

Can the prescience of Blade Runner engender a deeper understanding of our relationship with AI technology?

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Abstract. This article explores how, in the 1982 film Blade Runner (directed by Ridley Scott), some preeminent creative minds predicted a future which increasingly reflects the realities of our age. The research outcome is multidisciplinary in perspective, drawn from interviews with the filmmakers as well as with thought leaders in Artificial Intelligence, Classics, Engineering, Ethics, Philosophy, Robotics, and Theology, and is, in part, influenced by the seminal work of Alessandro Portelli. The author has also structured the article by applying some of Jonathan S. Feinstein's models of creative engagement in exploring the intricacies of creative and innovative work in the arts and sciences, as developed in his book *The Nature of Creative Development* (2006). The article contributes to the debate about the numerous contentions within the text which it seeks to clarify, as well as to the debate about the nature of creative work and the extent to which the visionaries involved could benefit from a cross-pollination of ideas between disciplines. **Keywords:** AGI, bioengineering, biotechnology, ChatGPT, computation, cognition, consciousness, cyborgs, DeepMind, Philip K. Dick, ethics, evolutionary robotics, Geoffrey Hinton, Ray Kurzweil, LaMDA, Elon Musk, neuroscience, replicants, singularity, Alan Turing, Xenobots.

1. Introduction

Blade Runner might just be a film, but it also set up the laboratory of today, which allows us to explore a broad, diverse range of hypotheses about frontier technologies and what they could ultimately mean for humankind.

This essay explores how, in the 1982 film Blade Runner (directed by Ridley Scott), some preeminent creative minds predicted a future which increasingly reflects the realities of our age. The research outcome is largely in the form of an oral history study consisting of unstructured interviews with the filmmakers as well as with thought leaders in Artificial Intelligence, Robotics, Philosophy, Ethics and the Classics. When Blade Runner premiered in theatres on June 25, 1982, it was a box office flop. Since then, it has become one of the most influential science fiction, or “futurist”, films made. More than 40 years after its premiere, the film continues to impress viewers, scholars, and critics with its prescient portrait of societal decay, juxtaposed against advanced technology, which foreshadows ongoing advancements in artificial intelligence, machine learning and robotics.

The entry point for this essay is provided by Ivor Powell, one of the film's producers. “The world that we painted is virtually knocking on the door of this world that we're in now. It's



extraordinary and that's another thing that I find slightly uncomfortable about now, is that I suddenly find myself in this world because I always loved science fiction.”¹

His statement frames the impetus not only to seek a deeper understanding of the creative process applied by those tasked with the evolution of the film's narrative, but also their change of perspective over the last forty years. This central theme will continue to be explored throughout the essay.

The core of *Blade Runner* revolves around the character of Rick Deckard (played by Harrison Ford), a gun for hire who tracks down mutinous Replicants² for a living and murders them. Deckard is compelled by his former employer, LAPD police captain Harry Bryant (played by M. Emmet Walsh) to “retire”³ a recent pride of Replicants who have killed 23 people to return to earth and extend their lifespans. Led by Roy Batty (played by the late Rutger Hauer), we are left to decide whether the Replicants are mass murderers or freedom fighters. With only hours left to live, Batty targets their three creators: Eldon Tyrell, J.F. Sebastian, and Hannibal Chew, to force them to extend their lifespan. When they assert their inability to fulfil this request, Batty retires them. Meanwhile, Deckard's personal conflict ensues, when he meets Rachael (played by Sean Young), the biological android who initially does not know she is a Replicant. His self-hatred and distaste for these “machines”, when impacted by his ensuing love for Rachael, guides the main character arc for the role.

Admittedly, we are already witnessing a certain ennui de AI. The roots of its technological development are now at least 75 years old. We are overwhelmed by the number of articles, books, and contentious interviews on the implications of this latest “paradigm shift”. Highly educated and experienced engineers repeatedly compete with each other to predict the technology driven societal changes that await us in the next five, ten, twenty or more years. The tendency to over-promise outweighs what can be delivered.

Strangely, few of the same engineering thought leaders question the Wizard of Oz paradigm in all of this. Most of the current research takes place on the campuses of immensely powerful multi-national companies such as Google, Microsoft, Apple, Amazon, Tesla etc. All of which are given to being monopolies. Over the years they are jointly responsible for thousands of competitors either being put out of business or absorbed by them. They can finance the campaigns of politicians who are meant to protect people from abuses of power. No one knows what is going on behind these corporate veils. As this essay will explore, amongst many others Wendell Wallach, the Emeritus Chair of Technology and Ethics Studies at Yale University's Interdisciplinary Centre for Bioethics is one of the scientists to voice concerns about the status quo.

Do we trust the likes of Zuckerberg, Bezos, Musk, Pichai, Cook, etc. to altruistically evolve this technology? If not, then why have we allowed them to amass this degree of power? Does *Blade Runner* foreshadow a possible outcome through the Tyrell corporation? Eldon Tyrell, a self-appointed God, responsible for creating life and taking it, on his own terms and without any oversight.⁴

The truth is that nobody really knows what is going on. Adrienne Mayor, a classics professor at Stanford University, makes the case in her 2018 book, that some of our best thinking about Artificial Intelligence and Robotics was done by the Greeks, 2,500 years ago.⁵ In *Gods and Robots: Myths, Machines, and Ancient Dreams of Technology*, Mayor chronicles how ancient Greek, Roman, Indian, and Chinese myths envisioned artificial life, automata, self-moving devices and human enhancements. Is technology finally catching up with the imagineers of lore?

Regardless of whether Ray Kurzweil's "singularity" is closer or further away than anticipated, Blade Runner's polysemous narrative has launched a thousand cross-disciplinary conversations, revolving around the broader topic of our flawed understanding of personhood. These conversations continue to expand in their critical mass to address some of the most vital concerns of our time.⁶

This essay initially highlights the practical realities of the science depicted in the film. It also draws connections from the film to ongoing research at the frontiers of technology and embodied intelligence that explore whether the Replicants, as portrayed in the film, could become a reality. It must be emphasized that the Replicants of Blade Runner are described as man-made, entirely biological humanoids with para-physical capabilities. They are virtually indistinguishable from humans. In consequence, the areas of science touched upon in the film are: biotechnology (specifically, stem cell biology), bioengineering (synthetic organ production) and neuroscience.

Subsequently, the essay touches on the broader philosophical landscape which depicts how the film's prescient narrative can guide us in our understanding of the fluid relationship we have with technology. This encompasses observations from multidisciplinary sources about the film's deeper meanings relating to spirituality, human consciousness, psychology, and ethics.

2. Artificial intelligence and robotics

Two decades after Blade Runner premiered, Kurzweil (2005) observed that technology will increase the speed at which we make discoveries and inventions in the field of human-computer interfacing until we reach a point of no return, where we will have created something that will outsmart us and eventually become the dominant intelligence on this planet. There are two, if not more, positions on most questions about technological innovation: a skeptical one and a celebratory one. We will now explore how these two positions developed with regards to artificial intelligence, starting with the celebratory one that critics, who are driven by the zeitgeist, often see as dystopian and dismiss with antipathy.

Would a world run by ChatGPT, and various androids necessarily lead to a dire set of circumstances? Could such AI driven technology not endow us with the time, resources, and capacity to enhance our existence and focus on achieving personal goals? At this time, the most potent uses of AI are classified as disembodied. While machines which try to replicate human activity are prevalent, unlike the Replicants in Blade Runner, they are not embodied. "The discussion about ethics and morality takes on a different dimension in Blade Runner," Claude Canizares, the Bruno Rossi Professor of Physics at the Massachusetts Institute of Technology, wrote. "Most, if not all, AI ethics programs deal with how AI treats humans, whereas Blade Runner emphasizes how humans treat AI."⁷

Despite the volume of opinions and scholarly observations and the expanding universe of AI-focused projects, it would be prudent to avoid certitude in drawing conclusions on technology's increasing role in the economy and our livelihoods, given that large-scale applications are still at an early stage. In consequence, the article will be restricted to these research parameters whilst focusing on the prescience of the film — not only its mandate to envisage the future, but also the possible consequences of integrated human and machine interaction.

2.1 The realities of the science depicted in Blade Runner

The key scientific areas explored in the film are biotechnology (stem cell biology), bioengineering (synthetic organ production) and neuroscience. One should be aware of the distinctions between synthetic and stem cell biology. Synthetic biology incorporates engineering to develop tools for

constructing biological systems, in which, according to the National Institutes of Health (NIH) definition, allows researchers to reprogram stem cells that are then differentiated into a specific cell type. Although it is beyond the scope of this article to engage with the latest developments in these disciplines it is possible to identify select case studies to highlight the interaction between the visionary, though largely fictional science in the film, and the current scientific status quo.

Stem cell biology: Bioartificial organ manufacturing technologies already exist to grow human compatible organs in a laboratory. Due to significant rejection rates, which impede the successful adoption of these organs, the imminent next step is to grow these with cells that can conform to the surrounding tissue.

Neuroscience: Neuropsychologist Chris Frith, an admirer of not only *Blade Runner* the film but its source material “Do Androids Dream of Electric Sheep?” the Philip K. Dick novel on which the film and its sequel *Blade Runner 2049* are based, has been influenced by the texts in his study of the neuroscience of consciousness and emotion. In a recent interview he stated that: “If you know how the brain works, you could, in principle, build something like it, using silicon”.⁸

Blade Runner features an analogous Turing Test referred to as the “Voigt-Kampff Test”. It is designed to identify Replicants through their inability to generate involuntary emotional reactions. A subject is asked emotionally provocative questions whilst his or her heart, pupillary dilation, respiration, etc., are monitored. Neuroscientists presently use a similar test. The International Affective Picture System database provides a selection of pictures, some emotionally disturbing, which are used to quantify a person's reactions. When combined with brain scans, which highlight reactions in the cerebral cortex, the test is considered a highly reliable indicator of a subject's state of mind.

Replicants in the film have a maximum four-year lifespan. The creative entities responsible for the *Blade Runner* narrative argue that if the Replicants were to live longer, their emotions would evolve to the extent that humans could no longer control these androids. Accordingly, the Nexus-6 Replicants in the original *Blade Runner* film in 1982, were issued with fake memories in the form of “family photographs” to ground them. The Nexus-9 generation in the *Blade Runner 2049* sequel, had their fake memories implanted. Today, cognition researchers use memory implants. By various means they convince subjects that a fictional memory happened to them. These memory implants show how easy it is to manipulate a subject's memory, by reducing the differences between Replicants and humans. Let's consider an alternative view by Searle (1990) who ponders the question of whether simulating thought is the same as experiencing it. “You cannot explain a physical system such as a typewriter or a brain by identifying a pattern which it shares with its computational simulation, because the existence of the pattern does not explain how the system actually works as a physical system,” Searle (1990, p. 13) explains. “In the case of cognition, the pattern is at much too high a level of abstraction to explain such concrete mental (and therefore physical) events as the occurrence of a visual perception or the understanding of a sentence.”⁹ The philosopher John Locke believed that the continuity of our memories was the seat of our selfhood, because it is only by virtue of this continuity that we know ourselves to be the same person from one moment to the next.

Alex Sabo, a psychiatrist with the Berkshire Medical Center in Massachusetts, (2024) cites recent work by neuroscientists, Hans Panksepp¹⁰ (2009) and Antonio Damasio,¹¹ (2012), both of whom have written about the “transpecies self” and “how the self develops in three stages: 1) consciousness in body self (protoself), 2) the body self in relation to other selves, (emotional, relational, core self), and 3) finally, a sense of self in humans that feels continuous over time, the autobiographical self.” Sabo (2024) adds, “Damasio's book gets into some of the neuroscience

behind how this happens, thus fleshing out Locke's "intuition".¹² Sabo also cites that Hawkins (2021) has specified three things which should be accomplished in order to claim that machines show intelligence: continuous learning, learning via movement and the capacity for many models using reference frames to store knowledge.¹³ In terms of continuous learning, Hawkins (2021, pp.130-32) noted that machines should display flexibility, accomplished by ongoing adjustments reflecting changing conditions and discovery of new knowledge, allowing neurons to learn new patterns in forming new synapses on a specific dendrite branch in a manner where new synapses don't impact previous learned ones on other branches by learning something new that does not force the neuron to modify or forget that which it already knew.¹⁴

2.2 *Getting Closer?*

Thomas George Thuruthel, lecturer in AI and robotics at University College London, has long been intrigued by the scientific speculation in *Blade Runner*. He explained how the fictional Replicants were created in the film. The combination of advanced genetic engineering, robotics, and artificial intelligence is familiar to us now. Thuruthel laid out the process in three phases. First, the Replicants' genetic code is created in a lab, and then implanted into an anatomically correct, bioengineered body which resembles humans in every possible way. "In essence they are AI systems designed to replicate the physical abilities and intellectual capacities of humans".¹⁵ Finally, the body is programmed with the desired combination of drugs, electrical stimulation and a selected set of memories and experiences.¹⁶

Another scientist who identified as a fan of the film is Josh Bongard at the University of Vermont. He works in evolutionary robotics, computation, and physical simulation. Bongard teamed up with biologist Michael Levin at Tufts, to create the world's first computer- designed organism.¹⁷ They have created xenobots: synthetic lifeforms made from the genomes of frog cells which are much closer to the science behind the *Blade Runner* Replicants than to the cyborgs of science fiction nostalgia. Bongard and Levin's "computer- designed collection of cells" can replicate spontaneously.

The author asked Bongard if Xenobots are precursors to an entity like *Blade Runner's* Replicants. "I believe so," he wrote in an email exchange. "Indeed, the Xenobots have many creators. The frog that donated its cells for xenobot construction. The human microsurgeon who assembles those cells into a xenobot under the microscope. The AI that sent the xenobot blueprint to the microsurgeon. The supercomputer on which the AI designed the xenobot. The computer scientist who programmed the AI..."¹⁸

According to Bongard, scientists understand something by building it. But to what extent do we understand how something is built if it is designed and tested by AI? How do we control it? "If scientists understand how something works by building it, (or, I will add, by being able to write the equations that describe exactly how it works) then one can argue that we don't yet understand AI," Canizares explains. So far as I know machine learning is still a 'black box'. Then again, there is a program of AI/robotics working on personal care robots, which are intentionally designed to appear 'conscious.' Yet, I doubt if there is an 'agreed upon definition of consciousness'".¹⁹ Bongard agreed, adding, "or even if consciousness is a thing. Personally, I'm an illusionist; I don't believe it's a thing."²⁰ When asked about the possibility of using a lab-grown brain as the operating system and a hard drive as a starting point, Bongard dismissed this as not being potentially all that helpful. "We don't know whether or not other people have conscious experiences, or whether bats do, or bacteria, or rocks for that matter," he noted. "We just assume 'yes' or 'no', on a case-by-case basis. Xenobots are just one more entity about whose inner life we can only guess at."²¹

When asked whether start-up companies which are propelled by AI technologies will either plateau or reach an unsurpassable roadblock, Bongard said it would be hard to say if this could be the case. “AI is an enabler technology, like the wheel, electricity, computers, the internet...,” he added. “I’m no historian, but none of those technologies have yet to show signs of diminishing returns. We still keep finding new uses for them, even thousands of years since some of them were invented. If I had to bet, I don’t think it’s going to slow down. It’s just going to keep transforming more and more sectors of society.”²²

Scientists struggle to agree whether Xenobots are organisms, robots, or something else. Bongard suggested that we should always remember that we are not building colleagues, we are building tools. “I think our work is part of a much larger scientific trend that seems to increasingly suggest that free will, consciousness, etc., are useful illusions that ‘believing’ in them might have had some survival value, but they don’t actually exist,” Bongard explained.²³ Going further, Kurzweil and other scientists predict that it is only a matter of time for these tools to outsmart the manufacturers. What happens if we build a conscious machine by accident? In responding, Sabo (2024) says, “I would challenge the implied assumption that human nature would only build a conscious machine by accident. If a human can do something, somewhere sometime, a human will do it.”²⁴ In 2023, [Geoffrey Hinton](#), whom many consider the ‘Godfather of AI’, announced he was leaving his post as vice president and engineering fellow at Google, because of what he saw as an unresolved problem of alignment, which centers around ensuring that AI is performing what humans expect it to do in terms of providing beneficial, not harmful, goals.²⁵

2.2.1 Response and Critique

Susan Schneider recently completed a three-year NASA project on the future of intelligence and is the founding director of the Center for the Future Mind. She has long been interested in Blade Runner as well as its source novel. “We have the director’s cut of Blade Runner at home,” she said.²⁶

Like Bongard, Schneider struggles to answer the question: What happens if we build a conscious machine, by accident? “How would we even know? Maybe we’ve already done that with the chatbots. Maybe that’s why they’re so smart. We just don’t know. I’m really worried about the failure to come up with feasible tests for machine consciousness.”²⁷

In a recent meta-analysis *Consciousness in Artificial Intelligence*, 19 leading researchers needed 81 pages to conclude that after all this time we still cannot decide on a definition of the word “consciousness”, let alone come up with a test to determine its existence in AI. This raises a critical question: Why would anyone want to create a conscious machine which would likely conclude that humanity has overall been a colossal disaster? It would be impossible to control such intelligence. Why would anyone without a hubris-driven God complex want to create such a thing? And, if they succeeded, what would be the consequences for humanity?²⁸ Consequently, are we truly as close to manifesting the science implied in Blade Runner? Wendell Wallach, who has written extensively about the ethics and governance of advanced technologies told the author in an interview that “My worldview is that from a problem-solving angle, maybe these systems have general intelligence and they’re better than most school kids and maybe better in some respects than most professionals and in some areas, they are better than all of us.”²⁹ He added “Intelligence and understanding still depend upon consciousness and emotions in ways that we do not really understand, and we aren’t even looking at how to implement [them] into these systems.” Wallach, who wrote the book *Moral Machines: Teaching Robots Right from Wrong* (2008), said that until a machine is developed to handle complex ethical questions and circumstances, no one can

justifiably claim that artificial general intelligence or artificial super intelligence has been achieved reflecting on how we humans tend to keep shifting the goalposts on this question.³⁰

Regarding the film's Replicants, Wallach explained that, despite a plethora of technological advances, the Replicants (androids) in *Blade Runner* are far from becoming a reality. Such General Artificial Intelligence remains beyond the reach of extant AI systems. For now. He added that the Replicants are "really surrogate human beings" with a survival instinct. "The problem is that they are exemplifying all kinds of qualities that I don't think we have any evidence we can reproduce," he continued. "If we were creating that kind of biological system with computational brains that would be something else, but we're nowhere near creating biological systems of that nature."³¹ Sabo (2024) agrees. "We'd likely need to create biological systems that have the three layers of self-organization and consciousness that Panksepp and Damasio [whom he cited previously in this article] describe—these systems evolved over millions of years. So, how do we create something like that, that can keep learning and evolving over time?"³²

In his analysis of *Blade Runner*, Andrew Norris discusses the Voigt-Kampff Empathy Test in the film, which was designed to distinguish between Replicants and humans. However, Norris explains the test does not assess the respondent's capabilities to empathize with human beings.³³

What none of the questions do is test the ability or propensity of the test subject to empathize with (other) human beings. Part of this is surely an intentional irony, as the lives the characters in the film test this particular ability again and again—and, as many have noted, it is only the Replicants who demonstrate any real ability to empathize with suffering creatures (The test, as it is seen in the film, serves as a potent reminder that the wider natural world is dying, and that the animals with which it asks the test subject to empathize are in fact absent if not extinct) or indeed any vibrant emotional life. (Conscience too seems to be peculiar to the Replicants).

Schneider added that such tests cannot be applied to technologies such as Chat GPT, as machine learning systems have already been learning from the Internet and have facts about human consciousness. When news broke in 2022, that a Google engineer who claimed that the Language Model for Dialogue Applications (LaMDA) chatbot he developed is sentient, many scientists and ethicists disputed the claim, as a rushed judgment. Accordingly, [Giandomenico Iannetti \(2022\)](#), a professor of neuroscience at the Italian Institute of Technology and University College London, responded that even today, scientists still cannot unequivocally demonstrate consciousness in humans, and, at best, can only estimate it. He said, "we have only neurophysiological measures—for example, the complexity of brain activity in response to external stimuli," adding that researchers can only infer the state of consciousness based on external measures.³⁴

"Basically, we are really going to need something, because super intelligent AI could manipulate us," Schneider added. Like Schneider, scientists such as [Erica Darics and Lotte Van Poppel](#) believe the jury is still out on Chat GPT and similar technologies. In recognizing how such technologies could disrupt and upend the worlds of education and work as we know it, they believe we should prepare for the potential dangers but also positive outcomes. In their optimistic take, Darics and Van Poppel believe that like the machines, people will be savvier about the prompts used in GPT and other technologies. They believe that people will be much better prepared to shield themselves from attempts to manipulate or misinform us (e.g., deepfakes of Toby Walsh's Faking It).³⁵ On the other hand, Sabo (2024) adds, "that advanced AI could manipulate humans easily by identifying the degree of 'intolerance of uncertainty' in a human or group of humans and then creating the 'facts' that the group would like to believe in. This is

happening already on a global scale and has always been the purview of demagogues, fundamentalist religious leaders, and dictators.”³⁶

2.3 Approaching the Frontier of Biological Entities

Kurzweil sees the project of replicating human intelligence in nonbiological entities as “biologically inspired,” suggesting that the process of learning is chaotic but that it also leads to the development and sharpening of the cognitive objective of organizing knowledge and experiences. “The purpose of reverse engineering the human brain is not to copy the digestive or other unwieldy processes of biological neurons but rather to understand their key information-processing methods,” he writes (2005, p. 474)³⁷ Kurzweil’s peroration reminds readers and viewers of the Replicants Rachael and Batty in the film. “It is my thesis that by sharing the complexity as well as the actual patterns of human brains, these future non-human biological entities will display the intelligence and emotionally rich reactions (such as “aspirations”) of humans” (2005, p. 475).³⁸

Thinking about the ramifications of compacting computations to achieve algorithmic patterns, if we observe that AI is so much more evolved than us and doing a lot of the heavy lifting, will we still bother to go to university? Will we learn to play the piano if all we have to do is download software to allow us to play like Vladimir Ashkenazy? Schneider responded, “That’s a good point. There’ll probably be differences from person to person and culture to culture”. She added that the sudden interest in machine consciousness should make people sceptical and worried about AI. It reminded her of another science fiction thriller that came out a dozen years before Ridley Scott’s masterpiece hit the screens: Joseph Sargent’s *Colossus the Forbin Project*. “The thing that worries me is these chat boxes becoming political platforms as they connect to the Internet,” Schneider added. “I’m not sure where things are going to go.”

When the author interviewed Hampton Fancher, the lead screenwriter of *Blade Runner*, he related Batty’s perspective. “There’s contempt for humans. They say you might have created us... but look at the mess you have made of everything.”³⁹ Fancher added, “I have just about had it with this experiment.” I asked him what he meant by “experiment.” “Human beings. Homo sapiens. The genus of the Homo sapien.” he responded. “But also, all along the line, we’ve been doing *Clockwork Orange*.”⁴⁰ Stanley Kubrick’s *A Clockwork Orange*’s (1971) violent satire uncovered the psychological dangers of authoritarian societies manipulating how we exercise free will. Have we returned to Dick’s contention in *Do Androids Dream of Electric Sheep?* that humans are the real antagonists in the world?

This continual grasp for meaning is just as critical for experienced scientists as it is for the curious and inquisitive individual. “There are so many things we don’t know... I think as a true scientist, the more you find out, the more you realize we don’t know, and I always think that it’s surprising that more people aren’t troubled,” Lex Fridman, an artificial intelligence scientist and podcaster, noted in an interview with Demis Hassabis, the chief executive officer and co-founder of DeepMind. “Every night I think about all these things we interact with all the time that we have no idea how they work: time consciousness, gravity, life. These are all the fundamental things of nature. I think that way we don’t really know [how] they are to live life [and] we pin certain assumptions on them and kind of treat our assumptions as if they’re fact. That allows us to sort of box them off somehow.”⁴¹

Going further, the discussion of considering machine ethics as a game of either imitating one or another’s behaviour or by following a prescribed code of conduct in ensuring that humanoids desire to be “good people,” Ge nova, Moreno and Gonza lez (2023) contend that contrary to the notion that ethics consists primarily of adhering to accepted societal norms and conventions, “the

very seed of ethics is critical thinking, a refusal to conform to the dominant mindset.”⁴² Consequently, attempts to conflate the idea of a “moral machine” with a true ethical machine” will fall short, given several examples such as “the problem of autonomous cars should not be whom to kill, but how not to kill” (Holstein et al., 2021), or the dangers of the Moral Machine experiment being used for “normative ends and to the whole voting system approach it is built upon in addressing ethical issues” (Etienne, 2020), as it invites people to express preferences and biases “not only because humans are very bad at judging people based on appearances, but especially because it ends up being “nothing less than a direct attack on personal dignity” (Jaques, 2019).”⁴³ While imitation is a human trait, “if there is any ethical difference between doing A and doing B, that difference is not in the number of people who behave one way or another, but in the reasonableness and good will of their behavior” (Genova, Moreno and Gonzalez, 2023).⁴⁴

Wallach’s remarks about a framework for governing how the technology is used and applied, expand the points that Fridman raised. “They’re making progress but they’re also revealing that the challenges are much more complex than they ever thought. And to me that’s the critical thing,” Wallach explained in his interview with the author. “The critical thing is, you might be able to get an artificial general intelligence that’s a sociopath, but you aren’t getting something with full intelligence. Now can it do a lot of damage as a sociopath? Yes, it can, but that depends on what kind of autonomy it has. But that’s not full intelligence that will continue to be the Achilles’ heel. And it’s the same thing with biology.”⁴⁵ It goes back to acknowledging the differences between simulation and emulation, especially as being connected to the fact of having a biologically human form.

Although artificial general intelligence has not yet been realized, one could reasonably assume that something akin to the nuclear arms race during the Cold War of the 20th century is underway “because the economic gains to whichever firm or government lab invents the world’s first AGI) will be immense.”⁴⁶ Naude and Dimitri (2020) believe that a constructive path toward mitigating the risks and probabilities of a dangerous or unfriendly AGI from being developed and implement should involve public policy initiatives including public procurement of innovation, taxing an AGI and finetuning legal issues including patenting:⁴⁷

This will help to address the control and political problems in AI. Future research is needed to elaborate the design of systems of public procurement of AI innovation and for appropriately adjusting the legal frameworks underpinning high-tech innovation, in particular dealing with patenting by AI.

The narrative’s prescient vision of Replicants and the behaviour of Eldon Tyrell, the billionaire scientist, underscores the instructive value of ethical policy making to address the challenges. Existing social and economic inequalities will be widened between nations with AGI capacities once and when singularity is achieved and those nations without it will lag further behind once their counterparts leap into the technological advancements that portend elements of transhumanism and post humanism, along with the consolidation of a class of exclusively privileged humans appearing in society.⁴⁸

2.4 As seen through the glass darkly

This section reviews human consciousness from a complex spiritual perspective: “How will man handle playing God?” Historically, humans do not have an optimal track record handling what can be termed as “excessive power”. Weckert, an ethicist of science and technology, put this into context when he wrote: “the dramatic technological manipulation of humans, life, and matter is rapidly extending the scope of human control and thus thrusting humans into unfamiliar situations where they do not have the competence to make good decisions.”⁴⁹

The creative minds responsible for *Blade Runner* imagined a future, in which humans are allowed to retire androids at will. This mindset is not only exploited by the likes of Eldon Tyrell, whose corporation creates the androids, but is espoused by the average person, referring to the Replicants as “skin jobs” (a racist term). Passers-by barely flinch at seeing Replicants executed in the street. In the future envisaged by *Blade Runner*, humankind is also at ease in its consciousness of accepting these creations as slaves. A parallel can be drawn between the Tyrell Corp. and many

multinational oligopolies that are secretly working on their evolution of AI to serve their commercial and political interests. They compete to become monopolies. What happens if a company like Amazon or Google reaches that stage of growth and then appoints an AI to run the

business? If it makes disastrous decisions, who will be held responsible according to the law? (Does it give the owners a get out of jail-for-free-card? This has existential consequences for those affected, including those seeking compensation). Given that AI has no legal identity, according to

Jeannie Paterson, professor of law at The University of Melbourne, those who appointed the AI would continue to be responsible. “The real issue, though, is how the law can ever be effectively endorsed by a company with a turnover larger than the GDP of many countries,” Paterson added⁵⁰

On a different plane, Schmidt (2021, p. 142) sees Christian themed references in the film, including a dialogue exchange between Batty and Tyrell, where the self-anointed corporate “God-Father” explains that technically he cannot extend Batty’s lifespan past four years and calls Batty “the Prodigal Son”.⁵¹ Tyrell is the embodiment of the megalomaniac with sociopathic tendencies, arguably not unlike some individuals presently running companies and countries. It is interesting that in a previous draft of the film’s screenplay, Tyrell had died and been replaced by a Replicant empowered to make decisions with nefarious consequences for human society outside the Egyptian pyramid in which this Pharaoh isolated himself.

One of the more contentious discussions Kurzweil has frequently raised leads us to the writings of William Dembski, a theologian and philosopher who is also a proponent of intelligent design. Dembski (1999) argued that “attributing spirituality to machines entails an impoverished view of spirituality, and that the empirical evidence doesn’t confirm that machines can bring about minds.”⁵² In the *Blade Runner* narrative, the fatal flaws of the creators that Batty pursues are revealed. The film highlights the fate of those who fail to see the ethical and philosophical dilemmas as a scientific problem but instead as an ontological one. Dembski (1999) illustrated the argument.⁵³

If all that exists is matter governed by natural laws, then humans are machines.

If all that exists is matter governed by natural laws together with spiritual substances that are incapable of coherently interacting with matter, then, once again, humans are machines.

But if matter is merely an abstraction gotten by removing all the features peculiar to unified things, then there is no reason to think that combining it with natural laws (or anything else for that matter) will entail the recovery of things. And in that case, there is no reason to think that humans are machines.

A September 1982 review in *Christianity Today* called the film a “chilling allegory about man’s relationship to God” where a “*Blade Runner* has no designer, no higher power to appeal to.”⁵⁴ When the author asked screenwriter Fancher to set aside Mercerism and reconsider the

question about whether he saw any religious symbolism in *Blade Runner* and to also comment on the extensive writings suggesting multiple religious meanings in the film, he said:⁵⁵

I would not be surprised. The book had it. Mercerism. I am a devout atheist. I would reject any of that nonsense as far as I am concerned. I think I fooled around with some Mercerism, maybe in the first draft. Maybe not. I had no inclinations along those lines and David Peoples and Ridley also didn't, I don't think. I read that stuff before, but I've never related to it. I don't see it. There's something, you know, a sense of, in Rutger Hauer, in his performance there is something that points toward something transcendental. You know about this creature? You could call it *Frankenstein*; you can also call it something more sacrosanct and saintly.

Fellow scribe David Webb Peoples agreed when the author asked him if he saw any religious symbolism in the movie:⁵⁶

Peoples: I've never seen any.

Because Philip K Dick was intrigued by Mercerism, and many academics have written papers about the religious symbolism within *Blade Runner*.

Peoples: Sometimes these things are in there because of the unconscious feelings, just as I included stuff that made Deckard a Replicant, when I was really talking about his relationship to God. All of this stuff is mysterious.

But you are sure you did not go out of your way to insert any sort of religious symbolism in there. If somebody sees something in there...

Peoples: Absolutely, I am sure I didn't.

When the author asked production executive Katherine Haber for her thoughts on the theme, she gave the most diplomatic answer to cover the spectrum of contentions: "All these what ifs are in the eye of the beholder, which perpetuates the fascination with the film for over 40 years".⁵⁷

Despite denials by the filmmakers the author interviewed, about the complete lack of intent, there are obvious Christian symbolic visuals in the death scene that cannot be easily dismissed: the nail through Batty's hand, the dove flying into the sky at his moment of death, the crosses on the air-conditioning units. Oxford philosopher Stephen Mulhall explained the scene signified how Heidegger explained the human relationship to death, adding, that, from a humanist or even existential perspective, it highlights an "ultimate irrelevance of any distinction between human beings and Replicants which is couched in terms of the length of their respective life spans or the degree of certainty with which each can predict an end to their lives on a particular date... Replicants stand in a human relationship towards death."⁵⁸ Going further, the potentially instructive link to the Road to Damascus conversion in the Bible, during which Saul, the zealous persecutor of Christians became the Apostle Paul, is undeniable. With Batty's death, Mulhall suggested that Batty has upended the conventional representation of Christian ethics and the morality expressed in the aforementioned symbols from the Gospels.⁵⁹

The concept of slavery also acquires a further level of significance in this sense, however: at the end of Deckard's ordeal, after Roy's unexpected rescue of him, Roy offers his pupil the

following description of his experience: ‘Quite an experience to live in fear, isn’t it? That’s what it is, to be a slave.’

Arguably, the numerous biblical images seen in the film are less a matter of spirituality but more of a historical reference to the narratives in the Old and New Testaments pertaining to power issues between God (the maker) and man (his creation). The Old Testament God is given to dispatching his creations with much anger, like a potter disposing of misshapen clay figures. Even the New Testament presents us with discomfiting attitudes towards slavery. In 1 Peter 2:18: "Slaves, be subject to your masters with all reverence, not only to those who are good and equitable but also to those who are perverse." All of this likely contributed to the creation of the psychological profile of Eldon Tyrell.

It is conceivable that screenwriters Hampton Fancher and David Webb Peoples, as well as director Ridley Scott may have missed some of the more consequential ethical and moralistic aspects of Philip K. Dick’s subtext, which can either be religious and/or secular in nature. Or they might have elected to do so either for commercial or expressive reasons because such subtext readings did not interest them at the time. Dick turned to the Episcopalian Church after a terrifying “Satanic” vision in 1963 and continued to identify as a soul-searching Christian for the rest of his life.⁶⁰ It can hence be argued that the source novel “Do Androids Dream of Electric Sheep” written in 1968, was in part shaped by Dick’s state of mind, as influenced by his mystical experiences.

3. Replicant psychology: more human than human?

In 2024, the symbolism portrayed in *Blade Runner* rings with an eerily relevant parallel in the contemporary world of business management. The search for authenticity of our human nature is quintessential and universal. For example, some themes in *Blade Runner* even resonate in the contemporary world of business management. Pedro Sena-Dias at the Nova School of Business and Economics in Portugal, drew a parallel between *Blade Runner* and what he sees as management’s core challenge in a post-pandemic business world:⁶¹

Off-screen, in the real world some humans act like and/or are treated as slave-robots while others are free and encouraged to express and use their human nature. This tension, which is at the heart of the narrative, is perhaps a depiction of an ancient quest for our true human nature and a way to make sense of an inner clash between productivity and creativity, convenience and profoundness, that is often reflected in a battle for sustainability, between short- and long-term gain. This battle is as important to management as ever.

If this debate sounds familiar, it is. Our largely muddled engagement with the realm of artificial intelligence (AI), robotics and automation in general, is its present incarnation. However, *Blade Runner* also primed the landscape for the ethical and moral considerations associated with these technological advancements. Citing the scene in the film when Deckard meets Rachael for the first time at the Tyrell Corporation, Schmidt (2021, p. 61) recalled Deckard’s line: “Replicants are like any other machine: They’re either a benefit or a hazard. If they’re a benefit, it’s not my problem”. Schmidt intriguingly suggests the Deckard name intentionally referred to Rene Descartes, the 17th century French philosopher and scientist. “The basic difference of both principles’ ‘spirit’ (res cogitans), which only applies to humans, and ‘material’ (res extensa) brought Descartes to the point where he saw animals as soulless machines,” Schmidt continued. “This creates a hierarchical dualism of spirit and material i.e., between man and nature, in

association with an anthropocentric privileging, which encourages man to dominate the spirit and soulless nature for his own ends.”⁶²

In a 2013 Film Philosophy journal article, Norris discussed what he views as a narrative gap in the logic of one of the film’s scenes. He referred to the scene where Rachael, on discovering that she is a Nexus-6 Replicant, also learns that the memories of her childhood and her mother are those of the niece of her creator (Eldon Tyrell). Norris contended:⁶³

The Replicants feel, but not ‘in the human way,’ we might say. Any doubts about this are immediately shown to be unfounded when the initial interview ends with Leon shooting the interrogator in response to a question about his mother. ‘My mother? ... Let me tell you about my mother.’ The fact of being a Replicant entails its own emotional states, among them rage at being made, and not born.

The rage drives the film’s emotional currents. Replicants feel rage for being considered a disposable non-entity by other flesh-and-blood entities who are far inferior. Replicants rage at their slave status, realizing that they are relentlessly subjected to a speciesism embedded within the state-of-the-art manifestation of their creation. At the same time, Per Schelde, in his 1993 book, *Androids, Humanoids, and Other Folklore Monsters*, suggested an unexpected, yet surprisingly satisfying, alternative focal point to the film. Consider that Roy [Batty] is not even the emotional centre of the movie. That the centre is occupied by Rachael, the android who initially does not know that she is a Replicant. As Schelde explains, “she’s the one who has to grapple with the problems of self and identity ... She’s the one who has to learn, on her own, that ... she can love and be loved. Rachael, with the soulful brown eyes, has to learn to love and trust Deckard with the cold, blue ones.”⁶⁴

3.1 Moral dilemmas: living together?

In the realm of transhumanism and post humanism, a key angle has focused on the aging process, not as an inevitability, but as a manageable condition. The upper ends of stem cell research involving synthetic scaffolds suggests, that in the long run, we may no longer need organ donors, or immunosuppressive drugs. It is fascinating to think of a time when individuals will be able to get new sets of organs whenever their original ones wear out.

Kurzweil does see moral and ethical questions in a post-Singularity period that some observers contend would be defined as posthumanism. He ponders where the line should be drawn. “Is a human with a bionic heart still human? How about someone with a neurological implant? What about two neurological implants? How about someone with ten nanobots in his brain? How about 500 million nanobots?” he asks. “Should we establish a boundary at 650 million nanobots: under that, you’re still human and over that, you’re posthuman?” (2005, p. 374).⁶⁵ This, he later contends, leads to the question that AI and robotics researchers must confront: “So, again, who am I? It’s the ultimate ontological question, and we often refer to it as the issue of consciousness” (p. 384).⁶⁶ However, he differs with Dembski. Kurzweil sees this as a window for moral enlightenment, not the foreboding abyss that Nietzsche described. It is hard to extrapolate meaning from such a polysemous text without invoking the writings of Friedrich Nietzsche, particularly in considering the themes of alienation. In his book “Thus Spoke Zarathustra” (1883) the character of Zarathustra argues in favour of his concept of the *U bermensch*, as a shift away from more ethereal Christian concepts to a grounding in earth-based humanity.⁶⁷ The objective being for humans to give meaning to life on earth by, amongst other things, creating constantly evolving, superior generations. The ensuing debates are beyond the research parameters of this

article. The links to sinister eugenic concepts must, however, be addressed, in that numerous scholars have engaged with them with reference to the character of Roy Batty, who incorporates most of the prerequisites for an U bermensch.⁶⁸

Why did so many film journalists and fans of *Blade Runner* empathize with the Batty character (which Paterson suggests could be read like a theme from the 1960 film *Spartacus* or in a more modern form from the 2000 film *Gladiator*),⁶⁹ the key antagonist, seeing him as the most enthralling presence in the film? Batty is a mass murderer who kills twenty-three people as the leader of a group of off-world, rebel Replicants in order to escape to earth. In essence, viewers would be expected to empathize with Harrison Ford's character, Rick Deckard, the protagonist, in consequence of his Road to Damascus experience in which his distaste for Replicants evolves into loving one of them.

Batty can initially be seen as a freedom fighter who escapes slavery and heads for earth to confront his makers and secure more time to live. Any objective achieved by murder is ethically problematic, but if we ask ourselves how we would act in such circumstances, we can empathize, which raises questions about our own ethics. As philosopher Stephen Mulhall points out, if we fully acknowledge that slavery in human civilization destroys the individual's humanity by robbing it of its autonomy, then humans are implicated because they have denied the Replicants their capacity for humanity. Would our reaction to Batty have been different with an opening scene showing the twenty-three murders taking place? (One of the many scenes which were deleted due to budgetary constrictions). Deckard's crisis puts him on the edge of survival and, as Mulhall explains, he is reduced to the same animalistic desire to survive, "a sample ... of the texture of which all Replicants life consists, and the responsibility for that lies with every human being."⁷⁰

Once on earth, they are free to choose, not quite in a Hobbesian context, because they are subject to an external impediment, because Deckard, a representative of the law-and-order establishment, is tasked with killing the Replicants — not to arrest, jail and put them, on trial. To kill them. They have no rights. Deckard is like the local dog catcher who puts stray Replicants down, with no questions needing to be answered.

Once denied an extension to his life, Batty proceeds to kill his three makers: Eldon Tyrell, J.F. Sebastian and Hannibal Chew in a sadistic fashion. His tone is flippant as he murders them. He seems to enjoy himself. In consequence, is there really such a difference between Deckard and Batty, until the final scene of the movie? When Batty commits an act of unexpected nobility and allows his foe, the killer of his friends to live, he upsets the narrative's ethical balance and becomes the good guy (i.e., protagonist) in a remarkable turning point which distances him from macabre eugenic notions.

Schmidt (2021, p. 142) alerted the reader to the similarities found in Batty's final scenes — "Fiery the angels fell/ Deep thunder roll'd/Around their shores, burning with the fires of Orc." — before his death which paraphrase the verses of William Blake. "With Blake, the angels rise up from the earth; in *Blade Runner*, the Replicants are fallen angels, who fall out of the sky (the outer world colonies)," Schmidt noted. "Through the quote Batty identifies with the Orc, the embodiment of the striving for freedom... From the American perspective, Orc is the liberator, for the English colonial masters, however the antichrist or Satan... Batty is a rebel who rises against the godly order of the Tyrell Corporation and finally kills his creator" (Schmidt, 2021, p. 142).⁷¹

Batty's death scene is one of the most iconic in all of cinema. According to producer Michael Deeley, Hauer edited his final lines in the film, believing that the original was too melodramatic. He slashed through the original script and left us with 42 words: "I've seen things you people wouldn't believe. Attack ships on fire off the shoulder of Orion. I watched C-beams glitter in the

dark near the Tannhauser Gate. All those moments will be lost in time, like ... tears in rain. Time to die”.

Ironically, a lot of it does not make sense to the uninitiated: “I watched C-beams? Glitter in the dark near the Tannhauser Gate?” But juxtaposed against “tears in rain”, the lines appeal to our imagination. They evoke something that only the very best writers and filmmakers feel secure enough to rely on, knowing full well that whatever they present on the screen, nothing will ever surpass the power of our imaginations to amaze us. Mulhall explains that Batty’s final words allow Deckard, who watches him die, to acknowledge his death and reflect on his own authenticity:⁷²

Deckard has learned his lesson, about acknowledging others and about mortality, by acknowledging another’s death.

4. Conclusion

The ingenuity of the visionary, non-scientist, creative entities who shared their futuristic world views with us is not based on fact but on a creative vision of what the future might be and, as Wallach noted, we are nowhere near being able to create Replicants. However, before dismissing this outright, it is worth noting that each of the individuals involved came to the table having done impressive amounts of research in the sciences, humanities, and social sciences. One might ask why so many eminent scholars across the spectrum of disciplines have long been fascinated by the film and have engaged with it in different ways.⁷³

As in the film, much of the current AI research is driven by oligopolistic companies and their corporate power. Examples include Google, Microsoft, Amazon, Meta, IBM, etc. – none of them given to sincere altruism. Significant elements of each corporate entity are reminiscent of the fictional Tyrell corporation, and, as Paterson suggests, the sense of human alienation, captured in the grim scenes of Deckard in his flat.⁷⁴

In 2014, Cruz echoed producer Powell’s observations at the beginning of this essay when he summarized the status quo: “All the problems and ethical question the film pointed to in 1982 seem to become more pressing as the days go by, and as we approach 2019: environment pollution, cloning, the dehumanization of individuals, the omnipresent state of surveillance with video and image control, overpopulation, overcrowded streets, mega- corporations, lack of ethics, loss of individual rights, and so on. Therefore, the film’s predictions of future life have become a portrayal of our present.”⁷⁵

The recent evolution in Artificial Intelligence has been astounding, but as shown in this article it encompasses significant problems: 1) Scientists understand how something works by building it. To what extent do we understand how something is built if it is designed and tested by AI?; 2) We currently do not have a satisfactory test to determine whether it has reached an agreed upon definition of consciousness; 3) We do not know how to fully control it; 4) We lack the combined global will and essential resources to create adequate protective barriers to prevent bad actors from using the technology for nefarious purposes; 5) We do not know, with an acceptable degree of certitude, where it is taking humanity.

As anticipated, humanity has leapt off the cliff in hope that its backpack contains a parachute and not just lunch.

Adrienne Mayor, the classics professor at Stanford University, who made the case that some of our best thinking about Artificial Intelligence and Robotics was done by the Greeks 2,500 years ago⁷⁶, also shared with the author that she asked ChatGPT, about Greek mythology, robots, and Amazons. “It came up with anodyne, old-fashioned potted replies and then began wild guessing

and apologizing when I questioned them,” she said. “It seemed like something that lazy students/journalists might use.”

The future of humanity could be surprisingly bright if the power of AI could be harnessed to serve the best interests of people and states across the globe. However, as Wallach points out, the extant barriers to bad behaviour are equivalent to no more than a social media slap on the wrist. As long as greedy companies compete against each other and the many rogue states led by nefarious bad actors are desperate enough to empower themselves with AI to ensure their survival and cement their capacity to impose their toxic world views on other countries, the prospects are not encouraging. Nothing that Blade Runner did not warn us about, over 40 years ago.

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