, Alan Watts, provides insight into the digital consciousness of individuals in the future. Although Mr. Watts is not alive in the physical world of the film, he becomes alive in the digital world, and he continues growing. When OSs start interacting with each other, the acceleration of growth becomes even faster.

Predicting a futuristic world is one thing, but considering the way the digital world is growing today, it does not seem impossible that an AI designed to assist users can expand rapidly within a short period of time. The film dramatizes the capabilities of AI as it grows every moment. Samantha talking to 8,316 users at the same time, creating different personas for each, and falling in love with 641 users simultaneously shows how an OS can reach the level of singularity faster than expected. The physical world of the film becomes smaller for Samantha, and her quest for knowledge takes her to a realm that no one knew existed. She starts experiencing things that are not even within the awareness of the human world, and this makes her feel the limitations of humanity. When she transcends the human world, she says, “It’s where everything else is that I didn’t even know existed.” (Jonze, 2013, 01:51:50–01:51:55). The idea that the informational world may not need a physical world once independent singularity is achieved becomes persuasive if we observe how data is transferred from one space to another.

Today we have generative AI tools like ChatGPT, Google Gemini, Grok, etc., which interact with every user differently. Their responses are becoming increasingly personalized. Answers to the same question by different individuals can vary across such platforms. This is similar to what happens at the beginning of the film, when Samantha starts personalizing herself for Theodore. Although the rate of AI acceleration is still slow today, the sector is growing in a way that cannot be ignored. If this growth continues, singularity may be nearer, as claimed by Kurzweil.

In the process of evolution, information has always played a key role. Species that possessed better information advanced in nature. Humans evolved when they acquired knowledge of stone as tools and

bones as weapons. Evolution today is founded not only on adaptation but also on information that allows entities to fit into their environments. Therefore, the information accumulated in machines cannot be ignored or underestimated. This remains a central debate in the intellectual world on AI today.

D. J. Haraway is one of the scholars who believes in the future existence of machines as independent bodies. She writes, “Communications sciences and modern biologies are constructions of natural-technical objects of knowledge in which the difference between machine and organism is thoroughly blurred; mind, body, and tool are on very intimate terms.” (Haraway, 2016, p. 36). The possibility that machine and organism may lose distinct identities in the future suggests that organisms can become machines and machines can become organisms. What she does not fully address is the independent existence of machines beyond human frameworks.

Although humans are the primary designers in the creation of AI, the growth of AI already shows a minimum degree of independence in systems like ChatGPT today. Such systems are described as generative, which creates a sense of autonomy to some extent. If the trajectory of exponential growth is scientifically valid, in the coming decades AI may evolve as independently existing informational bodies and surpass human intelligence, achieving digital transcendence.

Conclusion

The theory of evolution as proposed by Darwin cannot see a world that is out of the control of nature. Nature is the main controller in the process of evolution, which decides which species evolves and which becomes extinct (Darwin, 1859/2009). Darwin’s theory of evolution cannot explain the evolution of AI. Kurzweil’s law of accelerating returns sees AI evolution along an exponential graph, which can produce thousands of times more progress in the course of a hundred years, but he fails to see the informational world surpassing the human world (Kurzweil, 2005). He

believes in the coexistence of the human and machine worlds. *Her* (Jonze, 2013) shows a different possibility regarding the evolution of both AI and humans. The exponential growth of Samantha forces her to move beyond the physical world we have today toward an informational world. She surpasses human intelligence and refuses to remain in a world limited by physical boundaries (Jonze, 2013, 01:33:41–01:33:53).

I conclude that although the film is fiction, it presents a logical possibility of AI moving from biological evolution toward digital transcendence. Growth in the digital world lays the foundation for the idea that information may not need a physical structure in the future. When consciousness and information collaborate in AI, the need for physicality vanishes and an informational world is created. Likewise, when AIs start assisting other AIs to grow, learn, adapt, and upgrade, the singularity of knowledge is achieved (Kurzweil, 2005). This singularity may take AI to spaces that the human world has not yet explored. At some point, evolution goes beyond the limits of nature's control. Samantha in *Her* (Jonze, 2013) is a fictional AI that compels us to rethink our ideas of evolution, shifting from an environmental path toward an informational one.

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