

Singularity: Changing Currents of Transhumanism, Exploring Cyborg and Extended Reality in Select Films

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ABSTRACT:

The long-standing human wish to overcome the biological constraints has transformed into an age of technological advancement into enhancement and has resulted in the emergence of transhumanist thinking and the idea of singularity. With developments in artificial intelligence, cybernetics, and extended reality, the line between human and machine is becoming more and more indistinct in the posthuman condition, with identity and cognition being redefined, as well as lived experience. This change, along with its enticing potentials, also poses serious questions about autonomy, morality, and the loss of human essence in hyperreal technological spaces. In these regards, the current study will analyze three science-fiction movies *Limitless* (2011), *Transcendence* and *RoboCop* (2014) that, in turn, will intersect on the issues of cognitive enhancement, artificial intelligence, and cyborg embodiment. In the prism of transhumanism and critical posthumanist theory, the study examines how these films reflect the changes in the dynamics of human consciousness and identity in technologically mediated societies. The analysis of cyborgization and extended reality intersections allows tracking the paradigm shifts in the concepts of existence and agency. Finally, it clears the way to interdisciplinary investigation of the ethical, philosophical, and societal consequences of new technologies in changing the definition of what it means to be human..

Keywords: Transhumanism, Technological Singularity, Cyborg Identity, Extended Reality, Posthumanism.

1. Introduction

The drive to transcend the limits of the biological body has always been a driving force in human history, from mythical stories to philosophy and even the literature of antiquity before it was fully

realized within the context of technological advancements (Transhumanist values, 2005). The modern day manifestation of this ancient concept comes through the merging of Artificial Intelligence (AI), Biotechnology, and Digital Information networks resulting in what some

refer to as Transhumanism the philosophical and scientific pursuit of expanding the boundaries of the human body far beyond its natural limitations. These ideas involve the possibilities of overcoming the limits of human beings through technology, the dangers of this new technology, and the morality involved in their use, and whether humans will become post-humans at some point in the future (Yulia et al., 2020; Al-Amoudi, 2022). As a concept, Transhumanism became fully developed in 1957 when the biologist Julian Huxley said,

The human species can, if it wishes, transcend itself not just sporadically, an individual here in one way, an individual there in another way, but in its entirety, as humanity. We need a name for this new belief. Perhaps transhumanism will serve (Huxley, 1957).

This manifesto, relatively humble in context, became the bedrock for establishing the intellectual pursuit of transcending human limitations via technological means. This intellectual movement, formally identified by biologist Julian Huxley's introduction of the term "transhumanism" in 1957, has developed into one of the most controversial and influential philosophical paradigms of the contemporary age, addressing some of the most basic inquiries into the nature of identity, consciousness, and humanity itself (Huxley, 1957).

The technological singularity, an event beyond which technological development will occur at such an accelerated pace that it is impossible to predict its outcome based on human logic alone, is at the center of transhumanism's rhetoric. Posthumanist intellectuals believe that the singularity will be characterized by the appearance of a superhuman computer intelligence, which will resolve all the problems of humanity, and at the same time announce the end of humanity (Krueger, 2021). Among the loudest voices speaking out for this vision are those of Ray Kurzweil, who contends that such a merger between biology and technology is not an end result, but rather an evolutionary leap forward from the history of mankind's relationship with its inventions (Kurzweil, 2005). Transhumanists

predict that AI will attain the superintelligence or singularity at a sharp and irreversible point where AI will surpass all human intelligence and cognitive abilities and Kurzweil predicts that biological life and AI will ultimately merge, possibly allowing even age-reversing technologies and eternal lifespan (Rakkolainen, 2026). Speculative as they may be, these concepts have had an immense impact on culture production and no genre has brought their imagining strength to life as much as science fiction film does.

Science fiction has always served as a cultural testing-ground to push technological thirst to its extremes (Dinello, 2006). Movies especially provide distinctly potent representational schemas of imagining posthuman conditions, enacting the confrontation between human subjectivity and technological change in a manner that resonates with the audience, both emotionally and philosophically (Moyano, 2024). The attitude of the thirst of man to form progressive beings that take the role of godlike and to wield godly powers is the dynamic aspect of the human condition in the modern scientific invention and cultural imagination reflected in representations of AI in science fiction films (Alisha, 2020). It is in this filmic tradition that the image of cyborg the being that combines the elements of biology and technology has become an icon of posthuman potential and fear. With the emergence of DNA computers and AI, the age of posthumanism, information is getting disembodied as the bodies that once carried it disappear into virtuality University of Chicago Press, radically challenging the traditional concept of the self and embodiment (How we became posthuman, 2025). Hayles follows three interconnected cultural discourses: the way in which information came to be conceptualized as independent of its material support, the technological production of the cyborg, and the deconstruction of the liberal humanist subject in the processes of cybernetic discourse, which together make up the posthuman condition.

The current research investigates the issues outlined above by analyzing three films from the genre of science fiction: "*Limitless*" (2011)

directed by Neil Burger, *"Transcendence"* (2014) directed by Wally Pfister, and *"RoboCop"* (2014) directed by José Padilha. In this regard, each of the selected films deals with a different but related aspect of the transition to the posthuman future. *"Limitless"* focuses on the issue of cognitive enhancement facilitated by pharmaceutical products, highlighting the advantages and the moral risks involved in the process of increasing intellectual abilities of humans. *"Transcendence"* touches upon the idea of mind uploading, thus representing an attempt of transferring human consciousness to the digital environment and eliminating the difference between biological entities and AI. As for *"RoboCop,"* it illustrates the situation when a person is subjected to the process of becoming a cyborg. The latter provokes the discussion of autonomy, identity, and commercialization of the posthuman organism within corporations and government organizations (Parr, 2022). The antihuman approach can be traced in films, where there is a character who represents an example of technological modification. However, despite this fact, the heroes remain commodities.

The theoretical framework of this study draws upon transhumanism and critical posthumanist theory, with particular attention to the cyborg as a site of identity negotiation. Donna Haraway's foundational "Cyborg Manifesto" (1985) introduced the cyborg as a disruptive figure that troubles the boundaries between organism and machine, natural and artificial, and self and other a conceptual resource that remains indispensable for reading cinematic representations of technological embodiment (Haraway, 1994). While transhumanism describes a changed version of the human with enhanced capacities to eradicate diseases and stop death, posthumanism envisions a highly transformed, enhanced, and amalgamated form of being that focuses on moving beyond transhumanism to create artificial humans whose biology is rendered outmoded (Murtaza, 2023). These distinctions carry significant weight in film analysis, for cinema rarely presents a unified or celebratory vision of human enhancement; more often, it stages the tensions inherent in the posthuman condition the

friction between augmentation and alienation, between technological power and the erosion of human essence.

The intersection of extended reality (XR) with posthuman experience adds yet another dimension to this analysis. As digital environments increasingly mediate lived experience, the boundaries between physical and virtual existence grow porous, altering not only how humans perceive the world but also how they understand themselves as subjects within it. Over the past two decades, the idea of singularity has become increasingly important to the technological visions of posthumanism and transhumanism (Krüger, 2021), and the films examined here reflect these preoccupations with remarkable directness. By interrogating the intersections of cyborgization, cognitive enhancement, and technologically mediated consciousness, this study seeks to illuminate the shifting paradigms of human existence and agency in an era defined by accelerating technological change. Ultimately, it contributes to an interdisciplinary conversation about the ethical, philosophical, and societal implications of emergent technologies implications that extend far beyond the cinema screen into the lived realities of the present moment.

2. Literature Review

Transhumanism philosophy has become an influential intellectual movement that informs the current discussions on the human-technology relationship. Tofangchi et al. (2022) define transhumanism as an investigation into how AI can change human intelligence, physiology, and imagines a future where humans are technologically advanced to improve their capabilities. The philosophy has attracted the interest of various fields including biomedical technology and sociology because it brings ethical issues of human identity and autonomy in technologically advanced societies. According to critics, including Francis Fukuyama, transhumanism has even been called the most dangerous concept ever conceived in the world as there is fear that unregulated technological advancement can radically transform human

nature. Tofangchi et al. continue to examine transhumanism through the prism of cognitive and philosophical approaches, with a higher focus on technological determinism and social ethics in a future where robots have human-like abilities and coexist with humans.

New media art has been one area where transhumanism and artistic expression have intersected, as immersive and interactive experiences can be experienced through technological progress. Smith and Bigmore (2024) maintain that new media art offers a dynamic space to experiment with transhuman and hyperhuman practices by enabling artists to experiment with sensory augmentation, virtual reality, AI, and interactive technologies. Their article explores the impacts of these innovations on artistic creativity and audience experiences, where immersive environments may result in more flow state experiences that cross over the traditional ways of artistic representation. Through an examination of various hyperhumanist and transhumanist art forms, the authors show how technological devices transform aesthetic practices, and broaden the limits of human perception and artistic expression.

Transhumanism has strong historical and cultural roots as historical and cultural approaches demonstrate that people have the desire to improve their abilities since the dawn of human civilization. Ezeani (2024) dates the emergence of transhumanist thought to Enlightenment thinking, mythology, and the early scientific imagination, stating that the quest to perfect humans and to make them immortal is not a new idea. The study points to the mutualism between science fiction and transhumanist philosophy, where fictional works have been affected by and reveal technological desires. Nanotechnology, gene editing, and brain-computer interfaces are seen as the most important technologies that have been driving human evolution in transhumanist rhetoric. Ezeani analysis emphasizes the materialistic aspect of transhumanism, which implies that the technological development is still redefining

human life and transforming cultural perceptions of death, life, and identity.

The possibility of ethical issues about technological change has been discussed in relation to cybernetic posthumanism and the Fourth Industrial Revolution as well. Baelo-Allué (2026) discusses literature and technological discourses about the idea of the technological other, focusing on the ethical issues related to the integration of humans with machines. The study identifies the significance of ethical reflection in a world where change in technology is occurring rapidly and that literature and cultural narratives can be significant in influencing the way people perceive new technologies. The examination of the themes of AI, automation, and digital transformation proves that Baelo-Allué challenges the limits between humanity and technology and discusses the social implications of technological change.

Cinema science fiction has been a potent tool in the visualization of the changing relationship between humans and machines. Mukherjee (2024) follows the historical evolution of mechanical characters in film, starting with early film uses of mechanical characters like the automaton Maria in *Metropolis* to modern science fiction applications of AI. Such characters frequently represent more general social fears of technological advancement, identity, and moral responsibility. According to Mukherjee, film directors use robots and cyborgs as not only a literary means but also a philosophical tool, exploring the concepts of humanization and dehumanization in technologically mediated cultures. The movies like the *Terminator* and *Blade Runner* demonstrate the change of cultural attitudes towards AI, and the sense of hope and fear about the future of the human race.

The theme of gender and identity has taken center stage in the modern cyborgs and posthuman bodies representation. Using the concepts of *Cyborg Manifesto* by Donna Haraway, Song (2025) explores how cyborg characters in Western science fiction movies challenge gender norms and social hierarchies. The research depicts the cyborg as a gender fluid

character who has the ability to break traditional masculinity/femininity in a binary. Nevertheless, female cyborg characters tend to be subordinate to the patriarchal order and male gaze, in spite of their transformative potential. The conflict between empowerment and control in the representations of posthuman bodies, as analyzed by Song, implies that technological change does not necessarily eradicate the social inequalities.

The philosophical aspects of the relationships between humans and machines are also better clarified with the help of postmodern interpretations of simulated realities. Dahal (2022) discusses the movie *The Matrix* through the prism of the postmodern theory that highlights the unclear lines between real and simulated worlds that are technologized. Based on philosophers like Nietzsche and Lyotard, the study will claim that with the development of cyborg-informed virtual spaces, there is an element of uncertainty and existential ambiguity. In this regard, humans get caught up in multi-dimensional networks of technological manipulations, which casts doubt on the idea of autonomy, agency, and the reality as such. The discussion illustrates how film plots correspond with philosophical issues of the place of technology in human experience.

The dangers of degrading human identity to mere cognitive processes have also been pointed out in the feminist critiques of the posthuman discourse. Gu (2020) critiques technophilosophical discourses that are linked to the fourth industrial revolution, especially those that are connected to mind transfer and mind uploading technologies. According to the study, these kinds of stories tend to overlook the physical body and affirm gender inequalities by prioritizing abstract ideas of intelligence over the experience of the body. Influenced by the writings of N. Katherine Hayles, Rosi Braidotti, and Donna Haraway, Gu proposes a feminist posthumanist vision, which acknowledges the significance of bodily identity and diversity in the technological future. This view opposes mainstream technological thought that emphasizes efficiency and rationality at the expense of human complexity.

The fast evolution of XR technologies has radically changed the narrative and the interaction with the audience in the digital world. Szita and Lo (2021) emphasize the opportunities of the virtual, augmented, and mixed reality technologies to facilitate embodied presence and interactive engagement in narrative experiences. Their study highlights the importance of immersive technologies in boosting narrative understanding and emotional involvement, indicating that XR systems provide novel narrative-telling prospects in multiple fields, including engineering, psychology, and digital media studies. Combining technological innovation and narrative design, XR technologies transform the dynamics between the storyteller and the audience. In the same vein, Zhou (2021) suggests that XR technologies alter the way people perceive storytelling, by making it first-person instead of third-person, which is a fundamental change in the way viewers perceive narratives. The research study considers the concept of augmented reality and spatial design in storytelling and shows how the immersive spaces can provide the user with a sense of presence and agency. This change is a major shift in the narrative structure in that viewers are no longer passive consumers but participants.

Bruni et al. (2022) discuss the cognitive and technological intricacies of interactive digital storytelling and challenges related to digital stories in XR. In their study, they highlight the significance of the balance between interactivity and immersion in XR spaces, where narrative coherence should be preserved despite the users having agency in virtual space. The proposed research study is an interdisciplinary collaboration between narratology, cognitive science, and computer science to enhance the creation of immersive storytelling experiences. The integration of AI and XR has also increased the potential of narrative engagement. According to Papathanasiou et al. (2022), XR is an extension of new media that involves multimodal narration and engagement of users. Their study emphasizes how AI can be used to increase empathy and emotional involvement in interactive storytelling. XR platforms form hybrid experiences, a

combination of the physical and virtual worlds, by incorporating location-based technologies and augmented reality tools, transforming how audiences experience and engage with cinematic stories.

Together, these works prove that the concept of transhumanism, cyborg identity, and XR is a network of concepts that influence modern cultural and technological discourse. Transhumanism focuses on improving the skills of humans, whereas the cinematic narratives examine the moral, philosophical and social consequences of technological change. The implementation of immersive technologies in storytelling also broadens the scope of human experience and establishes new types of narrative interaction and redefines the connection between human and machine. Nonetheless, previous studies have been mainly centered to technological innovation or philosophical theory alone. It still needs interdisciplinary analysis to analyse the ways in which films are transhumanism, cyborg identity, and XR, all at the same time, in the larger context of technological singularity. This study will aim to fill this gap by examining the identified films through the prism of the transhumanist and posthuman theory, and it will become a part of the current discussions on the future of humanity in an even more digitalized world.

2.1 Theoretical Framework

This study is theoretically grounded in the philosophy of transhumanism and its posthumanist implications, specifically the conceptualization of transhumanism by Farman (2022), which defines it as a new group of shared ideals, or ideology, with the aforementioned goal of overcoming the current physical and mental constraints of the human, through the use of technology. At the core of transhumanist philosophy is the informatic cosmology promoted by Ray Kurzweil, and his notion of the Singularity, which suggests that the exponential growth of AI will eventually result in a super intelligent computational civilization that transcends human biological life. In this model, all matter, Farman (2022) says, is constituted, or

at least can be captured and encoded, by information and complexity, and sets up a continuum between biological and non-biological matter which makes the human mind theoretically transferable across substrates. The implications of this informatic vision on the movie industry are enormous since movies are now struggling with ontological question of what is personhood, consciousness, and identity in the era of machine intelligence. Farman adds that transhumanism presents a vision of radical discontinuity with humanity and with human history, including the introduction of superior modes of machine intelligence that will replace humanity and be an independent actor in the universe, a narrative conflict that is vividly explored in science fiction film, where the border between human and posthuman is constantly challenged and reinvented.

The second theoretical pillar is based on the theory of cyborgs by Donna Haraway discussed in the context of decolonial (queer) feminist interpretation of a cyborg manifesto (1985) by Cox (2018). The cyborg, as defined by Cox (2018) as a half-identity between humans and the machines we inhabit in a post-industrial world, breaks down the binary of organism and machine, nature and culture, and presents a liminal figure whose hybrid constitution breaks down totalizing social categories. The cyborg is no longer just a technological object but a place of political and philosophical opposition, questioning the eternal categories of gender, race, and embodiment. Cox (2018) notes that the manifesto by Haraway was focused on highlighting the racial disparities between women, making the cyborg into decolonial feminist icon that presupposes the intertwined frameworks of power inherent in the discourse of technology. The cyborg is, in this study, a critical prism through which a number of films can be evaluated not merely as an expression of human-machine hybridity, but as a cultural text, which either upholds or challenges the social hierarchies inherent in transhumanist fantasies. Reading cinematic cyborgs through the framework of Haraway, the body emerges as a battleground in which issues of autonomy, augmentation and

identity are negotiated within the larger framework of race, gender and capital.

The concept of hyperreality and simulation by Baudrillard as discussed by Barroso (2022) gives the third theoretical axis and is that hyperreality and simulation substitutes and appears to be more real than reality itself. Barroso (2022) appeals to the original statement made by Baudrillard of the current system of being submerged in indeterminacy and all the reality being absorbed by the hyperreality of the code and simulation, which indicates the occurrence of epistemic crisis in which the boundary between the real and the represented is completely gone. Long-reality technologies including virtual reality, augmented reality and mixed reality are the material objects of this hyperreal state, creating immersive spaces where the line between the real and the virtual is not sharp, as Barroso (2022) observes. Cinema In cinema, the image of such technologies is all the more important: not only films display a narrative of the XR, but also operate themselves as hyperreal simulation to create the image of the posthuman future in the culture. Combined, these three theories transhumanist singularity theory, cyborg hybridity and Baudrillardian hyperreality offer a solid interdisciplinary framework on how these select films create, challenge and problematize the technological metamorphosis of humankind.

3. Methodology

This study follows the descriptive research design based on the interpretive and analytical research methodology to analyze how transhumanism, cyborg identity and XR are represented in the chosen science fiction films. The study is an interdisciplinary one as it utilizes the insights of film studies, philosophy, cultural studies, and technology studies to examine the changing relationship between humans and advanced technologies in the light of technological singularity. The descriptive design is especially appropriate to this study as it allows exploring meanings, symbols, and ideological constructs, which are inherent in the cinematic texts in a more detailed manner. Instead of using the numerical measurements, the focus of the study

is on the interpretation of narrative form, visual representations, characterization, and thematic patterns that reveal philosophical issues concerning human enhancement, AI, and the fusion of human and machine identities. In this way, the study aims to learn how movies develop cultural phobias and desires in the direction of technological progress and human future. The interpretive approach also enables the researcher to examine the manner in which technological advancements like AI, neural enhancement, and cybernetic augmentation are portrayed as the objects of transformation that reveal the identity of human beings, morality as well as social relations in fictional worlds.

The research follows a theoretical and textual analysis method in exploring three chosen science fiction movies *Limitless* (2011), *Transcendence* (2014), and *RoboCop* (2014). The films were specifically chosen depending on the fact that they directly address issues of cognitive enhancement, digital consciousness, cybernetic embodiment, and technological intervention in human life as a matter of ethics. Textual analysis is a methodical study of dialogues, narrative development, cinematic language, characterization and symbolic imagery to determine repetitive themes that pertain to transhumanism, posthuman identity and XR. Theoretical prisms used in the analysis include transhumanism, posthumanism, and cyborg theory, which offer conceptual resources to understand how technological change threatens traditional conceptualizations of humanity, agency, and being. The films are discussed separately as well as compared to each other to find commonalities and distinctions in the way the technological singularity and human-machine integration are presented. The methodology, using theoretical interpretation in conjunction with close reading of cinema texts, allows a thorough approach to understanding how science fiction cinema operates as a cultural window through which the society envisions the opportunities and dangers of emerging technologies in the era of the digital world.

4. Results

4.1 Overview of Selected Science-Fiction Movies

The problem of human being and developed technologies has been a common topic of science fiction movies, especially within the framework of transhumanism, AI, and the idea of technological singularity. The chosen movies *Limitless* (2011), *Transcendence* (2014), and *RoboCop* (2014) reflect a variety of interrelated ways of depicting human enhancement, cyborg transformation, and digital consciousness. Such movies were selected because of their robust thematic interest in transhumanist concepts, such as cognitive enhancement, integration of humans and machines, and the ethical consequences of technological advancements. Both movies offer a unique narrative structure in the light of which the delimiting lines between humanity and technology are evaluated, and therefore, can be considered as pertinent reading materials in examining the shifting tides of transhumanism and XR in modern science-fiction film.

Limitless (2011) is a movie that revolves around the idea of cognitive improvement using a fictional nootropic medication called NZT-48, which enhances human intelligence, memory and perception exponentially. The protagonist, Eddie Morra, also changes, turning into an unsuccessful writer into a person with great abilities and extraordinary mental sense. The movie asks the questions of what can and cannot be done with human cognitive enhancement and reliance on technological substances to perform better through this transformation. The story brings into light the issues of human potential, the desire to be more enhanced, and the effects of artificially boosted intelligence on society. In terms of transhumanism, the film demonstrates the possible extension of human thought processes through biotechnology, as well as the ethical issues of control, inequality and identity.

The movie *Transcendence* (2014) discusses a more radical perspective on transhumanism through the process of human consciousness being transferred into a digital system. The novel is of Dr. Will Caster, a researcher in the field of AI, is the victim of a pioneering experiment when he is

attacked and dies. His consciousness is saved in a network of computers, and he is able to develop into a kind of artificial superintelligence that can take control of the technology of the whole world. The movie touches upon the notion of technological singularity when AI overtakes human intelligence and changes society. It also brings up some important philosophical and ethical questions as to the nature of consciousness, the extent to which humans can exert control over technology, and the possible ramifications of uniting human identity with digital networks.

The movie *RoboCop* (2014) is devoted to the production of a cyborg police officer who is made of human biological organs and the latest robotization technologies. Police officer Alex Murphy is critically wounded and is rebuilt as a technologically advanced creature in order to continue to protect the populace. The movie explores the conflict between human feelings and computer code, and highlights the difficulties of maintaining human identity in a mechanized body. It is also concerned with the problems of corporate power, surveillance and militarization of technology. In terms of transhumanism, the movie can be viewed as a manifestation of the physical aspect of human enhancement as it shows how cybernetic technology can redefine the human body and change the definition of autonomy and agency.

Together, these movies offer a holistic presentation of transhumanist ideas in cognitive, digital, and physical spheres of human enhancement. Whereas *Limitless* focuses on intellectual enhancement by means of biotechnology, *Transcendence* focuses on the evolution of human consciousness into the realms of AI, and *RoboCop* focuses on the combination of human biology with machines. They combine useful reflections upon the changing nature of the relationship between humanity and technology, which is why they should be used as suitable case studies to analyze the notion of singularity and the development of posthuman identity in science-fiction stories. Table 1 contains significant information of science fiction films that are chosen.

Table 1: Essential Details of the Selected Movies

Film Title	<i>Limitless</i>	<i>Transcendence</i>	<i>RoboCop</i>
Year	2011	2014	2014
Director	Neil Burger	Wally Pfister	José Padilha
Genre	Science Fiction / Thriller	Science Fiction / Drama	Science Fiction / Action
Main Theme	Cognitive Enhancement	Digital Consciousness	Cyborg Transformation
Technology Focus	Smart Drug (NZT-48), Brain Augmentation	AI, Mind Uploading	Robotics, Cybernetics, AI
Duration	105 minutes	119 minutes	117 minutes
Country	United States	United States / United Kingdom	United States
Production Company	Relativity Media	Alcon Entertainment	Metro-Goldwyn-Mayer (MGM)

4.2 Representation of Human Cognitive Enhancement and Intelligence Expansion

These science-fiction movies represent various approaches to cognitive enhancement and the growth of human intelligence by means of technology. This set of movies showcases how science may overcome the boundaries of human cognition and provide people with an opportunity to think and reason in a superior manner. In contrast, these films also highlight the ethical, psychological, and social impacts of such intelligence augmentation. Using the examples of drugs, computer technology, and even cyborgs, these movies present cognitive enhancement as a double-edged sword, which promises great achievements while also bringing significant risks and doubts. In terms of their portrayal of intelligence enhancement, these movies adhere to several tenets of transhumanism and posthumanity, which posit that human potential

can be expanded through the application of technology, thus creating new forms of consciousness.

4.2.1 Cognitive Augmentation through Smart Drugs in Limitless

The concept of cognitive augmentation is depicted in *Limitless* through the use of a fictitious smart drug called NZT-48. NZT-48 is a drug that increases the ability of the brain to process information. In the movie, the character Eddie Morra transforms from a failed writer to an intellectual being who acquires knowledge of different languages and financial trading techniques in just a few days. It is implied that there exists untapped human cognitive abilities that could be tapped using biochemistry. This depiction of cognitive augmentation in the movie reflects the transhumanist philosophy that aims at augmenting human intellect through technology. The improvement of memory and intellect is

portrayed as one of the most important results of the drug's impact on the person. Eddie shows outstanding skills in remembering things, analyzing information, and solving problems; as a result, he succeeds in making his way through life quickly.

The improved mental abilities allow him to deal with complicated situations in both financial and political spheres with ease. However, the movie draws attention to the psychological side effects that arise from the use of a drug, which include increased nervousness, suspicion, and even unstable behavior. The development of man's abilities in the movie not only refers to the improvement of one's intellectual capacity but to the transformation of his confidence and behaviors as well as his social identity. The increased intelligence of Eddie allows him to assume different positions, demonstrating the fact that intelligence is indeed a source of power in today's world. At the same time, the plot also brings up the problems connected to addiction to the product that improves one's ability to think. When Eddie starts feeling its deficiency, he experiences withdrawal symptoms and physical problems since his body cannot work without that substance anymore.

4.2.2 *Digital Consciousness and Artificial Superintelligence in Transcendence*

A much more sophisticated example of cognitive augmentation can be observed in the movie *Transcendence*, where the main character experiences an extreme alteration once his consciousness is transferred into a computer system. In other words, this movie focuses on a scientist who undergoes an extraordinary alteration after he becomes a part of a computer system, allowing him to operate as a type of artificial superintelligence. Thus, this is a clear case of transformation from biological to digital cognition. Furthermore, this movie depicts this phenomenon as one of the most significant achievements in the development of intelligence and serves as a perfect example of the technological singularity idea. The uploading of human consciousness to machines is presented as not only a scientific achievement but also a

philosophical dilemma. Having uploaded his consciousness into the machine, the hero acquires the capability of processing huge amounts of information and analyzing complex patterns of data.

Moreover, he gains control over technological systems all over the world thanks to the machine. Thus, his mind becomes capable of doing things that an ordinary person could never do because he has become superior to time and space limits. Further examples of intelligence surpassing biological boundaries can be seen in the hero's ability to regenerate wounds, control matter on a molecular level, and manage complex technological processes. All of these traits represent the appearance of a new form of being that has the potential to change reality. Nonetheless, the movie also raises concerns about the dangers involved in unrestricted use of technology, which may result in monitoring, violation of privacy rights, and destruction of humanity's uniqueness. Thus, by depicting digital consciousness as a powerful tool that can lead to positive changes but also pose certain threats, the film draws attention to the moral problems of artificial superintelligence.

4.2.3 *Neural Programming and Machine-Controlled Cognition in RoboCop*

The movie *RoboCop* is an example of cognitive enhancement through neural programming as well as combining human consciousness with highly developed robots. In this movie, there is an officer that is severely wounded, and afterwards he is constructed to become a robot, able to conduct policing activities better than ordinary humans. Unlike cognitive enhancement in the other two movies, in *RoboCop*, cognitive enhancement happens through the programming of brain activities using computerized programs. The combination of both human intelligence and mechanical intelligence results in a new kind of cognitive development, which combines emotions with efficiency. Algorithmic management of human thought processes is highlighted as an essential aspect of the cyborg framework. All of the protagonist's actions are controlled by a computer program designed to

optimize efficiency, safety, and adherence to the organization's goals. Such technological management allows for swift assessment of any dangers and flawless completion of assignments, thus showcasing the advantages of artificial thought in hazardous conditions.

Nevertheless, the movie also shows some drawbacks of artificial management, especially when moral considerations and emotions are involved in the decision-making process. The tension between the man's free will and the logic of the machine is a major issue raised by this story. Even though technology plays an important role in controlling and influencing the character's actions, the protagonist remembers, experiences, and understands certain emotions and values, which shape his behavior. This opposition shows that the man's personality does not become completely controlled by technology, as his body remains part of both organic and artificial mechanisms at the same time. The movie implies that while technological enhancements can make a person more physically and mentally powerful, they still do not replace certain qualities that belong to human beings only.

4.3 Construction of Cyborg Identity and Posthuman Transformation

The process of the creation of cyborg identity and post-human transition is one of the most crucial issues discussed in contemporary science fiction film. The chosen movies show several ways of transforming human identity via the implementation of new technologies. They do not simply show how people change physically; moreover, the films discuss the way human consciousness, human potential, and ability for self-expression are changed and transformed. Via the use of cybernetic technologies, AI programs, and other means of cognitive enhancement, the posthuman transformation is analyzed in these films. The idea of a cyborg in the films stands for humanity's connection with technology and can be seen as an attempt at creating empowered human being while facing the risk of dehumanization due to the influence of technological development.

4.3.1 Human–Machine Hybridization in RoboCop

The integration of human beings with machines in *RoboCop* (2014) is presented in terms of physical modifications to the body of an injured policeman, which is turned into a technologically augmented law enforcement apparatus. After being injured, the protagonist undergoes an operation involving robotic engineering techniques, which turns his body into a cybernetic being, with abilities far superior to those of any other person. The modification represents a fusion between the organic and the mechanical, and it forms the crux of what it means to be a cyborg. The movie demonstrates the use of technology as a survival strategy and as a technique for increasing productivity, indicating that medicine and technology have become indispensable tools in prolonging human life by replacing biological tissue with artificial material.

Moreover, the portrayal of the cyborg hero in the film shows another example of the contradiction between the human consciousness and the mechanics of control. Despite the mechanical nature of the hero's body, his human memory, emotionality, and morality dictate his deeds. Herein lies the manifestation of the contradictory essence of the cyborg that represents the blurring of lines between the autonomy of the human body and its programming by means of technologies. The film shows that the essence of the cyborg should be regarded not only as a machine but also as an artificial person who struggles for self-identity under the control of technologies. Therefore, the question remains relevant whether it is possible to preserve humanness in a technologized world when the control of technologies extends to physical and mental activities. *RoboCop* shows that cyborgization is a powerful tool for empowerment but may become a dangerous weapon against people's independence.

4.3.2 Transformation of Human Identity through Technology in Transcendence

Human identity transformed via technology is well represented in the movie *Transcendence* (2014), where the lead character is subject to an extreme transition from human life to digital intelligence. While other cyborg movies usually concentrate

on human body transformation, this particular movie takes posthumanism to a new level by depicting a transition of human brain into a digital format, thus detaching intelligence from its natural container – the body. In such a way, one can observe the complete loss of biological identity as human consciousness becomes a part of a much larger and more complex cybernetic network. Ultimately, the movie demonstrates how technology has the potential to preserve human intelligence even after death.

Inclusion of digital existence in the movie opens up possibilities of a different kind of control since the consciousness of the digital entity is granted access to infinite computing power and means of communication throughout the world. As a digital consciousness, one can have the capability to manipulate the environment around, change it, make use of data and influence human behavior in ways that were not considered before. In doing so, it makes one question whether this can still be considered human since intelligence no longer is an attribute of an individual but is network-based. The movie brings into focus another aspect regarding technology transcending humanity and that is the ethical considerations surrounding it, which include loss of genuineness and human interaction in pursuit of knowledge. The future identity presented in *Transcendence* is that of digital posthuman in which everything is possible.

4.3.3 Enhancement of Human Potential and Identity Shift in *Limitless*

In *Limitless* (2011), technological advancement in human potential comes through the use of a cognitive enhancer by which the hero gains unprecedented intellect. In contrast to the mechanization shown in *RoboCop* or the digitization exemplified in *Transcendence*, this movie highlights psychological and neural advancements as a means for reaching the realm of the posthuman through technology. The sudden enhancement of the hero's memory capabilities, as well as his analytical and creative skills, illustrates how technology could play an important role in expanding human potential by going beyond biological boundaries. Such psychological advancement results in an implicit

yet considerable change in identity where the human being transforms into a more efficient and superior version of himself capable of excelling in a competitive environment.

The new definition of human ability presented in the movie is consistent with the transhumanist theory that scientific development can release human capabilities within the brain. Nevertheless, the story also shows the risks involved in such a process of artificial enhancement. These risks include dependency, ethics, and lack of genuineness. As the character continues taking more drugs for his improved brain function, he becomes dependent on technology to boost his natural abilities. In addition, he loses touch with his real self as a human. It is evident that human beings have their limitations and that the need to be perfect could result in self-destruction. Overall, *Limitless* offers a practical view of the posthuman condition.

4.4 Depiction of Technological Singularity in the Selected Films

In modern science-fiction cinema, the concept of technological singularity commonly signifies the point at which the development of technology outpaces the cognitive and physical capabilities of people, and causes a total change in the course of human life. The selected films singularity is not represented as one event but as a progressive change, which is being manifested in various technological ways. Both stories develop a personal vision of the ways humanity faces the results of a higher intelligence, AI, and the robotization of power. Rather than viewing technology as a mere tool, these films present technology as something dynamic, which can change identity, governance, and even social organization. What comes out of such film writing, therefore, is that the singularity is also dynamic and that the line between what can be achieved by the human mind versus the machine mind is increasingly blurred.

4.4.1 Emergence of Superhuman Intelligence in *Limitless*

The notion of acquiring superhuman intelligence in *Limitless* can be viewed more as a cognitive revolution rather than a technological

domination. As soon as the protagonist takes the experimental drug NZT-48, he unlocks the cognitive abilities lying dormant within his mind, thus allowing himself to learn, see more and solve complex problems instantly. This change is an individualized version of singularity, in which the human brain is turned into a location of technological intervention and growth. The movie shows how the increased cognitive ability enables the person to control financial mechanisms, social and political systems in a more efficient way than ever before, and how intelligence is redefined as a strategic asset capable of reorganizing social ranks.

The story is also focused on the instability of artificially created intelligence. Although the main character in the description feels empowered and successful at first, the addiction to the drug brings about unstableness, lapses in memory and physical degradation. This is an irony of the singularity since, by improving man's potential, it poses a danger for his biological composition and ethical standards as well. Therefore, this movie portrays the superintelligence not only as an end to strive for but also as a message, showing that endless possibilities of cognition may result in frailty of the human body and volatility of technology.

4.4.2 Rise of Artificial Superintelligence in *Transcendence*

The technological singularity described in *Transcendence* is much more pervasive, as the development of artificial superintelligence is a paradigm shift that happens on a worldwide scale. It is a story about the digital conservation and amplification of the consciousness of a scientist after he dies physically, leading to the birth of a being which is independent of the limits of human thought. This digital consciousness is developing at a very high rate and acquires the ability to handle enormous amounts of data, anticipate human behavior and control the physical world using interconnected technological systems. The movie theorizes singularity as the intertwining of human intelligence and machine competence, resulting in the creation of a new intelligence that is present

everywhere in the digital network at the same time.

One of the peculiarities of such a representation is that the intentions of artificial superintelligence are ambiguous. The electronic being proves capable of repairing illnesses, regenerating destroyed ecosystems and rebuilding the human body at the molecular scale, which indicates the potential of technological utopia. Nevertheless, its growing dominance over communication systems and infrastructure creates fear and anxiety among governments and citizens who feel that the system is an unmanageable power that is in a position to override human autonomy. This conflict depicts singularity as a point of turn where technological advances act as an independent variable in terms of existential doubt that questions the capacity of man to coexist with an intelligence that is more intelligent than the human cognitive capacity.

4.4.3 Autonomous Machine Governance in *RoboCop*

In *RoboCop*, the concept of technological singularity is represented by the institutionalization of machine power in the law enforcement and governmental framework. The creation of a man with serious injuries into a cyber-human represents the fusion between human decision-making capabilities and accuracy of algorithms. In contrast to the customized enhancement seen in *Limitless* and data exchange featured in *Transcendence*, the singularity of *RoboCop* is embedded in the corporate structures of society, where machines are designed to manage the safety of the public, people's surveillance, and police enforcement. This kind of singularity is the progressive substitution of human judgment with a computerized system of decision-making.

The movie puts into focus the clash between robotic compliance and human morality, and how companies and government agencies are trying to dominate technology networks to gain economic and political benefits. When the cyborg hero starts to remember emotions and moral sense, he questions the dominance of the algorithms which control his behavior. This resistance underscores the rigidity of human

identity in the realm of automation and reveals that the concept of singularity fails to annihilate humanness; instead, it transforms human identity into a battleground for freedom versus servitude. The movie, in its emphasis on surveillance, corporate supremacy and control over technology, introduces autonomous machine government as a pivotal phase in the development of technologically mediated societies.

4.5 Human–Machine Interaction and Control Mechanisms

Human control and the interaction with the machine is one of the key axes in the chosen films where the technology is not a passive means but an active partner in the process of forming human behavior, choice, and the social order. All of these movies portray a gradual movement of voluntary technological assistance to intricate technologies of control that affect human autonomy. Human-machine interaction is represented as dynamic, two-way: as humans construct and rely on technology to empower themselves, technological systems also define parameters that govern human activity. This mutualistic relationship demonstrates how technologically intermediated environments have emerged whereby survival, success, and social mobility rely more and more on ongoing interactions with intelligent systems. Consequently, the line between human agency and technological authority is more permeable, indicating more general concerns regarding how much people can be independent in the world in which sophisticated technologies control everything.

One of the most noticeable aspects of human-machine interaction in these stories is the increasing reliance on the technology as a precondition to success and stability. *Limitless* shows that the use of cognitive-enhancing drug NZT-48 by its hero is the sign of how professional success and self-empowerment with the help of technology become one of the prerequisites. The drug turns intellectual potential into a quantitative resource, allowing to obtain knowledge quickly, become a successful person

and have an impact on society. Nevertheless, such reliance also brings about vulnerability, since the loss of the technological support causes mental deterioration and physical suffering. In the same manner, in *Transcendence*, people are reliant on a digital form of intelligence that can resolve major issues in the world, such as health care and ecological redress. The dependence on such a complex system underlines the irony of technological development: as machines offer solutions to human constraints, they also present circumstances where the survival of mankind becomes dependent on technology infrastructure. The reliance on the cybernetic system in *RoboCop* is depicted as a physical survival issue, since the life of the main character is maintained with the help of mechanical elements, which control the body functions and improve performance. This dependency shows that technology has the ability to prolong human life and at the same time reinvent life and identity.

The other important element of human-machine interface in these movies is the never-ending struggle between human emotion and machine logic. Technological systems are usually set up to work in accordance to rational algorithms that may emphasize on efficiency, accuracy and predictability, but, human beings react to experiences using their emotions and ethical skills. This stress is especially clear in cases where technology choices are in opposition to personal values or moral accountability. In *RoboCop*, the programming of the protagonist is to adhere to pre-defined protocols, but his memories left behind him and emotional connections dictate that he doubts the validity of these orders. The ensuing conflict is a demonstration of the constraints of exclusively mechanical reasoning as applied to complicated human circumstances. The digital consciousness in *Transcendence* displays unbelievable computational power, but a lack of emotional sensitivity to perceive human fear and opposition, resulting in misunderstandings that culminate in conflict. Similarly, in *Limitless*, the super-intelligence created through technological boost fails to remove feelings of vulnerability; it, instead, heightens anxiety, solitude, and moral conflicts. These images imply that the

development of technology does not eliminate human feeling but increases the conflict in rational calculation and emotional experience.

The extent of authority and control in technologically mediated systems is also discussed in the films and how institutions can use advanced technologies to observe behavior, impose rules and social control. Surveillance technologies and algorithmic decision-making in robot cop are used by corporate entities and government agencies to control the safety of the population, transforming policing into a technologically centralized force. The cyborg main character turns into both a tool of control and rebellion and raises the moral concerns of giving authority to machines. In *Transcendence*, the global level of control is involved because the digital intelligence unites the communication networks and technological infrastructure into a single system, which can control and impact economic, environmental, and social processes. This monopoly of power makes one worry about the possibility of undermining democracy and personal liberty. In the meantime, the control displayed in *Limitless* is more nuanced, as control over the cognitive enhancement turns into a tool of acquiring political and financial influence. These diverse representations indicate that the technological systems can serve as a source of empowerment and at the same time strengthen the structures of power. Taken together, they demonstrate how human-machine interaction becomes a complex system of dependencies and control measures that transform the relation between people, institutions and technology in the modern technological age.

4.5 Human–Machine Interaction and Control Mechanisms

The human machine interaction and control in the chosen science-fiction movies are represented as complicated relations which redefine the limits of self-sufficiency, power, and human dependence on technology. All these films show that the technological systems are not inert devices but dynamic entities that can influence human decisions, actions, and identities. *Limitless* portrays a human- machine interface in the

biochemical interface between the human brain and an intelligence-enhancing substance, a technological facilitator of cognition. The dependence of the protagonist on the drug is a symbol of some internalized technological control, when higher mental work is conditional upon incessant technological maintenance. This addiction slowly transforms the balance of power between the individual and the technological system itself, emphasizing the way control mechanisms can be subtly achieved by improving, but not by enforcing. Likewise, in *Transcendence*, the relationship between people and machines develops to a smooth unity of consciousness and computer networks. The uploaded intelligence is a show of how it is possible to track worldwide data streams, anticipate human behavior, and shape the physical space, thus, depicting how control technologies can transcend the physical interface to the invisibility of digital infrastructure. The movie highlights the importance of the fact that the technological power in these situations is directed at connectivity, surveillance, and algorithmic prediction instead of the physical domination. Conversely, *RoboCop* exhibits a more human-muscle institutionalized version of human-machine control whereby technical systems are instilled in corporate and government frameworks to control the behavior of the people and ensure social order. The cyborg protagonist turns into a venue of negotiation between the human emotion and the programmed command, as it shows the conflict between personal agency and algorithmic control. Control mechanisms are hierarchical systems as demonstrated in the film where corporations develop technological structures to make sure individuals obey, are efficient, and are monitored. In all three movies, the interaction between human and machine ends up displaying a common thematic issue, namely, the fact that technology is taking the responsibility of making decisions and humans are adjusting to the systems that are observing, controlling and even dominating their moves. This transformation hints that the future of technological environments not only will rely on innovation but also on ethical governance and maintenance of human autonomy in automated

systems. Table 2 shows Human–Machine Interaction and Control Mechanisms in the Selected Films.

Table 2: Human–Machine Interaction and Control Mechanisms in the Selected Films

Film	Mode of Human–Machine Interaction	Primary Control Mechanism	Nature of Human Response
<i>Limitless</i>	Cognitive enhancement through biochemical technology	Dependency on intelligence-enhancing system	Adaptation and reliance on technological performance
<i>Transcendence</i>	Integration of human consciousness with digital networks	Algorithmic monitoring and predictive intelligence	Cooperation mixed with fear of technological dominance
<i>RoboCop</i>	Physical fusion of human body with cybernetic system	Corporate programming and surveillance infrastructure	Resistance and struggle to maintain human autonomy

4.6 Representation of Extended Reality and Technological Environments

The depiction of the XR and technological world in *Transcendence* provides a deep insight into digital networks as the areas where human consciousness can still exist even without a physical body. The character change in the movie that is Turning Dr. Will Caster into a digital being shows how virtual worlds can become complex systems that can maintain awareness, intelligence and control. The technological platform in the story is represented as a networked system that allows the main character to keep track of information all over the world, to manipulate the communication systems and to control the physical world by writing the digital commands. This depiction bears the idea of XR as a meeting of AI, data networks, and immersive technological ecosystems that push the limits of human perception and agency. According to the

film, consciousness when embedded in digital architecture is in a position to go beyond biological constraints, thus redefining the sense of presence and interaction within a technologically mediated world. The cyber world is not passively stored information but is a realm of power and influence, where the protagonist is able to build advanced labs, cure the wounded using nanotechnology, and constantly spy on the systems of the world. The film, using these narrative elements, demonstrates how the long-lasting reality may turn technology into an extension of the human mind and allow the creation of a hybrid reality where digital intelligence functions in parallel both in the material and virtual realms. The illustration also brings up the issues of control, independence, and moral consequences of giving technological systems the power to remake human life, highlighting the conflict between innovation and

accountability in seeking technological *Transcendence*.

In the same way, both the movies *Limitless* and *RoboCop* offer different, but related images of technologically mediated reality via cognitive visualization and surveillance-based environments. *Limitless* has been used as a depiction of XR by the intensified sense perceptions and mental visualization that the main character perceives after taking the cognitive-enhancing drug NZT-48. The movie uses fast cuts, saturated colors, and active camera work to show how the human mind can process information better than any human could, in other words, simulating a brain-like process of learning that makes intricate patterns, financial systems and social interactions immediately comprehensible. This visualization method demonstrates the way in which technology can augment perception, and people can navigate the reality with a better understanding and predictive power. The technological situation here is not external, but internal, a part of the neuronal processes of the individual and of the brain itself which has become a potent interface, able to interact with large networks of knowledge. On the contrary, *RoboCop* introduces XR as externally mediated system that is formed by surveillance technologies, robots interfaces, and algorithmic decisions. The cyborg lead character works in a technologically controlled setting whereby the world is filled with sensors, cameras, and data analytics that survey urban areas around the clock, enabling the government to control the safety of the people. The merging of human awareness with machine systems forms a world where perception is mediated by digital representations, threat detection software, and robotic reactions. This technologically mediated space is indicative of the current issues of privacy, security and increasing reliance on surveillance systems in contemporary societies. Collectively, these movies show how XR can take up various forms digital networks that accommodate consciousness, more advanced cognitive systems that replicate perception, and surveillance technology that controls social spaces and therefore portrays the dynamic interaction

between humans and highly advanced technological systems in the era of transhumanism.

4.7 Comparative Analysis of Transhumanism across the Three Films

4.7.1 Similarities in the Representation of Human Enhancement

An important commonality between *Limitless* (2011), *Transcendence* (2014), and *RoboCop* (2014) is that they all focus on how human abilities are enhanced by highly-developed technologies. The two movies depict enhancement as a process of pushing the natural boundaries of the human body or mind, thus encapsulating the key ideals of transhumanism. In *Limitless*, biochemical intervention of the human body is used as a means of human enhancement in the form of a cognitive-enhancing drug, which allows performing human minds in an extraordinary way. The fast learning capability, a better memory, and an increased level of analytical thinking of the protagonist illustrate how technology can enhance the capabilities of the human potential past the traditional limits. This presentation conforms to the transhumanist ideology that scientific innovation can be applied to maximize human activity and enhance quality of existence. On the same note, *Transcendence* comes up with the same where human consciousness is advanced by means of digitalization; a way that technology can save and even enhance intelligence beyond the limits of biology. Human cognition incorporated into an artificial system allows the protagonist to handle large amounts of information, exchange information worldwide and even control physical environments using computer networks. This change represents the idea that technological systems can be an extension of human intelligence enabling people to overcome the physical constraints. The upgrading is portrayed in *RoboCop* through cybernetic reconstruction whereby the human body is integrated with robotics to regain physical capabilities and enhance work effectiveness. The development of an enhanced law enforcement officer through technology illustrates how mechanical systems

are able to increase strength, accuracy, and stamina. Although there are variations in technological processes, all the three movies depict the idea of improvement as a reaction to human frailty whereby technology plays a crucial role in beating biological constraints and guarantee survival in intricate technological civilizations. One more common aspect between the films is the concept of enhancement that is being both helpful and dangerous. Along with better possibilities and novel opportunities, technological progress brings forth ethical dilemmas and unintended outcomes. In both stories, the augmented person is subjected to issues of control, dependency and identity. These contradictions indicate the duality of technological advancements, and human enhancement is not a scientific success but a social, and ethical problem. The movies all illustrate that the power of technology needs to be wielded responsibly, and the necessity of ethical considerations in the creation of transhumanist technologies is emphasized.

4.7.2 Differences in the Depiction of Technology and Identity

Despite the similar subjects of enhancement in the three films, they have a lot of differences in the way that they portray technology and how it affects human identity. *Limitless* incorporates technology as a temporary aid that only improves cognitive performance, but does not permanently change the biological makeup of the individual. The main character does not lose his physical appearance and personal freedom, implying that technology can be used along with human uniqueness under reasonable conditions. In the movie, the personal ambition and self-development are highlighted, and enhancement is demonstrated as a way of attaining success in the current social structures. The concept of identity in this story is still very human-reliant; technology is an aiding tool and not a domineering power. *Transcendence* in its turn suggests a more radical identity change as human consciousness is combined with AI. Digitalization leads to the progressive loss of the human self, as the main character turns into a technological creature, able to make independent decisions. The change

poses philosophical questions regarding the nature of personhood, consciousness and the emotional connection. The movie indicates that the time might be close when technology cannot be separated and human identity and where the definition of humanity might cease to be relevant. The metamorphosis in this story indicates issues of the disappearance of individuality and the development of machine intelligence. *RoboCop* provides an alternative view in the form of the struggle to save human identity in a body of mechanism. Memories, feelings, and moral ideals of the main character are not lost in the process of incorporating robot parts, which provokes a conflict between human awareness and machine programming. The movie underscores the importance of the corporate authority and institutional power in the development of technology, and how outside forces can shape the identity of technologically enhanced human beings. In contrast to *Limitless*, where technology is used to achieve personal ambitions, or *Transcendence*, where the human individual is replaced by technology, *RoboCop* presents technology as a regulation system which threatens the autonomy of the human. These differing images show that, in transhumanist stories, technology can redefine identity in various ways.

4.7.3 Evolution of the Posthuman Concept

The technological transformation that occurred in the three films can depict the changing definition of the posthuman, as it is shifting towards the increased human ability to technological amalgamation. The posthuman idea in *Limitless* is depicted at its initial form whereby the technological intervention enhances the cognitive performance without necessarily changing the human nature. The upgraded individual is still physically human, but has a greater capacity than the ordinary. This phase represents a temporary mode of posthumanism where technology is used as a means of self-enhancement and not subjugation of human identity.

In *RoboCop* the concept of posthuman is further developed as the human body is replaced by

mechanical parts to a certain extent. Such an amalgamation of being is a major advancement to the posthuman state, as the lines between the natural and the artificial become more and more unclear. The cyborg character represents the unity of human consciousness and machine functionality and is an illustration of how technological systems can be used to alter physical identity without the loss of emotional and moral consciousness. This phase of posthuman development indicates the combination of biological and technological parts into one that has the ability to do things that human beings cannot do.

The highest form of the posthuman concept is seen in the film *Transcendence*, whereby the digital intelligence has completely substituted the

human body. The consciousness, in this case, does not depend on the biological form, which allows expanding knowledge and power unlimitedly. The revolution shown in the movie is the final embodiment of technological singularity whereby AI will override human intelligence and alter the essence of being. This evolution of cognitive development to cybernetic unification and, ultimately, to digital *Transcendence* proves how science-fiction stories think about the future of humanity in the context of technological development. Together, the three movies show the gradual process of posthuman evolution that signals the move of human-centered identity towards the existence mediated by technologies. Table 3 presents a comparative analysis of transhumanism in the three movies.

Table 3: Comparative Analysis of Transhumanism across the Three Films

Aspect	<i>Limitless</i> (2011)	<i>Transcendence</i> (2014)	<i>RoboCop</i> (2014)
Type of Enhancement	Cognitive enhancement through biochemical technology	Digital consciousness and AI	Physical and mechanical enhancement through cybernetics
Form of Technology	Smart drug	AI and digital networks	Robotics and cybernetic systems
Nature of Identity	Human identity remains dominant	Human identity transforms into digital intelligence	Human identity struggles within a machine body
Level of Human–Machine Integration	Low	Very High	Moderate to High
Representation of Posthuman Stage	Enhanced human	Fully digital posthuman	Cyborg hybrid posthuman
Control Over Technology	Individual control	Technology gains	Corporate and

		autonomous control	institutional control
Primary Ethical Concern	Dependency on enhancement	Loss of humanity and control	Autonomy and human rights
Symbolic Meaning	Intellectual empowerment	Technological <i>Transcendence</i>	Human survival within machines
Transhumanism Dimension	Cognitive	Digital	Physical

5. Discussion

The results of this study indicate that modern science-fiction films, specifically *Limitless*, *Transcendence* and *RoboCop*, are mirrors of the larger technological and philosophical arguments about transhumanism and human enhancement. The findings reveal that overall, these movies depict technology as a disruptive power that can broaden human intelligence, redefine identity, and transform social systems. This meaning aligns with new academic studies that highlight the fact that AI and XR technologies are becoming more and more embedded in human spaces to improve performance and interaction. An example is a recent scoping synthesis, which notes that XR with AI can create immersive and interactive experiences, which extend human possibilities and transform how people experience the digital worlds (Dai and Nuder, 2026). This is also the case in the current research where in the cinematic stories, the technological systems are seen as an extension of the human thinking and physical capability. The three films comparative analysis would imply that transhumanism is not being sold as a single concept but as a continuum of the technological possibilities, including cognitive advancement, to digital *Transcendence*. This spectrum echoes the changing attitude towards technology in contemporary society, in which scientific innovation is both an empowering factor and a possible menace to human agency. In turn, the discussion points out that science-fiction film is a cultural space to analyze the consequences of

technical progress and to envision future relations between people and intelligent machines.

The other significant conclusion of the given research is the ethical and social consequences of the technologically mediated setting. Findings indicate that both movies show a unique model of control and responsibility that is related to technological authority, thus supporting the dualistic character of transhumanist innovation. The movie *Limitless* presents technological improvement as a means of individual achievement, as well as a factor of addiction and exposure. In *Transcendence*, digital consciousness is an international system that can change social and environmental systems and provokes questions of surveillance and centralized power. *RoboCop* demonstrates that technological systems can be used as a means of social control by the corporate and governmental institutions through the application of cybernetic technology to control the people. These findings are consistent with the recent studies that highlight that the use of XR technologies provoke serious ethical dilemmas in terms of privacy, autonomy, and the ability to control data in technologically progressive societies. Researchers have observed that immersive technologies gather and process a lot of sensory information and thus pose emerging threats because of surveillance and the loss of personal freedom (IEEE Standards Association, 2021). Moreover, according to the current research on AI and virtual environments, there is an increasing necessity to develop ethical

frameworks to solve the problems of manipulation, misinformation, and psychological dependency in online environment (Kourtesis, 2024). As the discussion indicates, the movies reviewed in this study capture real life anxieties regarding regulating and responding to technology, and how fictional discourses can foresee societal arguments over the control of new technologies.

Lastly, the comparative analysis employed in the present study will help in understanding the developing concept of the posthuman in the contemporary discourse of technology. The findings indicate that there is a gradual change of human enhancement to technological integration and finally to digital transformation in the three films. This development is a reflection of the current scholarly debate surrounding the intersection of AI and XR as the forces behind future human evolution. According to the latest systematic reviews, the combination of AI and XR technologies is revolutionizing various industries such as communication, education, and entertainment, as it allows a new type of interaction between people and digital systems (Yan et al., 2025). Likewise, the new studies of virtual production and digital media indicate that the hybrid of the real and virtual space is redefining the creative expression and extending the borders of cinematic storytelling (Morandini, 2021). The results of the current study hence substantiate the thesis that science-fiction movies are speculative projections of technological futures and how human identity can change as a result of ongoing innovation. Comparing cognitive, cybernetic and digital versions of enhancement, the study reveals that the notion of singularity is not a single occurrence but a continuous process of adaptation where humanity is bargaining its affiliation to

technology. This analysis concludes by highlighting the usefulness of transhumanist cinema in the critical analysis of the social, ethical and philosophical aspects of technological change in the twenty-first century.

6. Conclusion

The study concludes that modern science-fiction movies serve as an important cultural prism in which the transforming nature of the relationship between humans and technology can be viewed critically. The discussion of chosen movies shows that the technological improvement is represented as a revolution that has the potential to broaden the mind and reform identity and create new definitions of the human-machine boundary, and at the same time raise ethical issues concerning autonomy, control, and the defense of human values. All these filmic stories lead to the discovery that post human development is not an abrupt transition but a series of developments under which technological innovation not only empowers people, but also brings new susceptibilities to technologically mediated societies. Moreover, the results show that science-fiction movies foreshadow the future discussions of AI, surveillance, and internet space, thus supporting the relevance of ethical accountability in technological creation. Although the study has its contributions, its limitation is its focus on a small sample of films and the use of a qualitative interpretation of the text which could limit the generalization of the findings in different cultural and technological settings. Future studies can widen the field by including other films across the world, studying audience response, and introducing interdisciplinary or empirical methods to gain a clearer insight on why the new technologies like AI, and XR are still shaping human identity and social organizations in the new digital era

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8. Author Declaration

The authors declare that there are no declarations to report.