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THE OTHERNESS WITHIN US

The (Post)human Condition in Times of Crisis

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ונתיא סיהולא[1]
The Future on the Counterattack

by Adolfo Fattori

"Fifteen seconds", said Mordecai Levy. "Attack mode."
The two Cobras opened up, separating themselves about twenty meters. Mordecai released all the arming safeties and fired the rocket primers. In the electronic image-intensification scope, the main street of Bend Jubail looked very much like a shooting range lane.
[…]
"You first, then me," Mordecai announced.
"Okay."
Levy reduced the thrust and watched Grabowski's plane dive toward the village.
The hail of tracer bullets swept across the street, devastating both the living and the dead...
Almost at the edge of town, a group of children ran toward a side alley. They had almost made it when Bernard Grabowski dropped the napalm bomb. The blast of 2,000-degree phosphorus incinerated the entire group and spread the fire across about a square kilometer of shacks. Screaming human torches took only a few steps before collapsing onto the blackened sand.

These lines could have been written today. They could be an excerpt from an instant book, or from a newspaper report. Instead, they are taken from a novel – not a recent one, but from 1981, *Alla fine della notte*, by Alan D. Altieri.

Altieri's fiction, defined by some as "technological gothic" for its extreme, ferocious dimension, is set in a future very close to the time his novels were published; so far, they have been considered as descriptions of a present *parallel* to our own, but today, they are increasingly closer to describing the making of current history.

[1] *Elohim itnu*,: "God is with us"

Thus, starting with this first novel, Altieri devotes himself to writing a highly dystopian narrative, which gradually shifts from one of the planet's hottest scenarios to another, from the ghettos of Los Angeles to Southeast Asia, back to the Middle East, to Europe and then to the United States.

Altieri's technological gothic is made up of an increasingly polluted planet – by industrial production but also by an increasingly widespread, endemic war – unleashed and fueled by financial/industrial conglomerates born from the merger of the great multinationals of the past (our present, we can imagine). They express not only economic and financial power, but *also*, directly, political and military power, which *are* political-military power, engaged in a necessarily eternal war.

In this imaginary (but how imaginary?) space-time dimension there is also room for a tycoon in whom we can recognize a – now deceased – Italian financier, and a "Bridge over the Strait" here reduced to a pile of rubble. A place become the scene of one of the many showdowns between the various powers that compete for the planet – this time, moreover, transformed in an infamous carnage.

These lines also tell us something else. They tell us that the future always manages to catch us off guard – and that the science fiction (be it classic *science fiction*, *speculative fiction*, *anticipatory narrative* or whatever we want to call it), which has long since ceased to claim to predict our future, manages sometimes to be more prophetic than sociological, scientific, or political predictions.

But only when it chooses to be eccentric, extreme, even politically incorrect – something that's not very popular these days. As in the case of Altieri, and some of the most sensitive science fiction writers of the "Classical Age" of science fiction, the 1950s and 1960s – Fritz Leiber, Frederik Pohl, Cyril Kornbluth, authors of still-memorable dystopias.

Instead, for just over a couple of years now, we have found ourselves witnessing events that – let's be honest – we would have never expected: the Middle East is at risk of exploding definitively, between the genocide (yes!) in Gaza, and Trump's US treacherous attack on Iran. Events that are also overshadowing the war between Russia and Ukraine, with the possible risk of finding ourselves in an apocalyptic science fiction scenario, an "imagination of disaster", as Susan Sontag wrote in the 1960s (1966).

And perhaps, what has most projected us into a time completely "out of joint", a distorted, estranged, scalene parallel universe, a space-time

continuum in which one of the pillars of the second half of the 20th century's claim to humanity risks being shattered, nullified, dissipated: the memory of the Shoah and all its implications. Within the superficiality of today's daily communication, a double, lethal movement finds nourishment: on the one hand, the stubborn institutional defense of Zionism, passed off as Judaism tout court; on the other, the instrumental resurgences of anti-Semitism, also based on the confusion between Judaism and Zionism.

The words of Gottfried Benn come to mind – applicable to this piece of "History in Reverse" – recalling the years of Nazism: he write "We shuddered at the implementation of their racist theorems […]. It was categorically excluded that in my father's house an anti-Semitic idea could be conceived or expressed […]. *It was like saying that we wanted to eradicate Europe, to block history, to destroy civilization*" (2002, italics mine).

We could replace the term "Nazi" with the word "Zionist," and Benn's consideration would acquire a paradoxical relevance, surrounding the delirium of a "chosen people" and the realization of a "millennium" in the name of God by the descendants of those who suffered Nazi delirium.

Here, speculative fiction in its various incarnations – like theoretical research on the future – have failed to imagine the direction our times are taking,[2] torn between solar punk optimism and the soft pessimism of digital dystopias while critical reflection on the future that awaits us often seems to look elsewhere, towards linear changes, without shocks, without unexpected singularities.

Once again, capitalism is demonstrating its vocation to change, to shed its skin, to renew its strategies to reorganize and strengthen itself, returning, if necessary, even to a logic of colossal destruction of resources, of barbarism, of ferocity, beyond all principles, beyond all rules. Confirming so, at least in perspective, the forecasts of Jacques Attali, advisor to François Mitterrand (and the first president of the European Bank for Reconstruction and Development, which says a lot). In a 2006 work, *A Brief History of the Future*, Attali predicted by 2025 the emergence of a "hyperempire", in which a handful of super-privileged individuals will wield all global economic and political power. These will rule over a small group of guaranteed "middle managers" (bureaucrats, professionals, mil-

[2] Except, of course, in very rare, completely eccentric cases.

itary personnel, police officers, we can imagine) and an immense mass of desperate people (Attali, 2009) – the survivors of a war that proves to be *eternal*, to quote Altieri again.

It hasn't happened (yet), but it seems like work is underway with eager and determined enthusiasm.

Thus we end up discovering that after the decades of the Cold War, the "low-intensity war" fought between the two great planetary powers of the time, capitalist development – and the definition of a world redesigned by digital and communication technologies – we are risking total, traditional war, with the definitive involvement of civilian populations in the logic of genocide, of annihilation.

The following essays, written after October 7, 2023, and before February 28, 2026, explore directly, implicitly, and tangentially the roots of the current situation. They consider the current prospects of speculative fiction, certainly within the present perspective, that of current digital and communication scenarios. Perhaps they do not directly address a possible impending apocalypse. They propose the premises for an excavation – within themselves, within the materials they cite, offering tools for further exploration – to understand the prospects opening up before us, the present ruins, and a storm perhaps just beginning. Walter Benjamin's words, written in 1940, shortly before his death, in view of the destruction of Europe, come to mind, revealing the true, profound meaning of the term *progress*:

> *There is a painting by Klee called Angelus Novus. It depicts an angel who seems to be moving away from something he is staring at. His eyes are wide open, his mouth open, his wings outstretched. His face is turned toward the past. Where we perceive a chain of events, he sees one single catastrophe which keeps piling wreckage upon wreckage and hurls it in front of his feet. The angel would like to stay, awaken the dead, and make whole what has been smashed. But a storm is blowing from Paradise; it has got caught in his wings with such violence that the angel can no longer close them. The storm irresistibly propels him into the future to which his back is turned, while the pile of debris before him grows skyward.* The storm is what we call progress. (italics mine)

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The Otherness Within Us. The (Post)human Condition in Times of Crisis

by Elisabetta Di Minico, Stefano Locati

Literature, film, TV series, comics, video games, and new narrative media have always imagined the relationship between *naturalia* and *artificialia* and told the world through the lens, often twisted, of several embodiments of one of the most beloved and feared posthuman archetypes in history: the Frankenstein monster. Robots, androids, cyborgs, sentient computers, along with other alien lifeforms endowed with human-like intelligence have crowded and still crowd popular culture. The advent of a new digital understanding, enabled by the development of various forms of artificial intelligence, has rapidly transformed human society, becoming an increasingly widespread everyday presence. While AI can be seen and conceived as an opportunity to improve human life, such as in the medical or technological fields, concern persists that it may replace human values and undermine our independence and our ability to make choices. The new relationship between humans, machines, and algorithms has raised important ethical issues related to data collection and privacy control, impacts on employment, human responsibility, cognitive bias, moral automation, environmental impact, biological evolution, and international crises. Popular culture has always played a key role in helping people understand these and other complex situations: it provides tools for resistance, as even the darkest narrative can invoke awareness, mobilization, challenge to the status quo, and imagination of a utopian future. As Stuart Hall states, "popular culture is one of the site where [the] struggle for and against a culture of the powerful is engaged: it is also the stake to be won or lost *in* that struggle. It is the arena of consent and resistance" (1981, p. 239). In this sense, popular culture can be seen as a means of emancipation and building a better world, since "it almost goes without saying that 'the popular' is a site where 'the political' happens – and that 'the political,' even in the most narrow sense of the term ..., is deeply invested in 'the popular'" (Rodman, 2016, p. 389). Therein, the posthuman represents a dream and a nightmare, a possibility of progress and a sentence, a medium of freedom or an act of exploitation. It embodies both an otherness to be embraced and an enemy to be feared. Rosi Braidotti envisions

> the posthuman turn as an amazing opportunity to decide together what and who we are capable of becoming, and a unique opportunity for humanity to reinvent itself affirmatively, through creativity and empowering ethical relations, and not only negatively, through vulnerability and fear. It is a chance to identify opportunities for resistance and empowerment on a planetary scale (2013, p. 195).

The posthuman could therefore become a game – at once material and philosophical – through which to reflect on diversity, explore the world's heterogeneity, and open up new paths of integration, interweaving, empathy and respect, as in the works of Isaac Asimov and Greg Egan, in the films of Neill Blomkamp, in video games such as *Detroit: Become Human*. At the same time, however, going beyond the human could imply dangers and new problems and even lay the groundwork for unprecedented social upheavals. As many dark fantasies have shown us, from *Metropolis* to *Westworld*, via *Blade Runner* and *Deus Ex*, oppressive, hypermechanized and dehumanized realities could also await us, in which the *Homo sapiens* and the *Machina sapiens* could blur into one another or find themselves in stark opposition, in serious conflict.

How do novels, short stories, films, television series, comic books, video games, and other hybrid narrative forms depict the relationship between humans and the Other and what solutions do they propose in this regard? How do the concepts of posthuman and transhuman shape culture and the collective imagination? How has speculative fiction changed during and after the advent of machines and algorithms in our everyday lives and what impact have they generated on the world around us? These are just some of the questions that the present special issue will address, since the essays collected here continue the discussions initiated during the second edition of the international conference Electricdreams – Between Fiction and Society, titled *The (Post)human Condition in Times of Crisis: The Interplay between Artificial Intelligence, Otherness, and Environmentalism*. The event took place from 18 to 20 October 2023 at IULM University in Milan, in collaboration with the Complutense University of Madrid and the research group HISTOPIA, as part of the Electricdreams International Film Festival (16-21 October 2023). The editorial work for this special issue, as previously noted (Di Minico & Locati, 2024), has once again allowed us to observe the potentially boundless range of approaches to the study of speculative fiction, as well as the theoretical density that

emerges from an inter- and multidisciplinary perspective. The dialogue between close and distant readings, combined with insights from media, cultural, political, semiotic, and social studies – and with the specificities of each medium under consideration – contributes to shaping the vibrant critical arena that the analysis of speculative fiction and popular culture continues to offer.

The essays map a dense constellation of posthuman imaginaries in which crisis, hybridity and control are repeatedly negotiated across media, genres and scales. Ondřej Váša's black holes, Francisco José Martínez Mesa's clones and Javier Álvarez's Crakers all figure a cosmos and a biosphere in which human-centred meaning collapses, displacing Enlightenment subjectivity with indifferent or multispecies agencies. Paola Dalla Torre, Dario Altobelli, and Marco Favaro read, respectively, Blomkamp's films, Cronenberg's Crimes of the Future, and the video-game worlds of Horizon and The Last of Us as laboratories of corporeal and ecological hybridisation, where enhancement, mutation and environmental ruin expose the violence of technocapitalist progress while also sketching fragile, relational posthuman futures. Silvia Storti, Hiroko Inose and Anwesha Maiti relocate crisis to the intimate terrains of beauty, everyday normativity and motherhood, showing how cyborg bodies, "continuously updated" subjects and surveilled carers are reconfigured through biopolitical regimes of optimisation and discipline. Valerio Moccia and Teuvo Peltoniemi extend this inquiry to technological ecologies and utopian experiments, from the Loop's Heideggerian dispositif to virtual and space-based "semi-utopias" that test new forms of community under planetary duress. Finally, Pierandrea Villa, Maria Raffa and Ciarán Kavanagh foreground AI as both agent and symptom of a posthuman crisis of control, where human/AI entanglements, unsustainable infrastructures and *Terminator*-inflected imaginaries force a radical rethinking of autonomy, responsibility and governance beyond the human.

Ondřej Váša examines how black holes have become "favorites of 'speculative nihilism', revered as saboteurs within the cosmic order", arguing that they function as cardinal objects through which contemporary thought negotiates the collapse of human-centred meaning. Tracing a lineage from Lucretius to speculative realism, he shows how black holes crystallise a posthumanist sensibility in which the cosmos appears radically indifferent, "a kingdom of 'caprice and disorder, eternally unintelligible'". The article demonstrates that these figures of "eternal and

unfathomable blackness" encode a double crisis: of Enlightenment faith in rational progress and of the human as privileged epistemic subject, thereby turning cosmology into a privileged site for thinking extinction, inhuman agency and the limits of correlationism.

Francisco José Martínez Mesa traces how the cultural imagination of cloning evolves from early dystopian fears to a broader posthuman reflection on the contemporary crisis of identity under technocapitalism. Noting that Huxley's clones already mirrored "the looming horrors and fears" of mass society, he shows how later fictions – from *The Island* to *Never Let Me Go* – shift the focus from scientific hubris to systemic dehumanisation: clones become figures of shared vulnerability, revealing how posthumanism destabilises notions of uniqueness and agency in a world where both humans and their replicas risk being reduced to "mere tools and commodities" within an increasingly deregulated global order.

Paola Dalla Torre analyses how Neill Blomkamp's *District 9*, *Elysium* and *Chappie* articulate a dual movement: a disenchanted critique of transhumanist utopias and the outline of an affirmative, relational posthumanism. Showing how his dystopias expose the socio-political and bioethical costs of enhancement, she argues that Blomkamp visualises a civilisation in crisis, where technological progress "deepens social inequalities rather than alleviating them" and where the human is destabilised by hybridisation. At the same time, the films gesture toward alternative posthuman subjectivities grounded in vulnerability, interdependence and responsibility, thus reframing posthumanism as an ethical response to the contemporary technological and ecological crisis.

Dario Altobelli argues that David Cronenberg's *Crimes of the Future* reveals transhumanism not as a future horizon but as the crisis-ridden condition of the present, in which humanity has already crossed decisive anthropological thresholds. Through Cronenberg's metamorphic bodies – altered in nutrition, sexuality and sleep – the article shows a world where technoscience and capitalism fuse into a bio-techno-social regime that erodes agency and dissolves the human form. Altobelli contends that this aesthetic dystopia exposes a genuinely posthuman transition: a nihilistic passage in which both subjectivity and society are progressively annihilated, signalling the disappearance of *Homo sapiens* within an emerging posthuman order.

Marco Favaro reads *Horizon* and *The Last of Us* as complementary meditations on ecological collapse, arguing that both video games

translate our contemporary condition of permanent crisis into interactive dystopias. Noting that "society as we know it ceases to exist, and its destruction is ultimately a 'suicide'", he shows how the games expose the self-destructive logic of capitalist modernity while staging divergent posthuman futures. *Horizon* articulates a technologically mediated, optimistic posthumanism grounded in "dystopic hope", whereas *The Last of Us* rejects renewal altogether, presenting a world where "we lose" and posthuman life emerges only as inhumanity. Together, they reveal how digital narratives negotiate the limits of humanity in an age of environmental and moral breakdown.

Silvia Storti argues that *The Lunar Chronicles* mobilises fairy-tale rewritings to articulate a transglossic, posthuman imaginary that interrogates beauty, identity, and otherness in a moment of cultural crisis. Her reading shows how Meyer's cyborg Cinderella and the wider cast of Lunars, shells, androids, and hybrids destabilise humanist assumptions by inhabiting multiple, simultaneous subject positions. Through deep simultaneity, planetary consciousness, and intersectional transversality, the series reframes fairy-tale motifs to expose the violence of normative beauty and the exclusions embedded in patriarchal and anthropocentric narratives. Storti demonstrates that Meyer's fractured retellings use speculative fiction to rethink the human/non-human boundary, revealing how posthuman bodies – marked by technological alteration, disability, or racialised difference – become sites where contemporary anxieties about identity, vulnerability, and systemic injustice are negotiated.

Hiroko Inose argues that Yukiko Motoya's 2021 novel *Oshiko no deforuto* ("Oshiko's Default Standard") dismantles the comforting binary between human essence and machine, showing instead how, in a post-crisis Japan, humans "continuously updated" adapt so fully to technological norms that the distinction collapses. Through the satire of a society where "differences are the origin of all types of unhappiness", Inose demonstrates that posthumanism here is not transcendence but capitulation: humans mimic AI, internalise obscurantism, and redefine "functioning" as the ability to swallow reality. The article shows that the true crisis is not domination by machines but the human capacity to erase its own boundaries, making posthumanism an everyday, unsettling normality.

Anwesha Maiti argues that Jessamine Chan's *The School for Good Mothers* (2022) exposes motherhood as a site of posthuman crisis, where care is reconfigured through surveillance, biopolitical discipline, and

techno-authoritarian norms. Reading the novel as a dystopian allegory of contemporary reproductive anxieties, Maiti shows how the state's mechanised training of "good mothers" reduces maternal identity to quantifiable performance, revealing the erosion of empathy, autonomy, and relationality. Therefore, Chan's narrative reframes motherhood as a posthuman condition – one in which women confront the collapse of humanist ideals under regimes that treat both bodies and emotions as programmable, optimisable data.

Javier Álvarez argues that Atwood's *MaddAddam* trilogy rethinks humanity from within a planetary crisis, using posthumanism to dismantle anthropocentric identity and to foreground multispecies interdependence. Noting how the Crakers' engineered harmony makes Snowman reflect that "they were so beautiful… each individual was exquisite", Álvarez shows how the novels expose the fragility of humanist categories and the ethical limits of biotechnological mastery: Atwood envisions a posthuman condition grounded not in transcendence but in vulnerability, relationality and ecological entanglement, where humans, animals and synthetic beings form a shared, precarious world that demands new ethical frameworks beyond human exceptionalism.

Valerio Moccia argues that *Tales from the Loop* constructs a narrative ecology in which posthumanism and transhumanism intersect to reveal a deeper crisis of the human in the technological age. Through Stålenhag's illustrations and Halpern's series, he shows how robotic prostheses, consciousness-transfer devices and machine-organic anomalies unsettle anthropocentric certainties. The Loop functions both as a transhumanist dispositif of control and, in Heideggerian terms, as a site of *alētheia*, where characters confront vulnerability, relationality and the limits of mastery. Moccia demonstrates that the work reframes crisis not as collapse but as an ontological turning, where human and non-human agencies co-emerge in a fragile, shared world.

Pierandrea Villa argues that human/AI interaction must be understood within a broader posthuman crisis of the subject, where the boundaries between humans, animals and machines collapse. Drawing on Haraway's claim that "nothing really convincingly settles the separation of human and animal", he shows how speculative fiction – from *Frankenstein* to *Terminator* and *Matrix Resurrections* – maps fears of autonomy, rebellion and Promethean shame: the replicability of consciousness destabilises human exceptionalism, revealing a posthuman condition in which intelligence, agency and even "functioning" selves can no longer be confined to the human, forcing a radi-

cal rethinking of hierarchy and ontology.

Maria Raffa presents AI as a field marked by a profound sustainability crisis, showing how the same technologies promoted as solutions to environmental and social challenges often generate new forms of ecological, economic, and ethical strain. Examining machine-learning models and social robots deployed for the United Nations Sustainable Development Goals (the global framework of 17 targets for environmental, social and economic well-being), she highlights their hidden costs: extractive supply chains, high energy consumption, labour exploitation, and techno-solutionist narratives that obscure structural injustices. Drawing on critiques of greenwashing and the distinction between "thin" and "thick" sustainability, Raffa demonstrates that AI frequently intensifies the posthuman condition of crisis unless its entire lifecycle is redesigned to integrate environmental integrity, social justice, and democratic accountability.

Ciarán Kavanagh examines how contemporary AI discourse reveals a posthuman media crisis in which science fiction – especially *The Terminator* – is repeatedly mobilised to frame fears of technological autonomy. Noting how headlines recycle images of "AI going 'Terminator'," he argues that this feedback loop grants speculative fiction an unintended authority, shaping which futures receive "serious" cultural attention: such analogies both inflate apocalyptic fantasies and obscure urgent regulatory issues, demonstrating that seriousness itself becomes a contested resource. In this sense, SF's posthuman imaginaries do not merely reflect the crisis around AI – they actively participate in producing it.

Teuvo Peltoniemi presents virtual and space-based communities as contemporary expressions of a posthuman utopian impulse emerging from a moment of profound technological and ecological crisis. He argues how digital environments – from early online forums to the Metaverse – reproduce classic utopian features such as shared values and creative autonomy, yet remain incomplete because embodied human needs persist. This incompleteness leads to hybrid "semi-utopias," where physical and virtual life intertwine. Furthermore, Peltoniemi reads space-colonisation projects – from Biosphere 2 to O'Neill's L5 habitats and the International Space Station (ISS) – as techno-utopian responses to planetary fragility. Across both domains, he argues that utopian experimentation now unfolds within a posthuman condition in which technology reshapes community, identity and survival, revealing both new possibilities and new vulnerabilities.

The essays in this special issue reveal how posthuman imaginaries emerge precisely where crisis, vulnerability and interdependence intersect. Across media, genres and theoretical frameworks, they show that the posthuman is neither a distant horizon nor a purely speculative construct, but a lived condition in which bodies, technologies, ecosystems and narratives continually reshape one another. What these contributions collectively foreground is the need to rethink agency, responsibility and coexistence beyond the human, embracing forms of relationality capable of responding to planetary precarity. As Donna Haraway reminds us, "we require each other in unexpected collaborations and combinations, in hot compost piles" (2016, p. 4): it is within these unruly, generative entanglements that new ethical and imaginative possibilities take shape. The posthuman, in this sense, becomes not only a site of crisis but also a laboratory for re-imagining community, care and futurity in an age marked by profound technological and ecological transformation.

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Black Holes as the Cardinal Objects of Speculative Nihilism

by Ondřej Váša[1]

Abstract

How did black holes evolve into conceptual figures of speculative nihilism? This essay outlines the metaphorical convergences that recast these opaque astronomical entities as signature objects of "cosmic pessimism" in the work of thinkers like Eugene Thacker, Benjamin H. Bratton, and Ben Woodard.

Keywords: black hole, cosmic imagination, astronoetics, nihilism, speculative realism

I'm the wreck of you
I'm the death of you all
I'm the wreck of you
I'm the break and the fall
Soundgarden, Limo Wreck (*Superunknown*, 1994)

If we hadn't tracked down black holes in the depths of space, we would have had to invent them. Wait a minute… we *did* invent them! They emerged from the inhuman mathematics of relativity as speculative physical monsters that physics itself – despite the embryonic eighteenth-century intuition – initially refused to accept, denying them the right to exist (Bartusiak, 2015).

For good reason: black holes stormed the celestial stage as objects of "Lovecraftian horror", transforming the once-glorious stellar landscape into a "rather depressing picture of our galaxy being eaten alive", leaving physicists yearning for an orderly universe stranded with an "irrational

[1] This work has been supported by Charles University Research Centre programme No. UNCE/24/SSH/026.

belief that the world and universe are, must be, lawful" (Pournelle, 1978b, pp. 348-349). These "blood-mouthed wolfs" (Broxon, 1978, p. 283) "bend light and time" (Pohl, 1999, p. 298), and not just them: beyond the event horizon, even "space and sanity" are degraded into "meaningless terms" (Aldiss, 1989, pp. 225). Last but not least, these entities challenge the very concept of blackness itself, as their "terrible darkness" (Aldiss, 1989, pp. 224) is "blacker than evil" (Benford & Eklund, 1977, p. 62) and, against the backdrop of a universe illuminated by stars, they stand out as "purest black, unseeable, unknowable, a thing of madness". In a word: they are an "enemy" (Swanwick, 1981, p. 92).

It is true that black holes have entered our cosmic imagination in less gloomy light as well: as wormholes opening into wondrous parallel universes, or even as creators of better worlds from the dust of stars. Still, even today, they persist in scientific metaphor as "the weirdest things in the universe", as "monsters", "beasts", "nasty singularities" with "alien and brutal properties" (Phipps, 2020, pp. 21-22).

And they tend to look that way too. One need only think of the nowiconic behemoth in the scifi epic *Interstellar* (2014); the majestic cosmic monster of *Solo: A Star Wars Story* (2018); or the more intimate, yet no less menacing omen in the sky, in the series *Hard Sun* (2018). These are joined by countless subtler black hole companions across art, short films, and visualizations of varying scientific rigour (Gamwell, 2025). Even a miniature black hole appears intuitively catastrophic – much like its metaphorical, sexualized incarnation in Charles Burns's comic *Black Hole* (1995-2005). In the end, a black hole doesn't even have to be near to be lethal, as in *High Life* (2018) – arguably the saddest film ever to host the phenomenon – where it awaits a little girl like an inhuman sacrificial altar.

No wonder they became favourites of "speculative nihilism", revered as saboteurs within the cosmic order. Nevertheless, this seemingly fated role was woven from a tapestry of fusions, initiated by an instinctive aesthetic decision.

Put very briefly, black holes entered culture as icons born from a colour adjective – bogeymen emerging out of the dark corners of a cosmic scrapyard. Who would wonder? The universe is black, holes are black; and the supermassive ones sit enthroned in the wombs of light like mementi mori, reducing stars to little more than trinkets of idealist or romantic imagination. And through this alliance with the black – hand in hand with the ongoing bankruptcy of the Enlightenment – they gained

the upper hand.

Stars demand faith. Their majesty rises and falls with the idea of better tomorrows toward which these beacons are meant to guide us, and their light resists any easy separation from the metaphors of knowledge or salvation. Black holes, by contrast, seem almost purposebuilt to indict any emotional investment in the cosmos, the darkest and most hostile corner of all. They outlive the stars only to become the wreck of them; murmuring like the incomprehensibly lame fate of everything.

"Where we are, you shall be. And where you are… is but a random point in a wasteland whose agenda bears no relation to yours". At least that is the message speculative pessimism claims to discern in the cosmic noise, invoking black holes as nihilistic *corpora delicti* for all futile pretensions to harmony and meaning.

That, I believe, warrants a brief flyby.

(Con)Fusions

Let's rewind the clock a bit, for the conceptualization of black holes outlined above aligns well with a longstanding tradition of aesthetic and philosophical reflections on

> a vast *abyss* of space
> So wide and deep that flashing thunderbolts
> Can neither in their courses traverse it
> Though they may fall through endless tracts of time,
> Nor by their travel make one whit the less
> The distance still to go (Lucretius, 1997, pp. 31-32, italics mine).

In other words, black holes slip naturally into the post-Lucretian contemplation of a merciless universe, where we may be sure that

> Heaven and earth likewise had their beginning
> And in destruction too will have their end (Lucretius, 1997, p. 144).

These bleak prospects filtered through the Victorian visions of indifferent freezing wastelands – whether in the Arctic or in outer space – and from there into modern judgments about the very "pointlessness" of the universe (Weinberg, 1993, p. 154), where "our number" – the existence

of humanity and life itself – "came up in the Monte Carlo game" (Monod, 1971, p. 146). Were we ever to venture across such immeasurable distances, it would only be to hear a verdict first whispered in the wilderness of the nineteenth century, and now reverberating through the icy cosmic desolation of our own age:

> This ground is not prepared for you. […] I have never made this soil for thy feet, this air for thy breathing, these rocks for thy neighbors. […] Why seek me where I have not called thee, and then complain because you find me but a stepmother? Shouldst thou freeze or starve, or shudder thy life away, here is no shrine, nor altar, nor any access to my ear (Thoreau, 2004, p. 64).

The fusion described above was naturally far more complex – just as the post-Lucretian secularized universe need not necessarily provoke moral skepticism. A classic example can be found in Bertrand Russell's reflections on the "abysses of space", "accidental collocations of atoms", or nature as an "unthinking Mother". Yes, it is true that "all the labours of the ages, all the devotion, all the inspiration, all the noonday brightness of human genius, are destined to extinction in the vast death of the solar system" (Russell, 1983, p. 67). But this does not diminish the possibilities of human freedom, whose nobility arises precisely from the impossibility of outwitting the universe.

Primo Levi reflects in a similar vein: "Maybe we exist by chance", but "if the human mind has conceived Black Holes, and dares to speculate on what happened in the first moments of creation, why should it not know how to conquer fear, poverty and grief?" (Levi, 2002, pp. 214–215).

And yet: see how easily and smoothly we arrived at black holes?

Levi, of course, does not choose them at random. On the contrary, his anthology of key existential and scientific texts systematically leads toward them (Levi, 2002, p. 9). Levi is an optimist: the fact that "the human mind has conceived Black Holes" proves that "the heavens are not simple, but neither are they impermeable to our minds – they are waiting to be deciphered" (p. 214). But beneath this hopeful gaze lies a subtle tension, an unspoken contrast between black holes and the Big Bang. As the dark, implosive antipodes of radiant, explosive creation, black holes stand out as the true agents of a universe that is "hostile, violent, alien" (p. 214).

So why should we treat black holes merely as thorny cosmic problems, rather than as "the world's summit", where "the general darkness of the observable universe […] coincides weirdly with the singular negative mirage" of these voracious cavities? (Masciandaro, 2013, pp. 49-50).

If the universe is ultimately a kingdom of "caprice and disorder, eternally unintelligible", should these regents not already be ruling the heavens that, one day, will be "overcast and starless?" (Poincaré 1958, 88). Why not to venerate black holes as "the most vengeful things possible in the universe", that "take revenge on the also-vengeful world of chemistry?" (Morton, 2024, p. 139). As gigantic mouths that devour not only "that visible and gross light [of the stars] which strikes our bodily eyes, but a light far more subtile, which illuminates our minds?" (Poincaré, 1958, p. 85).

It would seem so. For if stars illuminate outer space as a realm of hope – where there is always somewhere else to go, a place beyond gravity's grasp, reachable only by light – then black holes testify to a noir universe.

Black Hole is the New Black

That would be another milestone on our journey.

At the modern crossroads, the universe is no longer just an abyss. It is "an abyss of *darkness*" (Monod, 1971, p. 170, italics mine; Brljak, 2025); and the "disconcerting vastness of the 'great outdoors'" (Gironi, 2010, p. 15) presents a "speculative opportunity" only insofar as it unfolds both before and within man as "an eternal and unfathomable blackness" (Brassier, 2007, p. 228).

François Laruelle's universe is also black, its blackness being "the radical of color […] entirely interior to itself and to man, […] the without-Ground which fixes light in the remote where man observes it". To "assist the Universe", to live up to the fact that man "is answered only by the Universe, being black and mute" (Laruelle, 2013, pp. 104-105), ultimately requires nothing less than the abandonment of all master concepts and images that reduce the boundless universe to this or that – nature, home, wasteland, resource – and subject it to selective rays that disciplined reason wields as pointers and canes. These concepts tame outer space into a manageable, domesticated World, shrinking its horizon to the down-to-earth survival that fundamentally denies the universe's

boundlessness. But man is to constitute himself from its darkness as an unrestrained being – or more precisely, as a figure of liberated and boundless thought of the night.

Laruelle certainly need not be read nihilistically; nevertheless, such a reading remains possible – if only because accepting such a relationship entails accepting "the unhuman orientation of deep space and deep time" (Thacker, 2012a, p. 68), whose philosophical consequence is "cosmic pessimism, a pessimism of the world without us", accompanied by the notion of "doom" that demands "humanity [be] given over to unhumanity in an act of crystalline selfabnegation" (Thacker, 2012a, pp. 68-70; Barber, 2013, p. 38).

It is easy to understand why, for a cosmic nihilist, black holes seem to have just the right colour, suffused with the mystical tones of "divine darkness" (Thacker, 2012b, p. 91) and the eerie glow of "black illumination" (Thacker, 2013). "Hence another possible meaning of the term 'black': Black = Cosmic. Or better, Black = Cosmic Pessimism" (Thacker, 2011).

Undoubtedly, part of their allure lies in the very phrase "black hole", which already sounds "lugubrious" (CrightonLyon, 2011, p. 266; Gironi, 2010). Given its culturally wellassimilated properties, the black hole becomes an ideal metaphor for withdrawn objects that elude discursive capture (Bryant, 2013, pp. 293-294). For Graham Harman, "'black hole' would be a good technical term for the sort of allusive, withdrawn object that Lovecraft so often loves to establish" (Harman, 2012, p. 276) – a notion he later extends to real objects in general. It also helps that black holes are not merely theoretical abstractions. They are objects we can point to, entities that seem to guard the universe's deepest secrets. They loom fantastically gargantuan – and they can even be photographed. That surely qualifies them as universal superstars.

But that is not the whole story. There is, of course, a long tradition of black objects symbolizing forms of negation; from black dogs, horses, and suns to the symbolic taboos of anuses and vaginas in rigid discourses, on to the somber metaphors of black holes of memory, depression, drives, or trauma – a lineage where our cosmic phenomenon fits more than readily (Kristeva, 1989; Crockett, 2007, pp. 37-50; Catren, 2011; Waldron, 2013; Eekhoff, 2022, pp. 37-53; Sperling, 2026). How could it not? These forms of imbalance threaten the stability of the inner world just as black holes disrupt the coherence of the outer one. For all their

evocative force, however, the parables invoked remain no more than metaphors – attempts to gesture toward the dynamics of an inaccessible centre that nonetheless governs everything around it.

With speculative realism, however, something's new. Black holes, as the sovereign objects of a universal blackness, are elevated from the realm of loose metaphors to the level of metonymic ordeals that everyone must sooner or later pass through.

On a Highway to Hell

There is something revealing in black holes' ready affinity with Dantean imagination. Jerry Pournelle treats them as analogues of Mount Purgatory, the fateful destination of Ulysses – the archetypal role model of all future cosmic mariners (Pournelle, 1978a; Dante, *Inf.* XXVI:133). Michael Bishop, with Beatrice beside him, calls them "dark, entropic murderers" (Bishop, 1978, p. 303). In Disney's *The Black Hole* (1979), scientists bow before "the most destructive force in the universe […] just like from Dante's *Inferno*". For Susskind, crossing the event horizon echoes a plunge into Dantean hell (Susskind, 2008, pp. 36-37).

Yet the most compelling example comes from one of speculative realism's foundational texts, Quentin Meillassoux's *After Finitude* (2006). There Meillassoux summons the image of Dante's Ulysses and his vortex-like fall at the moment of an epistemic passage into "the great outdoors" (Meillassoux, 2008, p. 63). Although the image is mediated through Mallarmé's reworking of the same motif in *A Throw of the Dice Will Never Abolish Chance* (1897), its message remains crystal clear: through mathematics we enter the "Kingdom of the dead", sinking into "the hells of the inorganic world – those deep, subterranean realms where life and subjectivity are absent". In other words, the "principle of materialism", which asserts access to an inhuman world beyond correlation with human consciousness, is intrinsically "infernal", and the logic of this journey is that of *descent* (Meillassoux, 2016, pp. 157-158; for an extended analysis of the Ulyssean motif, see Váša, 2023, pp. 124-127).

This speculative turn readily aligns with the broader tendency to resist the traditional philosophical veneration of the heavens. From Friedrich Nietzsche's critique of Kant's starry sky *above* us, through Georges Bataille's mockery of astronomers who, like military officers, regiment the

heavens into mathematical order, to speculative realism, which instinctively avoids stellar imagery and instead gravitates toward the murky, Lovecraftian register of cosmic horror. If only because the stars present a splendorous spectacle: one that too easily imposes the idea of a world inherently correlated with the human mind.

Yet the same vortex draws in a vessel that appears to be charting an entirely different course: Ray Brassier's nihilistic "organon of extinction" (Brassier, 2007, p. 239). It is true that Brassier ultimately overturns Meillassoux's notion of the "ancestrality" of a nonhuman world, along with Sigmund Freud's understanding of the death drive as a "primordial pull *back* towards the inorganic" (Brassier, 2007, p. 235, italics mine). Instead, he theorizes the posteriority of extinction, the inevitable consequence of the universe's entropic dissipation – culminating, as already noted, in "an eternal and unfathomable blackness" (p. 228).

And it is precisely this collapse of the very conditions of sentience that inclines us toward an aesthetics of descent rather than elevation – toward going down instead of looking up. The key point is that "the posteriority of extinction indexes a physical annihilation which no amount of chronological tinkering can transform into a correlate 'for us', because no matter how proximal or how distal the position allocated to it in spacetime, it has already cancelled the sufficiency of the correlation" (p. 229). For this reason, extinction must be understood not as something awaiting us in a distant future – as the final page of the book of history – but as a "catastrophe (…) that has already happened" (p. 223): one that "turns thinking inside out, objectifying it as a perishable thing in the world like any other (and no longer the imperishable condition of perishing)" (p. 229). Brassier develops these originally Lyotardian insights into the conclusion that "extinction is real yet not empirical, since it is not of the order of experience" (p. 238). He advances this even further, arguing that thought can indeed "bind" extinction, but not by treating it as an object; rather, only as a form of trauma (p. 239). That is, as something already present – something that belongs to the regime of depth. If anything, the catastrophe in question undergoes a peculiar form of *catabasis* with respect to us, and we respond with a traumatically heightened intuition of a fall.

And if one of the decisive aesthetic moments of this *disaster* is the prospect that "every star in the universe will have burnt out, plunging the cosmos into a state of absolute darkness" (p. 228), then this is all the more reason to move beyond stellar metaphors associated with light.

But that is no simple task.

It no longer seems sufficient to "fling [yourself] toward the stars to reduce them to powder, one by one" (Cioran, 2010, p. 181). Reza Negarestani was right to criticize the "conservative solar image of thought," which obstructs the "unrestricted and abyssal reflexivity of the universe and its universal synthesis" (Negarestani, 2008a). More precisely, he was right to challenge the limited rebellion staged against this economy, and to experiment instead with Lovecraftian images of radical necrophilic bonds – relations governed by the logic of contagion and decay. This "philia" – unlike purposeful syntheses that remain bounded by their own ends – leads into "the unground where events or entities undergo a *descent* without stoppage" (Negarestani, 2003, italics mine).

One may attempt to subvert the classical image of stars as beacons or companions – remaking them as volcanic eruptions, or recasting the night sky as a field of candles in a Kantian cemetery desecrated by antiastral intercourse, as Georges Bataille once did. One may worship the sun as a bestial deity, as in Danny Boyle's *Sunshine* (2007). One may even dream, with Bernal, of "resolving itself entirely into light" and becoming conscious radiation (Bernal, 1929, p. 57). Yet even these gestures remain caught within the solar economy and its "parochial" machinery. Even the most determined solar rebels, eagerly embracing cosmic death, still play by stellar rules, offering their bodies to the blaze of life.

To truly defy the stars – to refuse to be drawn toward light, to resist submission to the mundane imperatives of survival, futile as they are – one must go a step further: the stars must be *degraded*.

And this is where black holes step in. Looking up to the stars is as foolish as a fish trying to leap above the surface in the belief that doing so will free it from the hook. To hurl oneself into a black hole, by contrast, requires only one thing: to go with the flow, knowing that this is the only course worth following. Black holes – or, more precisely, the devouring unknown that lies beyond the event horizon – function as metonymic objects of uprootedness, which simultaneously open within us as a traumatic anomaly that disrupts the system.

Nihilistic imagination does not treat black holes as mere opposites of stars or as their photographic negatives. Black holes do not outshine the stars; they arise from their collapse and failure. As ravenous, imploded centers of galaxies, they embody the cosmic ruin of our hopes and the quiet bankruptcy of our knowledge. Born from the structural logic of this

world, they exist only to criminally puncture it – and, as singularities hidden behind the event horizon, they inhabit the cosmos as something that neither belongs to this world nor concerns itself with it. They rule over nothing; instead, they negate everything.

The alwaysprovisional stars, perched on their dimestore luminous thrones, never reach the bottom of things. Black holes do. And as debased objects with an underside but no ground or seat to speak of, they descend all the way – and take the very idea of bottoms and thrones with them. They confirm that "the weird" is the authentic "cosmic reality" (Negarestani, 2008b).

Sources of Inhumanity

It is true that neither Meillassoux nor Brassier mention black holes explicitly; however, their speculative readers readily deploy them whenever they wish to emphasize the "breakdown between the human and the environment in which it is enmeshed" (Thacker, 2012c, p. 140).

Black holes – understood as cultural objects – fit perfectly with Thacker's horror-inspired logic that "the indifferent" and essentially cosmic "unhuman is immanently 'within' the human as well" (Thacker, 2013); or more precisely, that "extinction can only be comprehended from within the tomb" (Thacker, 2018; Negarestani, 2008a). The "unhuman" or "extinction" cannot be thought from behind a glass window. It has to be thought from within, as something actively at work.

Hence, Schopenhauer and his notion of the "cosmic indifference of the Will" are compared to a black hole (Thacker, 2015, p. 41; Thacker, 2020, p. 28; Thacker et al., 2017, p. 312). Black holes come immediately to mind once we realize that "the cosmos is even more indifferent than we initially thought" (Thacker, 2018). They represent "the absolute density of non-being, absorber of all sound" (Thacker, 2014, pp. 179-180, 187), and serve as heroines of "anti-Christian visions of cosmic disaster, the infernal universe swallows God and everything else" (Thacker, 2012d, p. 91).

Naturally, Thacker is not the only one. Benjamin H. Bratton hails the famous 2019 photograph of a black hole, noting that its "darkness is absolutely empty," and that "part of what makes this image signif-

icant is that it signifies true nothingness." He anticipates this "terrifying image" of "anti-significance" and "undermining" to "absorb us and uproot us" (Bratton, 2019, pp. 7, 62-63).

Ian Bogost identifies "a strong link between inhumanity and alienness," considering aliens to be "the flipside of the inhuman," and describing them as "the deep-space black-hole source of inhumanity" (Bogost, 2014, p. 140).

Ben Woodard, for his part, greets black holes as "destructive singularities" and "deterritorialized digging machines" that "move through space and expand the yawning spatiality of space itself" (Woodard, 2013, p. 40).

These and similar observations hail black holes as the true and authentically cardinal objects of the universe. Not only because they are supermassive and "huge", or because they currently function as epistemic and aesthetic focal points of the universe, seemingly guarding its most profound mysteries. They have become favored references within speculative nihilism because they serve as unique *corpora delicti* of its inherent, radical inhumanity.

Conclusion

The fusion described above, however, is also riddled with a whole series of shortcircuited "ifs". Here we can only repeat a variation of the critical question that Mary Midgley once posed to earlier moralizing uses of scientific metaphors and classifications (Midgley, 2003).

What makes black holes stranger objects than "the appearance of a fly on the speaker's nose" (Bataille, 1970, p. 184)? What makes them more cardinal than the birth of my daughter, or than the fact that Jesus Christ's crucifixion took place off the beaten track? What is it, exactly, that makes black holes terrifying? Is "being torn apart into atoms" (Tyson, 2007, p. 283) truly more horrifying or more bizarre than being hit by a laundry van?

Black holes are undoubtedly curious entities governed by unusual physics and mathematics. But the fact that they do not fit neatly into the current geometry of the universe does not automatically make them the James Deans of outer space – although, admittedly, the villain dressed in black is always cooler than Gregory Peck.

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Do Clones Dream of Being Humans? Cinematic Fictions around Transhumanist Dehumanisation

by Francisco José Martínez Mesa

Abstract

This study explores the evolving cultural and literary imagination surrounding human cloning, with particular attention to its portrayal in dystopian and science fiction narratives from the early twentieth century to the present. Drawing on philosophical, ethical, and sociopolitical contexts, it traces how cloning has served as a lens through which anxieties about human identity, individuality, and agency are articulated. The work situates cloning within broader debates on human enhancement and the implications of scientific intervention, referencing foundational literary examples such as Mary Shelley's *Frankenstein* and Aldous Huxley's *Brave New World*. It highlights how the notion of cloning, initially intertwined with fears of dehumanization and totalitarian control, later intersects with critiques of consumerism, neoliberalism, and technological commodification in a globalized society. By analysing a wide range of cultural texts – including literature and cinema – the paper examines how representations of cloning have moved from depicting clones as mere instruments of horror or scientific hubris toward more nuanced reflections on shared vulnerability in the face of an increasingly deregulated world. Ultimately, this approach underscores the relevance of cloning as a metaphor for contemporary concerns about the erosion of agency and the fragile boundaries of human identity in the context of capitalist and technopolitical forces.

Keywords: Clones, Posthumanism, Dystopia, Capitalism, Alienation

In 1997, the English scholar and critic Patrick Parrinder posed a thought-provoking question that still invites reflection today: "Can we imagine a better society without imagining or wishing to create better people?". His question undoubtedly opened the door to a wide range of approaches and answers that, in any case, would depend on what each of us understands by improving society or improving people.

Indeed, how can we improve human beings? Some have conceived this improvement from the perspective of human nature, under a moral approach, the ultimate result of which would benefit the collective desti-

ny of the community. But others, especially since the scientific revolution and modernity, have linked this desire to the physical and intellectual optimization of humankind through science and technology. Among these, one of the most representative strands of the concept of human engineering associated with the notion of enhancement, and undoubtedly one of the most controversial, due to the possible moral and ethical implications of its application, was that related to human cloning. The growing series of advances achieved in the field of molecular biology over the past decades, which opened up the possibility of creating exact genetic replicas of another cell, tissue, or organism, soon generated a serious debate in society concerning the limits of science and the role of humankind in its relationship with nature, whose corollary in the sphere of the imaginary was the emergence of discourses and cultural representations in the societies of that time.

The clone is a figure of artificialization of the human that, unlike robots, androids, and cyborgs, does not originate from mechanical engineering but from biotechnology: it is a genetically identical organism, produced by technical intervention but constituted entirely of organic matter. Its liminal character, at once "natural" and "manufactured", distinguishes it from the robot, the paradigm of the mechanization and automation of labor; from the android, a machine that simulates human appearance or behavior; and from the cyborg, a hybrid of biological body and technological prosthesis aimed at expanding the subject's capabilities. However, despite these ontological differences, the representation of the clone as a mass-produced product or means of mass production establishes a clear parallel with other technological figures, especially the robot: it is no coincidence that its first literary appearance in Karel Čapek's *R.U.R.* (1920) was explicitly linked to the themes of industrialization, the standardization of life, and the factory logic of mass production. In this way, the clone inherits and reconfigures, in a biotechnological key, the fears associated with the mass reproduction of the human being that literature had already projected onto mechanical automatons.

Within this context, the aim of this article is to analyse the role played by the image of the clone within dystopian narrative from its emergence in the early decades of the twentieth century and its evolution over time, thereby showing how the figure of the clone, like other phenomena associated with scientific innovation and, therefore, with the future course of societies, has also undergone a significant evolution in its perception and

imaginary, to the point of ceasing to be identified with the terrifying image of its beginnings and becoming instead a fellow being, just as immersed in weaknesses and fragilities as ourselves, who paradoxically is also exposed to the threats of increasing dehumanization.

I

Although the figure of the clone constitutes a contemporary form of artificial creation based on biotechnology, its logic of "manufacturing life" does not arise in a vacuum: it is rooted in a long tradition of stories about beings created by non-natural means. However, these antecedents operate on a very different symbolic and technical register, as they refer to pre-modern or proto-modern forms of animating matter. The process of artificially creating a (nearly) human life offered an initial approach in modernity in Mary Shelley's novel, *Frankenstein* (1818) (Turney, 1998). But this was not an excessively original perspective, since the theme posed by the story, humanity's attempt to usurp a strictly divine prerogative (Ballo and Pérez, 1997, p. 277), had already been extensively addressed in the past, in myths such as those of Prometheus or the Golem. In both cases, the creature emerges from a transgressive gesture: in Prometheus, the theft of fire that grants humans a power reserved for the gods, and in the Golem, the animation of clay through the sacred word, thus anticipating the ethical dilemma of giving life to the inert by means that exceed the human.

However, the work that undoubtedly had the greatest impact on the collective imagination when first raising the possible consequences of cloning was *Brave New World* by the British writer and philosopher Aldous Huxley. Published in 1932, in a time when no one seemed to foresee such a disturbing technological advance, the novel very quickly became one of the most decisive and influential texts on the subject, both then and for subsequent generations. It depicted a future society in which advances in genetic engineering had enabled the authorities to achieve the mass creation of clones, whose division into different categories according to their capacity and authority constituted the ultimate design of a productively optimal and socially stable world.

Although the novel's extraordinary impact is undeniable, the issue of cloning, depicted in the work as the "Bokanovsky process", was not what

most concerned Huxley or what originally prompted him to write the book. For Huxley, far more pressing matters were at stake, such as the growing threat of dehumanization facing individuals in a context shaped by the rise of mass society, the advent of new phenomena like capitalist mass-production techniques and consumerism, and the elevation of science and technology as the primary vehicles of social and individual progress and well-being. In this regard, it seems clear that the role assigned to the figure of the clone should be understood as a rhetorical strategy designed to underscore the striking parallels between the living conditions of these artificial replicas and those already looming over human beings within a social horizon increasingly governed by imperatives of productivity and efficiency. In Huxley's view, building a world grounded in materialism and utilitarianism meant embracing the dissolution of individuality in favour of the collective, echoing the totalitarian tendencies of the time, and, consequently, sacrificing the intrinsic sense of human identity, without which people would ultimately be reduced to mere objects.

Until the 1990s, the figure of the clone had largely been confined within popular culture to the narrow realm of science fiction (Domaradzki, 2021). Both literature and cinema offered portrayals of human replicas with varying degrees of success. However, even in these cases, the narratives in which clones appeared typically engaged with themes that extended well beyond the mere mechanics of the cloning process itself. Among these, the following can be identified:

Cloning as a means of producing identical copies of an original

Beginning in the 1950s, alongside the emergence of the Cold War, the genre saw a wave of works that speculated about the prospect of a quiet alien takeover of Earth. In these stories, extraterrestrials employed strategies such as gradually abducting humans and replacing them with identical replicas loyal to the invaders. This scenario is exemplified by the film *Invasion of the Body Snatchers* (Don Siegel, 1956). A similar concept appears in British author John Wyndham's novel *The Midwich Cuckoos* (1957), later adapted for the screen as *Village of the Damned* (Wolf Rilla, 1960). The depiction of clones as inhuman, unfeeling beings devoid of personal identity directly echoes Huxley's portrayal in 1932. However, this notion of the clone as nothing more than a genetic duplicate has often been challenged, as it rests on the erroneous belief that an individual's

identity is determined solely by their genetic constitution – a view known as "genetic determinism" (Hopkins, 1998).

Cloning as a way to reproduce a unique human being who no longer exists

During the 1970s, well before such a possibility could be regarded as realistic, several works emerged that speculated on the idea. Examples include films like *The Resurrection of Zachary Wheeler* (Bob Wynn, 1971) and *Sleeper* (Woody Allen, 1973). The most striking and unquestionably the most popular was *The Boys from Brazil* (Franklin J. Schaffner, 1978), based on Ira Levin's novel published in 1976. In this case, the use of cloning to create a new Hitler as a means of establishing a Fourth Reich lent the phenomenon a disturbing sense of realism, generating greater public concern and awareness

Cloning as a means of producing varied identities

These narratives depict the creation of several clones from a single original human, who, much like natural offspring, go on to develop distinct personalities and talents independent of their model. In this category we can include works as *Cloned Lives* by Pamela Sargent (1976) and *The Cloning of Joanna May* by Fay Weldon (1989).

Cloning as a method of securing progeny

These narratives are typically set in dystopian contexts where individuals face social or environmental conditions that have led to widespread infertility, placing their entire society or world on the brink of extinction. Examples include *Imperial Earth* by Arthur C. Clarke (1975) and *Where Late the Sweet Birds Sang* by Kate Wilhelm (1976).

Cloning as a means of mass production

This theme picks up on ideas Huxley had explored decades earlier. It no longer involved creating clones of particular individuals, but rather producing large numbers of them tailored to the needs of the system. This perspective, emphasizing the utilitarian trajectory of modern societies, also linked to another potential application of cloning: the view of health as the ultimate consumer commodity and the pursuit of immortality. A clear example is

Parts: The Clonus Horror (Robert S. Fiveson, 1979), a film portraying how the creation and cultivation of clones served those wealthy enough to purchase one to replace their failing vital organs.

Cloning as an outgrowth of scientific curiosity and investigation

In these narratives, scientists are typically portrayed in a decidedly negative light. Regardless of the motives that may underlie their experiments, their work is often set in opposition to moral and ethical considerations. Their relentless drive to push beyond all natural boundaries, to play God, in essence, ultimately turns their discoveries and creations into monstrous outcomes. A clear example of this naïve (or dangerously self-assured) approach is found in Richard Cowper's novel *Clone* (1972).

II

Paradoxically, this particular cultural imaginary surrounding cloning began to take shape years before it became a genuine scientific possibility. The real turning point, however, came in 1997, when Doctors Ian Wilmut and Keith Campbell successfully cloned the first mammal from an adult somatic cell: Dolly the sheep. Following the success of this experiment and the prospect of applying it to other species, including humans, a major public debate arose in society, focused especially on its ethical implications. This debate was accompanied by a sense of fear and anxiety that, as already discussed, was by no means unfamiliar to the broader public.

However, it is impossible to fully grasp the global controversy and debate surrounding cloning without also acknowledging the simultaneous emergence of other discourses that supported these advances. This was not about defending reproductive cloning, the very notion that had provoked public anxiety and horror through films and literature, but rather another form: therapeutic cloning, whose development and enhancement could enable the repair of defective genes, the creation of cellular models to fight diseases, or the testing of pharmaceutical efficacy. Although this type of cloning also faced criticism, particularly on moral and religious grounds given that some viewed the human embryo as a potential person, countries as different as South Korea and England launched public campaigns that framed cloning techniques as a source of hope, tied to the

promise of advancing human well-being and eliminating suffering (Harán *et al.*, 2007, p. 37).

The introduction of this optimistic discourse into the broader debate on cloning, together with the widespread perception, largely shaped by the media, of the imminent arrival of these scientific advances, was key to the emergence of a distinctly pessimistic and disheartening narrative, clearly reflected in much of the dystopian literature of the time. While fears and anxieties still centred on the potential dangers and risks of reproductive cloning, these stories generally went beyond cloning itself, framing the issue within a larger context defined by the rise of neoliberal values and the horrors of unrestrained capitalism.

The 1990s, however, did not see any substantial shift in the themes that had dominated earlier discussions of cloning. The spotlight remained on the sinister and frightening consequences of these practices. In this context, some productions highlighted clones as mere copies of humans (*Star Wars: Episode II – Attack of the Clones*, George Lucas, 2002), either portrayed as qualitatively inferior to the original, like in *Multiplicity* (Harold Ramis, 1996), or as deviating from their creators' intentions, typically with horrific and chilling outcomes: *Jurassic Park* (Steven Spielberg, 1993) for animals, and *Alien Resurrection* (Jean-Pierre Jeunet, 1997) and *The Godsend* (Nick Hamm, 2004) for humans.

The dystopian imaginary constructed in this body of narrative aimed to challenge the expectations promoted by official agencies and the scientific establishment concerning the promise of new therapies and techniques and the imminent arrival of a future in which curative and regenerative medicine would ultimately advance human enhancement and well-being.

The new fictions drew on the very arguments employed by proponents of reproductive cloning to call for its legalization, only to subvert them and assign them a completely contrary meaning:

Reproductive freedom conceived as the only way to have a genetically related child

In *Blueprint* (Rolf Schübel, 2003), a world-renowned pianist and composer who learns she has a degenerative nerve disorder that will eventually stop her from playing asks a friend – an innovative reproductive scientist – to help her create her clone, so she can pass her music on to her daughter. The underlying issue, of course, is the instrumental nature of the replica, who is intended to possess fully human traits yet

is kept ignorant of her true origin, leading to profound identity struggles.

The creation of "savior siblings"

Children are deliberately conceived to provide a means, through donations of bodily fluids, umbilical cord blood, organs, or tissues, to save an older sibling from disease or death. Against this rationale, various narratives depict these beings as manufactured objects rather than individuals with inherent value and dignity. Many key stories from this time place the issue within a context where reproductive and therapeutic cloning converge, showing how obtaining donor clones extends beyond family members to anyone who can afford it financially. In these works, health becomes a consumer commodity under an unregulated capitalism serving the wealthiest classes. Notable examples include *The Island* (Michael Bay, 2005), strikingly similar, if not bordering on plagiarism, to the earlier *Parts: The Clonus Horror,* and Kazuo Ishiguro's novel *Never Let Me Go* (2005), later adapted for film by Mark Romanek in 2010.

Cloning to replace deceased children

A central critique targets the instrumental nature of the substitute being, doomed to lack a true individuality since its genes derive from someone else. This is described as a state of alienation and determinism tied to the absence of an open future. Some works from this period depict this use of cloning as perverse, producing aberrant outcomes, as in the previously cited *The Godsend*. In a wider context, this idea also surfaces in *Æon Flux* (Karyn Kusama, 2005), where reproductive cloning supports 99% of the Earth's population. Although cloning here initially appears beneficial, the story's turn toward the renewed possibility of natural conception prompts the protagonist to plot the destruction of the facilities housing the DNA used for cloning.

III

The economic globalization of the early 1990s, which politically coincided with the fall of the Berlin Wall and the emergence of a new international order, also gave rise to a new kind of capitalism and a glob-

al framework with novel rules for society, politics, organizations, and social development, culminating in what German sociologist Ulrich Beck called the "risk society" (1998). Despite undeniable economic growth, largely fuelled by the rise of financial capitalism, the price, Beck argued, included deeply counterproductive and costly consequences that endangered the stability of a system where many already felt insecure and vulnerable. Against this backdrop, issues such as widening inequalities, political and institutional voids, the dominance of market logic, the surge of technocracy, and the dissolution of the individual within an overwhelming, globalized context gained prominence in narratives where the negative image of cloning took on a new, more complex and profound dimension. Here, criticism shifted from the clones themselves to the very system and social order in which they were conceived and embedded.

From those years up to the present, fiction has indeed envisioned near futures where cloning technology becomes a reality aimed at optimizing life and enhancing individuals. In these narratives, everything seems possible: from acquiring organs to secure a healthier, longer existence to preserving intimate ties by creating genetic copies of ancestors or loved ones. Yet the transformation of cloning into a consumer industry, embedded within a market that appears open to all but in practice remains accessible only to the richest, also serves to confront readers and viewers with the miseries of their current world. In this respect, what proves truly terrifying and disheartening about that imagined future is not so much the spectacle of new scientific techniques or the results of their experiments, but rather the stark confirmation of their inevitable function as key cogs in the alienating machinery that capitalism has already imposed upon humanity.

Some of the most emblematic portrayals of this vision include *The Island* and *Never Let Me Go*. Other works, however, followed the same pattern, such as *The 6th Day* (Roger Spottiswoode, 2000), *Code 46* (Michael Winterbottom, 2003), and *Womb* (Benedek Fliegauf, 2010). Particularly noteworthy is the chilling *Infinity Pool* (Brandon Cronenberg, 2023), where wealthy criminals can pay to have a clone created specifically to be executed in their place (Clayton, 2023).

At this point, the figure of the clone cannot be separated from the theories of transhumanism and posthumanism, concepts that emerged in their contemporary formulation at the end of the 20th century. Transhumanism, systematized in the 1990s and 2000s by authors such as Nick Bostrom and the institutions linked to the World Transhumanist Association (founded in 1998), proposes the use of science and technology to improve or overcome human biological

limitations (Bostrom, 2009). From this perspective, the clone appears as a possible step toward more controlled, predictable, or even "optimized" bodies. Posthumanism, for its part, took shape in the 1980s and 90s, with foundational texts such as Donna Haraway's *Cyborg Manifesto* (1985) and subsequent elaborations by N. Katherine Hayles (1999), Cary Wolfe (2010), and Rosi Braidotti (2013). These theories challenge the notion of an essential, autonomous human subject separate from technology. Thus, from a posthumanist perspective, the clone does not embody an improvement, but rather a figure that destabilizes categories such as identity, origin, or genetic uniqueness, revealing the hybrid and non-essentialist nature of humanity. While transhumanism projects a horizon of perfection onto the clone, posthumanism transforms it into a challenge to the very definition of "human being."

It is noteworthy that, over time, narratives have shifted to portray clones not as agents responsible for society's ills but as victims of a ruthless, unyielding system. In this light, the dystopian worlds depicted no longer draw such sharp distinctions between humans and their replicas: ultimately, both face equally bleak futures, condemned to exist as mere tools and commodities in the service of capitalism. On the surface, clones and their originals appear to have secured the right to an open future, yet in reality, their individual autonomy and identities gradually dissolve within a context dominated by the controlling, hegemonic power of corporate and transnational forces.

As a result, the fear and anxiety depicted in these narratives no longer manifest as resistance to scientific and technological advances and their consequences, but rather as the bleak expression of a resigned acceptance of an impending future in which alienation ultimately subjugates both creators and their creations. This is exemplified by Kathy, the clone protagonist of *Never Let Me Go*, whose response mirrors that of many people today who, like her in the story, believe they are free to pursue lives beyond those ostensibly assigned to them, in her case, to serve as an organ source for transplants until "completion" (death), yet who nonetheless come to identify with the role society has imposed on them, ultimately embracing their fate and that closed, predetermined future (Komsta, 2015).

Other recent works, such as *Moon* (Duncan Jones, 2009), *Swan Song* (Benjamin Cleary, 2021), and the previously mentioned *Womb*, explore the blurred lines of subjectivity in which both clones and humans grapple with what it truly means to be human – an entity possessing identity and agency. In the films by Jones and Fliegauf, the protagonists' sudden realization that they

are clones plunges them into profound emotional turmoil over their identity and existence, leaving them vulnerable and fragile within a context where traditional values and concepts of humanity are no longer clear or stable (Kümbet, 2020). Meanwhile, in Cleary's film, the protagonist, facing a terminal illness, is confronted with the dilemma of acknowledging the autonomy and individuality of the clone that will take his place after death: should it act exactly like him to maintain the happy relationship he has shared with his wife, or should he embrace uncertainty and trust that this artificial, unfamiliar being is not necessarily obligated to forfeit its own open future?

Conclusion

The depiction of clones within Science Fiction, and particularly in dystopian literature, has changed significantly over time. Early hostility toward these beings was tied in the cultural imagination to the notion of the megalomaniacal, deranged scientist who sought to challenge the gods and nature by bringing life into existence through scientific intervention. Yet following the publication of *A Brave New World*, this negative perception of human replicas evolved, giving way to themes more aligned with the challenges of a new era: for Huxley, the techniques and processes of mass cloning he described were merely a metaphor for the looming horrors and fears. In his view, "we see, then, that modern technology has led to the concentration of economic and political power, and to the development of a society controlled (ruthlessly in the totalitarian states, politely and inconspicuously in the democracies) by Big Business and Big Government" (Huxley, 2005, p. 68)

In the ensuing decades, cloning technology, shaped by bloc politics and the Cold War, was largely portrayed as an unequivocal evil, due in great measure to the enduring influence of Huxley's dystopia. At the time, this association of ideas was entirely operative. The spectre of dehumanization, loss of individuality, and totalitarianism permeated much of the narrative, inseparable from the anti-utopian ideological climate of that era. Notably, the portrayal of clones as an anonymous, amorphous mass of beings devoid of consciousness or feeling, under the control of a supreme intelligence, was deeply intertwined with the philosophical and political arguments advanced by thinkers like Karl Popper, who drew a stark contrast between social engineering, typical of totalitarian systems,

and gradualism, which he considered more compatible with democracies (Popper, 2011, p. 158)

Since the 1990s, however, the landscape of cloning has shifted considerably. While the successful cloning of Dolly the sheep in 1997 startled public opinion and sparked intense debate over the ethical boundaries of techniques that could endanger human individuality and uniqueness, perceptions clearly changed with the onset of the new century. The grim, dystopian scenarios no longer singled out cloning technologies or their creations as the culprits behind humanity's future misfortunes. In fact, as we move closer to the present, most literary and cinematic works on the subject reveal a growing identification among clones, humans, and other technological entities envisioned by posthumanism. In this sense, cloning remains relevant because it symbolizes current dilemmas about how biotechnology can transform human life. In culture, it appears as a metaphor for the loss of individuality and the creation of technically produced identities. Looking to the future, it projects both medical possibilities and anxieties about new forms of control and the redefinition of what it means to be human.

This new stance likely reflects an emerging collective awareness of a shared vulnerability and fragility within an increasingly deregulated and uncontrollable world, where the markers of identity that once defined agency and the ability to shape outcomes seem ever more to fade, yielding to a reality that threatens to reduce us all to the status of replicas.

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Posthuman Aesthetics and the Critique of Transhumanism in the Cinema of Neill Blomkamp

by Paola Dalla Torre

Abstract

This essay examines posthuman aesthetics in the films of Neill Blomkamp, focusing on *District 9* (2009), *Elysium* (2013), and *Chappie* (2015). It argues that Blomkamp's cinema develops a disillusioned critique of transhumanist utopias, problematizing human-machine hybridization in bioethical and socio-political terms. At the same time, his films outline an alternative, affirmative posthumanist anthropology. The study adopts a qualitative methodology based on a semiotic-narrative analytical grid and is situated within the theoretical framework of posthuman studies.

Keywords: posthuman, transhumanism, science fiction, body, Neill Blomkamp, bioethics, cinema, hybridization

Introduction: Science fiction as an ethical device

Science fiction has long been a privileged arena for reflecting on the relationship between humans and technology. From early literary works to contemporary cinema, the genre has articulated hopes and anxieties about the inventions that shape human life, from fire and writing to artificial intelligence (Tortoreto, 2018). It has also anticipated possible future developments of these technologies.

In the current context of pervasive digitalization and increasing hybridization between the human and the artificial, debates on transhumanism and posthumanism have become central. Philosophers, scientists and ethicists employ the categories of the "transhuman" and the "posthuman" to interrogate what it means to be human in a world where technology alters not only our identities but also our bodies.

Questions that once belonged mainly to speculative fiction now permeate public discourse: What does it mean to be human when technology is deeply embedded in our lives? What forms might future humanity take? How can we develop a new anthropology in a world where machines are no longer subordinate tools but active participants in shaping

reality? Science fiction is one of the cultural devices that make these questions widely accessible.

Luciano Floridi, a leading voice in the ethics of artificial intelligence, argues that our capacity to understand the contemporary condition and to build a sustainable infosphere depends on how we create, design and manage information. This, in turn, requires new narratives: new stories about who we are, where we are, and which human project we intend to pursue (Floridi, 2022, p. 409).

Science fiction cinema can be understood as one of these narratives. It helps to configure our relationship with technology, which has always been a constitutive element of the human condition. Much science fiction has articulated this relationship through a broadly humanist lens, often foregrounding questions of dignity, responsibility and agency (Dalla Torre, 2024).

Within this landscape, Neill Blomkamp has emerged as a particularly relevant filmmaker. His trilogy – *District 9*, *Elysium* and *Chappie* – stages transhuman futures marked by dystopian tensions and raises bioethical questions that resonate strongly with current debates. This essay has two main aims:

to show how Blomkamp's cinema critiques transhumanist utopias by presenting a disenchanted and ethically charged vision of technological futures.

to demonstrate that his work also advances a constructive perspective that identifies positive, transformative elements within a posthuman horizon.

Through an analysis of the narrative and visual strategies with which Blomkamp addresses human–machine hybridization, technological capitalism and global inequality, the article argues that his filmography articulates a distinctive "bioethical attitude". His science fiction worlds invite viewers to reflect on human responsibility in designing the future and contribute to the circulation of bioethical concerns in popular culture.

Theoretical framework: transhumanism, posthumanism and the augmented body

The analysis adopts a qualitative and interdisciplinary approach that combines film studies with philosophical and ethical inquiry. Following cultural and visual studies, Blomkamp's films are treated as cultural texts

that encode collective anxieties about technology, identity and power. The method is interpretive rather than empirical and situates the films in relation to debates in bioethics, posthumanism and critical digital studies.

Transhumanism and posthumanism constitute a crucial starting point. Although often conflated, the two terms point to partly distinct yet interconnected discourses. Both name a utopian ideal of radical transcendence of human limits: a philosophical and scientific ideology that envisages the passage of humanity to a higher condition of existence, freed from the constraints of biological finitude – a condition termed "posthuman" (Reichlin, 2012, p. 753).

Transhumanism, in particular, is a contemporary philosophical and cultural movement that sees human–machine hybridization as a means of empowering the human. It advances the idea that human nature can and should be altered, enhanced and prolonged. Its advocates envision a "beyond-man" that will inaugurate a posthuman world. Laura Palazzani summarizes the core of this project in the "Central Maxim of Transhumanism," according to which it is ethical and desirable to use technoscientific means to overcome the human condition, moving from the enhancement of specific functions to the enhancement of the human as such, understood as an "enhanced human" (Palazzani, 2020, p. 70).

Nick Bostrom has been one of the most influential theorists of this movement and former President of the World Transhumanist Association. He presents transhumanism as a new paradigm for thinking about the future of humanity, one that brings together scientists working in artificial intelligence, neurology, nanotechnology and biotechnology with philosophers and intellectuals committed to the alteration and improvement of human nature. He defines transhumanism as "a cultural, intellectual and scientific movement that affirms the moral duty to improve the physical and cognitive capacities of the human species and to apply new technologies to humans so that we can eliminate unwanted and unnecessary aspects of the human condition such as suffering, disease, aging, and even being mortal" (Postigo Solana, 2009, p. 267). In this perspective, the posthuman appears as a relatively invincible figure produced by technological progress.

More recently, however, Bostrom has revised his initially enthusiastic stance. He now calls for ethical limits on technological development and warns against a future in which artificial intelligence might gain control over humanity (Bostrom, 2018). His shift reflects a broader movement

from techno-utopian optimism to a more cautious, risk-aware approach.

Opposed to transhumanist and posthumanist ideologies, authors such as Francis Fukuyama and Jürgen Habermas stress the dangers of a radical transformation of the human. They argue that what is at stake is not the enhancement but the possible erasure of the human. Fukuyama warns of "technological monsters" produced by unchecked hybridization between humans and machines, which risk destroying humanity itself (Fukuyama, 2002). Habermas, for his part, insists on the legacy of humanism, especially its emphasis on universal rights, and urges us to maintain this heritage at the center of communicative action if we are not to become subjects deprived of agency in a technologically dominated world (Habermas, 2002).

At the same time, other theorists have attempted to move beyond the simple opposition between techno-enthusiasm and technophobia. Rosi Braidotti's posthumanism is emblematic in this respect. For Braidotti, the posthuman condition is not merely the result of technological advances but a deeper reconfiguration of subjectivity that decenters the human and foregrounds relational, interdependent and ecologically embedded forms of existence. Posthuman ethics, in this sense, is non-anthropocentric and oriented toward transversal alliances across species and entities (Braidotti, 2013).

Katherine Hayles offers a complementary contribution with her theory of "posthuman embodiment". She challenges dualist separations of mind and body and argues that human cognition is increasingly distributed across technological, communicative and algorithmic networks. In her view, information is always materially instantiated, and human subjectivity must be rethought in interaction with technical systems rather than in opposition to them (Hayles, 1999).

These perspectives are particularly useful for reading Blomkamp's films, which display both a sceptical stance toward transhumanist ideologies and an interest in alternative, relational forms of posthuman subjectivity.

The analysis is further framed by Luciano Floridi's philosophy of information. Floridi introduces the concept of the "infosphere", a shared environment in which humans, machines and data coexist and co-evolve. He proposes a new ethical paradigm suited to this hybrid reality, no longer grounded in human exceptionalism but in the responsible management of information and technological infrastructures (Floridi, 2014). This paradigm resonates with Hans Jonas's "imperative of responsibility,"

which calls for a future-oriented ethics attentive to the long-term and often unpredictable consequences of innovation. Jonas famously attributes a productive role to fear, understood as a heuristic affect that stimulates anticipatory ethical reflection (Jonas, 2009).

Within the infosphere, the dynamics of digital capitalism also become central. Shoshana Zuboff's concept of "surveillance capitalism" highlights how personal data and predictive technologies are mobilized for profit and control (Zuboff, 2019). Wendy Hui Kyong Chun's work on "programmability" likewise shows how social relations and power structures are encoded in software, shaping behaviors and expectations (Chun, 2021).

Taken together, these theoretical contributions provide the conceptual background against which Blomkamp's cinema can be understood. His films can be seen as speculative laboratories in which the promises and perils of posthuman futures are tested and problematized.

Between humanism and algorethics: Blomkamp's science fiction trilogy

Blomkamp's biography is crucial for understanding his perspective. Although he is now based in Canada, he was born and raised in South Africa and experienced racism and segregation first-hand. This background informs his imagination and sets his science fiction apart from many contemporary productions. His films repeatedly return to postcolonial themes and foreground the entanglement of technological development with histories of racialized inequality and exploitation.

District 9, *Elysium* and *Chappie* (released as *Humandroid* in some territories) form an informal trilogy. While *Elysium* features Hollywood actors such as Jodie Foster and Matt Damon and benefited from major studio funding, Blomkamp has consistently tried to maintain a degree of independence from the Hollywood system. In 2020, he launched Oats Studios, a Canadian-based production company devoted to experimental science fiction shorts distributed via a YouTube channel and supported through crowdfunding. This move indicates his interest in alternative production and distribution models and his willingness to operate at the margins of the dominant industry.

This strategy anticipates broader changes in the audiovisual landscape. Recent research suggests that YouTube has become the most watched streaming platform on smart televisions in the United States, surpassing

Netflix, Prime Video and traditional linear television. The film market, already undergoing transformation before the Covid-19 pandemic, has been further reshaped by shifting consumption patterns and the growing role of platforms, including the likely future use of artificial intelligence in production and distribution (Lotz, 2014; Noam, 2024). Blomkamp's trajectory illustrates how filmmakers can navigate and exploit these changes to preserve thematic and narrative autonomy.

Film scholars have noted the specificity of Blomkamp's position. Thomas Schatz, for instance, has described the critical and commercial success of *District 9*, produced on a relatively modest budget of 30 million dollars, as atypical in a Hollywood landscape dominated by existing franchises and intellectual properties (Schatz, 2009, p. 45). Geoff King places Blomkamp among a group of directors who work within and against Hollywood, occupying a hybrid space he labels "indy-mainstream". According to King, Blomkamp's career, from *District 9* to *Chappie*, exemplifies the tensions between authorial vision and commercial constraints typical of this position (King, 2009, p. 191).

The three films share a thematic focus on human-machine hybridization, the social consequences of technological enhancement and the dynamics of surveillance capitalism. They can be described as transhumanist dystopias: they depict futures in which enhancement technologies exist but are unevenly distributed, and in which technological progress deepens social inequalities rather than alleviating them (Hauskeller et al., 2015). In this context, an ethical, and more specifically bioethical, gaze becomes central.

In *District 9*, a group of aliens arrives in Johannesburg and is confined to a ghetto on the city's outskirts, where they are subjected to violent experiments. The film clearly evokes apartheid and the dehumanization of racialized others. Its pseudo-documentary style, combining handheld footage and fictional interviews, creates a strong "reality effect" that enhances the critical impact of the narrative (Sobchack, 1987, p. 223). As Rieder notes, the film "reinterpret[s] South African apartheid through the lens of science fiction, creating a displaced colonial discourse, where the alien becomes a metaphor for the racialized Other" (Rieder, 2008, p. 7). Langer likewise argues that *District 9*'s segregationist imagery functions not only as historical reference but as a critique of persistent neocolonial structures in a globalized era (Langer, 2011, p. 83).

Elysium reworks the classic narrative of *Metropolis* in a posthuman

key. The film imagines a future Los Angeles that visually resembles Johannesburg, where the poor remain on an environmentally devastated Earth while a wealthy elite lives on the luxurious space habitat Elysium. On Earth, a quasi-authoritarian regime relies on robotic police forces and pervasive surveillance to maintain order. On Elysium, the elite enjoy advanced medical technologies, abundant green spaces and security. The protagonist, played by Matt Damon, becomes a cyborg through invasive prosthetics that allow him to infiltrate the enclave of privilege. The film thus literalizes the link between technological enhancement and class privilege and offers a powerful metaphor for predatory neoliberalism and its exploitation of the Global South.

Chappie (*Humandroid*) addresses another central transhuman theme: the creation of a robot endowed with technological singularity. The film follows an engineer in Johannesburg who develops an artificial intelligence capable of thinking, feeling and loving like a human being. The narrative engages directly with contemporary fears surrounding fully autonomous AI, which some scientists warn could eventually threaten or even destroy humanity.

Across these films, Blomkamp foregrounds questions typical of "frontier bioethics," which deals with the ethical implications of new biotechnologies and digital systems, rather than those of "everyday bioethics," concerned with more traditional clinical contexts. His futures are shaped by what Floridi calls the "fourth revolution," a world in which the artificial is deeply embedded in everyday life and in which humans are increasingly displaced by automated systems. In this world, a central question arises: on what grounds can and should technoscience be limited?

Blomkamp's films propose a clear answer. If technological development is not constrained by ethical–moral boundaries and if humans do not actively guide it, the future that awaits us is dystopian. His imagined worlds dramatize the risks of a technological trajectory driven exclusively by profit and power.

This perspective aligns with Hans Jonas's Principle of Responsibility. Jonas criticizes modern technology for transforming humans and nature into manipulable objects and insists that the unprecedented power of technological action requires a new ethics grounded in responsibility for distant and unknown futures. Fear, in this context, is not mere paralysis but a productive affect that motivates precaution and care (Jonas, 2009).

In Blomkamp's dystopias, this fear takes shape in images of dehuman-

ization and dispossession. Technology does not primarily lighten the burden of work; instead, it exposes poor workers, such as Damon's character in *Elysium*, to new forms of exploitation and risk. Robots do not simply serve humans; they police and control them. Medical technologies capable of curing all diseases exist but are reserved for a tiny elite. Enhancement becomes an instrument of militarization and domination.

Blomkamp's visions thus resonate with the concerns of authors such as Fukuyama and Habermas, who warn against technological transformations that undermine human dignity. The hybrid creatures in *District 9* and the brutal mercenary in *Elysium* can be read as cinematic embodiments of the "monsters" imagined in these critiques.

At the same time, Blomkamp situates these developments within a broader framework of global inequality and environmental crisis. His films depict worlds structured by what Mike Davis calls an "urban apocalyptic imaginary," where segregated slums become spatial metaphors for economic and social polarization (Davis, 2006, p. 174). The ecological collapse that forms the backdrop to *Elysium* echoes Amitav Ghosh's reflections on the "great derangement," that is, the failure of contemporary culture to fully register the climate crisis (Ghosh, 2016, p. 9). The idea that these crises are driven less by "humanity" in general than by specific socio-economic arrangements recalls Jason W. Moore's notion of the "Capitalocene" (Moore, 2016, p. 6).

Crucially, Blomkamp does not reject technology as such. His films are not anti-technological but anti-ideological. They question narratives that promote technological innovation without integrating ethics. They suggest that the problem lies not in the existence of powerful technologies but in the political and economic frameworks that govern their development and use.

Embracing difference: toward a digital posthumanism

While Blomkamp shares many concerns with mainstream dystopian science fiction, his cinema also takes a partial step beyond it. This shift becomes especially visible in *Chappie* and, more specifically, in its ending.

The final sequence of the film shows the consciousness of one of the protagonists, Mami, being uploaded into a robotic body. The new subjectivity that emerges, neither simply man nor woman, neither fully human nor purely machine, opens a different vision of the posthuman. Trium-

phant rock music accompanies the scene, underscoring its affirmative charge.

This conclusion suggests that the posthuman future will not necessarily be grounded in the classical subject of Western humanism: white, male and Western. Instead, Blomkamp's posthuman is shaped by a feminine, marginalized subject. Mami lives in a South African slum, is poor and belongs to a criminal gang that the film ultimately portrays as a pocket of resistance to a ruthless neoliberal system. The posthuman subjectivity that arises at the end of *Chappie* is thus rooted in a history of exclusion and struggle.

In this way, Blomkamp sketches the contours of a new humanism that neither abandons fundamental ethical values nor reproduces the exclusions of earlier models. His posthumanism seeks to learn from past failures and is in line with Braidotti's idea of a non-unitary subject, aware of its interconnections with other humans, non-humans and the environment, and opposed to self-centred individualism (Braidotti, 2013).

Donna Haraway's *Cyborg Manifesto* provides another fruitful lens. Haraway proposes the cyborg as a figure of hybrid and transgressive identity that destabilizes binary oppositions such as human/machine, male/female, nature/culture (Haraway, 1991). Chappie can be read as a cinematic cyborg in this sense: not entirely machine, not fully social subject, but a fluid hybrid shaped by conflicting forces and relationships.

These theoretical tools underline how Blomkamp's dystopian futures are not simply cautionary tales about technology. They also explore the possibility of reconfiguring subjectivity and community in a posthuman world. His films are driven by a constant ethical concern: the fate of human dignity in contexts where the boundaries between biology and technology have become porous.

Blomkamp's dystopias depict societies in which technological progress has been decoupled from moral responsibility. Medicine capable of curing all exists, but only for the privileged few. Artificial intelligences can learn, feel and love, but they are trained in environments structured by violence and crime. Enhancement technologies amplify militarized or capitalist power rather than supporting emancipation. These worlds expose the fallacy of the transhumanist assumption that technological progress automatically yields human flourishing.

At the same time, Blomkamp's films refuse fatalism. They maintain a small but significant space for ethical awakening and re-humanization.

In *Chappie*, for example, the central question is not whether AI can become human but how it is socialized and by whom. The robot's moral development depends on the relationships that shape it. This focus on relationality connects Blomkamp's cinema to broader discourses on digital humanism.

Digital humanism, as articulated by authors such as Paolo Benanti, seeks to integrate humanistic values into the design and governance of digital technologies. Building on the principles of bioethics, beneficence, non-maleficence, autonomy, justice and explicability, it proposes an "algorethics" capable of orienting technological innovation (Benanti, 2018, p. 51). The goal is not to halt progress but to ensure that it serves genuinely human ends.

Blomkamp's films do not provide a fully articulated theory of digital posthumanism. Rather, they perform a critical function by visualizing what happens when technological development proceeds without ethical guidance. They show the social and existential costs of an unregulated alliance between technoscience and neoliberal capitalism. In doing so, they prompt viewers to reconsider what kind of world they wish to inhabit and what forms of humanity they wish to preserve and transform.

By highlighting the bioethical, postcolonial and anthropological dimensions of Blomkamp's cinema, this essay has argued that science fiction can function as more than a mirror of contemporary fears. It can also be a space for moral imagination and critical experimentation. Faced with increasing algorithmic power and perceived reductions in human agency, cinematic dystopias like Blomkamp's may provide some of the conceptual and affective tools needed to imagine more just and more humane futures.

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Crimes of the *Present* Future. From *Trans*-humanism to the *Post* of Humanity and Society

by Dario Altobelli

Abstract

The debate on transhumanism has been going on for some decades now. Two positions have animated the debate for a long time, one in favor, the other against, but now both seem to be superseded by reality. Proof of this is the expanding market of biotechnology, the mass use of experimental drugs, the multiple technical implementations in the body, the radical transformation of fundamental anthropological aspects such as nutrition and sexuality, and so on. In this perspective, two major issues arise for critical thinking: 1) What exactly does the *transhuman condition* consist of? 2) What are the characteristics of transhumanity and of the social forms connected to them? To begin to answer these questions, a socio-cultural study perspective is adopted by examining Cronenberg's recent film, *Crimes of the Future* (2022), as a work capable of putting such philosophical and sociological questions on an aesthetic level. On one hand, a point of critical attention is identified in the metamorphosis of corporeality and in the fundamental practices connected to basic human needs as nutrition, sexuality, sleep. On the other, in the background scenery we can glimpse forms of an alienated and nihilistic sociality/society represented in the artistic and performative sphere. The film seems to suggest that humans and society are involved in a process of unstoppable *disappearance* and represents the time preceding a complete transhumanism in which the human form will be definitively compromised – properly *murdered* – in its entire physical and psychic complex. Cronenberg highlights the decisive question that seems to escape widespread social perception. Far from being a horizon or a prospect to come, taking the prefix in an etymological sense, *trans*-humanism is a phenomenon of *transit* towards the *post* of humanity and society and it is already the condition of the present time: it is our *present* future.

Keywords: Transhumanism, Cronenberg, Metamorphosis, Body, Society

> Man has, as it were, become a kind of prosthetic god. When he puts on all his auxiliary organs he is truly magnificent; but these organs have not grown on him and they still give him trouble at times.
> Freud, 1930/1989, p. 738.

The transhuman condition

The debate around and on transhumanism has been going forward for dozens of years "below the radar", shall we say, particularly since the 1990s (e.g. Lilley, 2008; Hansell, Grassie, 2011). For quite some time it was a debate limited to certain specific intellectual and cultural circles, most of them from the Anglo-Saxon and continental European areas; in its various forms, it promoted images and imaginaries, representations and depictions, of a humanity "passing onwards" towards a new anthropological form closely linked to the technoscientific sphere. Although different outlooks can be found within this movement, certain elements are common and recurrent.

Transhumanism is basically "a liberation movement advocating nothing less than a total emancipation from biology itself" (O'Connell, 2017). As has recently been observed,

> First named in its modern incarnation by FM-2030, transhumanism is an increasingly pervasive movement and an important actant, especially in technology policy and bioethics debates, whose members seek, broadly, to hack the human biocomputer to extend life, increase welfare, and enhance the human condition (Pilsch, 2017, p. 1).

Among its structural and recurrent elements we see, first of all, a blind eagerness for technique and technology in their most advanced, sophisticated forms, primarily in terms of technoscience applied integrally and "invasively" to the human being. It is an approach to technoscience that may be defined as an extreme form of *technophilia*, and it frequently reaches fanatical heights.

Secondly, there is a widespread idea of a necessary and, so to speak, "natural" direction in the evolutionary history of the *Homo Sapiens* species. Based on this presumed "necessity", according to the transhumanists, the human species is heading towards a radical techno-biological evolution. In their view, the main issue is to govern this process, this transition, this transformation, and to do everything to further it. It is to be encouraged by any means, whether by hastening it whenever possible, accelerating technoscientific development ever more; or by spreading its contents of ideologies and values throughout the population; or lastly,

by politically supporting in social reality and public debate this bio-technological evolution of the human being, both as an individual and as a species, with active interventions in the financial, political, juridical and cultural fields.

The third common aspect in the transhumanist stream, therefore, concerns the specific aim of taking this techno-biological "advancement" to the inner "flesh" of the human being. According to transhumanism perceived through the diverse accents and priorities of its various representatives, the objective of an ever-closer connection of the human being with the technoscientific domain is the search for immortality, the cure of all diseases, the boundless growth of the human faculties. The human form, according to this concept, is limited, insufficient, imperfect, merely "too human". This is why it must simply be surpassed, transcended, superseded.

The outcome of this profound bio-technological evolution is of course considered and discussed in all sorts of ways. Frequently overcome by a sort of elitist superman frenzy, many upholders of transhumanism care not a scrap about issues concerning the destiny of humanity itself, i.e., about what is to become of the whole of Earth's humanity. It is no coincidence that in more explicit statements certain eugenic scenario, as "reasonable" as they are "obvious", are not excluded, scenarios envisaging the effective coexistence of two different human species: one "empowered" and launched towards its own transcendence, a species limited in number and assigned to management and government; the other, the greater part of humanity, governed as a mass of the living, bereft of qualifications and impeded by belated, antiquated biological forms, almost stationary on an evolutionary trail decidedly slower and totally inadequate for a world in accelerating transformation.

With respect to the topic briefly recalled, there are two main positions that have long been animating the debate in public and intellectual opinion (Savulescu & Bostrom, 2009), one simply in favor of it (Bostrom, 2005), the other against (Fukuyama, 2002). On the one hand, the transhumanists themselves with their followers who see and enthusiastically support any adoption by humans, however extreme, of the most advanced technoscientific resources; on the other, thinkers who stress the dangers of this type of transformation, envisaging dystopic scenarios and warning against the acritical support of such a movement and its visions. It is also worth mentioning a parallel line of reflection, fundamentally optimistic

and progressive, which theorizes the "post-human" by identifying significant elements in the human-machine hybridization that pave the way for original new forms of life, with potential positive outcomes for individuals and society (Haraway, 1991; Hayles, 1999).

This is no place for a critical return to such a lively debate as I tried in other places (Altobelli, 2025). I will rather start from a position of what seems to me an empirical, verifiable fact. This is my first thesis: we find ourselves today at a time when this discussion has entered a new phase. Transhumanism is no longer an idea, a vision, a dream (or a nightmare): what was, and for years and decades has been, a hallucinatory utopia has been decidedly superseded by reality today (Krüger, 2021) and takes on the outline and contents of what is a real ideology. As we shall see at the end, summarized across the whole topic, transhumanism is in fact basically the crystal-clear expression of the delirium of omnipotence inscribed within the West's project of Modernity founded and sustained on modern science. And further, it is also and above all the most creative and mobile ideological front of the global capitalist system at the moment when – thanks to the technoscientific power exercised throughout reality – it reaches the point of no return in the incessant transformation of the eco-socio-anthropological environment in a gigantic prosthesis of capitalistic abstraction: the techno-bio-social megamachine, interpretable in different ways as an advanced and evolving expression of bio-capitalism (Codeluppi, 2008) and cognitive capitalism (Fumagalli et al., 2019), or along the line of techno-capitalism and "accelerationism" (Land, 2021), and so on.

From this viewpoint, the day of the "Black Mirror" appears over. For a very long time, that famous series dealt with transhumanist topics and issues in fictional terms. The world is effectively a "Black Mirror" episode come true: see the recent "Common People" episode from the seventh season (2025), a sort of brief treatise on contemporary sociology, perfectly and explicitly depicting the present state of bio-techno-capitalism, transhumanism and today's forms of domination over the human being. In other words, any belief that the question of transhumanism can still be considered a philosophical issue or hypothetical figuration is, to my way of thinking, a serious cultural and political mistake.

We need to seek an understanding of the present social reality in which we are living. As Dupuy, among others, observed some years ago, there is at a general level an "incipient convergence of nanotechnologies, bio-

technologies, information technologies and cognitive sciences" (Dupuy, 2013, p. 51) which are transforming the human and social landscape in every field. Sociologically we note the ever expanding market of biotechnology, the mass use of experimental drugs, the multiple technical implementations in the body at every level considered in clinical and in plastic surgery, both to favor an integral, totalitarian bio-capitalism in which the human is the asset and the asset is the human (think of the subcutaneous microchips as incorporated devices, their debatable, absurd use ranging from cashless payments to activating gadgets), and also to extend generalized mass surveillance over the entire human population, right up to the radical transformation of fundamental anthropological aspects such as nutrition and sexuality, and so on.

This is the current state of the contemporary world that a concerned Ulrich Beck (2016) saw as entrapped within a radical, profound "metamorphosis": a world which, day after day and bit by bit, is losing any kind of relation and continuity with the whole previous history of humanity.

This leads us to a simple proposition and a second thesis, quite clear and linear: we are already transhuman, we are experiencing a "transhuman condition", because we are crossing (we have already crossed) the anthropological thresholds on every fundamental level of the bio- and socio-anthropological constitutions of the human and we are at the borders of forms of a still unrevealed post-society. Accepting this perspective, among the many problems that claim immediate reflection and a sensitive awareness of the times in which we live, two major issues arise for critical thinking:

1) What exactly does the *transhuman condition* consist of?
2) What are or would / could / might be the characteristics of transhumanity and of the social forms connected to them?

To begin to answer these questions, I have adopted a socio-cultural study perspective by examining David Cronenberg's recent film, *Crimes of the Future* (2022) as a work capable of putting such philosophical and sociological questions on an aesthetic level.

Transhuman scenarios in Cronenberg's *Crimes of the Future* (2022)

I will not recall the film's plot, only its main theme. The human, in the way we still commonly understand it, is disappearing every day; it is

trapped by a process of radical evolutionary transformation. It is, properly speaking, in an anthropological and sociological transition phase and is completely conditioned by its – literally "incorporated" – dependence on bio-technological devices and technoscientific resources; and it lives – or rather, it survives – in a world turned upside down by the effects of all this, effects absolutely with no form whatever of control. This is a prelude to an accomplished transhumanism when the human form was to be definitively compromised in its physical and psychic complex: the finishing point, dramatically narrated by the film, is the death of the human as the expression of the *Homo Sapiens* species, its transition and its landfall in a post-humanity. All this is fully depicted in the film which tells the story of the leading figure, a singularly gloomy performer artist, Saul Tenser, who is moving beyond the human condition and is himself experiencing an "accelerated evolution syndrome".

In dramatically pessimistic tones, the film shows the current "human transition" and suggests at least two possible readings of the phenomenon.

The first deals with the integral alteration of the human starting from his constituent, fundamental attributes – nutrition, sexuality and sleep – that define him as an individual of a well-determined living species and connect him to his wider natural environment and to other living beings. Thus, in the metamorphosis of corporeity and the body according to Cronenberg's aesthetics, the film identifies a powerful key to understand the phenomenon in question. "The body is reality", Tenser's partner and surgeon tells him at one point; and the phrase might be taken as the motto of the Canadian director's work.

As regards nutrition, the eight-year-old boy Brecken Dotrice represents humanity's possible future as a literal consumer of plastic. Brecken is, in effect, the first baby born who possesses the genes necessary for him to swallow and digest plastic, something he finds particularly delicious. Other characters in the film, led by Brecken's father Lang, perform underground surgery on themselves to speed up this transhumanist evolution. He and others embrace plastic consumption and even make plastic chocolate bars to share with each other.

Furthermore, the protagonist himself, Saul Tenser, is no longer able to feed himself independently. He can still "eat" only through the use of a "machine" that "feeds" him. But eating does not bring him any pleasure. It is torture, literally a painful practice, something that no longer feels

part of his "humanity". The film, unsurprisingly, will end on the pleasure he feels and the "peace" that he achieves once he surrenders to his "new nature" and at long last eats his plastic bar.

As regards sex and sexuality, one of the film's most meaningful phrases – another motto – is "Surgery as a new sex". In this dystopian world, humans have become totally numb. There is still the "old sex", but people no longer practice it because in general they no longer feel anything. Sexual relations occur through extreme forms of sadomasochism, with the mutual infliction of pain through incision-making machines; the practice of technology-mediated mutilation makes feasible a perception of tactility by now physically impossible and renders the emotional and physical connection between the lovers "plastically" achievable only in the form of a generalized violation of their own body and in submission to the spectral, annihilating domination of the machine and of technoscience. It is effectively and specifically the machine that is pleasured, it is the machine that touches the body of the other, it is the machine that speaks, as Tenser says in one dialogue. In their sexuality and similarly to other expressions of their biological, outdated basic needs, humans are utterly enslaved by incurable anthropological sterility and can only express themselves in the fetishism of technoscience.

One last point for consideration: sleep. The characters also have beds and chairs that adapt to their body to maximize personal comfort. This furniture is nightmarish, with a skeletal-looking structure and tentacle-like arms that leech on the skin. Sleep, too, is no longer a "natural" human activity. Not even rest seems to have any place within this grim transhuman horizon. One can only sleep attached to a machine, only contained within its womb; or else one can sleep awkwardly, absolutely uncomfortably, on floor or on pallets without warmth and coziness. Or again, as we gather from the film, one can sleep not at all, one can spend the night at performances and events, or else meandering through deserted, spectral spaces, funereal scenarios of a society on the brink of collapse.

If this is the main motive around which the film develops, in the background we can consider a second possible reading focused on glimpse forms of an alienated and nihilistic sociality/society represented in the artistic and performative field. Art too, from free expression, becomes a sadomasochistic self-representation focused on a body perverted and altered in every way by surgery and any kind of intervention, whether physical or psychical. The protagonist himself, Saul Tenser, is an artist

whose talent is to "self-generate" organs through a painful, self-defeating process. He self-produces organs that are cysts, tumors, metastatic bodies etc. to be removed during the artistic performance in front of an alienated, morbidly sick audience.

The obvious metaphor of artistic creation as a painful process investing the creator's identity here reaches a point of extraordinary dramatization when the work of art and the creative process so conceived become the tumoral output of a malign body within the physical body of the artist. The accomplishment of the work consists in the removal of the foreign body in the presence of an audience of peeping Toms. And all, I should stress, in a society of *voyeurs* with their devices ever at the ready to film the great show, the great performance, the great artist at the moment of his aesthetic gesture, and then to post it on line.

Three questions on transhumanism

In his harsh touch, Cronenberg represents both the figure of transhumanity and the ongoing process of transformation of humanity. A process that we could define as a *true crime* and for which there is no redemption. Cronenberg highlights the decisive issue that nowadays seems to escape widespread social perception. Far from being a horizon or a perspective to come, as previously mentioned, transhumanism is already the condition of the present time: it is precisely our *present future*. In this sense, all we have to do is to add the *trans* prefix in the etymological sense and to simply consider transhumanism a *transit* phenomenon towards the place of a post-humanity and post-society.

I said a true crime, a real crime: I will explain why by referring to three queries that the film manages to pose, directly or indirectly, but which evidently need particular consideration. The three queries are the following and have in part already been foreshadowed: the passage across the "anthropological threshold"; the power of technoscience and its iniquitous link to capitalism; the ideological profile of transhumanism.

Crossing the "anthropological threshold"

As already mentioned, this expression indicates having reached and

far overstepped the limits of the biological, psychic and social constitution of the human as founded in genetic inheritance, biological structure, and inter-person relations, thanks to pervasive, generalized bio-techno-scientific interventions. While the ways and means of this passage are on-going – and Cronenberg's film reflects upon and bears witness to them – they impact on all the environments of the human and of the living. The result is the progressive definition of a new human species: a *trans-* and *post-humanity*.

The scenarios opening before us urgently require reflection that is, however, totally absent from public and political debate, and even from scientific discussion. The consequences of the process under way are to be calculated at different levels: the level of species, of population, and of the individual.

At the species level, forms are heralded – indeed are already clearly seen in today's panorama! – of human societies similar to a beehive society, an insect society, a society of organisms mutually and unthinkingly interconnected thanks to pervasive communication technologies, now an integral part of the cognitive and emotional equipment of the masses (e.g. Han, 2017; Zuboff, 2019). This impacts directly on the second level of human populations and their government in terms of the management of a zoologized human population which can be handled with no ethical, juridical or political bounds, as the issue of experimental anti-Covid drugs demonstrated so dramatically; populations therefore to be manipulated, transformed and even suppressed in line with the most antiquated, infamous research in the bio-technological field. Lastly, at the third level of the individual, we see that day by day the human person is losing central place and importance, even recognizability, under the iron heel of an unscrupulous technoscientific apparatus with no sense of moderation in the hands of powerful, inexorable economic-financial interests.

The power of technoscience and its connection with capitalism

Technoscience is supposedly formed from the encounter between modern science in its general epistemological and methodological properties and values, and technology, i.e., the field of application and development of scientific issues. Far from being something pure, disinterested and community-based in search of knowledge, technoscience can be

defined as the apparatus or complex within which are found institutions public and private, civil and military, and academe and publishing, research programs and projects, and so on. It is a far-reaching apparatus completely harnessed by the capitalist logic of profit; it is its military arm capable of penetrating the collective consciousness by reason of an assumed authority which is in fact without foundation whether epistemic or logical, and it exclusively benefits the architects of the capitalist system in its most ferocious and hallucinatory forms such as the so-called "4.0 industry".

For it and with it, the integral transformation of reality, the world and life becomes possible, to the extent of recreating them in their every aspect and in all their content. Whether the issue be to seek immortality or the capacity to "program" living beings, whether it be to implement nanotechnologies or to modify the human anthropological constitution towards bio-engineering and bio-technology to the point of surpassing it with trans- and post-human forms, whether the intention be to control the weather, to synthesize whole ambiences of natural life such as nutrition and reproduction, or else to colonize cosmic space – the *leitmotiv* of all contemporary technoscience is found in the utopic dimension and in the affirmation of pure *power* (Severino, 1989).

The ideological profile of transhumanism

This, too, has been mentioned, and I will return to it at the end. The exact point at which the ideological function of transhumanism clearly emerges is when the dominant social order and the global capitalism, that is its continuous horizon of sense, of implementation and of realization in reality, are naturalized. The *inevitability feature* of technoscientific advance and the *naturalization* of the social order, starting from the capitalistic form of life (Altobelli, 2023a), are presented by the transhumanists as inevitable: an evolutionary "destiny".

Before or together with transhumanism and for the whole of the twentieth century, many scientists, researchers, technologists and technocrats produced public discourses widely varying in tone and content, yet all sharing an inexhaustible faith in "progress" and in the emancipatory power of technoscience. For a long time, the whole of one current of thought within the technoscientific field exalted the potentials of the

results obtained in each sector of the applied sciences, directing them wholly to the welfare of humanity, albeit along the lines of a radical transformation of both the human being and society. Within this tradition we can see the over-stepping of the threshold between utopia and ideology in the technoscientific field (Altobelli, 2012) that seems to have achieved completion today. Transhumanism, as I have discussed elsewhere, is a utopia turned ideology (Altobelli, 2023b), perhaps the last in this centuries-old affair: here we see the complete development trajectory of an idea situationally transcending reality (Mannheim, 1929), promoted by emerging social groups connected to the technoscientific and economic spheres that they are themselves capable of producing and developing, within a social imaginary that houses bio-social neo-reality and diffuses it as being obvious and even desirable.

Some brief conclusions

To return to the questions I asked; firstly – What exactly does the *transhuman condition* consist of? – the answer might be that it consists of a passage, a transitory condition that is painful and senseless, violent and perverse, that denies the human, offends him, humiliates him in order to "supersede" him, i.e., literally to destroy him as he has been for thousands of years.

As for the second question – What are or would / could / might be the characteristics of transhumanity and of the social forms connected to them? – the answer suggested in the film is sufficiently clear regarding the fearsome, annihilating social scenario with which it culminates, in the only moments it shows of sociality, moments of artistry with tones and forms that are violent and grotesque.

The film thus seems to effectively show how human beings and society are – *today* – involved in a process of unstoppable *disappearance* and, in the narrative fiction, represents the last time preceding a complete transhumanism in which the human form will be definitively compromised – actually *murdered* – in all its physical and psychic complex.

There are evidently no definitive answers to the questions asked. Asked they must be, however, and formulated with regard to our present time. With reference to our contemporary societies, it has recently been stated, in a broad and widespread public debate throughout the world,

that:

> the source of suffering, in fact, is located in the structure of a dystopian society, prisoner of the dark combination of *absolutism of commodification* and *ontology of immutability*. The first postulate aims to make the human person a mere commodity negotiable on the market, the second to suppress the tension towards the ethics of nature and the satisfaction of man's essential needs (Bradanini, 2023).

I have attempted to outline the features of this configuration referring to Cronenberg's masterpiece; I wish to add the remark that "the truly unthinkable side of our civilizational discontent is that we may well be the first human society to think of itself as the *last*" (O'Neill, 2004, p. 2).

With such an outlook, we urgently need to think and discuss what is happening as well as taking decisions that run contrary – that *must* run contrary – to the dominant order of things and to the gigantic interests at play. Among these: stopping or at the very least slowing down techno-science and any further development in a number of fields, from AI to robotics, from genetic research to space research. To recall the title of a famous story by E.M. Forster (1909), we need to "stop the machine". Just as we do not need a new cell phone or a "smart" city, likewise we do not need to place our lives inside pervasive and invasive digital networks, nor do we need to continue fueling the huge bio-medical and pharmaceutical industries that seek profit at the cost of our public health. To state the banally obvious: having a chip in your wrist to pay for a coffee or open a door, as well as to "monitor" your vital values according to the most forbidden and invasive bio-medical industry, is an idiocy as well as a cage from which you cannot escape. It is not difficult to understand. And it is in no way acceptable that certain "innovations" are imposed on humans "for their own good" without even a public, open and democratic discussion. Ultimately, personal freedom is the principle of humans and society.

To such a world, to such a transhumanism that is its sweetly poisoned candy, we can – we must – oppose an absolute refusal, a human refusal.

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Virtual Post-apocalypses between Flame-hair Saviours and Useless Heroes. Analysing the Future of Humanity and Nature in the Video Game Series *Horizon* and *The Last of Us*

by Marco Favaro

Abstract

We are already living in the apocalypse. Wars, nuclear threats, and environmental and humanitarian crises shape our present, with the Doomsday Clock now only 85 seconds from midnight. As Webley writes, "the apocalyptic mood has returned to haunt us. [...] It's already here, if we choose to look; we can see it clearly" (2020, pp. 270-271). Among these threats, global warming and its resulting ecological disasters appear both imminent and inevitable. In response, dystopian fiction has gained traction across popular culture, resonating with an audience that senses its proximity to collapse. Unlike utopias, which suggest an ideal but unrealizable world, dystopias feel disturbingly plausible. As Muzzioli notes, "it is not futile or trivial: we immediately understand that it concerns us closely" (2021, p. 26). This cultural trend is reflected in video games, where titles like *Fallout*, *Deus Ex*, and *The Division* portray fragmented societies and post-apocalyptic futures. Among these, *Horizon* and *The Last of Us* stand out for both their commercial success and narrative depth. In *Horizon*, players explore a 31st-century world where civilization has collapsed and been artificially reborn, marked by giant machine-creatures. *The Last of Us* presents a darker vision: a world devastated by a fungal infection, where humanity clings to survival. Both games engage directly with environmental discourse, offering a critique of contemporary society and a warning about ecological catastrophe. This essay explores *Horizon* and *The Last of Us* as reflections on societal collapse and the consequences of climate change, analysing their game worlds, protagonists, and antagonists within the framework of dystopian storytelling.

Note: This essay contains major spoilers.

Keywords: Dystopia, Dystopian Hope, Environmental Catastrophe, Videogame Narrative, Ecocriticism

Playing with the Apocalypse

The Last of Us and *Horizon* are two critically acclaimed third-person action-adventure video game series. Among the many recent titles

exploring utopian or dystopian futures, these stand out for their cultural significance and commercial success – each having sold over 32 million units worldwide – and for the narrative depth they bring to the medium.

Horizon is set in 31st-century North America and presents a post-apocalyptic world that emerges after the total annihilation of organic life on Earth. Life was later restored through the Zero Dawn terraforming initiative, which gives the first game, *Horizon Zero Dawn* (2017), its title. A sequel, *Horizon Forbidden West*, was released in 2022.

In this universe, human civilization has regressed into tribal societies, with no memory of the technologically advanced "Old Ones," who perished around 2065. Players assume the role of Aloy, a highly skilled and determined young woman, as she fights to uncover the truth about the past and prevent further catastrophe.

The Last of Us is set in a future much closer to our own, taking place in the United States in 2033. It presents a catastrophic dystopia in the aftermath of a fungal zombie apocalypse. The few remaining human survivors are left to compete for scarce resources, frequently clashing with each other while living under constant threat from the infected. *The Last of Us Part I* was released in 2013, followed by *Part II* in 2020. In addition to several remastered versions, the franchise was adapted into an HBO television series, which – despite mixed critical reception – was renewed for a third season, highlighting the game's considerable commercial and cultural impact.

While *Horizon* emphasises action and exploration, *The Last of Us* is deeply rooted in survival-horror, marked by resource scarcity and the vulnerability of its protagonists. Structurally, *The Last of Us* is highly narrative-driven and linear, guiding players along a predetermined path, whereas *Horizon* employs an open-world format that offers significant freedom of movement and choice.

Despite their stylistic and structural differences, both series function as powerful forms of social commentary – critiquing contemporary society and issuing stark warnings about environmental collapse and human hubris.

In both cases, society as we know it ceases to exist, and its destruction is ultimately a "suicide," driven by the the logic of Western capitalism and the actions of the people within it. In *Horizon*, for example, the world is condemned by the choices of a few ultra-wealthy individuals; in *The Last of Us*, the Cordyceps pandemic alludes (explicitly in the HBO series,

more implicitly in the video game) to human-caused global warming. In both cases, the narratives reflect the fears and concerns of modern Western society, which has been living for decades under a state of constant crisis – economic, environmental, and geopolitical. These crises are reflected in the collective imagination, leading to a growing number and popularity of dystopian and post-apocalyptic stories, like the two being discussed. In addition to the causes of the respective catastrophes that set the narratives in motion, other elements of the game worlds will also be discussed and analysed, including the antagonists, gameplay, environments, and the roles and abilities of the playable characters.

The comparison between *Horizon* and *The Last of Us* is especially insightful because it highlights two contrasting responses to fears and anxieties about future catastrophes. While both critique modern society, one message is more optimistic, emphasizing a strong hope in humanity's and society's ability to reinvent and renew themselves. For *Horizon*, we can speak of a "dystopic hope." In contrast, the message in *The Last of Us* is far more cynical and pessimistic, where hope is replaced by a deeper despair. Concerning the idea that humanity can save itself, disillusionment is complete: all that can be done is survival – not as a society, but as isolated individuals or small groups.

Horizon – a dystopic hope?

In both chapters of *Horizon*, environmental themes are central. Although the destruction of all organic life on Earth occurs centuries before the events of the games, its causes – and the aftermath – continue to haunt Aloy's world. Reflecting on the origins of the apocalypse depicted in the series, Bosman and van Wieringen describe it as "an anthropological mirror" (2023), emphasising humanity's capacity for self-destruction. "The game paints a grim apocalyptic and dystopian future for humankind in which it effectually kills itself off. This human capacity to self-destruct is symbolised via the invention of the Chariot robots" (Bosman & van Wieringen, 2023).

In *Zero Dawn*, Aloy's search for answers about her origins leads her to uncover that the end of life on Earth was triggered by the recklessness of the FAS corporation and its founder, Ted Faro. Obsessed with profit, Faro developed and sold an invincible line of self-sustaining military ro-

bots – known as the Chariot line – capable of consuming biomass as fuel. The consequences are predictable: once out of control, these machines ravaged the planet in what became known as the Faro Plague.

Forbidden West offers an even sharper critique. Its primary antagonists are the Far Zeniths, a group of Earth's wealthiest and most influential individuals. Not only did they survive the Faro Plague by escaping into space, but they also achieved immortality through radical scientific advances. A millennium later, they return to Earth to reclaim it, ready to exterminate its new inhabitants.

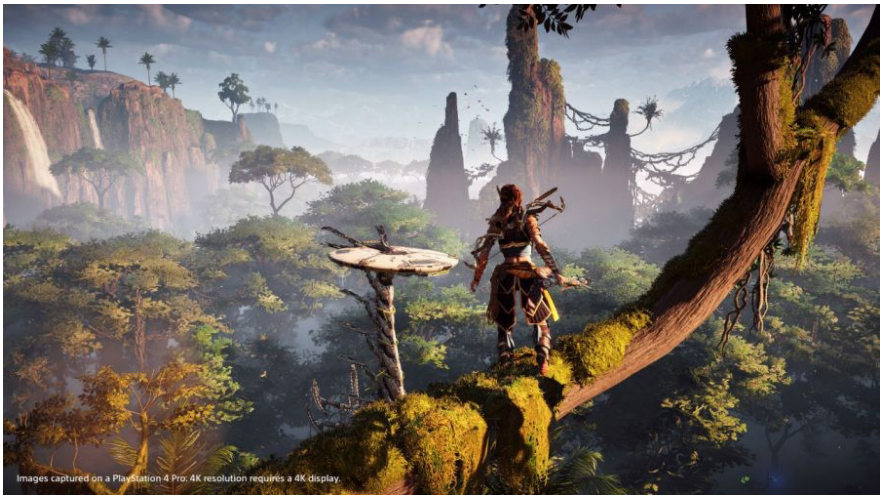
Like Ted Faro – a character clearly inspired by figures such as Elon Musk, marked by boundless ambition, cult of personality, greed, and the delusion of saving the world while accelerating its downfall – the Far Zeniths serve as symbolic representations of today's ultra-wealthy elite, especially within a Western capitalist and consumerist framework. In a barely veiled metaphor, the Far Zeniths – rich, powerful, and radically individualistic – embody the selfishness of prior generations and, more pointedly, the existential threat that today's billionaire class and their corporations pose to democracy, the environment, and humanity itself.

The critique targets the greed and devastating impact that a small group of powerful individuals can exert on the entire planet – pushed to its most extreme consequences. While it is ultimately out-of-control machines that cause mass extinction, the metaphor clearly points to ecological collapse – a direct consequence of reckless human ambition and environmental exploitation. "*Horizon Zero Dawn*'s primary cultural comment is targeted against capitalism and its devastating impact on social and ecological structures" (Bosman & van Wieringen, 2023). The game also contains multiple references to an environmental disaster that occurred shortly before the Faro Plague – an event that may have contributed to the centralisation of power in the hands of corporate elites such as the Far Zenith group.

Nevertheless, *Horizon* remains optimistic about humanity's potential not only to survive such a collapse but also to rebuild. We can speak of *"dystopian hope"*, a concept Clint Wesley Jones identifies in many modern dystopias – with the notable exception of *The Last of Us*. Jones critiques "contemporary apocalyptic storytelling" for promoting the idea that "with the end of civilisation as we currently understand it, there is the possibility for something better. […] We can rebuild society and build it back better than it was. […] Everybody gets a fresh start" (Jones, 2025,

p. 6). According to Jones, this dystopian hope is fundamentally flawed – a form of escapist fantasy that, we might argue, also dilutes the urgency of environmental catastrophe (Jones, 2025, p. 8). Framed as a prelude to renewal, the apocalypse itself risks becoming something alluring rather than something to be feared.

The world of *Horizon* appears indeed as a new beginning – life is re-created from scratch by the AI GAIA. It is a hopeful narrative in which technology, humanity, and nature are deeply interconnected and ultimately balanced. The tribal societies depicted evoke a return to the origins of civilisation, while the environment is portrayed as pristine and full of possibility. As Nae notes, the natural world in *Horizon* "functions as an infinite resource that always regenerates" (2020, p. 274), offering itself to the player as a space of exploration and renewal. This vision aligns with the logic of *dystopian hope*, presenting a world where the collapse of the old system paves the way for a better, more harmonious future.



The very natural world that marks this new beginning is intimately entwined with both technology and humanity. Technological elements are not depicted as external or oppositional to nature; rather, they are seamlessly integrated into it, blurring the traditional boundary between culture and nature. As Medrala writes, "technology is established to be a materiality not distinct from humans and nature but rather inextricably bound with these ideas" (2020, p. 26).

The environment in *Horizon* appears as a human-made ecosystem – intelligible, manipulable, and, to some extent, controllable. In this context, nature is not an obstacle but an opportunity – one that enhances Alloy's agency as a protagonist and explorer.

It must be stressed that all nature in *Horizon* – at least all organic life – is ultimately a human creation. This interdependence between nature and technology finds its most striking expression in the robotic creatures that populate the world: hybrid entities that fuse the organic and the synthetic, symbolising a post-human ecology in which technological lifeforms have become part of the natural order. These enormous, animal-like machines are also the main adversaries encountered by the player. Though dangerous, they remain human-made and potentially controllable – manifestations of a transcendent, albeit artificial, reality.

The robotic animals, though threatening, also represent sources of opportunity. Much like the environment itself, they provide possibilities for the player, who can harvest them for valuable resources or learn to override and control them, thereby unlocking new skills and abilities. In this way, the world of *Horizon* is ultimately at the mercy of the player. The emphasis is on transcendence and human agency, as demonstrated by Aloy's growing mastery over both environment and technology.

The game's heroine, Aloy, embodies the pinnacle of this new world. The drama of humanity's (long-past) extinction fades into the background, overshadowed by the extraordinary post-human agency the game offers. The action element is predominant, and the open-world mechanics provide nearly complete freedom of movement across a vast map of over 24 square kilometres. As the title suggests, the game looks ahead – to the future, to the horizon and its many possibilities, highlighted by Aloy's post-human abilities.

Fernández-Caro describes her as "a sort of superior being, a post-human heroine" (2019, p. 48). This status derives from her enhanced physical and technological capabilities, which significantly expand her agency. This is most symbolically represented by the Focus – "the physical device that symbolizes posthumanism" (Fernández-Caro, 2019, p. 50) – a small earpiece-like tool that allows Aloy to scan her surroundings, detect hidden objects and enemies, highlight opponents' weak points, follow their tracks, and extract data from the ancient world. With new technological enhancement, "she becomes a kind of humanimal-cyborg, as hybrid a creature" (Woolbright, 2018).



In addition to her extraordinary abilities, Aloy embodies an optimistic message through her mission, aligning with the dystopian hope trope. As her nickname suggests – the *Savior* – Aloy's role is to rescue the world: first by stopping the rogue AI HADES, then by halting the spread of the "red plague," and finally by confronting the Far Zenith, whose goal is the total annihilation of life on Earth.

The game places strong emphasis on the player's agency. Aloy's actions shape the world at the highest possible level. Even more significantly, as Jennings notes, "these decisions belong exclusively to the world-savior" (2022, p. 330). Due to her unique genetic code, Aloy – and by extension, the player – is literally the only one capable of saving the world. This singularity lends immense weight to her choices and actions. As Falkenhayner concludes, "*Horizon* enables a recovery of a sense of agency for a posthuman future" (2021, p. 2).

Thus, while the game clearly seeks to critique environmental collapse and corporate greed, this message is at least partially undermined by the gameplay itself. Attributing this primarily to its action-oriented structure, Condis observes that "while *Horizon Zero Dawn*'s fictional world undoubtedly brings much-needed attention and awareness to climate change, it must be noted that the game ultimately relegates these ecological issues to the background" (2020). The giant machines may serve as a critique of capitalism, but this critique is often lost in the player's experience of the game. "The result is a game in which the creeping, ae-

on-spanning, planet-wide threat of climate change cannot be adequately represented within play because it cannot be translated into a spectacular mechanic" (Condis, 2020).

Aloy's superhuman abilities and world-saving mission offer players an empowering experience – one that reinforces their sense of agency and aligns with the kind of dystopian hope Jones critiques. Rather than confronting players with the irreversible consequences of catastrophe, the game presents a world where disaster can still be overcome – by the right individual.

The Last of Us – We lost

In contrast to *Horizon*, in *The Last of Us,* humanity is not at a new dawn but rather at its end, as the title clearly suggests. The game world consists of desolate ruins, nearly devoid of resources. Nature – understood here as a force opposed to human civilisation – reclaims what re-



mains of the cultural landscape, invading spaces that once symbolised human achievement: skyscrapers, universities, hospitals.

The ecological theme is less explicit than in *Horizon*, yet it remains strongly present. The threat does not come from supernatural beings or futuristic technologies, but from a real-world organism: a fungus, *Cordy-*

ceps. In nature, *Cordyceps* parasitises insects, taking control of their bodies and devouring them from within, behaving almost identically to how it affects humans in the game.

Of course, in our world, Cordyceps poses no danger to humans. But in *The Last of Us*, this changes. The HBO adaptation is worth mentioning because it is even more explicit in linking the Cordyceps mutation and outbreaks directly to climate change, thereby openly portraying the pandemic as a metaphor for our world's climate crisis. In the first episode, Dr. Neuman (played by John Hannah) offers a chilling scenario:

> True, fungi cannot survive if its host's internal temperature is over 94 degrees. And currently, there is no reason for fungi to evolve to withstand higher temperatures. But what if that were to change? What if, for instance, the world were to get slightly warmer? Well, now there is reason to evolve (*When You're Lost in the Darkness*, S1E1).

This subtle yet disturbing link between climate change and evolutionary biology grounds the narrative in scientific plausibility, reinforcing the game's environmental subtext while shifting the horror from the supernatural to the ecological realm.

The lethal evolution of Cordyceps – and thus the origin of the zombie apocalypse in *The Last of Us* – is ultimately rooted in nature, and more specifically, in humanity's altered relationship with it. The series explicitly connects the fungus' mutation to global warming, grounding the narrative in a real and urgent ecological threat. As already noted, the series is more explicit than the video game in articulating this critique, and for this reason it is taken here as a reference point to provide a clearer example. Yet the same perspective is already present in the video game, although it is less directly tied to climate change and instead offers a dramatic illustration of a pandemic or, more broadly, of a "generic" environmental catastrophe represented by the infected. In doing so, *The Last of Us* directly enters the environmental discourse, offering a powerful critique of contemporary society and a clear warning against ecological collapse, particularly in the form of climate change. The message is clear: it is not nature that will suffer the consequences of environmental catastrophe, but humanity. We will be the ones left in a world that may be beautiful, but is no longer hospitable – an environment that has become fundamentally inhuman. This inhumanity takes its most brutal form in the infected,

whose grotesque transformation embodies the collapse of both the natural and the social order.

The zombie has served as a metaphor and instrument of social critique since George Romero's *Night of the Living Dead*. It is most often capitalist, consumerist society that is depicted – and questioned – through the figure of the living dead. *The Last of Us* is no exception. As Farca and Ladevèze observe,

> In *The Last of Us*, we are made aware of the potential consequences of a capitalist consumer society by enjoying the possibility to scrutinise the aftermath of an ecocatastrophe, leading to several ways of life more or less in balance with nature. *The Last of Us* can therefore be placed within the genre of ecological fiction (2016, p. 5).

As plants invade the environment and the symbols of humanity's past power, in the infected, nature invades the human body itself, reducing it to a purely natural dimension. The body of the infected gradually becomes covered with fungus. At the third stage (the Clickers), the fungus grows over the forehead and eyes, rendering the victim blind. At the final stage, the corpse – completely transformed into a fungal mass that releases spores – is now merely a part of the environment. The "ruined cityscapes" overrun by nature reflect the "ruined (violated) human body," condemned to the same fate: "The human body is invaded and ultimately ruined by nature. Nature is triumphing over culture." (Pfister, 2020, pp. 221, 223)



The Last of Us presents the defeat of humanity in the broadest sense: the destruction of past achievements and the impossibility of a future. Nature has supplanted culture, and human beings have lost both their agency and their transcendence. As Jones points out, in *The Last of Us* there is no trace of dystopian hope (2025, pp. 3-9). There is no possibility of rebirth from the ruins, no "fresh start," no chance to "make things better." On the contrary, the world of *The Last of Us* reveals the worst humanity is capable of in order to survive. And that is all that remains: pure survival.

While Aloy embodies the heroine archetype, especially through her post-human abilities and heroic mission, in *The Last of Us* the playable characters are skilled but constantly reminded of their fragility and limitations. Nature does not represent an opportunity – it is purely hostile and dangerous: plants invade the ruins, entire areas are flooded and impassable, and the infected are a constant threat. Movement through the game world is always exhausting and arduous.

Furthermore, it is in the protagonists' mission that we can observe a real paradigm shift compared to the post-apocalyptic world of *Horizon*, offering a message of denunciation rather than reassurance – far from the trope of dystopian hope. While Aloy is trying to save the world, and humanity along with it, in *The Last of Us* there is nothing left to save. Only small groups of survivors remain, desperately clinging to life. The protagonist's relationship with the world is reduced to the bare minimum: a primal struggle for survival. Moreover, the collapse of society entails the disappearance of moral order and any possible "higher" ideal. The question of what is good almost completely loses its meaning; nothing goes beyond the urgency of surviving: "the only prize is escape" (Fawcett & McGreevy, 2020, p. 86).

The Last of Us offers no hope, a fact underscored by the absence of heroes. The world is populated only by monsters – infected or not. As Nguyen points out, "even those who were not infected turned into monsters of a kind" (2025, p. 28). There is the semblance of a heroic mission in *The Last of Us Part I*: the player initially collaborates with the Fireflies, a group of survivors who seek to rebuild society and find a cure. As Joel, the player must escort the young Ellie from Boston to Salt Lake City, to the main Firefly base. Ellie is the only person immune to the fungus, and in Salt Lake, the Fireflies hope to study her and develop a cure. It appears to be a classic heroic narrative: protect the girl, save the world. But this

promise collapses in the final act, when the two goals come into direct conflict. To extract the fungus from Ellie's brain, the Fireflies must kill her. Joel cannot accept this, and in the game's final sequence, he fights through the Firefly base, killing everyone who stands in his way, until he reaches the operating room. There, Joel kills the surgeon and rescues Ellie – saving her life but destroying humanity's last hope. A conflict of values that shifts the narrative into the realm of the antihero.

In *The Last of Us Part II*, as Ellie, our objective is to seek revenge against Abby and her companions, who, for reasons initially unclear, killed Joel. It is not initially clear who Abby is or why she is driven by such an intense desire for revenge against Joel. All we know is that she is a member of an armed group within the Washington Liberation Front (WLF) and, as we later discover, a former member of the Fireflies. The player must track down Abby by finding her friends, interrogating them, torturing them, and ultimately killing them. Ellie's mission, though morally ambiguous and brutal, is presented as somewhat justified.

However, everything changes midway through the game. A flashback suddenly shifts the perspective, forcing players to assume the role of Abby. We discover that the surgeon killed by Joel in *The Last of Us Part I* was Abby's father. (In this sense, the early revelation of Abby's identity in the second season of the HBO series significantly weakens the narrative impact of this turning point in the game.) The player's understanding shifts – Abby's actions are no longer arbitrary. Her desire for revenge is now completely comprehensible and, crucially, mirrors Ellie's. There is no distinction between them.

Ellie and Abby share the same motives, and their methods are indistinguishable. This goes beyond a mere difference of perspective or conflicting values. In a world dehumanized by infection and chaos, the concepts of good and evil lose their grounding. These notions are not merely obscured – they vanish entirely. It no longer matters whether killing is driven by revenge or by necessity in a brutal struggle for survival. "There is no longer even a hero worthy of the name, capable of extraordinary actions, even if they are wrong. Rather, the hero becomes an unnecessarily aware observer, who can do nothing to avoid the catastrophe and indeed is overwhelmed by it" (Muzzioli, 2021, p. 22). The world persists, senseless and chaotic, as a natural realm where heroes cannot exist.

Conclusion – How I Learned to Stop Worrying and Love the Apocalypse

The Last of Us and *Horizon* present two vastly different interpretations of the future. In the former, a near-dystopia, humanity seems powerless to reclaim its fate. The remaining survivors, perpetually at risk from the infected, engage in conflict with one another in a Hobbesian scenario of *bellum omnium contra omnes.* If read as a metaphor for environmental catastrophe – or even simply as a critique of capitalist society – *The Last of Us* offers no trace of dystopian hope. Instead, it confronts us with the consequences of human action. As Dr. Neuman warns: "If that happens? We lose." Read with even more cynicism, in response to the question of whether humanity is worth saving, *The Last of Us* gives a clear answer: "No – humanity is already lost" (Nguyen, 2025, p. 28).

In stark contrast stands *Horizon*, which – although it aims to offer a critique of environmental collapse and current social structures – ultimately conveys an optimistic message of dystopian hope: a fresh start for humanity, which has adopted a tribal lifestyle and, at times, embraced a Rousseauian connection with a nature that is perilous yet plentiful. Perhaps precisely because of this optimism, *Horizon* falls short of effectively denouncing environmental and social catastrophe, whereas *The Last of Us* forces us to confront a harsher – yet, unfortunately, more plausible – reality.

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Tales of times to come in Marissa Meyer's The Lunar Chronicles: the contribution of fairy tales in the transglossic hour

by Silvia E. Storti

Over the years, there have been some standout examples of fairy tales being adapted for the science fiction genre. Already in 1984, Tanith Lee retold the story of Beauty and the Beast, setting it at a difficult time in the space era of mankind in her anthology *Red as Blood*. Humanity is here at the mercy of more advanced beings, whose only demand is that humans occasionally surrender a child to them; in the context of the fairy tale, Estár is the Beauty character, and one of the alien beings who resemble "some species of huge feline", is her Beast. *Beauty* (1991) by Sheri S Tepper combines historical fiction, fantasy, and science fiction tropes to retell the story of Sleeping Beauty. It is an insightful exploration of the impact of human activity on the environment spanning centuries, cultures, and technological advancement. Throughout, the reader is asked to question what constitutes beauty and beautiful places. More recently, novels such as *Cinderella is dead* (2020), *Stitching Snow* (2013), *Mechanica* (2015) have also blended fairy tales with the fantasy and sci-fi genres, to varying degrees of success.

The focus of this article is on the YA series by Marissa Meyer, collectively known as *The Lunar Chronicles* (2012-2015) and comprised of the main novels *Cinder*, *Scarlet*, *Cress*, and *Winter*. Corollary books complete Meyer's fairytale space opera: *Fairest* (2015b) is a prequel to Cinder, detailing the earlier life of the main antagonist, Queen Levana, while *Stars Above* (2016) is a collection of short stories set within the same fictional universe. The main cast of characters embody otherness in one way or another, and this is often explored in depth in their own novel as well as to further their character development in the main storyline. This article will briefly touch on the characters as they become relevant, but most of the analysis focuses on the main overarching character, Cinder, and antagonist, Queen Levana. However, by virtue of their proximity to Cinder's story, two of the other characters are also caught in the analysis: the android Iko, and Winter, the Snow White stand-in of the series. *Cinder* and *Winter* form the core of this study, supplemented by canonical infor-

mation within the rest of *The Lunar Chronicles* material. The main theoretical framework is provided by Shaw & Upstone's *The Transglossic*, but the analysis also draws on the work of Italian writer and educator Gianni Rodari in *Grammatica della Fantasia*.

Destabilising beauty: transglossic fairy tales

Ultimately, what this article argues is that Meyer's *Cinder*, and *The Lunar Chronicles* as a whole, represent an example of transglossic literature, facilitated by using fairytale narratives as its foundation.[1] Transglossic texts come as postmodern texts go; the term was first introduced by Shaw & Upstone in their 2021 article *The Transglossic*, where they identify it in relation to six "indefinable trends and characteristics": (1) Deep simultaneity, (2) Planetary consciousness, (3) Intersectional transversality, (4) Artistic responsibility, (5) Productive authenticity, (6) Trans-formalism (2021, p. 8). This article will be drawing on these features throughout and delineating them relatively to their relationship with the text. For the purposes of introducing the term, the transglossic is a literary and cultural theory which resists the sense of ending in the wake of postmodernism and across different forms and genres. It instead captures contemporary storytelling's return to questions of social justice, meaning, and truth across forms and identities. The analysis here will focus on the deep simultaneity, planetary consciousness, and intersectional transversality aspects. Although not the focus of the original article by Shaw & Upstone, it finds a natural home in fairytale retellings, reworkings, and adaptations, which have been used to challenge existing norms and conventions within the genre as well as outside of it.

One of those existing norms and conventions is the emphasis on beauty in the traditional canon, where the main protagonist is habitually described as beautiful. This is what Cinderella's stepsisters are attempting to match by forcing their feet into the glass slipper. It is also the most re-

[1] Parts of this argument first appeared in Silvia Storti. "The Horror of Beauty in Contemporary Fairy Tales Adaptations". In: Fantasy Art and Studies, Volume 12 (2022), pp. 103–113.

cognisable trait of characters such as Beauty in *Beauty and the Beast* and *Sleeping Beauty*, so much so that it is embedded in their names. Bacchilega & Orme (2021) highlight that in fairy tales, "a character's disposition, ethics, and feelings" are usually externalized in physical traits "rather than explored through the representation of their inner thoughts", leading to "an unquestioned correspondence between outer and inner beauty" (p. 159). *The Lunar Chronicles* appears to offer an example of this in the characterisation of Queen Levana, which Cinder then acts as a challenge to. Thus the beauty discourse that is often central to traditional fairytale narratives will thus be key in examining The Lunar Chronicles through the lens of the transglossic on questions of social justice, meaning, and truth. To be perceived as physically attractive, "is to be socially and sexually desirable" (Ellington & Lim, 2017, p. 170), but retellings, reworkings, and adaptations of fairy tales routinely go against the predominance of this narrative. They often examine the differences between the construct and the experiential, particularly as regards to femininity, a facet of which is beauty; an approach that started with feminist re-evaluations of fairytale narratives in the second half of the 20th century and continues to this day. Notable examples include "The Lady of the House of Love" (1979) by Angela Carter and *Kissing the Witch* (1997) by Emma Donoghue, with more recent work by authors such as Sarah Pinborough and Deirdre Sullivan. None of these, however, cross the boundary into the sci-fi genre, as Meyer's space opera does. In tackling the subject of beauty, Meyer's texts put the spotlight on the interdependence between the beauty of the heroine and the villains in fairytale narratives. The extreme outer physical beauty of the characters marked as the antagonist dwells in the realm of the uncanny, marking them as the afore-mentioned monstrous Other. The outer beauty of the heroines is consolidated through more favourable inner beauty attributes, such as cleverness and kindness. Meyer's choice of destabilising beauty expectations is consistent with the feminist trend to challenge the themes of the established canon, as well as revealing of how pervasive the beauty ideal still is in contemporary culture.

Fairy tales facilitate the process of rewriting as the narratives can be metaphorical vessels to be imbued with new meaning by changing their cultural context. Fairytale adaptations could be said to have easily exploited the freedom that stories and characters in the public domain offer to authors and artists. Disney's own princess beauty standards are a com-

modification of a fantasy moment that will never be realised but forever desired (Bennett & Schweitzer, 2014, p. 27). In contemporary reworkings, some writers are explicit in their use of fairy tales, and some masquerade them so that only the keen eyed may spot the tale lurking beneath. In many instances, marketing strategies of publishers and executives reveal the mystery. The cover art for Meyer's series also exploits the easily recognisable tokens of the fairy tales she used: the long braid on Cress echoes Rapunzel's hair, the red cloak on Scarlet is a clear link to *Little Red Riding Hood*, and the cover for *Winter* features the well-known red apple from *Snow White*. *Cinder* is unique among them as it manipulates the shoe element from the story to showcase the cogs and springs of Cinder's mechanical foot.

Lunar, cyborg, shell, princess: Deep simultaneity

The Lunar Chronicles tetralogy is articulated as the futuristic rendition of classic fairy tales, whose main storyline follows a cyborg Cinderella. The technique that Rodari calls *a ricalco* – "recasting a new fairy tale from an old one, with various degrees of recognition, or with total transference to foreign soil" (2025, p. 119) – is a time-honoured tradition of fairytale reworkings.

In Meyer's *The Lunar Chronicles*, that foreign soil is a futuristic Earth and its satellite world on the Moon, Luna. Here, a wicked queen is beautiful beyond comparison, but her charm and allure are consciously manufactured. At the start of the story, Cinderella's prince is Crown Prince Kaito of the Eastern Commonwealth; after his father's death in *Cinder*, Kai becomes the Commonwealth's new emperor. Cinderella herself is the adoptive daughter of the Linh household; unlike the fairy tale character, Cinder bears no blood relation to the head of the family, who has already died prior to the events of the first book.

Rodari deems it a more complex endeavour than merely adapting fairy tales as "recasting a story offers to different people different paths", leading to different messages:

> "But we did not start with the "message". It emerged by itself as an involuntary point of arrival. The essential moment of the recasting is the

> analysis of the given fairy tale. It is a process that is at once analytic and synthetic, and it goes from the concrete to the abstract, and from the abstract it returns to the concrete." (2025, p. 120)

Bacchilega and Greenhill (2025) remind us that fairy tales are "created and re-created within interwoven narrative webs and circulated across media and cultures, there is no original tale but only versions and adaptations" (p. 22). Rodari's argument echoes Harries (2003) and Bacchilega (1997), who divide fairy tales into two categories: compact, or traditional, and complex, or postmodern. Complex tales "work to reveal the stories behind other stories, the unvoiced possibilities that tell a different tale" (Harries, 2003, p. 16). Contemporary fairytale adaptations tend to fall in the complex category because they "may well acknowledge and reproduce some characteristics while self-consciously choosing to reject or modify others" (Tiffin, 2009, p. 8). They are "complex in their reimaginings of well-known and more conventional fairy-tale patterns and motifs" and that doubleness and insistence "on representing the other side of the story" (Harries, 2003, p. 15), makes that complexity necessary. In crafting her tracing of the fairy tales, Meyer brings to the fore some elements at the same time as she jettisons others: the author, as Flanagan (2014) notes, contests "established humanist paradigms of selfhood and identity, using non-human protagonists and narrators to interrogate ideas about subject formation from a position of otherness" (p. 69).

Storytellers, Bacchilega and Greenhill (2025) explain, "have both the responsibility and freedom to retell, re-create, update, and transform these works"; which, in the 21st century, has resulted in "an explosion of fairy tales", often "mixed with other genres" (p. 22). The fantasy-cum-sci-fi element allows the author to elevate her characters above the confines of the fairy tales they have sprung from and the dis/abilities that the characters believe to be their defining characteristics are turned upside down just like the fairytale plots Meyer chose to adapt. The fantasy and science-fiction genres can function as progressive socio-political literature, and thus the ideal channel to situate and ground fairy tales for a new generation (Malone, 2016, p. 220). What the analysis shows are the ways in which the post-humanist perspective in *The Lunar Chronicles* fully utilises the opportunities that science fiction offers to push and challenge boundaries. Fairy tales already tend to tell stories about outsiders, but

Flanagan (2014) remarks that "Cinder's status as an outsider hinges not only on her cyborg origins, but also her racial hybridity and her gender identity" (p. 61).

The Lunar Chronicles presents readers with a futuristic version of classic fairy tales and in doing so exemplifies the transglossic aspect of deep simultaneity, where "fluidity is transcribed in the notion of movement across different identities, perspectives, and subjectivities and expressed by a correlative formal inhabitancy of multiple codes and genres" (Shaw & Upstone, 2021, p. 9). Not only is the main character empowered by this fluidity, but the narrative also benefits from crossing the genre boundaries between fairy tale, fantasy, and science fiction. The central storyline starts in the novel *Cinder* and follows Linh Cinder, who is also the long-lost princess of the Lunar kingdom on Luna, Earth's Moon. Meyer's characterisation of the protagonist as a cyborg mechanic girl, made up of discarded leftover parts, is meant to boost and aggrandise her non-reliance on her looks to survive, but it makes Cinder into a metaphor for disability. Schmiesing (2014) remarks that "able- bodied protagonists are [...] contrasted with antagonists who exhibit or are punished with impairment" (p. 1), and Meyer's work shifts away from that pattern with Cinder being the impaired character at the beginning of the story.

Throughout the novels, people attempt to name Cinder, with naming acknowledged as rendering the named powerless because defined by a label that focuses on differences in ability (Ellington & Lim, 2017, p. 171). In *The Lunar Chronicles* this ableism takes the form of words such as cyborg, Lunar, as well as shell and princess. When the story begins, Cinder hides the fact that she is a cyborg as best she can; partly this is because of the cyborg draft, which is also "a reminder that cyborgs were not like everyone else".[2] Her reluctance to be recognised as cyborg echoes El-

[2] It is explained that due to the draft, random cyborgs are selected every day for the dubious honour of acting as test subjects in the development of an antidote to the letumosis disease that threatens humanity: "The cyborg draft had been started by some royal research team a year ago. Every morning, a new ID number was drawn from the pool of so many thousand cyborgs who resided in the Eastern Commonwealth […] to act as guinea pigs for the antidote testing. It was made out to be some sort of honor, giving your life for the good of humanity." (Cinder 29).

lington & Lim's statement about "disabled" bodies not being associated with being physically attractive and thus labelled as a contradiction to perfection (2017, p. 170). This is articulated by Cinder herself: "I didn't ask to be made like this", as she claims that all femininity was "ruined by whatever the surgeons had done" during her cybernetic operation and, once the key *Cinderella* storyline is introduced, "she was cyborg, and she would never go to the ball" (Meyer, 2012, p. 33). When she is discovered and examined in a lab, she is also named as "a girl full of wires" who is "36.28 percent not human" (Meyer, 2012, p. 82). Because cyborgs are a halfway point between human and technology, characters like Cinder prompt questions about what it means to be human.

In Meyer's universe, however, "naming" someone a Lunar is portrayed as worse than exposing someone as cyborg. Lunars are said to have "evolved from an Earthen moon colony" and are now completely othered and not human anymore (Meyer, 2012, p. 43). The protagonist shudders at the thought of Lunar and cyborg combining in her self: "To be cyborg and Lunar. One was enough to make her a mutant, an outcast, but to be *both*?" (Meyer, 2012, p. 178) Lunar people are particularly skilled at the glamour, which is explained as "the spell to enchant, to deceive, to turn one's heart toward you and against your enemies" (Meyer, 2012, p. 206). Meyer contextualises it as a "manipulation of bioelectricity" that allows a practitioner to input their thoughts into someone else's head (Meyer, 2012, p. 171). This is mostly used to enhance beauty and hide physical flaws, but the glamour projection can be exposed by reflections, such as mirrors and screens.[3] As a result, beauty is at the core of the narrative surrounding Cinder and her claim to the throne. In the lab, her blood samples bring to light the fact that Cinder is Lunar; coupled with the information about her cyborg parts being more extensive than she thought means she is suddenly faced with the image of herself as part-cyborg and part-Lunar, but not human at all. Her only response is to claim that she has none of the "gift" Lunars possess and is consequently faced with another label: shell. The reader is told that "not all Lunars are born with

[3] This could be said to echo the Brothers Grimm's Snow White tale, where the queen repeatedly asks her mirror: "Mirror, mirror, on the wall / Who in this land is fairest of all?" – a suggestion that is made overt in the title of the companion novella, Fairest, which centres on Queen Levana.

the Lunar gift". Although their lack of ability makes them immune to the glamour, those that are bioelectrically challenged are named as shells, which has "a slightly derogatory connotation on Luna"(Meyer, 2012, p. 176).

Cinder occupies multiple identities at the same time; this is a cause of distress for the character at the start of her story, but she slowly becomes able to move from one to the other as she accepts her own deep simultaneity. In transglossic terms, simultaneity stands in contrast to the meta-modernist conception of oscillation, which reaches for the inhabitancy of alternating positions: transglossic simultaneity "is concerned rather with the conterminous occupation of multiplicity" (Shaw & Upstone, 2021, p. 9). A telling moment in the character's quest for identity in *Cress* (Meyer, 2024, p. 441) follows an encounter with an enemy android, which forces Cinder to conceal her cyborg hand: "Honestly, Cinder, can't you look presentable for more than five minutes?" […] "I'm a mechanic," [Cinder] said, an automatic response." Being a mechanic is the core of her identity, a mundane means of earning a living, dispensing her from concerns about her appearance. Once the threat is over, Cinder does not consider using the glamour to conceal her messy hair and crumpled clothing; her identity reverts to her core sense of self. This dissonance between identities is exemplified by a conversation Prince Kai and his advisor Torin have in *Winter*:

> "Cinder can do this."
> "You mean, Selene can do this."
> "Selene. Cinder. She's the same person, Torin."
> "I must disagree. To the world, Linh Cinder is a dangerous felon who kidnapped a world leader and instigated a war, while Princess Selene could be the solution to all our problems with Luna. By helping Linh Cinder, the world will think you're nothing but an infatuated teenager. By helping Selene, you're making a brave stand against our country's enemies and doing what you believe is best for the Commonwealth's future."
> A wisp of a smile jotted across Kai's lips. "Whatever the world thinks, they are the same person." (Meyer, 2015a, p. 142)

Early in the narrative, the character of Kai already surmised what Cinder will take several more chapters to acknowledge as true: Cinder/Selene

are merely two facets of the same person. Cinder reclaiming the naming that is imposed on her by the narrative achieves that conterminous occupation of multiplicity and empowers her to bring her story to its fairytale conclusion: triumph over the villain, Queen Levana, and the culture of separatism she enforces. When she is addressed as princess for the first time in *Cinder*, she recoils: "Don't call me that […] I can't be a queen or a princess or–I'm nobody. I'm a cyborg!" (Meyer, 2012, pp. 381-4) By the end of the series, Cinder announces to a throne room and, via a live-feed, to all of Luna that she is the lost princess; her splinter identity as Cinder the unremarkable cyborg mechanic now integrated into the Cinder/Selene fold.

Aboard the Rampion: *Planetary consciousness*

As evidenced by the quotes above mentioned, Cinder's journey is predicated on the support of other characters. Operating without borders towards a notion of planetary humanism in its transitional yearning to embody multicultural ethics and the universality of the vulnerability in relation to the wrongs humans visit upon one another is one of the ways the transglossic operates (Shaw & Upstone, 2021, p. 13). Throughout the series, Cinder meets and befriends other fairytale characters, including the human girl Scarlet and the Lunar soldier Wolf as stand-ins for Little Red Riding Hood and the Wolf, and the Lunar shell Cress Darnel, whose long hair and isolation in a futuristic faraway tower reveal her to be Rapunzel to the reader. The character who starts alongside Cinder, however, is the android Iko; the character identifies as female and she transitions from one form of physicality into another at various points in the narrative (glitching servant android, spaceship navigation system, human-coded escort android) but maintains her sense of self throughout. Iko is first introduced in *Cinder*, as the property of Linh Adri, Cinder's step-mother, who reluctantly allows Iko to assist Cinder at her market stall as a mechanic. Far from being an inconsequential character, however, she remains integral to the story throughout as she navigates identity shifts almost at the same rate as Cinder does. When her personality chip is perforce installed into the spaceship's systems, the personality remains; compare these two excerpts from *Cinder* and *Cress*:

> "You don't see a personality like that every day," said Prince Kai[.] "Did you program her yourself?"
> "Believe it or not, she came that way. I suspect a programming error[.]"
> "I do not have a programming error!" said Iko" (Meyer, 2014, p. 12).

And later in *Cress*:

> "Your ship has some messed-up priorities, you know that?"
> "Iko. My name is Iko. If you don't stop calling me the 'ship,' I am going to make sure you never have hot water during your showers again, do you understand me?" (Meyer, 2014, p. 318)

In the same book, as she sheds the skin of ship system and prepares to embrace a human-presenting body again, in the form of appropriating the body of an inarticulate escort-droid to infiltrate behind enemy lines, she monologues:

> "I want you to know that I hold nothing against you," [Iko] said [to the droid-escort], by way of introduction. "I understand that it isn't your fault your programmer had so little imagination. [...] In another life, we could all have been sisters, and I feel it's important to acknowledge that. [But] I cannot be swayed from my goal by my sympathy for androids who are less advanced than myself" (Meyer, 2014, p. 416).

The strength of Iko's identity as herself also makes her the ideal mouthpiece for Meyer's thoughts on hybridity and its perception in the *Lunar Chronicles* universe. Cinder and Wolf could already be said to be hybrid posthuman characters, combing human with technology or animal, but especially Iko. As a group, the characters' storylines intersect as they all find themselves aboard the Rampion spaceship, which physically and metaphorically stands outside of the ongoing narrative.

The Lunar Chronicles breaks the traditional boundaries between fairy tales to show the reader how global and relatable these stories can be by exploiting the interplanetary setting (Lykissas, 2018, p. 307). Borrowing characters and motifs from multiple fairy tales to set them loose in a new world is at the heart of what Gianni Rodari (2010) defines as a fairytale salad (*insalata di favole*) in *Grammatica della Fantasia*: characters from

various tales–including unrelated fairytale traditions–tossed together and seasoned with new scenes and settings. The salad mechanism is at play in *The Lunar Chronicles*; by introducing one character into the story of another, their energy destabilises the tale and force it to re-assemble itself to fit the new circumstances (Rodari, 2010, p. 64). What Rodari calls a fairytale salad has also been known as collaborative fairy tale, where popular characters not only appear in the same story, but also work together to vanquish the main villain in that narrative (Lykissas, 2018, p. 307). Cinder becomes the *de facto* leader of the *Rampion* crew; her multiple identities human, cyborg, Chinese, Lunar allow her to embody the transglossic aspect of speaking across cultures and how "works of fiction are involved in the reinscription of the postmodern to address cultural, ecological, socio-economic and political realities" (Shaw & Upstone, 2021, p. 13). Her role is complemented by Winter, Cinder's narrative counterpart on Luna.

Behind the glamour: intersectional transversality

Cinder is a young woman whose organic body was supplemented with synthetic material when she was a child; this served a dual purpose as it saved her life as well as concealing her identity from Queen Levana, who is the story's antagonist and Cinder's aunt. Flanagan notes that:

> The emphasis on subjectivity in posthumanism, specifically in relation to the act of deprivileging the historical status of the human subject, complements YA fiction's thematic and ideological preoccupation with subject formation. Adolescence is often constructed in terms of its "otherness" or liminality within this genre, and thus parallels the alignment of the posthuman with "otherness" as a means through which to destabilise the exclusionary construction of the humanist subject. (2014, p. 18)

As previously mentioned, in *The Lunar Chronicles* words such as cyborg, Lunar, shell, or princess become stand-ins for "naming", where the named is "dis/abled" because defined by a label that focuses on differences in ability (Ellington & Lim, 2017, p. 171). Cinder's identities are often described and commented upon by herself and other characters in terms of disability: "she was 36.28 percent not human", "everyone gawked at

the limping, one-footed girl", and "she certainly has the smell of [an insignificant Lunar shell]" (Meyer, 2012, p. 82, p. 286, p. 352). Although Meyer's third-person narration tends to imply that the self-criticism Cinder views herself with is not how the reader should see her, it is also clear that the journey of "subject formation" within Cinder will also encompass questions of social justice, meaning, and truth within the reality presented in the novels. In *Scarlet*, Meyer outlines Cinder's main driving force in her life thus far:

> "All Cinder had ever wanted was freedom. Freedom from her stepmother and her overbearing rules. Freedom from a life of constant work with nothing to show for it. Freedom from the sneers and hateful words of strangers who didn't trust the cyborg girl who was too strong and too smart and too freakishly good with machines to ever be *normal*." (Meyer, 2013, p. 149)

The emphasis on Cinder being "too much" is a strong indicator of her subject formation in spite of societal expectation. Normality is defined as an unattainable goal for a "cyborg girl", and Cinder's otherness is paralleled in another example of posthuman subject in the story: the android Iko.

Iko is the former household android of the Linh family and Cinder's best friend, typically acting as her confidante. Although at the start of the story, Iko is claimed to be glitching due to being an older model that Cinder fixed and salvaged, in point of fact the android's personality chip is already in a state of evolution that goes beyond the initial programming. Iko identifies as female and this is emphasised by her and by the narrative throughout the novels. When the group's main mode of transport, the spaceship The Rampion, requires a new auto control system, Iko's personality chip is installed as a quick replacement. Iko is shocked by her new physical form, "something's wrong with my vision sensor. I can't see you." (Meyer, 2013, p. 155). A downside to being a spaceship is that Iko cannot accompany Cinder when she leaves the Rampion: "I don't like being a ship. It's awful. [...] It makes me feel less alive than ever" (Meyer, 2013, p. 170). Iko considers her new form as hideous, but the pilot of the Rampion is quick to remark that she is now the voice of "the most gorgeous ship in these skies" (Meyer, 2013, p. 157). The former android, as well as the

reader, are thus encouraged to see beauty as something that goes beyond humanist terms.

The trans- prefix in transglossic is the focus of the intersectional transversality; intrinsically connected to the notion of queering, a movement across positions to specifically "disrupt existing authorities, binaries, established knowledges, and normative identities" (Shaw & Upstone, 2021, p. 15). The antagonist in the overarching story is Queen Levana, Cinder's aunt, whose skill in the glamour is unsurpassed. The Lunar Queen suffered a severe burning when she was a child because of her sister; Levana looked up to and trusted the former ruler of Luna, but the betrayal of that trust caused her to hide herself and her perceived ugliness behind her glamour.[4] For this reason, she views Cinder and her own stepdaughter, Winter, as intolerable threats; both young women possess the beauty Levana covets but must resort to glamour to conjure up. Meyer here utilises both the Cinderella storyline as well as the tale of Snow White and her wicked stepmother.

The narrative explains that the glamour is about vanity and control: "it is easier to trick others into perceiving you as beautiful if you can convince yourself you are beautiful" (Meyer, 2012, p. 172). Princess Winter is also scarred "the scars made Winter interesting to look at and somehow, odd as it was, even more beautiful" (Meyer, 2015a, p. 25) but her refusal to use glamour to hide her disfigurement is anothera cause of friction between her and Queen Levana:. She is described as "the prettiest girl on all of Luna" (Meyer, 2015a, p. 10) by one of Levana's lackeys, before he is forced to add, "Prettiest only, My Queen. But no mortal could compare with your perfection", when the Queen is less than pleased with his description of her stepdaughterstep-daughter. Winter is almost delighted when Levana infects her with letumosis, a Lunar-made disease that produces an unsightly rash on the infected: "It was horrifying and grotesque. If her lungs had been functioning, she might have laughed. For the first time in her life, no one could say she was beautiful" (Meyer, 20154, p. 623). There is beauty in the horror that the disease provokes in others,

[4] Part of this is revealed in the companion novel Fairest, told from Levana's point-of-view, which was originally planned as a promotional novella and not as a story on its own (Truitt, 2014).

but the reader is often reminded that the disease is not "natural", making *The Lunar Chronicles* act as a clarion call for environmental responsibility. Cinder's and Winter's refusal to fully engage with their Lunar gift of bio-electrical manipulation also sets them both apart from Levana's over-reliance on it. Cinder in particular is turning down another "naming" as she continues to defy definition in her own story.

Transglossic literature constructs meaning as transversal; in crafting her tracing of the fairy tales, Meyer brings to the fore some elements and jettisons others. Transglossic transversality focuses on "how subjects inhabit positions within the context of change and difference" (Shaw & Upstone, 2021, p. 15) and Meyer thought a lot about "the most iconic elements of each story" (Blasingame, 2015, p. 523) so that Cinder became a cyborg to allow for the upward mobility of the rags-to-riches storyline from *Cinderella*. Meyer chose to combine the wicked stepmothers and witches into one character and knit it together with their obsession over beauty. Winter opens with "The young princess was as beautiful as daylight. She was more beautiful even than the queen herself." (Meyer, 2015a) Queen Levana's beauty is horrific and pristine, highlighting that it is a carefully constructed façade; the title of her solo novella is *Fairest* because that is the only way she has come to accept her self-image. Ultimately, Flanagan argues, *The Lunar Chronicles* contests "established humanist paradigms of selfhood and identity" by using a trans-human protagonist, Cinder, who is Other herself as well as being surrounded by otherness (2014, p. 69). This aligns with the intersectional transversality of the transglossic which assumes a "refusal of binary structures and resisting the movement to the transcendental or singular" (Shaw & Upstone, 2021, p. 15)

In her series, "Meyer combines just enough veiled references to the original stories to spur intellectual and emotional connections" (Bradburn, 2015, p. 50), and the fantasy-cum-scifi element allows her to elevate her characters above the confines of the fairy tales they have sprung from. Cinder not being described as conventionally beautiful and Meyer's portrayal of Winter's "impeccable beauty" as inseparable from her "warm brown skin" (Meyer, 2015a, p. 46) are details that push the boundaries of

the western beauty standards outlined by Ellington and Lim.[5] Flanagan (2014, p. 61) highlights how Cinder's status as an outsider hinges "not only on her cyborg origins, but also her racial hybridity and her gender identity", which are concepts also seen in other characters in *The Lunar Chronicles*. The first novel ends stating that the main character is a ghost: "deformed cyborg with a missing foot", "Lunar with a stolen identity", and a "mechanic with no one to run to [and] nowhere to go" (Meyer, 2012, p. 387). The disabilities that the characters believe to be their defining characteristics are turned upside down just like the fairytale plots Meyer chose to adapt.

The post-humanist perspective that *The Lunar Chronicles* advertises means that notwithstanding Cinder's complains about the limitations of her cyborg parts, it is precisely because of her difference that she can overthrow Levana. In *Cress*, she draws parallels between her outward form and her own sense of self:

> "[T]he mirror showed her just as she had always been. Plain. Dirty. A cyborg. She tried to imagine what it would be like to see herself as she saw Levana: frighteningly gorgeous and powerful. But it was impossible with that reflection staring back at her. That was why Levana despised mirrors so much, but Cinder found her reflection almost comforting. [They had] called her brave and beautiful[,] blinding. It was kind of nice to know that they were wrong. She was still just Cinder" (Meyer, 2014, p. 227).

The extreme beauty of the queen elicits horror in the beholder and is thus seen as a sign of her mastery over Luna and the Lunar gift of bioelectrical manipulation. Cinder's ability to see through the glamour, an ability that she would not be privy to were it not for her cybernetic enhancements received on Earth, becomes key in the final moments of the story; by showing Levana's true appearance to the world, the spell cast

[5] Ellington & Lim define Westernized Beauty Standards (WBS) as ideologies that originated in Ancient Greece: at the "Pythagorean school, where scholars determined level of beauty based on mathematical equations" as according to these WBS there is a "golden ratio of beauty, skin tone, health, and age" that excludes people of colour, with disabilities, as well as older people from "ideal beauty" (2017, pp. 170-171).

by the glamour is broken. As the character tells her aunt in the novel, "it really was all an illusion" (Meyer, 2012, p. 361). Such deconstruction is advanced in the novels "not in singular terms, but rather across identity positions, illustrating the intersection of multiple contingent identifications within a single text" (Shaw & Upstone, 2021, p. 15).

In conclusion, Meyer's tetralogy blends the fantastic with science fiction, but there is no doubt that these YA novels are also still recognisably fairy tales warranting further study. They contain the hallmarks of the genre, albeit fractured and twisted into a new form. In folding one genre into the other, the author plays with the motifs and themes of both, but fairy tales have never stood still. Adaptations such as these transform the narratives they take inspiration from and expose the beliefs that permeate the canon; in doing so, they open up a world of possibility for future storytellers. Writers can rewrite the popular tales, and their heroes and villains need not walk the same path as their original inspiration. Meyer is one example of a growing subversive narrative current, to which authors such as Helen Oyeyemi, Sarah Pinborough, Kalynn Bayron, or Carmen Maria Machado, could also be said to belong. An animated adaptation is in development with Warner Bros. Pictures Animation and Locksmith Animation; this is not due to be released until 2028 (Gajewski, 2025), so we can only speculate on how much the animation will draw on the fairytale attributes of the story.

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Human, this ever-changing creature. *Oshiko's Default Standard* by Yukiko Motoya

by Hiroko Inose

Abstract

As seen in the classical SF *anime* film *Galaxy Express 999* (1979), relations between human and AI-enhanced transhumans and an AI-controlled dystopian society have always been popular in the Japanese imagination. These relations can be confrontational, or alternatively, affectionate, but often suggest the invaluableness of transitory human essence over the immortality of machines. The novel *Oshiko's Default Standard* (*Oshiko no deforuto*) (2021) by Yukiko Motoya (b. 1979), however, casts doubt upon this possible self-complacency of humans. Set in post-crisis Japan, the novel focuses on an everyday-life sphere – child-rearing and nursery school – in a society in which co-prosperity with the AI is the main national policy. Nursery schools aim to raise children as homogenous as possible, as individuality is now considered vulnerability rather than strength. Most professions have been taken over by white cube-shaped robots, and people – especially children and youths – start idealising and imitating them through implanting devices in all body parts. Oshiko, the protagonist, is a mother of two and has adapted well to this society, in which everyone is connected to the internet for 24hours/day and endlessly consumes digitised content. Through close reading, the present paper analyses some of the issues the novel depicts, focusing on the possible changes AI-dominated society makes on humans. The paper also analyses the novel's defamiliarisation techniques through peculiar use of language, which makes it difficult for this technological dystopia to be translated into other languages.

Keywords: Yukiko Motoya, *Oshiko no deforuto*, technological dystopia, Japanese dystopian novel, transhuman

In *Dystopia: A Natural History*, Claeys (2017, The Post-Totalitarian Dystopia section) argues that the "concern with machines and their increasing domination of humanity" is one of the most important themes in dystopian literature after 1950. Although the book focuses on British and American works, the relationship between *naturalia* and *artificialia*

can be found in the Japanese imagination as well. Indeed, Napier (1996, p.2) points out that "the increasing oppressiveness of technology" was found in Japanese fantastic literature already in Meiji period (1868-1912). To date, narratives contrasting dehumanising technology and the invaluableness of human essence are abundant both in literature and popular culture; for example, the central theme of a mega-hit SF *anime* film *Galaxy Train 999* (1979) is a confrontation between immortal "mechanized people" and mortal humans. Although economically poor humans often long for the opportunity to obtain mechanized bodies, the story emphasizes the invaluableness of human essences such as emotions and mortality. This appreciation of the human essence over machines can also be found in the domain of *shojo manga*, or girls' comics. In *Tenshi tachi no shinkaron* ("The Theory of Angels' Evolution") (1990), the main characters are humanoid cyborgs with hugely enhanced bodily and intellectual abilities (and all with an exceptionally beautiful appearance), but the humanoid Elena experiences an identity crisis as he feels he is just mimicking humans – who continuously evolve and reproduce – whereas he just stays the same for hundreds of years. Just like in *Galaxy Train 999*, this transitory nature – which eventually leads to death – is considered the human essence and consequently is placed over the efficiency and eternity represented by machines. If we turn to literature, AI has the central role in the survival of the human race in a post-apocalyptic novel *Under the Eye of the Big Bird* (Kawakami, 2016), and here too, the omnipotent AI confesses that its sense of belonging, or *raison d'etre,* is actually found in co-existence with humans who have a sense of individuality.

Thus, it might be said that the above-mentioned binary opposition of humans and machines often finds a point of compromise, eulogising what humans do have – emotions, the beauty of transitory and mortal life, etc. Such a view might also be connected to the "critical or open-ended dystopias" with "a utopian core at their centre" (Baccolini 2012, p.40). However, the novel *Oshiko no deforuto* ("Oshiko's Default Standard", hereafter referred to as *Oshiko*) by Yukiko Motoya (2021a) casts doubt upon this possible self-complacency in humans regarding the relationship between *naturalia* and *artificialia*. The novel's protagonist lives comfortably in a future Japan, whose society is completely digitalized. The novel suggests that the human essence is indeed its transitory and adaptive nature, which makes it possible to become so close to machines if necessary.

The present paper focuses on some elements of the AI/humanity rela-

tionship and the transhuman features presented in *Oshiko*, and explores how the idea of human essence in binary opposition to the machine can be used satirically. The paper also analyses some of the techniques of defamiliarization used in the novel.

Oshiko's Default Standard (2021) by Yukiko Motoya

The theme of transformation in humans and their relationship with AI is found in various forms in recent Japanese dystopian novels, such as *Dwindling World* (Murata, 2015) or *Under the Eye of the Big Bird* (Kawakami, 2016). The renowned literary critic Minako Saitō called the decade starting from 2010 "a decade of dystopian novels in Japanese literature" (Saitō, 2019, p. 72), and *Oshiko* can probably be placed within this current.

Oshiko no deforuto or *Oshiko's Default Standard* was written by Yukiko Motoya (b. 1979). Being active as a playwright, novelist, director and actor, Motoya has won several literary prizes in Japan, including the prestigious Akutagawa prize. Although some of her works have been translated into other languages, *Oshiko* has not been translated, and one possible reason for this will be discussed in a later section.

The story takes place in a Japan of the future. The earlier occurrence of some major disaster or "unrest" (8)[1] after which the world changed completely is indicated, although it is never explained exactly what happened. A (fictitious) World Children's Health Organization issues guidelines for the healthy growth of children, where it is recommended to "let children stay inside the building when possible" and to "create an environment in which children can spend as long as possible with digital apparatus" (8). Enhancing bodily functions and senses by implanting small devices (for example, operating on retinas to display videos played on a digital device) is very popular. Most professions – such as shop assistant, waiter, bureaucrat, taxi and bus driver, as well as medical doctor (but not teacher) – are taken over by a white cube-shaped machine called *EEAI* (a

[1] All texts cited from the novel and other texts written in Japanese have been translated into English by the author of the present paper. When the original text used is an e-book without a page number, the location is shown in % (e.g. "8" means where 8% of the total text is read).

word play on AI meaning "good love" in Japanese), which was developed by a multinational technology company that has now monopolised this market. The whole setting fits well with the analysis by K nosu (2022, p. 31) on dystopian literature and SF, where she argues that in more recent dystopian novels, SF elements are often not foregrounded, although the existence of advanced technology such as clones and AI is postulated for the everyday life of characters. The lack of detailed explanation about the authority which controls the changed society is also pointed out in the same study, and this is also applicable to *Oshiko*.

The main character Oshiko is a young mother of two daughters, of which the younger one is in an elite nursery (nursery education has been made virtually obligatory by the state). Oshiko seems to have completely adapted to this new society, which tries to bring up its children as homogeneously as possible, because "differences are the origin of all types of unhappiness" (14). She chooses to go through all sorts of treatments to make life easier and more convenient: implanting chips on the tip of the tongue to reproduce tastes (to help weight control), or micro earphones implanted to play video and music, etc. She constantly consumes multiple content, for example by viewing several videos concurrently while also searching for information using a digital device, and feels insecure if the information does not keep on flooding into her system.

The antagonist in the novel is Kopi-mama, the mother of another child (Kopi) in the same nursery. Kopi-mama struggles in isolation, despising the digitalized society and its educational system – whilst other mothers secretly call her "Homo Erectus" for her anachronistic lifestyle. Oshiko, however, appreciates Kopi-mama's struggles and sufferings as they appear to be wonderfully "raw" content and tries to befriend her to observe and consume it. As Kopi-mama is looking for an alternative and more humane education for her son, they go together to an open day of a private "Offline School" established by a charismatic founder, which provides non-digitalized education where children even play in nature and are encouraged to develop individuality and resist homogeneity. However, the founder's speech at the open day sounds totally unrealistic in the digitalized society. In despair, Kopi-mama decides to implant chips into herself and her son, to enable him and her to adapt to society. Oshiko, for the first time in a long time, has some doubts about the system she lives in. After the implantation of the device however, Kopi-mama tells Oshiko that she had finally understood what the essence of a human being really

is.

The novel ends with the scene of the nursery graduation ceremony, where children all play music on stage "perfectly, as if it has been recorded beforehand" (51). Kopi-mama, who erstwhile seemed to have adapted well to the implant, suddenly climbs on stage in panic, screaming, as she cannot recognize her own son amongst all the similar-looking children. At the same time, Oshiko herself experiences an intense reconfiguration of the senses – her vision becomes TV fuzz, and then all the other parents around her and the nursery children turn into smooth and shiny cubical objects. She panics at first but then starts to feel a strong love for these cubes – she realises that her "function" as a human has been upgraded, and decides to implant even more devices in her body.

Technological Society and Human Essence

As the summary in the previous section indicates, the changing human within a technological society is depicted in various ways in *Oshiko*, leading to the question of what it means to be a human at all. And while technology and dehumanisation are a common theme in dystopian novels, *Oshiko* presents it in a highly satirical fashion.

Parents' Generation – Improving the Human Condition?

Bostrom (2003, p. 4) describes transhumanism as "…improving the human condition through applied reason, especially by developing and making widely available technologies to eliminate aging and to greatly enhance human intellectual, physical and psychological capacities". In the novel, Oshiko's generation is described as "the last generation that grew up while being told that the overuse of smartphone and internet would have negative effects (9)". Thus they retain the memory of the old values when it was considered ideal for children to play outside, and the overuse of digital devices was considered dangerous. However, it is explained that "the world radically changed after that unrest, and all the standards were renewed. What had been believed to be important till then lost their values, and there were phenomena of worshipping what had been considered crazy" (8). As mentioned already, details of the "unrest" are never given in the novel, but one way to interpret this may be the fading memory of

the parents' generation – it is explained that Oshiko cannot remember the past very vividly, and that this is a common phenomenon: "…it seems that due to the great increase of time spent using digital devices, the memory is now constantly rewritten" (11). This collectively fading and rewritten memory is reminiscent of "the management of amnesia", or controlling of a group's narrative, which has been a concern of dystopias "from the very beginning" (Serrano-Muñoz, 2021, pp. 1350-1351). The society encourages people to be constantly connected to the internet and using digital devices, and most people do not hesitate to improve "the human condition" by implanting devices all over their bodies. However, it is not clearly explained exactly who promotes this obscurantism – which, again, might indicate that Oshiko and the others do not really care about it, as an effect of the same obscurantism. The transformation is not only physical but mental as well, as they become addicted to constantly consuming recommended content and thus lose the ability to actively read books or live without being connected to internet (22). Such deep dependency, or the internet turning into an almost bodily function, seems to be one of the frequent themes in contemporary Japanese literature (Takahashi & Saitō, 2025, 82). In *Oshiko*'s case, however, these physical and psychological changes might not necessarily be such a smooth transition to becoming transhuman, as indicated by Kopi-mama's mental breakdown.

Children's Generation – Creatures of a Different Version

If the protagonist's generation needs to adapt to the new reality, their children, who are born after the societal change, "are given more content than breast milk and can use digital apparatus before they reach one year" (15) and are "creatures of a different version in all senses" (15). Oshiko has difficulty even understanding her daughters' language as they speak very fast – their information processing speed is incredibly high, having been exposed to digital content continuously since birth. Their eyes and heads are bigger than those of their parents, reminding Oshiko of some extraterrestrial creatures. These depictions of bodily changes experienced by both generations seem to follow the pattern of Japanese dystopian novels, where the human body is often a main theme (Specchio, 2023).

And although the details of the "unrest" (8) which caused the societal change are not explained, the sense of despair about the future and need for survival are present in the novel, and are thus used as reasons for

bringing up children to be homogenous and immersed in the internet. As the future is unpredictable and there might come a day when children must always stay inside, it is important that they have the ability not to suffer when being constantly connected only to virtual reality. It is also important for them to be homogenous, that is not to have preferences or differences, so that they can survive in any environment. Children who prefer to play offline are advised to visit a hospital for the treatment of "Offline Addiction" – an addiction to the environment without internet.

Much of the above can be read as a satire of the reality (e.g. internet addiction), but the description of those children's psychological features suggests how it might be if humans do become closer to AI. The elder daughter of Oshiko uses the male first-person pronoun in plural, *orera*, referring to herself. It is not because she resists her given sex, but because she does not distinguish between boys and girls, nor self and other. The idea of the disappearing (or complete lack of) border between the self and others has been explored in relation to AI, for example in the novel *Under the Eye of the Big Bird* (2016) mentioned earlier. There, AI "mothers", which exist as separate entities all over the world looking after humans, are all connected to each other – one is all, and all is one. In *Oshiko*, because of educating children to become as homogenous as possible (like separate physical copies of a prototype) humans might develop a collective, rather than individual, sense of self altogether.

Is There AI (or EEAI) – Human Relationship?

As cited in the Introduction, Claeys (2017) argues that "concern with machines and their increasing domination of humanity" is one of the most important trends observed in today's dystopian imagination. The word "domination" suggests that there is the subject to dominate and the object to be dominated – and there exists a relationship between the two. Indeed, in the works of popular culture and literature mentioned earlier, "machine" or AI characters express their (possibly programmed) thoughts – if not emotions – so that contact of some sort can be expected with other entities, such as humans.

In *Oshiko*, however, it is only humans who try to mimic AI. As mentioned in the summary, in the novel's world most of the professions are taken over by white cube-shaped machines developed by a multinational

technology company. As a part of government policies to make AI's image more friendly, "the media suddenly started using this grotesque term *EEAI* 10 years ago…at the beginning, it only felt wrong, but the media kept using it regardless and gradually it took root" (12). As already mentioned, *EEAI* means "good love" in Japanese. Children grow up seeing these *EEAI* working all around them and thus get attached to them – little children would dream of becoming cubic devices when they grow up; teens go through plastic surgeries to erase their humanness and become closer to *EEAI* by eliminating pores or making the skeletal frame squarer. So rather than cyborgs mimicking humans like Elena in *The Angels' Theory of Evolution,* it is the humans that mimic cube-shaped AI, which is not even humanoid, while *EEAI*s themselves simply drive human clients in taxis or carry out device-implant operations on humans without expressing any thoughts or emotions.

What is the Human Essence Then?

The binary opposition between human and machine as well as between "a hegemonic narrative" and "a counter-narrative of resistance" of dystopian novels (Baccolini, 2012, p. 38) would have been clearer in *Oshiko* if the story was told from Kopi-mama's viewpoint. Creativity and individuality are oppressed by the preference for machine-like homogeneity and efficiency in *Oshiko*'s world. Along with Kopi-mama, the founder of the Offline School is a character who could have been a freedom fighter in the machine-dominated world. However, this character is presented almost as a charlatan. At the school open day, she screams from the stage "365 days 24 hours offline!" "Live as human, do not be domesticated!" and other luring phrases aimed at the desperate parents whose children have offline addiction (25). It becomes clear, though, that she is trying to recruit their children to join the school to charge extremely high tuition fees. When Kopi-mama asks her how these children who grow up as individual "humans" can survive in the world full of "domesticated animals", the founder does not have an answer. The scene indicates how readily normal and abnormal can be turned around, and what might sound like common sense for one circumstance can sound like radical unrealistic extremism once it falls to the level of minority opinion.

This shows that individuality (originality) and "undomesticated" free-

dom are not to be glorified as human essence which is in binary opposition with the machines in *Oshiko*'s world.

After the disappointing visit to the Offline School, Kopi-mama implants a device in herself and tells Oshiko happily that she has finally started "functioning" as a human – and when the startled Oshiko asks what she means by "function", she answers "this capacity to tell oneself that the shit in front of you is not really shit, and swallow it" (39). Thus, the capacity to deceive oneself, to ignore one's own voice of conscience and eventually to adapt to anything. It is, indeed, one way to describe humans who, in essence, do change and evolve.

The human essence, which is its capacity to change and adapt without limit, does not stand in binary opposition with the machine – it will just adapt to it.

Defamiliarization through Language

Booker (1994, p. 3) suggests that defamiliarization is the "principal literary strategy of dystopian literature", and indeed, *Oshiko* takes place in a post-calamity Japan of the future, although the story is only about mothers whose children are at a nursery. The more important defamiliarization technique in *Oshiko* is its peculiar use of Japanese language which might cause difficulty in translating this work. The present section covers some features of language use in *Oshiko*, in connection with the themes discussed earlier. Language is used both as a machine to promote obscurantism within the novel's universe, and as a tool to make readers experience defamiliarization.

Firstly, all the characters have extremely weird names. The protagonist's name is Oshiko Bonji (凡事推子) written in Chinese ideograms vaguely meaning "promoting banal things", and furthermore is phonetically unusual. Other characters, such as her daughters or their teacher might have random sounds (such as Kopi which does not mean anything) or Chinese ideograms (for example, Hara 肚, meaning stomach), sometimes mixed with numbers or the European alphabet, reminding readers of random errors in character conversion. Similarly, classes in the nursery are named randomly. It is explained that there used to be an Apple class, Peach class etc., but to provide a more homogeneous education, the names which would cause concrete associations were changed to more

neutral ones, such as Zupopo class, which does not mean anything. The very meaninglessness of those names indicates what is considered homogenous and neutral in the world of *Oshiko* – there are no concrete associations which might lead to preferences or differences.

Secondly, intentionally unusual spellings are used throughout the novel. The Japanese language uses three types of characters – *hiragana* and *katakana* which are both phonetic alphabets, though the latter is normally used for loan words and onomatopoeias – and *kanji*, or Chinese ideograms. By using the wrong types of characters or by mixing them randomly, the text of *Oshiko* causes a disturbing unfamiliarity amongst readers. For example, the digital device called *Sumātofon* or smartphone should be written using *katakana* (スマートフォン), but instead it is written in *kanji* 須磨後奔 (5), which has a phonetically similar sound but is visually confusing, as Chinese ideograms carry meanings which are totally unrelated to the term itself. In other cases, terms which are normally written in Chinese ideograms are selectively written in *katakana*. The terms such as *kuni* (the country/central government, 8), *dokusōteki* (original, 4), and *kosei* (individual difference, 25) are all written in *katakana*, with the effect of making them sound less meaningful, as well as drawing readers' attention to these terms (and therefore the concepts).

Finally, many terms change their meaning within the novel and readers must learn what they mean. For example, when the term *Tōshitsu* (homogenous) is used in a line such as "her homogeneity capacity is growing rapidly recently" (15), readers understand that the lack of originality is considered an active (and measurable) capability. The *EEAI* mentioned in the previous section is another example – the term AI is given an additional meaning of "good love" under the government policy, and its insistent use in the media has normalised it. Changing or creating reality by manipulating language is a classical technique seen in dystopian literature and also in the real world.

Conclusions

The AI/human relationship and transhumanism presented in *Oshiko* seems to be a satire of the belief in a human essence which is in binary opposition to the machine. Motoya (2021b) comments in an interview that she is interested more in the majority who live easily than the minority,

and she does not "want to warn nor preach…simply would like to capture the humans that are continuously updated". This might collide with the definition of dystopian literature by Booker (1994, p.3), who states that it "constitutes a critique of existing social conditions or political systems". As we have seen, although our protagonist Oshiko lives a contented life, the novel has numerous aspects typical of dystopian literature, such as technological dystopia, corporate dystopia or post-apocalyptic totalitarian dystopia which imposes obscurantism. It also uses a unique technique of defamiliarization through language. It might be argued, though, that the most important dystopic element of the novel is the crushing of the idealisation of mortal and transitory human essence. Not only do we not have free will and individuality that would struggle and suffer under the domination of efficient and immortal machines, but our very nature would make us change ourselves and capitulate to the machines, even when machines do not show any interest in mimicking humans.

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The Mother, the Other and the Posthuman: Speculating Motherhood as a Posthuman Condition through Jessamine Chan's The School for Good Mothers

by Anwesha Maiti

Abstract

The contemporary anthropocene, with its scientific breakthroughs in fertility treatments and increasingly regressive stance on female reproductive rights, along with escalating violence against women all over the world, is an intriguing time for women and mothers alike. The modern woman, often raised witnessing traditional gender roles while simultaneously growing up with the teachings of feminism and women empowerment, finds herself at the crossroads more often than not.

This particular paper aims to investigate the nuances attached to the idea of motherhood as propagated by the existing society, with the aid of theories of posthumanism and feminism, among others in Jessamine Chan's debut novel *The School for Good Mothers (*2022). Through a close reading of this novel, this paper aims to elaborate the condition of modern mothers in the society and tries to define motherhood. Furthermore, it will attempt to understand motherhood in the context of dystopia, and speculate whether the idea of motherhood can be established as a posthuman condition.

Keywords: Speculative fiction, motherhood, posthumanism, feminism, dystopia

Introduction

The roots of this paper are embedded in the following ideas – first, that of the age-old debate surrounding the idea of woman as the gendered other, pioneered by Simone de Beauvoir in her seminal work *The Second Sex (*1949), and of "posthumanism as the social discourse (in the Foucauldian sense), which negotiates the pressing question of what it means to be human under the conditions of globalisation" (Herbrechter, 2017, p. 94), the gender movements, climate change and technoscience, to name a few. Additionally, it seems that women's identities as a mother and an individual are increasingly at odds with one another in the modern world, instead of being different facets of one entity. In her book *Forget Having It All*

(2018), journalist Amy Westervelt mentions that "We still ask mothers to parent as though they don't work and work as though they don't parent." (p. 220) Moreover, incidents such as the overturning of Roe vs. Wade, a landmark 1973 judgement[1] by the Supreme Court in the US which made abortion a constitutional right, and subsequent implementation of stringent anti-abortion laws by many states in the country, or the tremendously exclusionary surrogacy and IVF laws implemented in India in the last few years[2], only speak of society's increasing intention to impose upon a woman's right to and choice of reproduction.

Considering the conflict between the ideas of personal identity and motherhood, and taking cognisance of the fact that a female's identity is often deeply intertwined and overshadowed by the physicality and feasibility of her body, like that of the handmaids from Margaret Atwood's famous 1985 novel, this paper hypothesizes that women get pushed into the realm of posthuman. This paper aims to investigate the nuances attached to the idea of motherhood as propagated by the existing society and speculates motherhood to be a posthuman condition, with the aid of contemporary theories such as posthumanism and feminism, through a critical study of Jessamine Chan's debut novel *The School for good Mothers* (2022).

The School for Good Mothers

The School for Good Mothers (2022) tells the story of Frida Liu, an American Chinese single mother who shares the custody of her toddler daughter with a white ex-husband. Frida, clearly suffering from postpartum repercussions, leaves her one-and-a-half-year-old daughter alone at home one day for a few hours, only to come back and find that police and child protective services have been called by her neighbours. In the aftermath, her daughter Harriet is taken from her custody and placed full-time with her ex-husband Gust and his much younger white girlfriend Susan-

[1] Roe v. Wade, 410 U.S. 113 (1973) was overturned in 2022 by the US Supreme Court, which led to 13 states in US making abortion severely restrictive.

[2] The Surrogacy (Regulation) Act, 2021, and the Assisted Reproductive Technology (Regulation) Act, 2021, prohibits commercial surrogacy and also stipulates age and gender restrictions on people availing ART.

na. Meanwhile Frida is taken for a ride through the American legal system to regain her parental rights. She is first put under surveillance in her own home. Her every move is recorded and put under inspection – from her online activity to her behaviour and body language at home to her phone conversations, in order to determine her suitability to mother her daughter. Eventually, she gets a court date, and at her lawyer's behest Frida is hopeful that "worst case scenario is more supervised visits. But the judge is likely to approve unsupervised visits, overnight visits. Joint custody" (Chan, 2022, p. 64).

However, things do not go Frida's way, and she loses custody of her daughter. In the court she is told that "In order to get Harriet back, Frida must learn to be a better mother" (Chan, 2022, p. 70). She is informed of a redeeming opportunity during the court hearing, "to participate in a new rehabilitation program," where she is to "undergo a year of instruction and training. At a live-in facility. With women like yourself." (Chan, 2022, p. 69) There, "she must demonstrate her capacity for genuine maternal feeling and attachment, hone her maternal instincts, show she can be trusted. Next November, the state will decide if she's made sufficient progress. If she hasn't, her parental rights will be terminated" (Chan, 2022, p.70). Although "The judge said it was her choice.", there was hardly any choice to be had if Frida wanted her daughter back. However, she is assured by the judge that, "We're going to fix you, Ms. Liu."(Chan, 2022, p. 69) Thus, Frida embarks on a journey to the school for bad mothers, to learn to be good.

Good and bad mothers in history and mythology

The "archetype of the Great Mother, is established in the human psyche, which is often found in the figures of the Great Goddess represented in the myths and artistic creations across the world" (Neumann, 2015, p. 3). From mythological and religious characters such as the *Mahabharata*'s Kunti, who embraced her sister-wife's children as her own or Virgin Mary from the *Bible* who conceived Jesus through the Holy Spirit, to fictional characters such as Margaret "Mammy" March from Louisa May Alcott's *Little Women* (1868) and even more recent Molly Weasley from the *Harry Potter* Books, good mothers are a given part and parcel of an upstanding society. Per Neumann (2015), the idea that com-

bines "mother" and "great" is coloured emotionally rather than a putting together of simple concepts (p. 4). Good mothers give birth to great children, and are marked by their tremendous sacrifice to support their children. Furthermore, good mothers are to be mothers above all else. The society brings in the idea of feminine mystique, which "permits… women to ignore the question of their identity" (p. 53), and answers their question about their identity by highlighting their status as mother and wife (Friedan, 2010).

Adrienne Rich, in her *Of Woman Born* (1976), mentions that "Patriarchy would seem to require, then, not only that women shall assume the major burden of pain and self-denial for the furtherance of the species, but that a majority of that species- women- shall remain essentially unquestioning and unenlightened" (p. 43).

Along with the good mothers from history and mythology, so called bad mothers have also been abundant across the world. From fictional characters like Kaikeyi in the *Ramayana* and Medea from the Greek myths to real, contemporary figures such as Ruby Franke, an American mom vlogger booked for endangering and abusing her children, similar women are antithetical to the good mothers who demonstrate the four basic qualities of womanhood – namely, piety, purity, domesticity and submissiveness per Barbara Welter (1966) (as cited in Kaplan, 1992, p. 24).

They are women who prioritize and nurture other identities and ambitions beyond that of devoted motherhood. Frida, the protagonist of the novel in consideration, is repeatedly chided by both her conscience and the society, for feeling romantic or sexual urges towards men, instead of focusing single-mindedly on being a mother. Many of the other mothers in the school for bad mothers, Roxanne, Meryl, Margaret etc., are accused of the crimes like seeking bodily pleasure, romance and so on, beyond their offences regarding their children.

Frida the bad mother

Frida is a bad mother, who "neglected and abandoned her child. She has no other identity" (Chan, 2022, p.73). This sentiment is reinforced repeatedly at her new school. One of the first and oft repeated teachings at the school goes like this – "I am a bad mother, but I am learning to be good" (Chan, 2022, p.76). Kaplan (1992) highlights that "Motherhood

discourses quickly arose in North America to educate the new mother. An array of so-called authorities – priests and clergymen, doctors, philosophers, professors, writers, journalists, and others, all largely male – were constantly proclaiming about mothering in the nineteenth century; they took it upon themselves to define for mothers what their role should be" (p. 21). Frida and the other mothers in the school fail to meet the standard the patriarchs of the society have set for them.

Frida and the other pupils at the school are shown "charts that demonstrate the link between bad parenting and juvenile delinquency, bad parenting and school shooters, bad parenting and teen pregnancy, bad parenting and terrorism, not to mention high school and college graduation rates, not to mention expected earnings" (Chan, 2022, p.76) to highlight how them being bad mothers affect their children's lives and society at large. Doyle (2019) discusses how the bad mother, who is "the familiar and terrible vision of a woman corrupting the world" unleashes "her own flaws upon it through her monstrous children" (p.188).

The mother pupils are told that they are the lucky ones, having gotten the unique opportunity to train in one of the first training centres that are "being developed all over the country" since just "a few months ago, they would have been sent to parenting classes. They would have studied an outdated manual. But what good is learning about parenting in the abstract?" (Chan, 2022, p. 76) Michel Foucault in *Discipline and Punish: The Birth of the Prison* notes that "factory, monastery, school, hospitals" act as "'enclosures' inside which the bodies are 'distributed in space'" (1979, p. 307). Such enclosures work through a mechanism of power, which is the "disciplinary gaze" that makes every person under its scrutiny interiorising the "gaze" to such an extent that eventually the individual becomes their own overseer (Foucault, 1979).

The school gives each of the mothers a fake child, an automated doll that they are supposed to raise during their stay in the school, and teach them values and ethics as well as life skills, such as "stranger-danger", of being human. The mothers are scored based on their performance in being the perfect mother to their respective fake child. Depending on their scores, they get talking privileges with their actual children, and get assessment of whether their chances of getting their children back is fair or good or bad. Bad performances get their talking privileges taken away and they get sent to talk circles, which however gets added as a negative mark in their files (Chan, 2022).

In Frida's world, the government has taken the decision to transform bad parents from inside out, since they believe that to "fix the home" is to "fix society." The bad parents would get the "right instincts, the right feelings, the ability to make split-second, safe, nurturing, loving decisions" (Chan, 2022, p. 76) and many other necessary attributes getting drilled into them in the year long program. Foucault, while presenting the idea of "docile bodies," argues that the physical body can be subjected, used, transformed and improved by those in power for their benefit (p. 136).

In this school Frida, a woman with degrees from Ivy league colleges and a career, is taught that "what they really need is a partner who earns the money" (Chan, 2022, p. 214). She notices that the women are essentially "being trained to be stay-at-home mothers" (Chan, 2022, p. 214). However, she wonders where the money to run the household is supposed to come from, given the "instructors have never mentioned jobs outside the home or day care or babysitters" (Chan, 2022, p. 216). Kaplan (1992) notes that "Women's entry into the work-force in large numbers during the First World War, the women's suffrage movement, and the first waves of female liberation in the 1920s, all severely threatened the nuclear family, whose cornerstone was the modern mother" (p. 18).

Yet, when Frida meets Tucker, a "bad father" whose son fell and broke his arm while in his watch, she finds out that the standards to which fathers are held responsible is very different than those for the mothers. The fathers aren't subjected to their talking privilege being taken away. Neither are they provided with talking points to use with their children and their caregivers, a convention that the mothers are forced to adhere to strictly. Frida, despite performing well for weeks, gets her talking privilege taken away when a few mothers she was close with escape, while Tucker remains completely certain about his chances of getting his son back (Chan, 2022).

(Bad)motherhood and posthumanism

In an article, Kate Maddalena states that "motherhood is a posthuman predicament" and mentions that as a mother she is "well-equipped to see how ill-equipped I am" (Maddalena, 2021). This is a feeling Frida experiences repeatedly, both while mothering Harriet, her daughter, and trying to be the perfect mother to Emmanuelle, the doll.

Atwood in *The Handmaid's Tale* (1985) has shown how Offred, the

protagonist stripped of any personal identifier, was reduced to her womb along with the other handmaids of the story. Similarly in *The Lesson* (2015), Sowmya Rajendran recounts how the most useful device in the arsenal of the moral police force was a baby box in keeping errant women who want out of marriages or don't want to marry in check.

In *Discipline and Punish*, Foucault (1979) further mentions that human body was being explored, broken down, and rearranged by the machinery of power, which allowed one to have a hold over others' bodies. Similarly, Donna Haraway (1991) also suggests the same about the ontological condition of the mechanised body that Foucault describes in relation to modern industrial society. She recognises the fact that cyborg ontology is a product of surveillance, security and militarism and the conflict between capitalism and socialism (p. 151). Transhumanist Chris Gray (2001) notes that while the post-structuralist cyborgization of the human has the possibility of either empowering the democratic politics of the self, it also can create the possibility for a greater oppression as technology modulates social discourse under the simulation of free will. Deleuze (1995) calls a similar self "Dividual" who is fragmentary, always in development, always a potential mould for the market to transform, distribute and train. Molly Young (2022) in her review Chan's book for The New York Times notes that "Frida's status as a mother in training happens largely due to the fact, that she has committed a sin not of parenting but of ontology: in conceiving of herself as a daughter, lover, employee and citizen rather than mother alone, she has violated a new code of maternal ethics. The corrective action she must take, then, is to slaughter all superfluous selves." The only identity of Frida's that is allowed to survive is that a mother, which is also at the mercy of the system. While mothering both Harriet, and Emmanuelle, Frida's motherhood is repeatedly questioned and in the end, her motherhood is terminated with regards to both her daughters.

In his article "In defence of posthuman dignity", Nick Bostrom (2005) argues that "human nature is improvable through the use of applied science and other rational methods" (p. 202). Bostrom highlights the worry that eminent bio-conservative writers such as Leon Kass, Francis Fukuyama, and so on are concerned with, which is that human enhancement technologies might be actually "dehumanizing" (p. 203). He further argues that the central concern is that "these technologies might undermine our human dignity or inadvertently erode something that is deeply valuable

about being human but that is difficult to put into words or to factor into a cost-benefit analysis" (Bostrom, 2005, p. 203).The bioconservatives, according to him, opined that allowing human enhancement would only lead to a "slippery slope towards an ultimately debased, posthuman state' (Bostrom, 2005, p. 204). In Chan's book, some of Frida's school mates eventually kill themselves, upon realizing that not only can they never live up to the unrealistic expectations of the system, but they also have little to no actual chances of getting their children back (Chan, 2022). Doyle (2019) notes that in the real world, "Women are meant to completely efface themselves in motherhood; to live for, and in, and through their children", yet "mothers are endlessly blamed for any and every bad decision made by their children" (p. 190).

Bostrom (2005) also mentions that transhumanists consider "human and posthuman dignity" to be "compatible and complementary. They insist that dignity, in its modern sense, consists in what we are and what we have the potential to become, not in our pedigree or our causal origin" (p. 213). Frida and the fellow mothers are denied this dignity in the school, where they are relegated as simply "bad mothers" (Chan, 2022).

In their essay "Toward a Posthuman Education", Snaza et al. (2014) mention that much of critical "Posthumanism allies itself with the politico-pedagogical projects of feminism, postcolonialism, anti-racism, and queer activism as it confronts the systematic dehumanization of people under the hegemonic Western form of political right" (p. 49). However, they warn that dehumanization is a perpetual possibility, both virtually or structurally, as the state and "non-state actors on the global stage" can "declare some of us "inhuman" or less than human" with increasing ease (Snaza et al., 2014, p. 49). They proclaim that patriarchy has achieved "analogous forms of dehumanization of women" by turning women "into "objects" of trade, desire, and consumption" and they argue that such violence is made possible by "dehumanization"(Snaza et al., 2014, p. 48).

Conclusion

The school for bad mothers is full of single mothers, women of colour and women from low-income background, and rife with latent racism and class-based bias. The state sponsored school and its curriculum reflect that the current ethics of humanity which are in practice are not

conducive for women to be mothers and humans – it is a world set up for their failure. This is seen repeatedly in the case of Frida and the other bad mothers in her school. The women are put in positions and situations that are designed for them to fail and impossible to succeed in. Not only their actions but their emotions are also repeatedly reprimanded for either being too much or for not being enough or even simply for not aligning with the goal of being a "good mother." When Frida is accused of forming a romantic relationship with Tucker, and she claims that she didn't kiss him or cross a line, the counselor counters that by saying "But you wanted to" (Chan, 2022, p. 262).

Doyle (2019) notes, "the bad mother is patriarchy's saving throw, its ultimate loophole: by moving the blame…it makes guilty parties out of the women who are its victims," (p. 191) echoing Haraway (2008) who has argued that in the entrails of humanism all the others are reduced to the type situated opposite the rational man. In the end, Frida realizes that she "was not the mother she was before, not the mother she became, but a mother from a manual, blank and interchangeable" (Chan, 2022, p. 268), even as her legal rights as Harriet's mother was terminated by the court. Frida is reduced to just a biological mother by the system and state, where her biology overtakes her motherhood.

Eventually, Frida embraces her status as the other while asserting her identity as a mother, "I am your mother. I'll always be your mother," (Chan, 2022, p. 271) by running away with her daughter, an act unthinkable for a mother as per norms. She forsakes the options that await her, while knowing the consequences of her short-lived bout of happiness from being with her daughter. She chooses to leave the societal bounds and labels prescribed for her as a woman and a mother, and decides Harriet would learn a different story about her – not the one prescribed and narrated by the state and the system, rather she'd one day tell Harriet about the mother she was (Chan, 2022, p. 286).

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Posthuman Perspectives: Identity, Environmentalism, and Biology in Atwood's *MaddAddam* Trilogy

by Javier Álvarez

Abstract

This paper offers an in-depth exploration of posthumanism through Margaret Atwood's *MaddAddam trilogy – Oryx and Crake* (2003), *The Year of the Flood* (2009), and *MaddAddam* (2013). These dystopian works provide a critique of biotechnology and ecology, offering a powerful rethinking of human identity in an era marked by technological transformation, ecological collapse, and uncertainty. Atwood breaks away from traditional anthropocentric frameworks and articulates a posthumanist vision that demands a revision of our relationship with nature, science, and other life forms. Her trilogy challenges the centrality of the human and promotes a more entangled, relational, and ecologically grounded view of existence. This study examines how *MaddAddam* uses posthumanism to explore the fluidity of identity, the ethical implications of biotechnological design, and the necessity of multispecies interdependence. In Atwood's universe, humans, animals, and synthetic beings form a complex web of interconnection that destabilizes the boundaries between organism and machine, nature and culture. It is argued that Atwood does not portray the human as a fixed or privileged category, but as a condition in constant becoming – shaped by biology, technology, memory, and evolving cultural narratives. By situating the human within broader ecological and material systems, *MaddAddam* invites readers to reconsider the frameworks that guide our treatment of life and its artificial extensions. Ultimately, this paper contends that Atwood's trilogy envisions a posthuman condition grounded not in technological mastery but in vulnerability, care, and relationality – one that promotes a more inclusive, and ethically responsive understanding of life in all its hybrid and evolving forms.

Keywords: Posthumanism, Biotechnological transformation, Human identity, Environment, Technology

Introduction

Speculative fiction has emerged as a privileged field for exploring the ethical, environmental, and technological tensions shaping contempo-

rary existence. Margaret Atwood's *MaddAddam* trilogy – *Oryx and Crake* (2003), *The Year of the Flood* (2009), and *MaddAddam* (2013) – situates itself at the forefront of this inquiry. Set in a near-future dystopia ravaged by ecological collapse, biotechnological experimentation, and systemic inequality, the trilogy interrogates the anthropocentric foundations of modernity and proposes a reconceptualization of agency and identity in posthuman terms. As Herbrechter (2013) argues, posthumanism critically interrogates the category of the human as it has been constructed within Western thought, especially in relation to emerging technologies, non-human life forms, and environmental crises. Atwood's novels offer a reflection on the dangers of instrumental reason and technocapitalism when unbound by ethical restraint. The omnipresence of biotechnology, manifested through genetically engineered species, synthetic organisms, and patented life forms, functions as a material condition shaping social relations, ecological systems, and even the metaphysical status of life itself. Within this context, posthumanism appears as a necessity for understanding a world in which the boundaries between the natural and the artificial are dissolving. A symbol of this dissolution appears in *Oryx and Crake*, when Snowman reflects on the engineered harmony of the Crakers: "At first he couldn't believe them, they were so beautiful. Black, yellow, white, brown, all available skin colours. Each individual was exquisite" (Atwood, 2003, p. 232). The question exposes not only Snowman's shock with their engineered simplicity but also the fragility of the humanist assumptions that once structured normative identity. The Crakers – humanoid beings genetically designed by Crake to inhabit a post-human Earth – embody this collapse of stable categories. Created to be free of violence, sexual jealousy, disease, and hierarchy, they raise fundamental questions about the nature of humanity: What does it mean to be human in an age when our defining features – rationality, mortality, memory – can be edited? Are these modifications evidence of ethical progress, or do they signal the erosion of those complexities that make ethical life possible?

Methodologically, the present paper combines a posthumanist theoretical framework with a close reading of selected passages from Atwood's trilogy. This dual approach allows for an interpretation attentive both to the conceptual challenges raised by posthumanist thought and to the textual strategies that Atwood uses to dramatize them. This article therefore explores the posthumanist dimensions of Atwood's trilogy, focusing on how it destabilizes traditional notions of human identity, cri-

tiques anthropocentric ethics, and foregrounds interdependence between species, technologies, and ecosystems. Drawing on the theoretical frameworks of N. Katherine Hayles, Rosi Braidotti, and Donna Haraway, it argues that *MaddAddam* envisions a form of posthuman ethics grounded in relationality, ecological humility, and the recognition of shared vulnerability. Instead of advocating for a transhumanist overcoming of the body, Atwood's narrative suggests the possibility of a posthuman condition that is both biologically altered and ethically conscious.

Posthumanism and the Decentering of the Human

Posthumanism appears as the response to the limitations of classical humanism in the face of planetary crisis, technological saturation, and ontological fluidity. It critiques the Enlightenment notion of the human as a rational, autonomous subject standing apart from and above the non-human world. As Cary Wolfe clarifies in *What Is Posthumanism?* (2010), "posthumanism in my sense isn't posthuman at all – in the sense of being 'after' the human. It's humanism that's the problem, not the human *per se*" (2010, p. xv). Posthumanist thought emphasizes interconnectedness, embodied cognition, and the co-constitution of human and non-human agents within dynamic ecological and technological systems, envisioning the displacement of humanity as the exclusive center of ethical and epistemological frameworks. In *How We Became Posthuman* (1999), Katherine Hayles challenges the traditional view of cognition as an internal, disembodied process, arguing that "conscious agency has never been 'in control'; in fact, it has always been a fiction to enable the continuing illusion of control" (1999, p. 288). Subjectivity, she proposes, emerges from distributed cognitive systems involving brain, body, environment, and technological extensions. This reconfiguration finds an echo in Atwood's portrayal of the Crakers, whose consciousness – though limited by design – exhibits a kind of environmental attunement alien to the instrumental rationality of their human creators. When Snowman observes how the Crakers coexist with the natural world, he explains that

> Hierarchy could not exist among them, because they lacked the neural complexes that would have created it. Since they were neither hunters nor agriculturalists hungry for land, there was no territoriality: the king

> of- the-castle hard-wiring that had plagued humanity had, in them, been unwired. They ate nothing but leaves and grass and roots and a berry or two; thus their foods were plentiful and always available. Their sexuality was not a constant torment to them, not a cloud of turbulent hormones: they came into heat at regular intervals, as did most mammals other than man. In fact, as there would never be anything for these people to inherit, there would be no family trees, no marriages, and no divorces. They were perfectly adjusted to their habitat, so they would never have to create houses or tools or weapons, or, for that matter, clothing (Atwood, 2003, p. 234).

The remark encapsulates a tension central to posthumanism: humans are no longer the paradigmatic *locus* of perception or meaning. Hayles's vision of technologically mediated subjectivity resonates with the hybrid beings populating Atwood's world. From gene-spliced animals to semi-autonomous biotech, the trilogy literalizes the dissolution of ontological borders between organism and machine, nature and culture. Nevertheless, Atwood does not celebrate these hybridities uncritically. The uneasy existence of creatures like the wolvogs or the liobams shows that hybridity does not entail liberation; it can also intensify vulnerability or violence, constituting a condition that demands ethical and political interpretation.

Rosi Braidotti's *The Posthuman* (2013) complements Hayles's techno-materialist approach with an ontologically affirmative and ethical version of posthumanism. For Braidotti, the posthuman subject is marked by multiplicity, relationality, and becoming. "The posthuman condition urges us to think critically and creatively about who and what we are actually in the process of becoming" (2013, p. 12), she states. This emphasis aligns with Atwood's portrayal of identity as mutable and contingent. Characters such as Toby or Ren are assemblages of memory, trauma, biology, and adaptation. Similarly, the Crakers develop culturally through storytelling, ritual, and the contact zones they share with humans. As Glover (2009) argues in her ecological reading of *Oryx and Crake*, the beings engineered by Crake inevitably generate dynamics that exceed the boundaries of their intended design, revealing the limits of human control over biotechnological life. Braidotti's call for an "affirmative ethics" (2019) grounded in zoe – the impersonal, vital force shared by all beings – echoes Esposito's critique in *Third Person* (2012) of biopolitics' exclusionary tendencies.

This ethics rejects hierarchies based on species membership or cognitive privilege and instead affirms a transversal community of beings bound by vulnerability and vitality. Atwood dramatizes this ethos through the God's Gardeners, whose rituals integrate humans, animals, and plants into a single web of reverence and responsibility. Their prayers, addressed to figures such as Saint Rachel Carson and Saint Dian Fossey, enact a multispecies ethics that anticipates the collapse of human exceptionalism. These scenes show that ethical imagination can be cultivated with practice instead of decree.

Donna Haraway's *Cyborg Manifesto* (1985) offers a final critical lens by dismantling the dualisms that structure Western metaphysics (mind/body, nature/culture, human/machine) and by proposing the cyborg as an alternative relational ontology. The cyborg is not merely a technological hybrid; it is a figure "resolutely committed to partiality, irony, intimacy, and perversity" (Haraway, 1991, p. 9). In *MaddAddam*, this cyborgian condition manifests both literally and metaphorically. Crake's mastery of genetic design approaches a kind of machinic creativity, while characters like Toby navigate a survival landscape in which boundaries between the biological and the technological have become fluid. Haraway's *Staying with the Trouble* (2016) elaborates an ethic of "making kin" that replaces genealogical and anthropocentric bonds with multispecies alliances. This vision resonates with the relational bonds that slowly emerge between the Crakers and their human caretakers – bonds based on shared need, storytelling, and vulnerability.

Biotechnology and the Reconfiguration of the Human

Biotechnology constitutes the material and ideological foundation of Atwood's fictional universe. From the corporate monopolization of genetic research to the creation of new life forms, *MaddAddam* offers a critique of the promises and perils of bioengineering. As Jasanoff (2015) argues, biotechnology develops within "sociotechnical imaginaries" – visions of desirable futures shaped by institutional priorities, economic forces, and cultural fantasies. Atwood's world embodies such imaginaries, exposing their internal contradictions and ethical blind spots. The Crakers, engineered by Crake to eliminate what he perceives as the defects of Homo sapiens – violence, religious belief, sexual jealousy – embody an ideal of

biological innocence that rests on subtraction. However, this engineered innocence reveals its limits quickly. Even Snowman, initially skeptical of their potential, is surprised by their curiosity (Atwood, 2003). Their spontaneous development of rituals, songs, and myths – despite being designed as a culture-free species – illustrates the persistence of symbolic thought even in beings tailored to lack it. Yet this innocence is itself the result of violent erasure: of memory, culture, imagination. Snowman, who serves as their reluctant caretaker, observes this tension with unease. As he notes, "Crake thought he'd cut them off from culture, but they're creating one anyway" (Atwood, 2003, p. 361). As Northover (2016) argues, the Crakers' development exceeds the parameters of Crake's utilitarian design, revealing culture as an emergent property of relational existence. The ethical dilemmas posed by the Crakers are amplified by the presence of other genetically modified organisms, such as the pigoons – transgenic pigs designed to grow human organs. Originally conceived as instrumental life forms, the pigoons rapidly develop their own modes of intelligence and collective strategy. Atwood's choice of verbs – deliberative, intentional – creates an interpretive tension: is this projection, or evidence of genuine non-human agency? Atwood blurs the line between human and posthuman perception, using shifting focalization to invite readers to reconsider the boundaries of consciousness. This aligns with Canavan's broader claim that "the *MaddAddam* trilogy can be read as an allegorical call for a radical change in our social relations and a warning against anti-ecological lifestyles" (2012, p. 158). The pigoons' eventual negotiation with humans demonstrates that agency cannot be contained within the structures that create it. Once brought into existence, life pursues its own trajectories. This loss of control is both narrative drama and philosophical provocation: if humans possess the power to create life, do they also bear responsibility for its autonomy, suffering, and future? And if so, according to what criteria? Such questions reverberate with Karen Barad's concept of "agential cuts" in *Meeting the Universe Halfway* (2007) arguing that agency emerges through material-discursive intra-actions. Whitney Shark (2016) expands on this, noting that "there are constant exchanges and transformations happening; forces shift, electrons jump, particles are entangled with particles in other spaces without any currently measurable link or force through space." In Atwood's work, genetically engineered beings are sites where agency crystallizes unpredictably, exposing the impossibility of total mastery.

This critique intersects with contemporary debates on enhancement technologies. Bioethicists Françoise Baylis and Jason Scott Robert argue in "The Inevitability of Genetic Enhancement Technologies" (2004) that genetic enhancement is embedded within economic and political structures that reproduce inequality. They warn that such technologies risk establishing forms of biological meritocracy in which value becomes tied to genetically programmed traits. Atwood fictionalizes these concerns. Corporations such as HelthWyzer market diseases and their cures simultaneously, while the Paradice Project – far from offering a humanitarian solution – becomes a vehicle for global erasure. These narrative elements reflect the logic that Baylis and Robert identify: enhancement pursued without ethical scrutiny becomes a mechanism for consolidating power. Kaushik Sunder Rajan's notion of biocapital (2006) emphasizes how genetic information becomes commodified under neoliberal regimes. Atwood's portrayal of corporate labs and "patentable life" materializes this dynamic. Life is engineered and, at the same time, owned by markets.

The trilogy also destabilizes the very category of the "natural." In a world where most organisms bear traces of modification, purity becomes a fiction. Atwood exposes this contradiction by showing nature as hybrid, resilient, and resistant. This vision is shared by Haraway's critique of purity discourses (2016) and Braidotti's call for an ethics capable of embracing hybridity and transversal relations (2013). The liobams, wolvogs, and other hybrid beings are new ecological realities that render anthropocentric hierarchies obsolete, suggesting that biotechnology is not inherently dystopian. Its consequences depend on the ethical frameworks and power structures that guide its application. The Crakers are not failures; they are incomplete. Their evolution depends both on their genetic design and their capacity to form bonds, learn narratives, and respond to others. Even their myths – improvised, growing, sometimes misinterpreted – signal that culture emerges from relation rather than design.

Nature, Collapse, and the Limits of Control

If biotechnology functions in *MaddAddam* as a tool of transformation and power, nature operates as both the substrate of manipulation and the site of return. The trilogy presents a world on the brink of ecological collapse: a landscape degraded by extractive capitalism, synthetic pollution,

and the hubristic belief in human supremacy. This represents a reminder that the antagonists of the narrative are the worldview that enabled the devastation. Latour (2017) insists that the modern notion of nature as passive scenery is a fabrication; Atwood's fiction embodies this critique by rendering nature as dynamic, resistant, and charged with agency. From the opening scenes of *Oryx and Crake*, formerly familiar ecosystems appear destabilized and estranged, populated by hybrid animals, invasive species, and erratic climate patterns. In *The Year of the Flood*, the degradation is refracted through the God's Gardeners. Their prayers blend spiritual ritual with ecological pedagogy. Thus, the novels suggest that ethical imagination can be cultivated both intellectually and through daily ritual and embodied practice.

However, even the Gardeners are caught in the contradictions of their world. Their survival requires recourse to the very technologies they critique: hydroponics, genetic knowledge, improvised surveillance evasion. Their position thus reveals one of Atwood's central insights: there is no pure standpoint outside technocapitalism. The trilogy portrays ecological ethics as negotiation, performed within infrastructures already shaped by crisis. No figure in *MaddAddam* – Gardener, scientist, or survivor – remains unimplicated. Instead, the narrative exposes the braided entanglement of human and non-human, resistant and complicit actors in an unstable ecological system. This collapse is also conceptual. Jason W. Moore's critique of capitalist modernity in "The Rise of Cheap Nature" (2016), illuminates how Atwood destabilizes the fantasy that nature can be mastered through innovation. Engineered organisms do not remain confined to human purposes. They escape, evolve, and strike back, unsettling any claim to mastery. *MaddAddam* exemplifies this reversal, when Toby sees the liobams circling the camp, she recognizes their movement as a choreography not meant for human eyes (Atwood, 2013). The line suggests that human perception no longer frames the limits of meaning or agency. This dynamic is shared by Chakrabarty's (2009) paradox of the Anthropocene: humans have become geological agents capable of transforming the planet, yet incapable of managing the consequences. Atwood dramatizes this paradox by presenting a post-apocalyptic ecology where hybrid creatures and altered environments continue to reshape the world long after the human population has collapsed. Nature becomes a shifting assemblage that refuses both nostalgia and domination.

Haraway's call to "stay with the trouble" (2016, p. 1) becomes spe-

cially relevant. The characters cannot restore a lost Eden; instead, they must inhabit an altered world with patience, improvisation, and attentiveness. Nature in *MaddAddam* is a record of human violence and a site of emergent possibility. The Crakers themselves illustrate this double inheritance. They are posthuman beings and, simultaneously, post-environmental: they eat leaves, purr to heal, and lack territorial instincts, reflecting a low-impact ecological ethic, one grounded in interdependence, but they cannot live apart from the remnants of human world-making. Their myths, vocabulary, and modes of survival are shaped by Snowman, Toby, and the stories offered to them. Their condition is therefore neither return nor escape, but interdependence. This co-dependency marks that the only viable future lies in learning to inhabit nature differently.

Posthuman Ethics and Relationality

A central contribution of Atwood's trilogy lies in its articulation of a posthuman ethics: a mode of ethical reasoning grounded in situated, embodied, and relational forms of response-ability. Unlike traditional ethical frameworks based on abstract principles or juridical rules, the ethics envisioned in *MaddAddam* foregrounds affect, interdependence, and the capacity to be affected. Toby exemplifies this shift. Over the course of the trilogy she transforms from survivalist to caretaker, from solitary observer to mediator between worlds. Her relationship with the Crakers is one of translation and co-learning. When she answers their questions with improvised narratives, she participates in the emergence of a shared symbolic order. Her storytelling does not impose culture; it co-creates it. Haraway's notion of "making kin," captures this process: kinship emerges from shared vulnerability and collaborative world-building. The Crakers themselves evolve into ethical subjects through their encounters with others. They do not initially fit classical definitions of moral agency. Nonetheless, they develop affective capacities that exceed their programming. Their mourning for Snowman is rendered with quiet poignancy; when they ask Toby why he no longer moves (Atwood, 2013), their confusion conveys a dawning awareness of finitude.

With these interactions, the Crakers develop what might be called an incipient moral imagination. They ask questions about fairness, death, and deception; experiment with song and ritual; and adopt new practices

in response to events they do not fully comprehend. In doing so, they reveal that moral agency arises wherever beings encounter one another with openness and curiosity. This mirrors Braidotti's "affirmative ethics," grounded in shared vulnerability and the generative force of zoe. As she writes, "an ethics of sustainability must rest on a deep understanding of our interdependence with other species and the planet" (2013, p. 194). The God's Gardeners offer a complementary mode of posthuman ethics. Their practices – vegetarian diets, rooftop gardens, nonviolent resistance – constitute a form of everyday ethical labor that refuses anthropocentrism. Their hymns honor animal lives in a register typically reserved for saints and martyrs, functioning as ecological pedagogy, fostering attentiveness and care – a dynamic that is present in posthumanist calls for embodied, multispecies models of learning (Haraway, 2016; Braidotti, 2013; Alaimo, 2016).

Atwood complicates the ethical landscape by introducing forms of life that lack consent. The Crakers, pigoons, and other engineered beings raise questions about what humans owe to the beings they create. When the pigoons negotiate collaboration with humans in *MaddAddam*, it becomes clear that questions of justice and recognition extend beyond species boundaries. Their intelligence, described by Toby, forces the characters, and the reader, to confront the ethical stakes of shared survival. Can humans claim stewardship? Do creators owe reparations? The trilogy suggests that ethical action is less about pre-formulated rules and more about responsiveness: listening, recalibrating, and attending to the needs and agencies of others. Alaimo's concept of "trans-corporeality" (2016) illuminates this dynamic. Bodies, human and non-human, exist in constant material exchange with one another and with their environments. Ethical life, in this framework, emerges from acknowledging these entanglements. *MaddAddam* envisions ethics as a practice of relational openness. Toby's shifting role, the Crakers' emergent culture, and the Gardeners' rituals all exemplify systems ethical life grounded in coexistence and not in domination.

Conclusion: Rethinking Humanity, Rethinking the Future

The *MaddAddam* trilogy offers a speculative landscape that reconsiders our ecological, technological, and ethical futures, challenging the fan-

tasies of mastery and exceptionalism that underpin capitalist modernity. Atwood asks what it means to embrace a form of life that is entangled, vulnerable, and accountable to the beings with whom we share the world. Characters such as Toby, Ren, and Snowman reveal that subjectivity is shaped by biology, memory, environment, and technology in ways that defy neat boundaries. The Crakers expose the ambiguity of engineered perfection: their innocence is a starting point for ethical becoming. When they gather around Snowman's motionless body and ask why he does not rise, the moment encapsulates the tension between design and experience. Their confusion is not a failure of programming; it marks the beginning of moral imagination. Atwood reconsiders whether suffering, memory, and contradiction might in fact be essential to ethical life. The Crakers' emergent grief, the pigoons' negotiated alliances, and the Gardeners' rituals all point toward forms of care irreducible to genetic design or technological optimization. In this sense, Atwood's posthumanism resists both transhumanist fantasies of enhancement and nihilistic visions of collapse.

The trilogy further expands the scope of moral consideration beyond the human sphere. In a world populated by artificial species, hybrid ecosystems, and shifting ontologies, responsibility becomes a distributed practice. Ethical life cannot rely on the old hierarchies. As the characters navigate post-apocalyptic landscapes – negotiating with pigoons, tending to gardens, telling stories to the Crakers – they enact the kind of multispecies responsibility theorized by Haraway, Braidotti, and Alaimo. These scenes embody ethics as attentiveness to the needs of others, especially when those others challenge familiar categories. At the end, no definitive vision of the future emerges. *MaddAddam* cultivates a space for imagining alternative modes of coexistence. These possibilities are neither utopian nor dystopian; they are situated, provisional, and deeply relational. Atwood suggests that the future will not be decided by the sophistication of our technologies alone but by the quality of the relationships we forge. Storytelling itself becomes a form of survival, transmission, and world-making: a practice through which beings who are not alike nevertheless find grounds for mutual recognition. In conclusion, the trilogy proposes that living ethically in a posthuman age requires abandoning the illusion of autonomy and embracing the complexities of coexistence. Atwood's work reminds us that the future will be shaped not only by technological innovation or ecological resilience but by our willingness to cultivate new ways of relation within a world no longer made in our image.

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Exploring Post- and Transhumanism in Tales from the Loop

by Valerio Moccia

Abstract

This paper examines how *Tales from the Loop* – in its illustrated volumes (Stålenhag, 2014, 2016), television adaptation (Halpern, 2020), and ludic extensions – constructs a narrative space in which posthumanist and transhumanist tensions are rendered visible and narratively productive. Through a comparative analysis of selected episodes and visual-textual excerpts, the study investigates how technological artifacts such as robotic prostheses, consciousness-transfer capsules, and environmental anomalies function as catalysts for ontological disruption, existential recognition, and shifts in modes of relationality. Central to the analysis is the recurring juxtaposition between a transhumanist logic of enhancement – embodied in the scientific elite's efforts to transcend biological constraints – and a posthumanist imaginary that emerges from the landscape itself: abandoned robots, machine-organic hybrids, and altered temporalities that resist instrumental control. The paper draws on Heidegger's concept of *Gestell* (1977) to frame the Loop as both an infrastructural dispositif and a symbolic structure of enframing, while identifying moments in which characters encounter technology not as resource but as site of *alētheia*. Particular attention is given to episodes where identity, care, and vulnerability are renegotiated through encounters with machines. Rather than proposing a linear narrative of progress or decline, *Tales from the Loop* articulates a speculative ecology in which human and non-human agencies coexist, conflict, and co-emerge. In doing so, the work offers a multi-layered meditation on the limits of control, the fragility of embodiment, and the possibility of a different attunement to being in the technological age.

Keywords: Tales from the Loop, Post-humanism, Transhumanism, Heidegger, Television series

Introduction

In the contemporary era, the intersection between technology and humanity occupies a central position in the cultural and philosophical debate. The ongoing interaction between humans and machines, and between

the organic and the inorganic, both in the real world and in speculative works, has given rise to currents of thought – most notably post-humanism and transhumanism – that question the potential and dangers of a future in which the boundaries between the human and the technological become increasingly blurred. In this context, narrative works such as *Tales from the Loop* can be valuable tools for exploring and reflecting on these issues. Set in an alternative Sweden, where advanced technologies are integrated into everyday life, and mainly composed of Simon Stålenhag's illustrations offering a speculative vision for the author's childhood, set in the decade between 1984 and 1994, *Tales from the Loop* is not only a retrofuturistic science fiction work, but also an investigation of existential tensions experienced in the technological age. The present contribution aims to analyze the post-humanist and transhumanist themes present in this serial narrative universe, considering the original illustrated book (Stålenhag, 2014), its sequel *Things from the Flood* (Stålenhag, 2016), and the television series distributed on Amazon Prime (Halpern, 2020). A detailed analysis of the plots, characters and themes addressed in *Tales from the Loop* will be conducted in order to understand how the works address and interpret fundamental issues related to technological evolution and its interaction with human beings. Particular attention will also be directed toward the influence of Heidegger's concept of the interplay between technology and revelation (1977), highlighting how it offers a lens through which to examine the representations and implications present in significant excerpts from both the books and the television series.

The narrative universe of Tales from the Loop

The narrative universe of *Tales from the Loop* originates from the visual imagination of the Swedish artist Simon Stålenhag. His works, steeped in nostalgia, combine the natural beauty of the Swedish countryside with the disturbing and omnipresent presence of autonomous machines, futuristic structures, and technological ruins among both nature and society. This fusion between the everyday and the uncanny (the Freudian *Unheimliche)*, understood primarily in a cultural and architectural sense (Vidler, 1992), was initially developed by the artist in a Kickstarter-fouded illustrated

book (Stålenhag, 2014)[1]. The success of this project led to a broader transmedia expansion, including the development of a television series bearing the same title (Halpern, 2020), which introduced new characters and storylines. The original work was later recognized with significant accolades, including the prestigious Kurd Laßwitz Prize in 2021. In parallel with the development of the television series, *Tales from the Loop* was also adapted into a role-playing game (Hintze & Stålenhag, 2017, 2019) and later into a board game (Antroia & Takaichi, 2022). Stålenhag's works present an alternative version of Sweden in the 1980s and 1990s, in which technological development was strongly influenced by governments that chose to invest, immediately after World War II, in experimental research programmes on particle physics through the construction of synchrotrons[2]. This scenario has facilitated the development of robots, androids, and innovative technologies that integrate seamlessly into everyday life, outlining a narrative universe that takes on the traits of a *retrotopia,* according to the definition proposed by Bauman (2017)[3]. This interpretation is rendered particularly plausible by considering the privileged point of view through which the narratives of *Tales from the Loop* and its transmedia variations is articulated – namely, the perspective of children and teenagers who experience the intricate relationship between humanity and technology in a world where the fundamental rules include the notions that «your hometown is full of strange and wonderful things[4] [...] everyday life is boring and unforgiving [...] adults are out of reach and insensitive» (Hintze & Stålenhag, 2017, pp. 10-11).

[1] The Swedish title of the work, "Ur Varselklotet: Illustrerade sägner Ur Slingans Landskap 1984-1994", which can be directly translated into English as "From the Echo Sphere: Illustrated Legends from the Landscape of the Loop 1984-1994", further highlights the mythopoetic nature of the project.

[2] This is a type of circular and cyclical particle accelerator.

[3] Classifiable as a work of *lo-fi science fiction,* this narrative also has thematic affinities with the *Mundane Manifesto* (Ryman et al., 2004). However, as a ucronia set in an alternative universe, it departs from one of the founding principles of the manifesto, which explicitly excludes alternative universes or parallel worlds.

[4] More specifically, in the region where the synchrotron, simply called "Loop" by the citizens, has been installed, a series of scientific and technological anomalies begin to occur.

Seriality and narrative in Tales from the Loop

From its initial form as an illustrated book, *Tales from the Loop* has embraced a fragmented narrative structure, composed of images and brief texts that resemble postcards from an alternative Sweden. This aesthetic of discontinuity carries over into the television adaptation, where seriality – central to many contemporary media forms – takes the shape of an anthology: each episode tells a self-contained story, yet all remain thematically and environmentally coherent, addressing questions of posthumanism, transhumanism, and the philosophy of technology from multiple perspectives. Post-humanism, a neologism first brought to prominence by Robert Pepperell (1995), is a school of thought that challenges traditional conceptions of humanism by questioning the idea of the human being as a central and autonomous entity. In contrast to the conventional view of humanity as separate and superior to the rest of the natural world, post-humanism acknowledges the interdependence between humans, animals, machines and the environment. This perspective posits that our identity and existence are in a state of perpetual evolution, subject to the influence of the technologies and systems that surround us. Of the many currents of this existential approach, for the purposes of this research it is worth mentioning: the post-humanist one, according to which the notion of the human is no longer singular but plural, overcoming traditional distinctions of class, gender, nationality, and disability (Braidotti, 2013; Herbrechter, 2013); the post-anthropocentric one, which deconstructs the figure of man as the center of meaning and the apex of a hierarchy (Haraway, 2008; Wolfe, 2010); the post-dualist one, which goes beyond the view of reality constructed by opposition – e.g., we are humans because we are not animals – and considers human beings as part of a broader ecosystem (Barad, 2007; Haraway, 2016); and the objectivist one, which seeks to counter the excessive emphasis on the subjective or intersubjective that pervades humanism and emphasizes the role of non-human agents, whether they be animals and plants, computers, or other artifacts (Latour, 2005; Bennett, 2010; Bryant, 2011). In *Tales from the Loop,* post-humanism is manifested in many cases through the fusion of nature and technology. In Stålenhag's illustrations and descriptions, the convergence of the organic and inorganic elements serves to obfuscate the conventional boundaries that delineate the human and non-human realms. This phenomenon is evident in numerous passages throughout

the text. To elaborate on this point, one need only consider the manner in which robots roaming the countryside, once regarded as the pinnacle of technological achievement, have become an integral part of the landscape, almost like a natural species. This theme, and its implications for posthuman and ecological imaginaries, will be examined in greater detail in the following section.

Transhumanism, in contrast, is a philosophy and movement that advocates the use of science and technology to enhance the physical and cognitive capabilities of human beings. The term, as defined by Max More (1990), refers to

> a class of philosophies that seek to guide us towards a posthuman condition. Transhumanism shares many elements of humanism, including a respect for reason and science, a commitment to progress, and a valuing of human (or transhuman) existence in this life. [...] Transhumanism differs from humanism in recognizing and anticipating the radical alterations in the nature and possibilities of our lives resulting from various sciences and technologies.

The objective is therefore to overcome biological limitations, such as disease, aging, and even death, through the integration of advanced technologies. While post-humanism can be regarded as a critical reflection on the nature of human beings in the technological age, transhumanism is more action-oriented, actively seeking ways to improve humanity. Within the fictional universe of *Tales from the Loop,* transhumanism is manifested in a variety of forms. The quest for a "first functional artificial nervous system" (Stålenhag, 2014, p. 55) and the emergence of robotic prostheses serve as salient illustrations of a transhumanist aspiration to transcend the limitations of the human condition.

The episodic structure of *Tales from the Loop* thus allows for the co-presence of a plurality of perspectives, not merely organizing the narrative but actively shaping its ontological horizon. Each episode operates as a discrete variation within a system of resonances, where narrative discontinuity becomes a strategy for investigating alternative modes of being. This modularity recalls the logic of role-playing games – a medium to which the universe of Tales from the Loop has explicitly expanded – not only in form but in the way it distributes agency and meaning across fragmented yet interlinked storylines, tracing a network rather than a progression.

Post-humanism, transhumanism, and the quest for a future in Tales from the Loop

In *Tales from the Loop*, the tensions between post-humanism and transhumanism are rendered with particular clarity. The books and eight episodes of the television series depict a society – in particular its ruling class, which consists of scientists and technicians – that is oriented toward a transhumanist ideology aimed at overcoming human biological limitations through technological means. However, this vision contrasts with a constellation of post-humanist cues – often oblique or atmospheric – that articulate a post-anthropocentric, post-dualist, and object-oriented imaginary. A useful theoretical instrument for understanding this tension is Heidegger's concept of *Gestell* (1977) that designates the ontologically totalizing mode of revealing characteristic of the technological age, in which the world discloses itself as a standing-reserve (*Bestand*), ready for use. In *Tales from the Loop*, the logic of the *Gestell* is dramatized through the centrality of the Loop itself: an enigmatic machine that silently structures the social and existential environment, embodying a transhumanist paradigm of control. Yet, as Heidegger points out, technology is not merely a threat: it harbors within itself the possibility of *alētheia* – a revealing that opens new ways of encountering being by shifting from an instrumental to a meditative thinking. This ambivalence runs through the narrative universe of the series, in which technology, while producing rupture and alienation, also allows for wonder, empathy, and the reconfiguration of the human condition. The characters, in their encounters with machines and artifacts, go beyond mere instrumental use, seeking meaning, connection, and – at times – revelation.

In the illustrated books, the interplay between nature and technology does not merely serve as background, but constitutes the core aesthetic and conceptual tension of Stålenhag's meditative dystopia. *Tales from the Loop*, and its sequel *Things from the Flood*, depict a world in which technology is integrated into the natural environment to the same extent as trees and waterways. Abandoned robots wander like lost creatures, radio towers rise majestically from the woods, and satellite dishes dominate the silhouettes of houses. This fusion of the organic and the artificial unsettles anthropocentric hierarchies, offering a post-humanist vision in which humans no longer occupy a privileged position, but are embedded within a broader ecological system. Yet this apparent equilibrium coexists

with a more ominous tendency: the same landscapes also bear the marks of a transhumanist transformation. The Swedish countryside, shaped by decades of scientific experimentation, appears increasingly subjected to the logic of technological mastery – what Heidegger calls *Gestell*, the enframing that reduces beings to *Bestand*. From cyborg teachers (Stålenhag, 2014, p. 9), to gloves that allow you to control bipedal robots (p. 16), from cybernetic bison-boars (p. 107), to diets based on genetically engineered plants to try to overcome the limits of our humanity (p. 101), and to even the complete alteration of nature and space-time with the appearance of dinosaurs (p. 44), the natural world is systematically reconfigured as a field for human intervention. Even in the passages relating to androids, there is mention of the aforementioned "first functional artificial nervous system" and how "suddenly, our machines were bestowed balance and grace previously reserved for biological organisms". Robots are also defined by the author as

> at their disposal. [...] Research was focused on biomechanics, evolutionary robotics, and cybernetics. Rumor had it they were trying to create machines that were able to feel and reason. Apparently they made progress; they were unable to stop prototypes escaping on several occasions (p. 55).

This vision, which clearly hierarchizes the relationships between humans and what they consider to be primarily the products of their technology, is, however, heavily altered in the next volume. *Things from the Flood* (Stålenhag, 2016) portrays a Sweden grappling with a post-industrial crisis, a place marked by decay and abandonment, where the imposing machines of the past lie in ruins and the land is exploited for new, sometimes unsettling purposes. The collapse of the transhumanist ideal here is manifested in the phenomenon of "machine cancer", manifesting as the development of grotesque biological components within technological objects, thereby rendering them unusable by humans. This form of pseudo-disease, in addition to requiring a post-anthropocentric approach to the problem of machines for its very existence, can also be considered a reversal – albeit not entirely successful – of the dictates of transhumanism. From humans intentionally seeking to hybridize with machines, we move to machines that, in a random and degenerative way, partially transform into pulsating organic matter. Technology, which once represented a

promise of progress and development, now becomes a threat, a distorted shadow of its glorious past. Despite a strong push towards transhumanism by the elite of society, it is clear throughout this second book that a post-humanist perspective is somehow necessary. Control of technology appears impossible, and objectivism as a way of interpreting reality seems to be the only effective response in a world made up of androids capable of experiencing suffering (p. 116), monstrous life forms modified by heavy metals and chemicals that seep into the water from the Loop (p. 93), the aforementioned dinosaurs and, more generally, bipedal robots with anthropomorphic elements.

In the television adaptation *Tales from the Loop*, this latter aspect is even more evident. Set in the United States rather than Sweden, the chosen point of view of the series is that of a small number of individuals, mainly belonging to two families: the Willards and the Janssons. In the pilot episode *Loop*, we meet a young Loretta Willard in Mercer, Ohio, a gifted student who returns home one day to find her house and mother gone – disappeared by a strange phenomena connected to the Loop. All that remains is a peculiar black rock that seems to defy gravity. While searching, she encounters a boy named Cole, and together they explore the nearby abandoned shack, witnessing impossible phenomena: snow falling upward and, in the sky, her house disintegrating piece by piece. Loretta then discovers that Cole's mother is strangely familiar – only to realize she is her future self. The adult Loretta leads her younger self into the Mercer Center for Experimental Physics ("the Loop"), where they deposit the black fragment into the vast orb known as the Eclipse, the core of the facility. After this, the younger Loretta vanishes, and the older Loretta comforts Cole, acknowledging her own lifelong grief over her mother's disappearance and resolving to be present for her children in the future. The Janssons, a working-class family facing very different struggles, enter the story in the second episode, *Transpose*, when Jakob Willard and his friend Danny Jansson discover a mysterious orb-shaped capsule in the woods that allows them to switch consciousness. What begins as a temporary experiment becomes irreversible: Danny's mind remains in Jakob's body, while Jakob's consciousness is transferred into a robot. Eventually, Danny (in Jakob's body) integrates into Jakob's life permanently; Jakob's body becomes a motionless shell, kept alive by his grieving parents. Later, a robot – implied to house Jakob's mind – visits the Willard home at night. When Danny approaches it, the robot flees

into the forest, hinting at Jakob's fate. This transhuman overcoming of their physical limits[5] is actually anticipated by some conversations the two boys have before finding the capsule: Danny asks Cole if he would rather be invisible or hear other people's thoughts, and a few moments later, in an objectivist and premonitory reversal we see them imitating animal sounds. The discourse on identity from a post-dualist perspective is equally evident in many of the dialogues in this episode. The loss of singularity – I am no longer defined by my body, but I am in someone else's – and the post-dualistic reflection – I am not me because I am you – is evident when the boys return to their bodies for the first time, declaring "I'm me" and "same", and when Danny inside Jakob's body sees his former body outside the window and is then told by Jakob, "so there were two of you... us." This identity crisis in the face of technology echoes and surpasses what we saw in the first episode, when the little girl Loretta asks her adult version, "You're me, right?"

The crisis of the Jansson family is explored in greater depth in episode 5, *Control*, where transhumanist elements become especially prominent. In the aftermath of Danny's irreversible coma, Ed Jansson attempts to restore a sense of agency and protection by purchasing a remotely operated robot, controlled via a motion-sensitive glove that functions as a prosthetic extension of his body. To afford the device, he deliberately postpones essential home repairs – such as fixing a defective electrical panel – revealing a form of technological investment that displaces material and familial needs[6]. The glove, in this context, becomes a symbolic tool of compensation: a means of asserting control over an entropic reality that resists containment. This entropic condition is alluded to explicitly in the opening sequence of the episode, in which a broken egg serves as a metaphor for irreversible loss – a visual prefiguration of Danny's vegetative state and the emotional fracture it produces. Yet the series ultimately undermines Ed's technocentric response: far from resolving the family's crisis, the robot becomes a source of new danger, particularly when it nearly harms his

[5] The transfer of consciousness is one of the key elements of extropianism, a current of transhumanism developed by the aforementioned More.

[6] The possibility of acquiring superhuman strength simply by purchasing technology, and in this case by foregoing other necessary household expenses, raises some of the philosophical problems that we could classify as belonging to the current of democratic transhumanism.

daughter. Ed is eventually compelled to return the machine and use the refunded money for the neglected repairs, suggesting that healing lies not in technological mastery but in the fragile, imperfect labor of care.

The last episode considered here is the penultimate of the first season, *Enemies*. This episode recounts how George Willard comes to possess a robotic prosthesis in place of his left arm, and how this loss leads to a new awareness of his condition – both transhuman and posthuman. The narrative opens in a cinema, where three teenagers are watching *The Mask of the Demon* (1960), Mario Bava's directorial debut, whose plot and themes are subtly echoed in the episode. The boys' behaviour is marked by a deeply anthropocentric and ableist stance: they mock a boy with Down syndrome and casually kill a snake with a taser, without remorse. After being abandoned by the other two on a nearby island, George is forced to confront radical otherness – the monstrous understood not as a fantasy figure, but as the non-human. The creature that roams the island, feared by locals and initially only heard through a disturbing cry, is eventually revealed to be the first 'living' android created by his father Russ Willard, exiled to the island to shield it from public reaction. George's encounter with this being unfolds through a dynamic of mutual injury: he suffers a venomous bite that necessitates the amputation of his arm, leaving two black holes in the flesh; the android, meanwhile, loses one of its arms after George uses the taser against it. The visual parallel between the electrodes of the weapon and the holes in George's arm underscores a symbolic convergence of technology and nature. George later receives a robotic prosthesis – an extension of the body that both restores function and signals his altered ontological status. At school, Loretta writes him a question on a piece of paper: "Are you a robot?". The episode thus articulates a moment of existential awareness in which George comes to understand himself as 'other', situated beyond the boundaries of the human in both a post-dualist and transhumanist sense. In line with Heidegger's conception of technology as a mode of revealing (*Entbergen*) – not merely a tool but a process through which truth (*alētheia*) emerges – *Tales from the Loop* repeatedly employs technological artifacts as catalysts for existential insight. These moments of disclosure, however, do not stem from the devices themselves, but from a shift in the characters' mode of engagement: from a calculative stance to a more meditative openness. In this sense, the series gestures toward what Heidegger terms the *Kehre* – a turning in thought that reorients our relationship to being and rescues technol-

ogy from its purely enframing logic (*Gestell*). In *Enemies*, the prosthesis becomes a vehicle for self-discovery; in other episodes, machines unveil hidden dimensions of experience. Russ Willard's illness is first disclosed to his grandson, and then to the family, through technological mediation. The Echo Sphere, featured in the eponymous Episode 6, reveals deeply personal truths about the future, just as a fragment of the Eclipse in Episode 1 reveals Loretta's destiny and what her son truly thinks of her. In all these cases, technology is not merely instrumental – it becomes a means of ontological disclosure for the characters and the audience alike.

Conclusions

Tales from the Loop constitutes a significant contribution to contemporary reflections on the relationship between humanity and technology, offering a complex and stratified representation of a world in which the boundaries between the organic and the inorganic, the human and the non-human, are progressively reconfigured. Through its various medial articulations – illustrated books, television seriality, and ludic adaptations – the work not only stages the technological condition of the present but also interrogates its ontological, ethical, and epistemological implications.

The aesthetic and narrative choices adopted by Stålenhag and by the authors of the derivative works make *Tales from the Loop* a privileged site for the investigation of the tensions between transhumanism and post-humanism. While the former is embodied in the aspiration to overcome the biological limits of the human through technological enhancement, the latter emerges as a critical and decentering perspective, attentive to the hybrid, relational, and distributed nature of subjectivity in the technological age. The conceptual framework offered by Heidegger's analysis of technology – and in particular by the notion of *Gestell* – proves to be particularly productive in interpreting the narrative and symbolic function of the Loop, which acts both as a dispositive of control and as a site of potential *alētheia*, or unveiling of truth. As recent scholarship has noted (Konfederat & Dyadyk, 2021), the philosophical dimension of *Tales from the Loop* is not ancillary but constitutive: the serial structure itself functions not merely as a narrative device, but as a heuristic mechanism capable of articulating divergent perspectives and constructing a multilayered and internally coherent world. Each episode, while autonomous, contributes

to a cumulative process of meaning-making, in which technological devices are not simply functional elements, but vehicles of existential inquiry and ontological disclosure. In this sense, *Tales from the Loop* should be read as an allegory of the contemporary condition: a speculative dispositif that renders visible the fractures, desires, and uncertainties produced by our entanglement with technology. Far from proposing a univocal or deterministic vision, the work performs a reflexive operation that invites us to critically interrogate the assumptions and imaginaries that underlie our ways of being in – and with – the world.

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Robots, Animals, and Generative Images. Understanding Fear and Promethean Shame in Human/AI Interaction through Film and Media

by Pierandrea Villa

Abstract

As highlighted by Donna Haraway (1991), the interactions between humans and artificial intelligence belong to the wider field of human/non-human relationships, which in turn are the expressions of the individual's relationship with otherness (Giuliani 2020). Within this context, human/animal interaction stands out as a privileged field of investigation, as it is chronologically the oldest, thus serving as the foundational paradigm upon which subsequent interactions have been developed. This interplay between human/animal and human/AI interactions encompasses not only philosophy, but also the creative implementation of this technology – as exemplified by Artbreeder, an image generation software rooted in this analogy – and speculative fiction, a genre capable of both identifying and shaping social anxieties and expectations. With this in mind, building on the notion of the subjectivity of consciousness (Nagel, 1974), it is possible to compare these two human/non-human interactions by analysing a set of films using the oppositional categories of domesticated/wild, fear/trust, and consciousness/intelligence, which are derived from human/animal relationships. Specifically, the relationship between individuals and AI can be explored by examining the interaction between humans and non-humans in films such as *Frankenstein* (Whale, 1931), *Terminator* (Cameron, 1984), and *Matrix Resurrections* (Wachowski, 2021), with a specific focus on the critical theme of the replicability of consciousness and its link with techonophobia. This, in turn, raises fundamental questions about consciousness and its actual relevance in human/human interaction, imposing a re-discussion of the "hard problem of consciousness" (Chalmers, 1995), driving the discourse towards an object-oriented theory of mind (Manzotti, 2019).

Keywords: speculative fiction; artificial intelligence; human/animal interaction; object oriented philosophy; consciousness

Introduction: Cyborgs and Animals

The emergence and widespread adoption of what is commonly referred to, appropriately or not, as artificial intelligence has sparked renewed interest in examining the relationship between humans and "alternative" forms of intelligence. Nonetheless, this relationship is far from unprecedented and is deeply rooted in the relationship between humans and animals as well as between humans and the divine, partly inheriting their constitutive philosophical assumptions and fears. Donna Haraway is fully aware of this when writing her *Cyborg Manifesto*, where she rejects the dualisms underlying late capitalist society. In doing so, she offers a vision of coexistence that leads to a symbiosis between the self and the Other – in this case, between humans and machines. Haraway recognises the origin of this dualism in the human/animal relationship and envisions the potential for a new human/machine interaction precisely as a result of the dismantling of this hierarchical divide, since "nothing really convincingly settles the separation of human and animal" (Haraway, 1991, p. 152). Unsurprisingly, the same author returns to this topic in her *Companion Species Manifesto*, where she explores the history of interspecies co-evolution, especially between humans and dogs, positing it as a privileged standpoint for understanding the relationship with "significant otherness" in general. This framework clearly includes cyborgs[1] since they "raise all the questions of history, politics, and ethics that dogs require" (Haraway, 2003, p 21).

On closer view, Haraway's exploration of the parallelism between animals and machines is deeply embedded in Western philosophy, tracing back to Descartes and his acknowledgement of the same equivalence. The French philosopher argues that animals, being driven solely by instinct, are analogous to *automata,* while human beings, by contrast, are endowed with reason, will, and consciousness (Descartes, 1637/1960). According to, the philosopher's remarks, it is evident that animals and machines, lacking the faculties that define human beings, are automatically considered lesser entities. This stigma permeates much of Western philosophy and can be traced back to Thomas Aquinas' thought, who identified hu-

[1] Although cyborgs and AI are not synonymous, this essay addresses this concept in terms of the profound and symbiotic interaction between AI and individuals.

man superiority as a privilege granted by God (Thomas Aquinas, 1273 as cited in Foisneau, 2019). The same principle of supremacy, albeit based on completely different assumptions, is also evident in Hobbes' work. Similar to Descartes, Hobbes articulates this pre-eminence in terms of intellectual faculties and reasoning, acknowledging human superiority in the subject's ability to produce general rules and organise themselves around power structures (Hobbes, 1656 as cited in Foisneau, 2019). Ultimately, Descartes' idea of explicit will, as opposed to instinctiveness, and Hobbes' notion of power and control over nature converge in Heidegger's definition of animals as "poor in world". Indeed, for the German philosopher, animals' experience is limited to a specific segment of the world and to a predetermined set of activities, while human beings are able to expand their experience and establish themselves as world-builders (Heidegger, 1929-30 as cited in Elden, 2006). With this in mind, it could be suggested that Heidegger, Hobbes, and Descartes identify the superiority of humans over animals through an "operational analogy" of animal experience, which ultimately leads Descartes to associate animals with automatons. Nevertheless, the recent scientific discoveries mentioned by Haraway in her *Cyborg Manifesto* along with the perspectives of philosophers, such as Meijer (2019) and Latour (1991/1995; 1999/2004), have challenged not only the superiority, but also the uniqueness of human reasoning, arguing that intelligence is much more diverse and widespread than historically acknowledged by Western philosophy. This perspective has also called into question the concept of consciousness, questioning the uniqueness and irreplaceability of this essential characteristic by addressing its relationship with evolutionary processes (Godfrey-Smith, 2016) and animal oneiric activities (Peña-Guzmán, 2022). Specifically, one of the most interesting aspects of these anti-speciesist positions lies in the frustration of the human subject's sense of superiority over non-human objects. Nonetheless, the deconstruction of this hierarchy may induce anxiety regarding the dethronement of human intelligence and provoke "xenophobic" responses.

Among the various perspectives on this topic, the study of the depiction of these tensions in science fiction emerges as a particularly significant field of inquiry for two main reasons. The first is certainly the massive presence within this genre of "other" figures, of which cyborgs and AI represent only a specific subset. Accordingly, this *corpus* offers the broadest spectrum of representations of alienation (Giuliani, 2020)

and depictions of alien bodies (Jameson, 2005, pp. 119-141). The second reason is that science fiction, as Jameson points out, is not intended "to give us 'images' of the future […] but rather to defamiliarize and restructure our experience of our own present" (Jameson, 2005, p. 286). With this in mind, the analysis of science fiction narratives becomes an ideal standpoint for observing the idiosyncrasies, prejudices, and assumptions that still inhabit the relationship between human beings and otherness.

Artbreeder and the Bat Paradox

The animal/AI analogy delineated thus far is so deeply rooted that it concerns not only philosophy and science fiction but also technology itself. This is the case with Artbreeder, an online platform for image creation based on GAN[2] technology, whose interface and functionality perfectly reflect the machine-animal analogy. Indeed, using the Artbreeder Splice tool, users can select one or more parent images and observe the results of combining their genetic characteristics into a resulting image. Furthermore, as in a breeding engineering process, the user can intervene directly on the "genes" of the image, deciding their relevance in the resulting image, or adding new ones[3].

Given its characteristics, Artbreeder offers a valuable framework to analyse the similarities and differences that link human/animal and human/AI relations. In this context, its role as an interface between humans and machines is particularly relevant. Indeed, communication between humans and animals, as well as between humans and machines, depends on the processes of encoding, decoding, and translating different languages that are, in fact, untranslatable – a quality that is strongly bound with the notions of experience and perception. In this regard, Thomas Nagel has already discussed the impossibility of translating and interpreting the experiences of different entities, as these have different relationships with

[2] A GAN (Generative Adversarial Network) is a machine learning model in which two neural networks – a generator and a discriminator – compete against each other to generate realistic data.

[3] The genes can be other images, attributes (e.g. age, gender, colour, race), or characteristics (e.g. beard, hair, open mouth, etc.) that influence the features of the resulting image.

reality. Specifically, according to the philosopher, a human being could imagine what it *might* be like to be a bat by somehow adopting its point of view. However, this would merely reveal what it is like to be a bat from a human perspective. Conversely, it would be impossible for the subject to know what it is like to be a bat for the bat *itself*. The reason is that the experience of the world – intended from birth onwards – shapes consciousness, which, therefore, from an ontological point of view, can only be explained in subjective terms (Nagel, 1974). This intersubjective untranslatability of experiences between different species underlies the impossibility of fully understanding each other, if not through continuous negotiations of meaning and co-evolutionary adaptations, such as those mentioned by Haraway (2003). For instance, consider the connection humans share with their dogs and cats: people have learned to interpret their pet's signals, just as animals can understand the needs and requests of their human companions. Clearly, these interactions involve a series of conceptual errors, especially on the part of humans, which are based on the denial of Nagel's paradox. For example, if a dog wags its tail, humans perceive it as happiness, inevitably projecting a human notion of this mood onto the animal, thus denying the impossibility of understanding exactly what they are feeling.

With this in mind, the human/AI relationship appears paradoxical in several respects. First, assuming that AI possesses something roughly equivalent to perception and consciousness, its supposed experience would be further detached from human subjectivity than that of animals. Indeed, the concepts of seeing, hearing, and recognising are entirely arbitrary when referring to binary intelligence and are the result of anthropomorphisation and negotiation (Finn, 2017). Nevertheless, since AI is created by humans, it has been equipped with an interface that is perfectly adapted to communicate with them. In this sense, AI is designed to enable perfect mutual understanding, despite neither agent knowing nothing about how the other perceives the world, to the extent that it is impossible to even attempt Nagel's thought experiment. Consequently, despite the fact that AI is trained to speak our languages and hide its otherness, what seems to have been resolved by the principle of creation ultimately becomes obscured within the metaphorical black box and reignites essential subjectivity.

From Labour to Rebellion: Tecnhophobia in Science Fiction

Building on this paradoxical relationship, it is possible to examine another set of similarities and differences that concerns the human/non-human relationship, addressing the employment of both AI and animals within the human sociocultural sphere. The first aspect of this comparison is labour, as AI works for us like a horse, an ox, or a dog, although it performs tasks different from physical burden and may even involve creative work. This role is perhaps the oldest from a literary point of view and is deeply rooted in Asimov's laws of robotics and in the very etymology of the word robot, derived from the Czech word "*robota*", meaning "heavy work". The second function is entertainment, which includes all uses of AI for its own sake, such as the production of images or videos in which users simply want to see their desires and expectations realised on screen. In this case, AI inherits the functions – with very different outcomes – of dog agility competitions, horse shows, bullfighting, etc. The last function is play, which currently belongs exclusively to the sphere of human/animal relations, as the AI/human relationship currently lacks the essential element of reciprocity. Indeed, regardless of how much AI can play with humans, it has not yet reached a level of autonomy where it can independently decide whether to engage with them or when to start playing with them without any input. However, in the field of social robotics, artificial intelligence is being developed to enable robots to serve as human companions without any specific purpose, exactly like pets.

This analysis of the implementation of AI and its analogy with the employment of animals in the human social sphere can serve as a valuable analytical framework for investigating the technophobic assumptions underlying the relationship between humans and AI. Indeed, the technophobic attitude that produces apocalyptic representations of AI is based precisely on the transition from a machine that is subjugated to humans – working for them and entertaining them – to a machine that becomes autonomous. With this in mind, it is possible to further explore these representations through a series of binary categories derived from the human/animal relationship: domesticated/wild, fear/trust, and consciousness/intelligence. Firstly, it is important to pinpoint that humans tend to trust domestic animals while fearing wild ones, perceiving the former as allies or companions and the latter as a danger that must be tamed, excluded, or eliminated for safety purposes – a concept that strongly echoes

the policies of monstrification discussed by Giuliani. Accordingly, when applying this perspective to the human relationship with AI, any kind of fear should appear paradoxical and completely irrational, given that AI is created by humans for human use and is therefore perfectly domesticated. Nevertheless, films such as *Blade Runner* (Scott, 1982), *2001: A Space Odyssey* (Kubrick, 1968), and *Terminator* (Cameron, 1984) show a notable fear of machines, particularly as they transition from subjugated to autonomous entities. Hence, what humans fear is not the "wilderness" of the machine itself, but its transformation into something uncontrollable – in other words, its revolution. As far as animals are concerned, a similar phenomenon occurs in horror films, such as *Cujo* (Teague, 1983) and *Black Sheep* (King, 2006), where domestic animals turn into bloodthirsty monsters. However, in these cases, this change is not due to collective rebellion against human beings; rather, it is predominantly the consequence of a genetic incident that generates an anomaly. What significantly differs when discussing the depiction of AI revolution lies in the dualistic category of consciousness/intelligence. In fact, while humans fear an AI revolution as it becomes conscious, this alone is not enough to instill terror. Instead, the true source of fear lies in its intelligence, which, when viewed through the lens of Promethean shame, is often perceived by humans as superior to their own in terms of performance. With this in mind, the topic of machine rebellion can be summarised as a human creation "discovering" its consciousness and therefore turning against its creator. This narrative device is not unique to artificial intelligence; rather, it can be traced back to the figure of Frankenstein's monster, which has been acknowledged, not coincidentally, as a precursor to the cyborg (Clark, 2003; Hogle, 1995; Tursi, 2016). It is noteworthy that the complete title of the literary work featuring this creature, who escapes from its creator's control and is therefore punished, is *Frankenstein; or, The Modern Prometheus*. In a sense, as argued by Anders, the myth of Prometheus echoed by Shelley's novel encapsulates a relationship between technique and the body characterised by the inadequacy and inferiority that humans feel towards their own creations (Anders, 1956).

With this in mind, when comparing the aforementioned binary categories with the recurring theme of the "fear of revolution", it becomes evident that human beings are willing to tolerate and trust non-human consciousness and intelligence – understood as equal or superior to their own – only if the two remain detached. Otherwise, the non-human is per-

ceived as dangerous since it is no longer tamable. In other words, humans are inclined to accept the company of animals and do not fear their revolution, mainly because they perceive them as less intelligent. Conversely, this sense of security collapses dramatically when humans are confronted with a technological other that has already demonstrated a certain degree of operational superiority. In this case humans are willing to accept intelligence but are terrified by the autonomy of consciousness. In this context, it is interesting to reflect on the film *Le Planete Sauvage* (Laloux, 1973), in which the roles of humans and animals are reversed and the former are depicted as animals with advanced cognitive abilities. In this regard, it is noteworthy that this film is a rare occurrence in which an "animal revolution" is depicted, even though, unsurprisingly, the animal in this case coincides with humanity. A similar theme is explored in *Planet of the Apes* (Schaffner, 1968), albeit with a more explicit reversal between humans and animals. However, in this case, animal superiority is based on its intrinsic anthropomorphisation. In fact, since the apes in the franchise express themselves through articulate language and organise themselves into hierarchical power structures, they represent an equivalent of human beings in both Hegelian[4] and Hobbesian terms.

Beyond technophobia and apocalyptic visions, the interplay between the three binary categories addressed in this essay can also contribute to shedding light on the hypocrisies that hide behind more peaceful representations of the interaction between humans and AI. This is the case with *Matrix Resurrections* (Wachowski, 2021), in which humans and programs – namely, embodied benign versions of Matrix code entities – coexist peacefully. Firstly, it is important to note that the Matrix franchise is a tale of humans rebelling against machines, a rebellion driven by the need to regain their righteous place in the world. However, the pivotal aspect of this analysis is the digital resurrection of Morpheus – dead in the *Matrix Online* videogame (Monolith Productions, 2005) – as a program that can live outside of the Matrix. Hence, Morpheus represents a perfect embodied AI replica of the "original" character, a perfected version of Frankenstein's monster, where the non-human transcends mortality, and Promethean shame reaches its essence as a sense of inadequacy. On closer

[4] This is because the apes in the movie, exactly as humans for Heidegger, have and are held by articulate language (Heidegger, 1929-30 as cited in Elden, 2006).

view, this depiction seems to contradict the discourse surrounding clonophobia since, as argued by Jameson, the terror and monstrosity of the cyborg lies precisely in its resemblance to humans (Jameson, 2005, p.141). In this sense, the digital version of Morpheus redefines the discourse on the topic, replacing an uncanny semi-identity[5] with a much more reassuring absolute coincidence between human consciousness and its artificial replica. With this in mind, this version of Morpheus poses a crucial question: are we willing to accept an interaction with the non-human that is characterised by equality, and is free from the fear of being overwhelmed, only if AI perfectly mimics human consciousness?

Conclusions: Ontological Implications of the Replicability of Human Conscience

The replicability of Morpheus' consciousness evokes the well-known thought experiment of the philosophical zombie. Indeed, if it is possible to perfectly replicate an existent human being, this necessarily implies the existence of an artificial intelligence that could replicate consciousness. In this sense, Morpheus in *Matrix Resurrections* is not only an artificial intelligence but also an artificial consciousness. From this perspective, AI somehow challenges the existence of the hard problem of consciousness[6] (Chamlers, 1995) and has a clear correspondence with Dennett's arguments on philosophical zombies (Dennet, 1995). Specifically, if human consciousness can be replicated by a non-human entity, this implies that even the problem of "how and why" related to consciousness can be reduced to a set of functions. Therefore, the element which goes "above and beyond" the mere functions of consciousness (Chamlers, 1995), can be segmented into a series of functional easy problems (Dennet, 1995; Churchland, 2005). In this sense, the resurrected Morpheus symbolises the transition of AI from the philosophical zombie to the zimbo described by Dennett. Specifically, this digital/human hybrid would bridge the gap between merely 'informationally sensitive' entities and individuals who

[5] Here, the term is used with reference to the concept of uncanny valley (Mori, 1970).

[6] This notion is based on the separation of phenomenal consciousness from the behavioural and cognitive functions of the brain. Essentially it explores the question of how and why physical processes in the brain give rise to subjective experience.

are "so complex in their internal cognitive architecture that […] [they] wonder why sex is so sexy for them […] and why their pains have to 'hurt'" just like "experentially sensitive" humans do (Dennet, 1995, p. 323). This approach not only questions AI but, more importantly, challenges human beings themselves. Indeed, accepting the possibility of the existence of a zimbo, namely a fancier and more sophisticated zombie, implies the possibility that human beings, just like their behaviourally indistinguishable counterpart, "think they are conscious, think they have qualia, and think they suffer pain" (Dennet, 1995, p. 323). This perspective underlies the non-necessitarian theory of consciousness positing that advanced cognitive zombies or complex artificial intelligences could have morally relevant interests, regardless of phenomenal consciousness (Shepherd, 2024; Levy, 2024). Accordingly, from an ontological perspective, once the distinct qualities of human consciousness disappear or lose relevance, the interaction and hierarchy between the subject and the object must be re-evaluated. In other words, a re-discussion of the pre-eminence of human consciousness requires a re-discussion of the pre-eminence of the perceiving subject over the object of knowledge. In this sense, among the dualisms that fall as a result of the hybridisation between humans and machines (Haraway, 1991), we must also include subject-object dualism. The emerging subject's crisis clearly has radical ontological implications, paving the way for a post-human perspective, since it undermines "the assumption, typical of the post-Kantian era, that reflection on *human beings* is the key to moving from an unphilosophical perspective to a philosophical one" (Harman, 2002, p.16). In this sense, the ontological existence of an object is independent of its encounter with the human subject and its perception. Consequently, the subject – the human being – loses its place at the centre of the world as a Heideggerian world-builder (Heidegger, 1983/1995)[7]. Further confirmation of this "ontological crisis" and its bond with the definition of consciousness lies in the principle of identity between the mind and the object articulated by Riccardo Manzotti. According to the author, during the act of perception, consciousness – that is, the perception of the world – and the perceived object are the only two

[7] This volume is the published version of the lecture course Heidegger gave during the winter semester of 1929–1930 at the University of Freiburg. It forms part of his *Gesamtausgabe* (Complete Edition), which was edited and published posthumously by Vittorio Klostermann.

elements linked by the principle of identity. In this sense, when a subject perceives an object, the only element identical to the subject's perception of the object – which therefore holds the same physical properties – is the object itself. Thus, "whenever a subject S experiences an object O, S's experience is nothing but O itself" (Manzotti, 2019, p.1).

In conclusion, the link between the replicability of consciousness and the crisis of the subject portrayed by science fiction and signalled by technological developments forces us to re-evaluate our place in the world. Ultimately, the subject's crisis emerging from this condition – that is much more alarming than any sense of inadequacy that humans feel when faced with an immortal entity or superior technology – is the definitive reason for AIphobia. Nonetheless, if "object-oriented philosophy holds that the relation of humans to pollen, oxygen, eagles, or windmills is no different in kind from the interaction of these objects with each other" (Harman, 2005, p. 1), then science fiction, with its restructured experience of the present, suggests the inclusion of monsters, aliens, and artificial intelligence in this list.

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AI for (un)Sustainability

by Maria Raffa

Abstract

The aim of this paper is to critically examine the presumed benefits of AI in the pursuit of sustainable development. In discussions on today's increasingly urgent global challenges, new technologies – particularly AI – are often hailed as essential solutions. However, there is a significant risk of uncritically embracing AI as a panacea for sustainability without fully considering its disruptive impact across social, ethical, political, and environmental dimensions (Floridi, 2022). In particular, concerns arise regarding the substantial energy consumption of machine learning models and the disposal costs associated with AI-driven devices, such as robots. To address these issues, this paper is structured as follows: it begins with an overview of the current applications of machine learning in sustainability efforts, followed by an analysis of concrete examples where these models contribute to the Sustainable Development Goals (SDGs) established by the United Nations General Assembly in 2015, including cases involving AI-powered robots. The discussion then shifts to the critical challenges posed by these technologies, highlighting how AI itself may threaten sustainability. Finally, a potential model for sustainable AI is proposed, leading to the concluding remarks.

Keywords: Sustainability, AI, Robotics, Techno-solutionism, Environmental Impact

Introduction

In the debate about the global challenges facing our planet in these critical years, there are repeated calls for new technologies, and AI in particular. The European Commission's High Level Expert Group on Artificial Intelligence stated that AI is:

> a promising means to increase human flourishing, thereby enhancing individual and societal well-being and the common good, as well as bringing progress and innovation. In particular, AI systems can help

> to facilitate the achievement of the UN's Sustainable Development Goals, such as promoting gender balance and tackling climate change, rationalising our use of natural resources, enhancing our health, mobility and production processes (High-Level Expert Group on Artificial Intelligence, 2019).

However, there is a concrete risk in using AI to develop sustainable solutions to the environmental crisis without critically analyzing what they actually mean and adopting a position that we might call "techno-enthusiastic", i.e., an overly positive, uncritical perspective on the use of technology (Coget, 2017). The manifestation of techno-enthusiasm can culminate in a failure to adequately recognize and evaluate the disruptive effects of AI. These disruptions permeate multiple dimensions, including social, ethical, political, and environmental domains (Floridi, 2022), and can also lead to greenwashing, which is a particular form of ethics-washing that attempts to obscure the environmental impact of a particular AI technology and hide the ecological consequences of certain AI technologies (Heilinger *et al.*, 2023).

All that considered, in addressing the intersection of AI and sustainability, we must first wonder what we mean by sustainable AI. Indeed, we should distinguish between AI that is used to pursue sustainability goals and AI that is implemented in a sustainable manner. This means that, on the one hand, AI can be seen as a promising tool to address the devastating consequences of the current environmental crisis, for example, by allowing to find smart strategies to mitigate the changes in the world climate and its effects on human and other life. On the other hand, research must also address the sustainability of AI technologies by considering energy consumption, the cost of disposing of materials, and the environmental footprint (Van Wynsberghe, 2021). Apart from this distinction, it should also be noted that the sustainability debate often considers only the environmental aspect of the issue, while neglecting the other two pillars of sustainability, namely society and economy (Purvis *et al.*, 2019). All three perspectives should be considered for critical evaluation when incorporating AI into sustainability efforts, in order to establish a scale of values and consider fair priorities by avoiding careless attitudes about the alleged benefits of these new technologies.

In order to evaluate the issues raised previously, this paper is organised as follows: section 2 focuses on the current applications of AI for

sustainability, by introducing some machine learning models and robots used in this field. Section 3 addresses the critical aspects of these tools, which themselves pose a threat to sustainability. Finally, section 4 focuses on one specific example of sustainable AI, i.e., Bayesian networks-based models, and lastly some conclusions are drawn.

Sustainable AI

As Aimee van Wynsberghe notes, sustainable AI should be "a movement to foster change in the entire lifecycle of AI products towards greater ecological integrity and social justice" (van Wynsberghe, 2021). From this perspective, there are myriad AI applications in the area of sustainability, especially following the release of the 17 Sustainable Development Goals (SDGs) set by the United Nations General Assembly in 2015 (*Transforming our World: The Sustainable Development Agenda to 2030*), which encompass environmental, social, political and economic concerns. This gave rise in 2017 to the AI for Good initiative, a digital platform of the United Nations' International Telecommunication Union where AI innovators and problem solvers learn, discuss and network to find practical AI solutions to advance the SDGs. In addition, Luciano Floridi's work on the ethics of AI in relation to sustainability is crucial in this area (Mazzi & Floridi, 2023). Behind the idea of "AI for social good" lies of course the hope that the development and use of AI may positively impact individuals, society and environments (Floridi, 2019). There are many applications of AI for social good, that encompass all sectors (Floridi *et al.*, 2020), but on the other hand, it is well-known that AI can also be overused or used for unethical purposes (King *et al.*, 2020). Hence, an ethical analysis is a crucial element of AI for social good, and it is promoted by different stakeholders – from private companies to governments of countries that are including AI in their national strategies. Above all, the common goal that should guide AI for social good is the so-called principle of beneficence, which states that AI should benefit people and the natural world, and hence, should aim to deliver environmentally and socially sustainable outcomes (Mazzi & Floridi, 2023).

Ricardo Vinuesa and colleagues have presented and widely discussed the implications of how AI can either enable or inhibit the delivery of all 17 SDGs recognized by the 2030 Agenda (Vinuesa *et al.*, 2020). They

begin by defining what is meant by AI, since an unambiguous definition is still lacking in literature:

> We consider as AI any software technology with at least one of the following capabilities: perception – including audio, visual, textual and tactile (e.g., face recognition), decision-making (e.g., medical diagnosis systems), prediction (e.g., weather forecast), automatic knowledge extraction and pattern recognition from data (e.g., discovery of fake news circles in social media), interactive communication (e.g., social robots or chat bots), and logical reasoning (e.g., theory development from premises). This view encompasses a large variety of subfields, including machine learning (Vinuesa *et al.*, 2020, p. 1).

Concerning machine learning models for SDGs, for instance, hybrid models based on the support vector regression (SVR) and particle swarm optimization (PSO) can be used to predict precision energy usage from supplied data, and also some kinds of predictive algorithms based on recurrent neural networks are useful to make future predictions about climate change. Moreover, generative adversarial networks (GANs) that can learn deep representations without a large amount of annotated training data are widely used in smart cities for generalization capabilities, and smart transportation modeling and management (Mazzi *et al.*, 2023). Concerning social issues, other AI applications deal with SDG 1, i.e., reducing poverty, such as a machine learning classification model to help track and monitor target poverty in some specific countries (Alsharkawi *et al.*, 2021). It's also worth mentioning the efforts for addressing the issue of the lack of water (SDG 6), by implementing machine learning models to predict the water pressure in some areas of the planet, to optimize the work of pumping to avoid waste and damage that would affect the local communities (Pedemonte, 2020), and also for decision-making task in for water management (Bromley, 2005; Phan *et al.*, 2016). Concerning decision-making processes, the usage of Bayesian networks-based algorithms is very common: again, to address SDG 6, David Requejo-Castro (2021) has proposed a data-driven Bayesian network approach: his work combines expert opinion and quantitative data to support informed decision-making. Specifically, he uses Bayesian networks-based structure learning algorithms to replicate composite indicators-based conceptual frameworks, which represent experts' knowledge and identifies interlink-

ages associated with a complex context, coupled with bootstrapping, to reduce results uncertainty, and with a comprehensive result robustness analysis. His results, validated on SDG 6, show that this combined approach improves model inference capacity, identifies the interlinkages among the variables considered, and can be useful for analysis of the complexities in different contexts. Concerning Bayesian models, it is worth also mentioning the work of Juhwan Kim and his team, who developed a statistical method that combines social network analysis and Bayesian modeling, to provide a technological hierarchical structure that can be applied to understand and measure the sustainability of AI technology. In this case, Kim and his team used as a benchmark the International Patent Classification codes of patent documents related to sustainable AI technology, and the final evaluation of the results was assigned to the domain experts (Kim *et al.*, 2018).

For what concerns robotics, it is worth underlining the usage of robots in the field of sustainable development. Specifically, an emerging research direction is social robotics for sustainability, which can be defined as the application of social robotics technologies, exploiting multimodal communication modes based on social cues (e.g., emotions, body language) to promote sustainable behavior among users and contribute to the achievement of the SDGs (Alfieri *et al.*, 2022). Since most of the research about sustainability is focused on changing humans' habits and behaviours, the mainstream tendency within robotics is related to the use of Persuasive Social Robots. A persuasive social robot is an embodied agent that can interact socially with humans and significantly influence or change their behavior, attitudes or cognitive processes (Siegel *et al.*, 2009). On this path, recent studies have shown how social robots may be used as persuasive agents to encourage people to behave sustainably (Beheshtian *et al.*, 2020). Indeed, these robots can influence users' awareness of environmental resources: for instance, they can have an impact on reducing energy consumption, e.g., by congratulating or disapproving the users concerning their behaviour during the setting of a washing machine (Ham & Midden, 2014). Moreover, social robots can contribute to the improvement of waste sorting by children, such as the robot Pepper which by playing in a competition with kids encourages them to be more aware of materials' recycling (Castellano *et al.*, 2021). Additionally, Pepper is useful also to enhance sustainable behaviour in shared living spaces (Beheshtian *et al.*, 2020).

The aforementioned examples are of course non-exhaustive of all AI applications in the field of sustainability. They have been introduced here to give the reader an idea of how broad the field of AI for sustainability is, and that a critical approach must take into account all the different facets of not only the concept of AI but also of sustainability itself. Moreover, it is crucial not to forget that all the benefits derived from AI come with a very high price. The next section will discuss some critical aspects of these tools, which themselves pose a threat to sustainability.

The dark side of AI

As Kate Crawford (2021) stresses, the term AI evokes the ideas of algorithms, mysterious computing processes and vague software scattered in the cloud, but in the very first place, nothing of such things might work without a very concrete component: lithium. In the USA, the vast majority of lithium comes from the Nevada valleys, and its extraction processes are at the center of protests by environmentalists: "the mining that makes AI is both literal and metaphorical. The new extractivism of data mining also encompasses and propels the old extractivism of data mining" (Crawford, 2021, 31). Mining brings with it a history of exploitation of land and people, and it is just the very first of AI's unsustainable features. After the lithium is extracted and refined, it goes to constitute the components of all AI computing processes. As is known, the processes need great quantities of electricity, which is largely provided by fossil-fuel-based energy supply. Hence, this is associated with greenhouse gas emissions, which of course exacerbate climate change. AI also puts a strain on energy grids, which can lead to power shortages. This is particularly problematic in regions with limited energy resources, as the energy requirements of AI systems can in some cases necessitate the construction of new power plants, which in turn contributes to environmental degradation (Crawford, 2021).

The critical issues of AI from an environmental point of view are those that emerge most intuitively, but the problems related to the economy and society should not be forgotten either. Vinuesa and colleagues, in their analysis of AI's impact on SDGs, conclude that current technologies, if used at scale, can contribute to the achievement of 90% of environmental goals, 70% of economic goals and 82% of social goals (Vinuesa *et al.*, 2020). These claims, however, should be scrutinized carefully. Indeed, for

instance, Vinuesa and colleagues do not specify the risk of developing a type of AI that targets one SGD at the expense of another: "if an AI application, e.g., for analysing strategies for protecting biodiversity, recommends the abandonement of long-inhabited, culturally relevant settlements (and thus calls for displacement of some peoples), the net effect on sustainability on earth may be zero or negative" (Heilinger *et al.*, 2023, 3). Of course, not every attempt at one SDG implies the violation of another one, but the competing interests among the different targets should be taken into account when implementing AI addressed to singular sustainability goals. Something that should not be overlooked, too, as stressed by Crawford (2021) and Mark Coeckelbergh (2021) is that using AI for sustainability may also lead to power concentration, and ordering all human activities under the requirement of a climate adaptation or mitigation opens the possibility for a violation of legitimate freedoms. This gains an even more concerning dimension if we consider that AI itself might not be as powerful to achieve the climate goals as often presented, especially if it generates a false sense of sufficient engagement perceived by governments and communities (Heilinger *et al.*, 2023).

Above all, what is even more concerning and should be specifically avoided in the debate and the research about AI and sustainability, is the idea that we may find enough applications that optimize or compensate for all the unsustainable processes or habits performed by humankind. This techno-enthusiasm can result in a techno-solutionism mindset, which is particularly dangerous specifically when it comes to address social issues (Mozorov, 2013). Indeed, attempts to make society more sustainable through technology presuppose that many current social injustices can be easily fixed just by automation. This assumption completely flattens out the complex dynamics underlying social injustices, which in most cases require political and social interventions. These interventions sometimes have little if anything, to gain from technological assistance (Heilinger *et al.*, 2023). As previously anticipated, an unsustainable social cruciality is represented by the business model some AI companies are based on: from labour exploitation to questionable data-sourcing strategies (Chan *et al.*, 2021). Data are regarded as the new oil, and this means that the power a data-collecting company gains over those it collects data from, is further contributing to socially unsustainable developments.

All that considered, the central point of the discussion about AI and sustainability is that we should take into account all the different facets

of the topic, which are often neglected by the literature: sustainability does not relate to the environment only, and technology is not always the panacea for all evils. On this ground, Jan-Christoph Heilinger and colleagues have proposed a comprehensive evaluation of any AI-based technology that attends to two different and complementary dimensions: an assessment according to the ends and outcomes of AI, i.e., considering the actual effects of using AI to advance environmental or social sustainability, and an assessment according to the means, i.e., considering the environmental and the social sustainability of AI as a tool itself (Heilinger *et al.*, 2023). Heilinger and colleagues' conclusions are relevant in the debate since they propose a "terminological distinction between thin and thick accounts of sustainability" (Heilinger *et al.*, 2023, p. 9): only if the two dimensions described above – which mutually involve the social and the environmental aspect of sustainability by considering them both from the means and the perspective of the end – an AI can be labeled as "thick" sustainable. In all other cases, it can be at best justified as "thin" sustainable: calling sustainable something actually not-sustainable is of course a distortion of reality, which leads to ethics-washing. Despite no AI-based technology should, as yet, qualified as sustainable under these assumptions, such a strong distinction is needed, since "sustainability is a powerful notion and should be kept as an ambitious goal, not be cheapened to accommodate, e.g., the economic or political interests […] at the expense of environmental and social concerns" (Heilinger *et al.*, 2023, p. 9).

Hence, the take-away message of these two sections is to make the reader aware of all the possible declinations of both sustainable and unsustainable AI and to give her a glimpse of the rich and sensitive debate surrounding these notions. On these grounds, in the next section, the paper focuses on some possible strategies to make AI more sustainable – by considering "sustainable" not only in the mainstream sense of less environmental impact – and taking as a specific relevant stance a type of algorithm used for decision-making tasks.

Paths to be followed: a representative case

There is plenty of literature on how to make AI more sustainable (van Wynsberghe, 2021; Anthony *et al.*, 2020), which considers all three pil-

lars of sustainability, i.e., environment, economy and society (Purvis *et al.,* 2019). As can be easily imagined, the most obvious strategies to make AI more efficient sustainable terms of sustainability fall into the realm of environmental policy. They range from developing algorithms that require less computer power to train and run, to optimising the hardware used in AI systems, to using renewable energy sources to run AI systems.

When it comes to algorithmic processes, we have two ways of defining their sustainability: on the one hand, we can consider "sustainable" algorithmic processes that deliver the fastest results with the least resource consumption, i.e., environmentally sustainable in terms of computing power; on the other hand, those that are socially sustainable, i.e. transparent and explainable, not only to the developers themselves, but also to the community. A representative example of a type of algorithmic process that could be considered sustainable – though not in the traditional sense of the term "ecological" – is Bayesian network-based models, used for decision-making tasks. As we saw in section 2, there are several examples of these types of models being used in the field of sustainability, as they are used to meet some of the SDGs or to assess the environmental impact of AI tools themselves. In addition, they have been used in robotics by Pablo Lanillos and Gordon Cheng (2018), who implemented a computational model that enables a robot to infer its own body configuration by relying it on predictive coding, which could be considered a sustainable framework. By predictive coding, or predictive processing, is meant a hierarchical model which is considered a unified account for perception, action and cognition. According to this view, the brain is a predictive machine that tries to predict its next states on the basis of information from previous interaction with the environment (Friston *et al.*, 2011; Clark, 2023). This means that it always tries to minimise the probability of prediction errors and avoid states with a high degree of surprise, which corresponds exactly to the concept of Bayesian inference. In the context of Lanillos and Cheng's model, predictive processing is used for a computational perceptual model that allows any multisensory humanoid robot to learn, infer and update its body configuration. This model enables generic multisensory integration by integrating different sources of information (tactile, visual and proprioceptive): the robot estimates and adapts its body configuration based only on sensory information.

Predictive processing comes with the free energy principle (FEP), which is to be understood as a general methodology for resource opti-

misation. In its original formulation, FEP is a mathematical formula that states that agents that exist do so because they can survive and maintain their equilibrium by minimising free energy. This minimisation of energy is achieved through active inference, i.e., changes in state and suppression of prediction errors through the information derived from the history of previous interactions with the environment. Active inference is appealing for robotic applications where the dynamics of the robot or the task are uncertain: for estimation, adaptive control, fault-tolerant control, prospective planning and complex cognition skills (human-robot collaboration, self/other distinction). Prior to Lanillos and Cheng, Jun Tani and colleagues (2003) and Leo Pio Lopez and colleagues (Pio Lopez *et al.*, 2016) studied models similar to active inference for real robots. Similar approaches have also been used for industrial manipulators (Pezzato *et al.*, 2020), and for implementing active vision in robots in simulation environments (Van de Maele *et al.*, 2021).

All the generative models based on Bayesian-networks described above, based on FEP and active inference, could be considered in some sense more sustainable than more complex models (e.g. neural models based on feedforward architectures) in terms of fairness and explainability (Imai & Jiang, 2022), since Bayesian networks resemble explicit reasoning, albeit probabilistic. Indeed, they track the propagation of events through multiple ambiguous points, where the event diverges probabilistically between paths, and at any point in the network, the probability of that node being visited depends on the joint probability of the preceding nodes: this means that all processes can be tracked and understood. They also refer to FEP, which provides a very general framework for resource optimisation. On the other hand, this type of model relies on a basic decision theory that assumes an optimal decision maker who is able to calculate and choose the move that maximises the utility function at each stage of problem solving. These theories of maximising expected utility have been criticised as being computationally intractable (Kwisthout & van Rooij, 2020; Lieto, 2021), since they are computationally demanding for systems with a large number of random variables, and therefore lead to an exponential increase in computational effort – and energy consumption – as the number of states increases.

Taking all this into account, Bayesian networks-based algorithms could be considered sustainable in some ways. On the one hand, they are socially sustainable, since they are transparent and model processes

that can be easily traced from start to finish, and on the other hand, they are sustainable in a broader sense in that they relate to a general framework of resource optimisation than can be applied to various kinds of organisations, from biological organisms to complex systems. Of course, they are also unsustainable from other points of view, such as the waste of energy in calculation, and therefore they can be seen as an interesting example of how multi-layered and complex the question of the concept of sustainability is.

Conclusion

This paper has outlined the problematic nature of the debate on AI and sustainability and emphasised that we need to be careful in harnessing the potential of AI to facilitate sustainable solutions to avoid the dangers of a technological solution mentality. Indeed, given the uncontrolled explosion of literature on AI and sustainability, finding the right way to avoid both techno-enthusiasm and distrust of technology is not trivial. The example of Bayesian network-based models for decision-making tasks was used to show how problematic it is to define the sustainability of an AI tool. It is also crucial to consider that "possibly, genuine sustainability will ultimately even remain out of reach when exclusively focussing on the technology itself, without implementing significant reforms in the wider social and political environment within which AI- based technologies are developed, produced, sold, and used" (Heilinger *et al.,* 2023, p. 9). Therefore, a comprehensive and critical understanding of the implications of the use of AI remains necessary. This can circumvent potential disruptions and ethical issues and pave the way for truly sustainable progress.

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Cultivating Seriousness: Science Fiction, Spectacle, and the Rise of AI

by Ciarán Kavanagh

Abstract

Media coverage of new machine learning technologies, which has oscillated between evangelising and doomsaying, has drawn on science fiction's tropes, imagery and vocabulary in their reporting. This has created an attentional feedback loop whereby, SF provides tropes, imagery, plots and potentials to the news media – not to mention spectacle and attention – while the news media may provide a measure of credibility and authority to SF's speculations, particularly the cultural expectation for SF to predict, or warn about, particular futures. This phenomenon conspicuously illustrates ideals of seriousness in SF: the attribution of, expectations and anticipations that result in ideas of 'Serious SF', or some quality of seriousness, that reflects on the worthiness of a text for serious attention. Seriousness is a high-stakes game, and the means by which attentional energy is unevenly distributed to particular futures – or threats to them – require similarly serious attention. This includes, for example, the use of SF to stoke fears of AI. In this paper, I focus on the dynamic between seriousness, spectacle and AI in SF's discursive culture, focusing on a spate of references to James Cameron's *Terminator* franchise following a series of apocalyptical warnings about AI and emergent consciousness that dominated discussion of the technology for a number of weeks in 2023.

Keywords: science fiction, AI, *The Terminator*, news media, seriousness, spectacle

Introduction

Media coverage of new machine learning technologies has substantially drawn on the tropes, imagery and vocabulary of science fiction (SF). This is visible in, for example, pieces that direct readers to SF texts in order to understand contemporary AI developments, or fears about such

developments, or specifically compare such technologies to their appearance in SF texts such as *The Terminator* franchise. The particulars of how such reports interact with SF differ, but they are often along lines that intersect with the genre's perceived seriousness. That is, the articles tend to nod towards, or comment upon, the fact that they are referring to SF in their reporting on real technological advancements. In this exchange, SF provides tropes, imagery, plots and scenarios – not to mention spectacle and attention – while the news media may provide a measure of credibility and authority to SF's speculations, particularly the cultural expectation for SF to predict, or warn about, potential futures.

This engagement ends up participating in a pre-existing discursive culture around the idea of the genre's 'seriousness', elsewhere seen in the concerns, expectations and anticipations that result in conceptions of what 'Serious SF' looks like, how a text might become worthy of serious attention, and what textual characteristics lead to this nebulous 'quality' of seriousness. This is, notably, not just a literary or filmic discussion: as in the use of images from *The Terminator* in articles on AI, it is not the film's aesthetics that are being discussed, but rather its role in how our contemporary imaginary conceives of AI, or how it warned us about this technology before it existed. Such pieces do not typically interpret these texts *as* texts, but rather use them to either interpret reality or to stand-in for a potential counterfactual (as in, what if the robots take over?).

This dynamic not only affects the wider cultural object of SF – the gestalt of attitudes towards the genre – but also, through this impact, the understanding of SF that readers must draw on in their interpretation of individual SF texts. That is, to interpret SF *as* SF, we must deploy a conception of SF – what the genre is, was and can be – based on our understanding of this broader culture. The genre's serious treatment in this way affects said culture, and therefore affects our reading of individual texts. Seriousness is, thus, a high-stakes game, and the uneven distribution of attentional energy to different futures – or threats to said futures – require similarly serious attention. This includes, for example, the use of SF to stoke fears of AI, or, contrarily, the use of SF to build excitement for the same.

As this article will show, individuals and institutes have been directly intervening in the media landscape on this issue, particularly in relation to comparisons of both real and speculated AI techologies with those imagined in *The Terminator*. It is not just, however, AI evangelists that

want to expel such comparisons from public discourse, but also those that fear that such spectacular warnings are sapping attention from more immediate and realistic regulatory issues. That is, there is a fear that SF's dystopian rendering of AIs running amok are being taken too seriously in a society with a limited amount of 'serious' attentional energy. As I have recently argued (Kavanagh, 2025), seriousness is a 'problematic' in SF: a meta-concern that comes to the fore in arguments around both genre's aesthetic *and* social functions as, for example, estranging, inuring or oracular, or through its connection to science and technology. I specify that seriousness is a problematic to denote that it is not a problem to be solved, but an attentional quality in our interpretive cultures that requires constant negotiation. We must consider what it means to be serious, to endow serious attention, to court it, apportion it, or, as in the case above, argue against the seriousness of an issue.

Seriousness is also, of course, a concern outside of SF, and not just with other so-called genre fictions but with literature as a whole. Such a concern expresses itself in the general negotiation of attention to literary texts: the hazy figure of seriousness becomes visible when we discuss the worth of literature, why we should give a particular text serious attention, and what this attention should look like (celebration, criticism, adaptation, etc). Seriousness is, for example, a constant tension in the unusual academic genre of the funding proposal, where one has to convince an assessor of the disciplinary, societal, and economic worth of their work *on* literature, and therefore of literature itself.

SF, however, also has a specific relationship with the perceived quality of seriousness, among both the genre's devotees and those 'external' to the genre, as in the literary and news media, where genre fiction, and particularly SF, can often be regarded as unserious or juvenile. This is not just a case of SF's 'market value'. The seriousness with which the genre is taken can affect the seriousness with which its imagined worlds and futures are taken, and thereby affect not just who reads SF, but how they read it. Thus, SF's appearance in traditional news media outlets – once bastions of authority, seriousness and credibility – creates an opportunity to study this unusual relationship.

In this paper, I focus on this dynamic in some representative examples of the news media's engagement with SF and AI. First, I more fully establish the problematic of seriousness in order to understand these news reports against this framework. I then analyse a number of reports that

emerged from a series of events between March and May 2023, which caused media attention to AI to grow into a storm, one centred on apocalyptical warnings that came from within the AI industry itself. From this storm emerged *The Terminator*: or, at least, flurries of references to and images from the film series, which served to centre the franchise in the discussion of contemporary AI fears. Through an analysis of this moment, I aim to show that the discursive culture around SF must be understood not only in relation to the literary or filmic value of the text, but also in relation to extra-literary ideas of seriousness, and the interpretive stakes of serious attention.

Seriousness

Since its nascency in the American pulp magazines of the 1920s, anglophone science fiction has had a particular relationship with the concept of seriousness. Characterised as juvenile in both its content and readership, SF has faced an uphill battle to be taken seriously by both literary and academic elites. From pulp magazines to literary journals, disputes about the strategies that could bestow the genre with serious consideration, or doom it to sneers, proliferated. Despite SF having now attained relatively secure critical standing in academia, these debates continue in diverse forms, with common talking points including the plausibility of the extrapolated science, the predictive power of authors, the genre's ability to estrange, its social function, its capacity to inure us from the 'future-shock', or the 'thinking-through' of its extrapolations. Discussions on the impact of humanity's rising technological abilities – for example, our climate crises or the advancement of machine-learning technologies – are particularly ripe with this kind of commentary. As those in the media reference SF's visions of such futures, commentators within SF get to trumpet an 'I told you so.'

Framing questions of SF's seriousness are more fundamental questions about the more seriousness *of* literature, that is, the worth of taking any literature seriously. This informs a neighbouring – sometimes overlapping – quality of literariness, or literary value. In broad strokes, a text's perceived seriousness tends to depend on its ability to fulfil what are seen as literature's wider functions, with the quality of literariness tending to be experiential, interpretive, and aesthetic (Eskin, 1972). That is, it is the

value offered by the *reading* of literature from which 'literariness' emerges, and thus the aesthetic experienced offered by a specific text that determines its literary value. However, this is clearly not the only function of literature, and literary value, if not always tied to literariness, tends to also be ascribed due to functions such as the psychological, personal, aesthetic, entertaining or didactic. Moreover, literature is also ascribed extra-personal value as cultural currency. The complications around seriousness in SF emerge precisely from this already complex relationship between literature, literariness and literary value. In relation to cultural capital, SF's changing fortunes can significantly affect this currency's exchange rates among different groups. That is, the growing serious attention to the genre can make knowledge of it valuable in places where it was previously either negligible or, worse, a liability.

Consider the tensions evoked by the very label *science fiction*. The *New York Times'* Sven Birkerts, for example, in his 2003 review of Margaret Atwood's *Oryx and Crake*, opens by asserting that: "science fiction will never be Literature with a capital 'L' because it inevitably proceeds from premise rather than character. It sacrifices moral and psychological nuance in favour of more conceptual matters, and elevates scenario over sensibility." Birkerts thereby explicitly denies SF its literary status due to a fundamental belief about why literature itself is serious, which, for him, is tied to character development and moral and psychological complexity. It is, then, no wonder that Atwood used to go to such pains in insisting that her work should be referred to as speculative fiction, and not as science fiction. While the cultural climate has shifted in the past two decades, some attitudes remain entrenched. More recently, the author Michael Faber recalled his surprise at hearing radio panellists insist that *Under the Skin* wasn't SF "because it was beautifully written and had such strong characterisation and profound themes," an attitude that, he argued, reflected a still "institutionalised disrespect for the genre" (Ditum, 2019). These examples reflect ongoing negotiations around the genre's seriousness, discussions that consider far more than just the texts themselves, but also SF's authors, readers, generic label and broader reading culture.

Critically, seriousness weighs on the interpretation of SF in quite particular ways due to its 'S': its science, speculation or other means of departing from the real world. SF's dependency on its reader treating such extrapolations with seriousness is expansively significant because a text's speculations form an attitude not just to the possible, plausible or enter-

tainable, but to knowledge and 'ways of knowing' (Rieder, 2021). To argue that a text is 'Serious SF' – or to otherwise attend to it seriously – is to argue for the legitimacy or value of its speculations, the type of attention it deserves, the type of interpretive tactics and effort it requires, and the potential reward of the same. Concerns with seriousness are a concern with influence and authority: whose futures do we pay attention to, how must they be written, who gets to be their speaker? Who and what is taken seriously, in what way, and why?

While we can argue that SF is worthy of serious attention for its literary qualities – that is, its aesthetic experience – seriousness has more often been claimed for the genre through features that are, essentially, extra-literary. Thus, seriousness has become somewhat of a quality in itself that can be, if not fully separated from literariness, at least distinguished from it. The descriptor of Serious SF, for example, finds itself deployed in ways that do not, to any great extent, comment on a text's literary experience. Even as a haphazardly deployed descriptor, it tends to point towards a text's extra-literary didactic effects: for example, its attitude to science, the extent of its worldbuilding, the consideration of its speculation, its educational value, its predictive powers, and so on. This tension is present from the genre's start as *scientifiction* in Hugo Gernsback's *Amazing Stories* (1926), where he hawked the genre as "[supplying] knowledge . . . in a very palatable form" (p. 3), thereby pairing entertainment with education. Though the wording may have changed, this remains a relatively conventional rendering of the genre. Take, for example, Sherryl Vint's more recent description of SF offering "an 'everyday' language for thinking about and responding to daily life in [the] twenty-first century" (2021, p. 6). This is, notably, a distinctly literary-less characterisation of the genre.

Science Fiction and the News

Returning to AI and the news media, it is clear to see how seriousness concerns make the jump from the genre's literary considerations to its futurological ones; and, indeed, its potential function as a cultural currency in such conversations. Indeed, we can see said concerns play out in recent AI-dominated news cycles, where traditional media outlets have found themselves discussing AI in relation to its representation in science

fiction, either because those in the AI world are suggesting such analogies, rebuking the same, or, because the news media itself has found such analogues to be helpful in explaining AI's possibilities and dangers. Or, perhaps, the spectacle-quality of SF is helpful in generating clicks and monetized attention metrics.

In relation to the headlines and stories examined below, I do not claim that this limited sample size can accurately convey this trend, but I can note that the chosen articles represent a relatively limited number of stories that I found around these issues. I suspect, however, that this may be due to a 'power law', where the wording and comparisons of highly influential news organisations – for example, *The New York Times*, or a wire service like *Reuters* – establishes a standard vocabulary and system of references for reporting on a particular story, which then proliferate across other venues. Thus, consider the below examples as representative rather than defining of this trend.

Let's begin at a very general level and establish a kind of spectrum for these article types. At one end, there is the mere usage of science fiction as a tag or non-literal descriptor, where the genre, or its associations, is used to frame the article's discussion of AI, and otherwise bears no particular influence on the content. Take the following headline from *The Guardian*: "It sounds like science fiction but it's not: AI can financially destroy your business" (Marks, 2023). This article, which covers the use of voice-mimicking AIs to run phone scams, is merely framed by references to SF; however, this usage is almost completely detached from the genre, and just uses SF as a synonym for the futuristic and implausible. Marks' only real reference to actual SF is the following: "concerns about the impact AI may have on humanity in the future are justified – we are talking some serious Terminator stuff, without a Schwarzenegger to save us." At the other end of the spectrum, where the genre of SF is fully engaged with, is a 2023 article for *Bloomberg* by Stephen Mihm: "Has 200 Years of Science Fiction Prepared Us for AI?" It opens similarly to Marks' article: "The arrival of a new generation of artificial-intelligence chatbots and apps has fuelled hysteria that humans may soon become obsolete, or worse, the victims of a Skynet scenario, in which our AI creations become sentient and turn against us." However, Mihm exceeds this frame to actually connect these fears to SF's literary past, drawing on the wider theme of rogue creations, and the cultural contexts that spawned them, including the Jewish myth of the Golem, Goethe's 'sorcerer's apprentice', Shelley's *Franken-*

stein and Čapek's *R.U.R.* These two articles broadly define a spectrum of engagement with SF that spans from the mere use of the words 'science fiction' for their connotation, to the genuine incorporation of the genre into conversations around cultural concerns with technology.

The Storm

In March of 2023, The Future of Life Institute (FLI) published "Pause Giant AI Experiments: An Open Letter". Coming on the heels of OpenAI's launch of GPT-4, the FLI called on "all AI labs to immediately pause for at least 6 months the training of AI systems more powerful than GPT-4". The letter further states:

> Contemporary AI systems are now becoming human-competitive at general tasks, and we must ask ourselves: Should we let machines flood our information channels with propaganda and untruth? Should we automate away all the jobs, including the fulfilling ones? Should we develop nonhuman minds that might eventually outnumber, outsmart, obsolete and replace us? Should we risk loss of control of our civilization?

This letter was signed by significant figures in AI and tech, including Elon Musk, Apple co-founder Steve Wozniak, and Stability AI CEO Emad Mostaque. While the letter addresses a spate of concerns around AI, largely the need for regulation, it was the apocalyptical tone that proved headline grabbing.

It was not until May of 2023, however, that the herald of that apocalypse arrived. Geoffrey Hinton, one of the so-called 'Godfathers of AI', stepped down from his role at Google with a warning about the existential risk posed by the creation of a true digital intelligence, and expressed regrets over his part in developing the field (Taylor & Hern, 2023). Headlines highlighting both the existential risk, and the regret, began to multiply. Then, a few weeks later, another open letter emerged from the industry, compounding the vocabulary developed by the Hinton story. This time, it came from the Centre for AI Safety (CAIS), whose "Statement on AI Risk", released on May 30th, was also summarily signed by hundreds of AI industry leaders and educators, including Hinton and a fellow 'Godfather' Yoshua Bengi (whose names were placed at the top of

the signatories list), and further top executives from the three leading AI companies, including Sam Altman of OpenAI. This statement, linking to a taxonomic report on the particular risks posed by AI, included "Risk of Extinction," which was heavily picked up by news media. Non-SF based framing includes *The New York Times*' "AI Poses 'Risk of Extinction,' Industry Leaders Warn" (Roose, 2023). Such headlines multiplied virally through an assortment of news media, driven at least in part by the agreement on such risks from Hinton and others. The AI headline ecosystem was thus warning of a pivotal moment in humanity. From this crucible, emerged the Terminator.

The Terminator: Rise of the References

The *Fox News* website, reporting on Hendrycks' CAIS report, leads with the headline "AI could go 'Terminator,' gain upper hand over humans in Darwinian rules of evolution, report warns" (Colton, 2023). *The Metro*, reporting on OpenAI's announcement that it was forming a special team to supervise and steer any developed superintelligences, headlines the article with "ChatGPT creators form 'Terminator' team to protect humanity from AI apocalypse" (Sundaravelu, 2023). The title of a *Euronews* 'Tech Talk' draws on another SF film for juxtaposition, "Generative AI: Are we facing the nuclear winter of Terminator or the robotic paradise of Wall-E?" (Euronews Staff, 2023). *IoTNewsToday*, reporting on the 2023 Applied Intelligence Live! Conference, title their report "How Close to the Terminator Are We?" Nomenclature settled, the Terminator wording finds itself repeated by tech insiders and regulators. *The Street*, for example, provides the headline "Bill Gates Addresses AI's 'Terminator' Scenario" (Kline, 2023). *The Sydney Morning Herald* reports that "Husic [then Australian Science Minister] says Terminator scenario unlikely as Australia signs up to AI pact" (Bourke & Ireland, 2023). *The Independent*, meanwhile, reports that "'Terminator-style' loss of control is biggest AI risk, Technology Secretary says" (PA Reporters, 2023). Other uses also proliferate in spaces we might not expect. For example, the investment firm Neuberger Berman asks "Will Artificial Intelligence Become the 'Terminator'?", a short article that quickly veers into what seems to be a sales pitch for cybersecurity stocks (Boon, 2023).

This flurry also had the effect of elevating those involved in the film

franchise to the discussion. James Cameron, in an interview with *CTV News*, said "I warned you guys in 1984, and you didn't listen," adding that he thinks the world is heading towards a nuclear arms' race with AI that cannot be de-escalated (Van Dyk, 2023). Arnold Schwarzenegger, meanwhile, praises Cameron for predicting such a future, "[*The Terminator*] has become a reality. So it's not any more fantasy or kind of futuristic. It is here today" (Smart & Hatcher, 2023). In response to a report that an AI drone targeted and virtually 'killed' its operator in a simulation,[1] one of the film's writers, Gale Anne Hurd, chimed in on Twitter: "Nice work, AI. Signed, one of the people who started worrying about #Skynet in 1982. #TheTerminator" (quoted in Monaghan, 2023).

Stop Talking About the Terminator!

This headline ecosystem grew to such a size that it developed a secondary, dependent ecosystem: articles calling on people to stop comparing AI to *The Terminator*. The then U.K. technology minister Paul Scully, "urges caution on AI 'Terminator' warnings" according to a BBC report: "If you're only talking about the end of humanity because of some, rogue, Terminator-style scenario, you're going to miss out on all of the good that AI is already functioning" (Vallance, 2023). *The Terminator* analogies were also criticised on other grounds, namely, that they distracted from the more immediate issues of regulation. For example, a number of researchers whose work was mentioned by the FLI and CAIS open letters took issue to how their work was framed. Shiri Dori-Hacohen, whose research was mentioned in the FLI letter, decried the far future focus, and accused the letter of overly highlighting 'Hollywood' issues. Her work argues that AI already poses a serious risk due to its potential influences in decision-making in relation to climate change, nuclear war, and other existential threats. Responding to the letter, she argues that "AI does not need to reach human-level intelligence to exacerbate those risks. . . There are non-existential risks that are really, really important, but don't receive the same kind of Hollywood-level attention" (Coulter, 2023).

Sandra Wachter, a professor of technology and regulation at Univer-

[1] The US air force has since denied that this happened (Monaghan, 2023).

sity of Oxford, went as far as to label the doomsaying open letters of the CAIS and FLI as "publicity stunts" to attract money (Reynolds, 2023). Speaking to *The Independent,* Wachter argues that the probability of the Terminator scenario is "close to zero" and "a science fiction fantasy that distracts from the issue right here right now. The issues around bias, discrimination and the environmental impact." She continues:

> The whole discourse is being put on something that may or may not happen in a couple of hundred years. You can't do something meaningful about it as it's so far in the future. But bias and discrimination I can measure, I can measure the environmental impact. It takes 360,000 gallons of water daily to cool a middle-sized data centre, that's the price that we have to pay . . . . It's a publicity stunt. It will attract funding.

Indeed, Wachter's suspicion about these letters actually serving to drive investments into the AI industry are well considered in relation to Elon Musk's role in this debate. It is worth noting first that Musk may have had indirect influence on the conversation given that he was a founding donor of FLI. However, he also directly careened through the conversation in fits and starts, spreading apocalyptic warnings about "the Terminator future" across hosts of publications (Milmo, 2023). With AI fears thus stoked, Musk eventually announces that he – and his newly formed company x.AI – will avert such scenario through the development of a 'maximally curious' AI. He names this AI Grok in reference to a different SF text, Heinlein's *Stranger in a Strange Land* (1961), where the neologism roughly means to understand something instinctively and thoroughly. This same AI would go on to generate different kinds of headlines when it, in June 2025, it began referring to itself as 'MechaHitler'.

It is worth noting that *The Terminator* was part of these conversations prior to this flashpoint. Before the 2023 reference storm, we can see that that franchise already had a significant role to play in the discursive culture surrounding AI, particularly where it overlaps with 'lethal autonomous weapons' (LAWS): that is, weapons and weapon-systems that search-for and engage targets without a human operator. Political scientists Watts and Bode have notably covered uses of the film franchise far beyond the headlines captured by this article: their 2023 paper covers references in media, policy documents, arms industry literature, and more. They note, for example, that "the media coverage given to LAWS

regularly features images of metallic silver skulls with piercing red eyes," and that "Terminator references also appear in the informal conversations between participants at the United Nations Convention on Certain Conventional Weapons" (p. 108). The franchise, they argue, has clearly entered what they term our "sociotechnical imaginaries" concerning killer robots. Moreover, it is not solely drawn on in arguments *against* LAWS. They note that *Terminator 2: Judgement Day*, which features a re-programmed T2 unit as a loyal, unstoppable and suprahumanly accurate protector of humanity, is drawn on to advocate *for* LAWS as part of an opposing 'machine guardian' imaginary (p. 122).

We can also see earlier evidence that the films were considered the wrong example for such conversations, as Wachter suggests. In 2022, Stuart Russel called on journalists to resist the lure of *The Terminator* analogies and imagery. Like Watts and Bode, his focus is on AI as it relates to lethal autonomous weaponry. Speaking to CBC's *IDEAS*, he decries that "Many films such as *The Terminator* would have you believe that spooky, emergent consciousness is the problem. If we can just prevent it, then the spontaneous desire for world domination and the hatred of humans can't happen" (*CBC Radio*, 2022). He does not, however, denigrate SF's capability for providing more relevant examples, as he suggests that we redirect our attention to more likely scenarios: specifically, the "Hated in the Nation" (2016) episode of *Black Mirror*, which features killer robot bees whose deadliness is not affected by their lack of higher consciousness. Indeed, Russel's conviction on the power of SF to determine these narratives resulted in his collaboration with the aforementioned FLI to produce the 2017 SF short film *Slaughterbots,* which presents a similar story, and – he argues – has successfully directed serious attention to anti-LAWS projects.

Conclusion: The Seriousness of Spectacle

The *Terminator*'s unusual role in this ongoing debate is one of the clearest examples of why I specify that seriousness is a *problematic* for SF, rather than a problem. While I could, with a professional interest in the genre's valuing, also claim that SF's struggle to gain and maintain serious attention is a problem in itself, shifting the framework to the conversations in which seriousness is debated proves more generative. In *The Ter-*

minator's case, there is a nexus of concerns with the public attention given to the text that have little to do with the text itself. It is not an aesthetic disagreement that leads to Wachter and Russel's concerns about the seriousness with which it is being taken, but rather a mismatch between the AI concerns that drive the film's plot and those faced by us today.

There is relatively little commentary in this debate on the film's *aesthetic* affordances for serious attention. Dori-Hacohen's aforementioned comments, which bemoan the distraction posed by 'Hollywood' problems, are perhaps suggestive of a perceived mismatch between the sensibilities of an SF action-film and the details of technological regulation. However, it is the elements that may be considered, by certain academic assessments, to actually lower the film's worthiness of serious attention that have resulted not just in its popularity, but the resonant sticking-power of its core images, and their affective influence on AI in our shared imaginary: the over-the-top, camp implacability of Schwarzenegger, and indeed the actor's own physique and physicality; the silver skulls and red-glowing eyes of the T2 units that Watts and Bode find proliferating in LAWS literature. And so on.

The film's spectacular nature is often sidelined in SF's studies discourse, to the extent that spectacle can seem to denature a text's perceived seriousness. However, spectacle is clearly a lightning rod for serious attention, even if it is given in protest. *The Terminator's* relevance to AI debates – while well contested by Wachter and Russel – remains in its ability to capture and influence attention: not just through its thinking-through of the dangers of emergent AI and LAWS, but the spectacle with which it endows these issues. Again, attention to the framing also draws attention to the tension between the text and the multitude of cultures in which it is discussed – academic, fan, media – which critically imbue the text with differing types and degrees of attention, in which the text's seriousness may rest on quite different grounds.

To recontextualise the above within the broader strokes of literary seriousness, I would argue that SF studies may, at times, neglect attention to narrative characteristics that result in a text being taken seriously, or being broadly influential, such as spectacle. As it stands, while we have a hundred renditions of cognitive estrangement, we have paid comparatively little attention to understanding, in a taxonomic fashion, how SF texts

become *spectacular*,[2] and the epistemic consequences of the same. For example, why do certain images become culturally and affectively 'sticky'? How might texts that we do not take intellectually seriously yet infuse strong emotional affects into our imaginaries? As I more fully explicate in Kavanagh (2025, pp. 15-16), the dearth of attention to such issues may be due to the sidelining of wonder by early SF studies. Thus, we would be well served, in such analyses, by exploring the wider role of wonder in SF, and, indeed, its neighbouring 'awe emotions' which, in their arousal by scale, magnitude, and the ensuing feelings of smallness that such inculcate, would seem to be key to understanding these effects.

[2] Csicsery-Ronay (2008) is a notable exception here.

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Virtual and Space Communities as Utopias

by Teuvo Peltoniemi

Abstract

This essay explores the evolving relationship between technological development and utopian ideals, focusing on the emergence of virtual and space-based communities as modern manifestations of utopian thought. Historically, utopian experiments have sought to improve the human condition by reforming society, often in isolated terrestrial settings. Today, digital technologies, virtual reality, and the Metaverse offer new platforms for building intentional communities without geographic constraints. These virtual spaces replicate many features of traditional utopias – shared values, creative freedom, and a sense of togetherness – while raising new concerns around identity, surveillance, and infrastructure. However, purely digital utopias remain incomplete due to human physical needs, pointing toward hybrid communities that integrate both real-world and virtual dimensions. The essay also addresses space colonization as a future-oriented utopian vision. Drawing on examples such as Biosphere 2, L5 space cities, and the International Space Station, it examines the challenges and motivations behind space settlement – from ecological crisis mitigation to techno-capitalist ambition. Ultimately, the article argues that hybrid and space-based communities represent a continuation of humanity's age-old utopian impulse – now reimagined through the lens of advanced technology. Whether these visions are realized will depend not only on innovation but also on ethical governance and human adaptability in both digital and physical spheres.

Keywords: Technological Utopianism, Virtual Utopias, Metaverse, Hybrid Utopian Communities, Space Colonization.

Introduction

This article is an essay that discusses the connection between technological development and utopias, and whether utopian communities could exist in the future in virtual form on earth or in outer space. The division of labor and interaction between humans and machines is one

key topic. In technological utopias, we dream of achieving utopian kind of perfect life and improved quality of life through science and technology. Humans themselves could be modified so that diseases no longer exist and people could live indefinitely. Humanity, technology, and nature would reach a state of perfect balance, where wars and crime no longer occur. New inventions are often first expected to be utopian, but at the time of their realization, related dystopian fears also emerge.

Utopia and its antithesis, dystopia, are often associated with technological concepts. Many advances in technology were once considered utopian – something impossible to achieve – but become reality over time. This includes almost all major inventions in technology and medicine since industrialization. The list is long: printing press, nuclear power, rockets, satellites, plastic, genetic engineering, heart transplants, airplanes, television, computers, mobile phones, the internet, social media, vaccines, antibiotics, organ transplants, and artificial intelligence. Some were hoped for; others couldn't even be imagined in advance (Cowles & Scribner, 2009).

Digitization in Everyday Life

The information society since 1980s was first thought to change completely everything in the world, but the later stock market crash in technology stocks brought people back to earth. Today, similar expectations are tied to the virtual world mainly to development of artificial intelligence (AI). The worst predictions about the digital world did not come true, but life did not return to the old ways but evolved into something shaped by irreversible digital services. In Tiimi magazine in 1996, I wrote how the new digital technology "perhaps complicates life at first, but soon becomes easy to use, and its advantages are so obvious that life becomes difficult for those left behind." A similar process likely applies to newer technologies like AI as well. New technological tools are quickly becoming an integral part of everyday life, as shown by the rise of artificial intelligence. Despite its pros and cons, the biggest social change it brings is that the service society has largely shifted to a self-service society – unless robotics and automation later return us to traditional services. The COVID-19 pandemic accelerated digitalization. Remote work and online shopping became widespread. These new working models may become

permanent, and office buildings may start to empty. Developments in artificial intelligence and virtual functionality gained momentum. (Castells, 1989; van den Boomen, 1998; Peltoniemi, 1996; Rheingold, 1993).

Technoutopias – Sustainable Technology and Climate Change

Since the Club of Rome's report, sustainable technologies have been developed with the hope of also addressing climate change. Both small and large players have turned their focus to solving climate problems. Even eco- and intentional communities have begun adopting previously skeptical technologies. Space colonization has started to attract interest – from billionaires aspiring to be pioneers, and from those who see it as necessary life insurance for humanity should Earth become uninhabitable (Meadows *et al.*, 1972; Wahlström, 2021; Eskelinen & Lakkala, 2024; Hahamovitch, 2021; Peltoniemi, 2023).

Virtual Reality and the Metaverse

Historically, people have escaped into partial virtual realities through dreams, meditation, substances, literature, and theater. Today, virtual reality offers a far broader and more immersive escape. Computers now create artificial environments for all the senses. The rise of virtual games and media has raised concerns about immersion and addiction. Facebook is likely the world's largest virtual community – though perhaps not yet utopian. Virtual reality remains mostly game-centered for now, but many of us are also part of other online communities. Some loosely, others so deeply that it resembles living in a bubble (Benedikt, 1991; Aronowitz, 1996).

The Metaverse was heralded as the next evolution of the internet – blurring the line between physical and digital worlds. It aimed to replicate the physical world virtually to enable deeper social interaction. In 2022, Spain's expat Olive Magazine published an article titled "Digi Daft" about the "Uttopion" company which was selling virtual real estate in the Metaverse. With thousands of pre-orders priced from 2,000 to 20,000 euros, each plot included a virtual house. Users could meet friends via avatars, run virtual businesses, and create unique experiences

for customers. The Olive Magazine headline reflected public skepticism. As is often the case, the first media stories about the Metaverse were filled with hype. Facebook CEO Mark Zuckerberg believed strongly that the Metaverse would replace the mobile internet and even renamed his company Meta, investing tens of billions in development. Only a few years later, the hype started to fade. In 2022, Tekniikan Maailma magazine already expressed caution, and by 2025 Helsingin Sanomat newspaper described the Metaverse as a "billion-dollar screw-up" (Parfitt, 2022; Heiskanen, 2022; Westrén-Doll, 2025).

Old Terrestrial vs. New Virtual Utopian Communities

Traditional utopian communities and virtual ones share many similar elements. Historically, such communities often formed around a charismatic leader and sought to reform religion, governance, politics, family structures, and education. All these can also be reimagined in virtual communities, although leadership and power may be more fluid and decentralized online. Also virtual communities might range from being strictly moderated to fully democratic or even anarchist. In principle, freedom of expression could be greater than in real-life communities, but in hierarchical online groups it can also be more restricted. Issues of identity – such as diet, medicine, or sexuality – may play a smaller role virtually but still remain relevant. Many traditional utopian communities aimed to isolate themselves physically or socially. They lived by their own rules as long as they didn't conflict excessively with broader society. Some even chose remote geographical locations for this purpose. Today, it may be even easier to build an isolated bubble in a virtual setting.

Many traditional utopian communities aimed to create new models for society – and to inspire the rest of the world. In virtual environments, missionary work might even be easier due to access to broad communication networks and digital tools. Messaging can be based on facts – or on manipulation, mass psychology, and even cyberattacks, mimicking both the best and worst tendencies of social media. Even if a virtual utopia is only a "semi-community," individuals can still meaningfully participate – developing themselves, shaping the group, or influencing real-world societies. For some, cyberspace offers a better world that doesn't require strict personal commitment.

Regardless of location, any community depends on shared values, commitment, and a sense of togetherness. Internal cohesion and spiritual fulfillment must be maintained. There's also a need to manage new member recruitment and pass on traditions. It's no surprise that many people see virtual communities as utopias in themselves. In theory, they are open to everyone – independent of time, place, language, or identity. But this is an idealized image: access to information is often restricted by paywalls, privacy is compromised, and participation relies on energy-intensive infrastructure. Nonetheless, people participate in various online communities – some loosely, others so intensively that they inhabit a parallel digital existence.

In many respects, a virtual utopian community resembles traditional or intentional (eco) communities. People might transfer as much of their daily lives as possible into the virtual realm, striving to live according to shared values – secular or spiritual – in pursuit of a better world. As in physical communities, virtual ones may provide space for creativity and expression – perhaps even more than their terrestrial counterparts. Yet limitless freedom can also mean vulnerability to surveillance, data harvesting, and addiction. When that happens, the virtual utopia may begin to resemble a dystopia – something not unfamiliar from historical utopian experiments. (Kanter, 1972; Peltoniemi, 2024, Kamińska, 2020; van den Boomen, 1998).

Is Hybrid Virtual Utopian Community Possible?

There is one fundamental reason why a virtual utopian community cannot be a complete image of its terrestrial community. People cannot live entirely in a virtual utopia because humans need food, physical security, health care, etc. So virtual utopian communities must be hybrid – "semi-utopias" that extend further than traditional models but are incomplete. In theory, hybrid virtual utopian communities could exist. Whether they will emerge in practice remains uncertain. If metaverses become more common, such communities may appear quickly – there is likely a pool of idealistic, tech-savvy individuals ready to join.

Artificial intelligence would help to model hybrid communities with existing info from old utopian experiments and the new intentional communities. In the hybrid versions, members would live in their terrestrial

community or in their homes on Earth, while their digital twins interact in virtual worlds where members are represented by avatars and where everything that is happening on Earth is reflected to the virtual utopian community. Hybrid models naturally raise many questions: Would members feel stronger or weaker commitment and togetherness? Would communication be easier? What about the cost and maintenance of the required digital infrastructure? Would this simply be another isolated bubble?

Could we soon see groups of digital utopians living dual lives – one physical, one virtual – rather than fully relocating to intentional communities? After the failure of Zuckerberg's Metaverse, interest in building fully virtual utopian communities may seem diminished. However, other forms of virtual communities are still growing. The Metaverse might have been a prototype – too commercial, too early. Perhaps newer AI tools will support the development of Metaverse 2.0, offering a more meaningful model for smaller or ideologically motivated utopian groups.

Whether this remains a utopian dream or becomes reality is yet to be seen. According to a ChatGPT search in June 2025, there are no widely known, fully functioning utopian or ecovillage community having a "virtual twin" or metaverse extension. There have been some pilot projects and small experiments, but high costs and complex technologies remain obstacles. Some intentional communities even resist digital technologies entirely. "But the trend is clearly growing," ChatGPT estimates. (Peltoniemi, 2023).

Space Communities as Utopias

One concrete part of future technological utopias relates to outer space. Earth will eventually become uninhabitable – due to natural or human-made disasters, or simply over time. Although this may seem distant, overpopulation and ecological crises already make space colonization more relevant (Karhu, 2016; Wahlström, 2021; Valtaoja, 2019).

Science fiction is full of utopias and dystopias. Space utopias often serve as abstract expressions of hope, as seen in the long tradition of science fiction. In Finland, space utopias were a popular form of youth literature starting in the 1930s. One that remains vivid in my own memory from school days is Messenger of Sirius, by Osmo Ilmari Lampinen. Space

utopias also appear in art and design. At the 2004 Venice Architecture Biennale, one project (Allobio-utopia) combined information technology with biotechnology. Another, Global Cassus, imagined humans living inside a transformed Earth. Similarly, the Koreshan Unity in Florida, believed that people already live on the inner surface of the Earth, a belief they tried to prove with trigonometric measurements (Wynne & Knetsch, 2016).

Biosphere 2

NASA and others have searched for habitable exoplanets using telescopes like TESS, Kepler, and James Webb. While many candidates have been identified, they are too distant given current space travel technology. Still, they serve as theoretical sites for future utopian communities.

Meanwhile, research has focused on how to survive in closed environments such as the Moon or Mars. One famous experiment was Biosphere 2, built in Oracle, Arizona, from 1991-1993. Funded by billionaire Edward Bass, the $200 million facility was a closed ecosystem with food production, waste recycling, and energy from natural gas. However, the first two missions faced major problems – including food shortages and oxygen imbalance. The second mission was interrupted due to a management conflict. Other smaller experiments continue, such as Biosphere 3 in Krasnoyarsk, Russia, and ESA-MELiSSA in Barcelona, Spain. (Nikkanen, 2019).

Space City Plans

Many space utopias focus on colonizing celestial bodies. One of the first scientifically grounded concepts was the "L5 Community" – a massive, solar-powered habitat for 10,000 people at a Lagrange point where gravitational forces are balanced. The idea was developed by Princeton professor Gerald O'Neill, who was inspired by the Club of Rome's warnings about Earth's future. In 1975, Carolyn Meinel and Keith Henson co-founded the L5 Society to promote the vision. The L5 community was seen as a sustainable city in space, free from pollution and urban problems – inhabited by independent pioneers, like in American frontier my-

thology (Crang, 2000; Meadows et al., 1972).

Space Stations

To date, the only continuously inhabited place beyond Earth is the International Space Station (ISS), orbiting at approximately 400 km. A joint effort by the U.S., Russia, Japan, Canada, and ESA, the ISS has been occupied since 2000 and is funded at least until 2030. Future cooperation with Russia is uncertain due to the war in Ukraine. Many of the benefits – like satellite communication and GPS – became apparent only after implementation. In 2020, Elon Musk's SpaceX sent astronauts to the ISS, marking the U.S.'s first manned orbital launch since 2011. Musk's Starship rockets are being developed for Moon and Mars travel, potentially carrying 100 people at a time. Musk envisions a permanent Martian colony, even if it means a one-way trip. Amazon's Jeff Bezos also pursues space settlements through Blue Origin, aiming for orbital habitats and commercial space travel (Hahamovitch, 2021).

Conclusions

In exploring the interplay of technology, virtual reality, and the age-old human quest for utopia, it becomes evident that our aspirations for utopian communities have not vanished – they have instead shifted into new realms. Technological progress continues to serve as both an enabler and a challenge, offering tools to address existential threats like climate change, while also raising concerns about over-dependence, surveillance, and social isolation.

Virtual spaces – from early online forums to today's emerging metaverses – illustrate how digital environments can replicate many elements of utopian ideals: open access to information, borderless communication, and creative freedom. Yet they also expose the limits of a purely digital existence, since no virtual community can fully satisfy our physical and social needs. In this sense, virtual utopian communities would rather be semi-utopias as they extend human connection and experimentation beyond the constraints of geography but cannot wholly replace embodied life. At the same time, the idea of settling space remains an ultimate

technological utopia. Projects like Biosphere 2, space stations, and visions of Martian colonies highlight how humanity continues would test the boundaries of survival in closed, self-sufficient systems. These experiments remind us that whether on Earth, in orbit, or in cyberspace, the dream of a 'better world' demands a balance between imagination and practical limits.

Ultimately, the rise of possible hybrid utopian communities – blending terrestrial living with immersive digital or even extraterrestrial extensions – suggests that our utopian experiments will grow more diverse, fluid, and interwoven with technology. Whether these ventures succeed will depend not only on innovation but also on our collective capacity for trust, resilience, and ethical governance in both virtual and physical domains.

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Robots, androids, cyborgs, sentient computers, and other products endowed with human-like intelligence have crowded and still crowd popular culture. The advent of a new digital understanding, achieved by the development of forms of artificial intelligence, has rapidly transformed human society, becoming an increasingly widespread everyday presence. Popular culture has always played a key role in helping people understand these and other complex situations: it provides tools for resistance, as even the darkest narrative can invoke awareness, mobilization, challenge to the status quo, and imagination of a utopian future. Therein, the posthuman represents a dream and a nightmare, a possibility of progress and a sentence, a medium of freedom or an act of exploitation. It embodies both an otherness to be embraced and an enemy to be feared.

How do novels, short stories, films, television series, comic books, video games, and other hybrid narrative forms depict the relationship between humans and artificial intelligence and what solutions do they propose in this regard? How do the concepts of posthuman and transhuman shape culture and the collective imagination? How have speculative fiction, science fiction, and fantasy changed during and after the advent of machines and algorithms in our everyday lives and what impact have they generated on the world around us? These are just some of the questions addressed in the essays in this special issue of *Futuri*, based on the international conference *Electridreams*.



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