ReFocus: The Films of Denis Villeneuve
Jeri English and Marie Pascal (Eds) Edinburgh University Press

Title:
MERE DATA MAKES A MAN: ARTIFICIAL INTELLIGENCES IN *BLADE RUNNER 2049*

Chapter:

> "Mere data makes a man. A and C and T and G. The alphabet of you. All from four symbols. I am only two: 1 and 0."
> Joi (*Blade Runner 2049*)

> "Once memories and dreams, the dead and ghosts become technologically reproducible."
> Friedrich Kittler (1999:11)

Blade Runner 2049 (Denis Villeneuve 2017) uses the manner with which near-future technology recreates or feigns consciousness to present a wider discourse around notions of identity, memory, and the formulation of the self and subjectivity. The franchise, which began in 1982 with *Blade Runner* (Ridley Scott), has grown to include three short film stories commissioned by Villeneuve to dramatise moments that take place after the 2019 setting of the original film and before the events of his feature-length sequel, occuring thirty years later. These include the anime *Blade Runner: Black Out 2022* (Shinichiro Wantabe 2017) and two live-action in-world shorts *2036: Nexus Dawn* (Luke Scott 2017) and *2048: Nowhere to Run* (Luke Scott 2017). Each share similar values, with the short films detailing events significant in Villeneuve's sequel and, to one extent or another, exploring the impact of technological change on society and the anchoring of individual and collective identities to digital or organic memories. This chapter considers how Villeneuve's film represents machine learning or artificial intelligence (AI) as a biocapitalist discourse that considers the philosophical and ethical impacts of real-world applications of technology and the expression of biopolitical power.

The *Blade Runner* cinematic universe is orientated around three themes; (1) the development, use, and exploitation of technology, (2) the ethics related to the deployment of this technology by members of the public and corporations, and (3) an exploration of the nature of what constitutes consciousness specifically related to artificial intelligence and bioengineered technology. In *Blade Runner 2049*, these are made manifest through two key characters. K is the ninth generation of Nexus 'replicants', organic lifeforms biologically engineered by the Wallace Corporation. K is an indentured servant of the Los Angeles Police Department tasked to track and 'retire' - a euphemism used in the franchise for the killing of earlier models of replicant. Joi, K's holographic 'companion', initially occupies K's home through a projection system and latterly explores the world through a portable 'emanator' which K obtains, freeing Joi from the boundaries of his apartment. Joi originates as an off-the-shelf artificial intelligence, though evolves from this starting entity as experiences are shared and can build upon its knowledge of their companion. This evolved state is stored either in the cloud or is shown later in the narrative to be downloaded to a local device, such as the emanator. The place of both characters in the world is determined solely through their core function – K as a law enforcement officer tasked to track down replicants and Joi's role of companion. Both find themselves denigrated by others in society, K is referred to as a 'skinjob' or 'skinner' by fellow

cops and in graffiti on the door of his apartment, and Joi is denoted as a 'product' twice within the narrative. All of the other replicants in the narrative are also in service to others – represented through soldiering, farming, or sex work. K's human boss in the LAPD, Lieutenant Joshi, observes that the world they occupy is 'built on a wall that separates kind' (Fancher and Green 2017). The fragility of this 'wall' is both physically evident – in the barrier that surrounds Los Angeles from the abandoned wastelands beyond, and in the existential space that distinguishes humans from replicants, and indeed these physical replicants from the digitally replicated, multiple iteration AI of the likes of Joi. Though unique, in that personalisation has occurred over time through her accumulated experience with K, Joi is represented as one of any number of customisable 'Joi' iterations made manifest in external shots of holographic advertising billboards, one of which directly addresses K later in the film. K and Joi's 'software', whether organic or digital, is primarily responsive to external information, gathering data to inform their primary purpose – indeed the tagline for one of the Joi billboards, seen early in the film, makes use of the tagline: 'Whatever you want to see. Whatever you want to hear.' K's Joi helpfully makes this explicit, distinguishing the organic nature of K from their own digital or binary self. Joi states that K is composed of four symbols – ACTG, representing the nucleotide base chemicals of DNA; Adenine, Cytosine, Thymine, and Guanine (Adleman 1998) - while she comprises: 'only two: 1 and 0'. In a deviation from the original script, a line is removed from the film – Joi stating: 'The alphabet of you. *And them*' (Fancher and Green 2017). This omission furthers the distance from the replicant K and his human masters, acknowledging their biological similarities but placing the philosophical implications of this onto the audience rather than into an alliance of the digital Joi and organic K.

Joi's observation reveals what Ian Campbell describes as the holographic character's place in the narrative as one of 'misdirection' (2020), in that Joi's sentience is ambiguous and appears limited to serving as feedback to K's thoughts. The audience is reminded that Joi is neither real nor physically present through visual effects applied to their represented body at regular intervals, causing the holographic image to flicker or become translucent. More importantly, and in reference to Joshi's observation of the wall that separates replicants from humans, throughout the *Blade Runner* universe this wall is more of a corridor. The distinguishing factors grasped by humans are presented not as a wall but a liminal space where the certainties of human identity are constantly being challenged by advanced technologies, and contained by testing and, ultimately, 'retirement'. In Ridley Scott's film, this is shown through an ambiguity around what constitutes consciousness, tested through emotional responses measured by the Voight-Kampff empathy test but limited by the childlike responses of the limited lifespan of the film's Nexus 6 model of replicant. In Villeneuve's sequel, the Wallace Corporations latest generation of Nexus 9 replicants understand what they are and remain obedient. The notion of consciousness remains important but is secondary to a narrative centred instead on Wallace and K's parallel searches for evidence of replicant procreation. A further layer of discourse is offered in Villeneuve's film by extending the world into a representation of another dimension of this liminal space, familiar to us from the contemporary lived experience, of the *represented* world occupied by K, and the *abstracted* digital multiverse occupied by Joi.

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Sean Guynes observes that the *Blade Runner* franchise, as in so much science fiction, presents itself as 'neoliberal dystopianism'. Guynes notes that the economic drivers of the replicants' creator, the Wallace Corporation's CEO Niander Wallace, provide a continuation of what motivated the first film's replicant creator Eldon Tyrell and his own titular Tyrell Corporation. In both films, these men are driven to terraform and colonise planets beyond Earth through the development and deployment of replicant labour. In a monologue to his replicant executive companion and enforcer Luv, Wallace explains his frustration at the Wallace Corporation's reliance on Tyrell's inefficient replicant assembly methods and his belief that this has curbed his ambition in building off-world colonies, disdainfully referring to the low number of the 'nine new worlds' occupied by humans. He is aware that Tyrell had perfected replicant procreation but notes that this 'last trick…was lost' (Fancher and Green 2017). K's search for identity then is wrapped up in a biopolitical discourse of the breeding of an enslaved people for economic gain, indirectly referencing the real-world practices of children of slaves inheriting the status of servitude from their parents and of the place of these groups to challenge such structural oppression (Brion 2014). Wallace explicitly refers to the significance of biopolitical slavery in previous Eurocentric colonisations familiar through history (2020: 145). These references to slavery are prevalent both in Wallace's diatribe and supported through the repeated use of allegory. As Syed Mustafa Ali notes, the Sepulveda Sea Wall shown to surround Los Angeles takes is name from Juan Ginés de Sepúlveda a Spaniish philospher and defender of colonialism if the Americas. Mustafa Ali explains that Sepúlveda 'argued against Dominican friar Bartolomé de las Casas that the 'New World natives' encountered by Columbus in 1492 CE were not humans, but rather animals and therefore should be treated as chattel' and argues that the sea wall serves as a 'metaphor for contemporary concerns associated with the latest manifestation of 'White Crisis' – concerns about 'rising tides of colour' (2020).

The biblical references are both explicit and implied, literal in Wallace's address to Deckard when they meet: 'And God remembered Rachel. And heeded her, and opened her womb' (Genesis, 30:22, NIV), and more obliquely elsewhere in the narrative. An inscription of 6:10:21 on a wooden horse K remembers as an incept or birth date, suggests a citation of scripture - the book, chapter and verse appearing entirely relevant: 'For our struggle is not against flesh and blood, but against the rulers, against the authorities' (6 Ephesians, 10:21, NIV). Similarly, when K searches for records of the replicant child – he discovers they suffer from a 'genetic abnormality, Galatians Syndrome' (Fancher and Green 2017). This fictional condition provides a further extratextual biblical reference, to a people freed from the burden of slavery through faith: 'But when the right time came, God sent his Son, born of a woman, subject to the law. God sent him to buy freedom for us who were slaves to the law, so that he could adopt us as his very own children' (4 Galatians, 4:5, NIV). These references do not advance the story but provide a wider context for the experience of the replicants as one seeded in *human* history, providing an origin story for them, a faith on which to hook a rebellion from bondage limited not to a handful of individuals as in the original film, but an entire people.

K's origin story forms the heart of the narrative for Villeneuve's film and extends the scope of what it constitutes to attain consciousness in the *Blade Runner* franchise. Ben Tyrer notes that in Philip K. Dick's 1968 novel, on which the films draw, that the dreams of the book's androids are more an aspiration – as much about the nature of

the pursuit of happiness via consumerism, than consciousness (2021: 14). This observation is true of *Blade Runner 2049*, in the manner with which K engages with practices of consumerism – his purchase of Joi, and latterly the emanator to lend her a form of freedom – in this case of physical boundaries of the apartment- that is held from him, in terms of the boundaries of his mind. In response to being asked if an upbringing is essential to the formation of consciousness, psychologist Chris Frith recalls a conversation with a Lacanian psychoanalyst:

> We were talking about whether machines could be conscious. He got very cross and said, "No, of course they can't," and I said, "Why not?" He said, "Because they don't have a mother." This is almost what I'm beginning to think might be an interesting point. (In Gomes 2019)

Emma Louise Backe argues this 'promise of transformation through child-bearing is a tired trope of science fiction' (2017) aligned with similarly familiar traits of the existential limits of human creation and can be traced from *Frankenstein* (Shelley 1818) through to more recent fictional production including *Black Mirror* (2011-), *Westworld* (1973, 2016-) and *Ex Machina* (Garland 2014). Indeed the wall that Joshi identifies could also be extended to gender in the narrative. K appears as male while Joi's projected self presents as female, with many of the represented female characters in some form of service role. Julie Muncy notes that this objectification of women throughout the film represents continuity from the first film, evident in Wallace's executive assistant and enforcer Luv, who shares traits with the first film's Zhora, and the pleasure replicant Mariette – who echoes Pris's role. By picking up on the world of *Blade Runner* 30 years beyond the events of the original film, Villeneuve can further advance the ideas of identity explored in the first film to consider the implications of replicant procreation, K stating the distinction between the manufactured and the physically created – 'To be born is to have a soul', he states in response to a question Joshi poses which questions the difference between such replicants. This both expands the ongoing ambition of replicants to be truly independent of their human masters, but also the risks of a technological singularity made physically manifest – as Michael Green deems a 'material transcendence, in which achieving their human control depends on them becoming more like physical humans, rather than less like them' (2019). Though this is true of the film, Calum Neill questions the validity of reading the replicants this way, suggesting that it results in an anthropomorphism where 'we read human traits into the nonhuman […] as much as we read them into the human' (2018: 222).

Mireille Hildebrandt observes that although both automation and autonomic machine learning processes rely on algorithms, the distinction between the two is that automation is static, while autonomic machine learning is 'adaptive, dynamic and more or less transformative' (2016: 57). As such both K and Joi can be determined as autonomic – or self-governing systems – where their respective bioengineering or machine learning is autonomous, allowing them the space to develop and, in some readings of Villeneuve's film, fully form what appear to be emotions from their memory whether implanted or experienced. Each of these characters satisfies Martin Heidegger's notion of 'an openness-of-being' in that both entities are present and able to directly relate to the world around them (1977), albeit through their differing forms. When K's newly gestated identity is torn from him with the revelation that his implanted memories were in service of him and other surrogates' covering the traces

of the true survivor of Rachael's childbirth, Deckard's daughter Ana Stelline, he is told that his place is to serve as 'a piece of the puzzle' by the replicant rebel leader – and witness to the Stelline's birth - Freysa Sadeghpour (Fancher and Green 2017).

Andrew Schopp notes that proponents of transhumanism such as Raymond Kurzweil (1999, 2012) commonly represent new technologies as a catalyst for change with a positive outcome or ideal (2019). Each of the iterations of *Blade Runner* aligns with common fictional transmedia representations of artificial intelligence, whether digital or biological, though still non-human, characters. Kurzweil's idealistic notions are challenged, with the films presenting the ethical and socio-political challenges of technological change – channeled through a lens of the contemporary lived experience. In doing so, such stories cast light on how and where technological change presents a *challenge* to humanity or the *experience* of being human (Schopp 2019: 66). In the original *Blade Runner*, this is represented as a search for self-identity by the principal characters Rick Deckard and Rachael. For the bioengineered replicants Deckard is tasked to hunt down and retire - Roy, Pris, Leon, and Zhora - their goal is initially more simple - to extend their artificially shortened lifespan beyond the four years from their original, and fixed, 'Incept Date', with each of these characters holding a mirror to Deckard's understanding of selfhood. In *Blade Runner 2049* these ideas of identity and artificially engendered life are coupled with philosophies of belief - in oneself, one's values, and faith in the continuity of one's world which, as Robin Bunce notes, has experienced 'ecological and societal collapse' (2017). These beliefs are anchored to subjective truths that the audience experiences in a closed narrative advanced by the discoveries of the film's protagonist K. As in the HBO series *Westworld* (2016-), both stories present an escape of the subjugated from corporate repression through faith – itself inspired by trauma and loss – where the replicants and hosts hope to jump-start their consciousness through the trauma they have experienced and, in doing so, will 'work themselves free of their subjugation' (Marshall 2019: 98).

The implications of birth, death, and grief are understood by K as the impact of his work in 'retiring' replicants, with the effects of this activity on his psyche is regularly measured by the Post-Traumatic Baseline Test that features early in the film. As K is led to believe some of his memories of childhood are part of a lived experience, rather than his original understanding of them having been implanted, he is shown to deviate in a second Baseline Test. This seed of belief, planted by Ana Stelline in his visit to the lab in which she crafts the memories to be programmed into Wallace's replicants, inspires K to lie to Joshi about having found and killed the naturally born replicant. Luv suggests later in the film that replicants should be incapable of lying to humans, though K's admission could be understood to be a form of existential truth where he is referring to himself when he explains to his supervisor: 'He was set up as a standard Replicant, put on a service job. Hidden in plain sight […] even he didn't know what he was. Someone who cared enough to give him a life' (Fancher and Green 2017). The death of K's old self is the death of his belief in implanted memories replaced and reborn by K as the child of Rachael and Deckard. Either way, K displays agency in this moment, the first step towards self-actualisation and free will.

It is interesting that K fails the Baseline Test at all, his increasing faith in this alternative identity – that he was born rather than made – creating an emotional

response in him, revealed by the test. K's encounter with Stelline reveals that faith can instill emotion in all Nexus 9 replicants, ratifying their creation myth rather than being limited by their programming or inception dates. This notion of replicant inception is referred to in the original film but shown in Villeneuve's sequel through a sequence in a room described as the 'Creche' in the script. In this scene a replicant falls fully formed to the ground from plastic sheeting, taking their first breath as they are exposed to air and inspected and eventually dispatched by Wallace by way of a scalpel cut to the abdomen. The 'retirement' of the unnamed and voiceless female replicant moments after her 'manufacture' in Wallace's creche, and the subsequent dispatch by Luv of a remade simulacrum of Rachael – presented by Wallace to Deckard, and 'retired' by Luv on Deckard's rejection – present replicants as product - disposable, characterless, repeatable – chattels solely for corporate gain. As in the original, in Villeneuve's film, the identity of the titular *Blade Runner* is initially challenged, causing K to question himself and his beliefs and seek certainty in his own memories. As K's true identity is explained by Freysa his narrative arc mirrors that of Roy Batty in the first film in that he sacrifices himself in service of Deckard's continuing life – Freysa suggesting to K that this is 'the most human thing we can do' (Fancher and Green 2017).

As the story progresses, characters explain the impact of a digital blackout following an electromagnetic pulse that had occurred over 20 years before the events of the film. The resultant crash of finance and trade markets lead to famine, ended through advancements in genetically modified food. The cause of the pulse is ascribed to replicants, who are subsequently prohibited for two decades until they are reintroduced by the Wallace Corporation with the Nexus 9, a model which has an open-ended lifespan but is deemed successfully subservient. The success of this coding sees K subjected to a 'post-traumatic baseline test', when he returns from retiring the replicant Sapper Morton in the opening scenes of the film. The test requires K to repeat a series of lines to an unseen interviewer in a room at the LAPD headquarters to determine if he has strayed from his baseline. A baseline test is typically the benchmark of performance against a known standard of reference used in science and education and replaces the Voight-Kampff test of the earlier film, in that it is no longer used to distinguish humans from replicants. Instead - though still based on measuring empathy, response time, and intonation - the purpose of the test in Villeneuve's film is to ensure replicants remain emotionally passive in their response to trauma.

The lines repeated by K are drawn from the poem at the centre of Vladimir Nabokov's 'Pale Fire' (1962). This significance of this text is underlined in a later scene where the attention is drawn to the book by its appearance in K's apartment – described in Hampton Fancher and Michael Green's script as 'well-thumbed, noted, creased' (2017) - and presented by Joi, who asks K to read from it for her. That K owns a copy of the book from which the content of the test is drawn is ambiguous but suggests an attempt to contextualise and trick the baseline test, or offers evidence of K's engagement with cultural production for its own benefit – and a search for a soul that predates his discovery of the remains of the replicant mother. Perhaps more significantly, the use and display of a metafictional novel makes explicit extratextual links to the narrative of the film - the book is written by an unreliable narrator who shifts the framing of the poem within it. This refers to drafts of the poem burnt in an incinerator, reflecting K's own memories and the replicant records destroyed in the

blackout, and the lines K repeats from the poem allude to evidence of an afterlife. The book reiterates the notion of *Blade Runner* as having what Warren Buckland has described as a 'puzzle plot' (Buckland 2014: 2-3), where David Sterritt describes playing with causality to challenge viewers with a story's structure (2016: 478). Through this framing, the appearance of the book in K's apartment suggests very early in the film that he may well also serve as an unreliable narrator for an audience alert to such extratextual subtleties.

These ideas are in line with the notion of replicants and replication within the original film. Elena Gomel suggests that if the 1982 film *Blade Runner* was to be considered revolutionary, the sequel is more reactionary – situating Villeneuve's later film in a cycle of nostalgic recycling – something that she connects with Svetlana Boym's observation of this phenomenon serving as a by-product of globalisation and late capitalism's use and reuse of existing materials (2018: 4). The film certainly folds in the influences of what came before both in terms of its diegetic and non-diegetic material. The noir aesthetic is evident in dress and lighting, its prevalent use of Nabokov's 1962 novel, and a reference to Robert Louis Stevenson's *Treasure Island* (1883) that serves as an extratextual callback to a deleted scene in the original film when Deckard visits his injured colleague Holden in hospital. It is present too in the diegetic music (and the holographic representation) of Elvis Presley seen in K's visit to Las Vegas, and the use of Sergei Prokofiev's 'Peter's Theme' (1936), which appears several times within the film when Joi is activated as a Wallace brand identifier. Self-reflexivity also extends to the non-diegetic score, where Vangelis' themes from the original film are reimagined by Villeneuve's composers Hans Zimmer and Benjamin Wallfisch, an approach that James Denis McGlynn describes as 'a primary compositional referent for their whole score' (2021). Throughout the film, this look to the past – narratively, but also in the aesthetics of sound and image - when facing the challenges created by the technological 'progress' of the present is common throughout the science fiction genre, though could be considered naïve in this context with the nostalgia serving instead as a *denial* rather than a *questioning* of the implications of technological change in the post-industrial, techno-fetishistic present day.

Indeed, in *Blade Runner 2049* Ali Rıza Taşkale suggests that Villeneuve's film represents a 'dearth of imagination' (2020) in that the death of Elden Tyrell in the first film and the subsequent bankruptcy of his Tyrell Corporation only allows Niander Wallace and his Wallace Corporation to thrive within a world divested of ethics. While K appears to understand that the purpose of the state apparatus of the LAPD is to maintain Joshi's wall, and Wallace appears driven solely by the economics of corporate growth through his ambitions towards colonisation, the ramifications of the replicant childbirth are unquestioned beyond providing a catalyst for the replicants struggle. Without procreation, the film suggests, the replicants have no rationale for rebellion. Brian R. Jacobson has described cinema as presenting a 'technocritical' role in culture through its capacity to representing stories within artificial worlds that play an important role in engaging with the 'popular discourses about technological change' particularly concerning near-future or future worlds. Writing about *Ex Machina*, he observes that the film is at its best when reflexively 'probing cinema's world-making, life-simulating capacity – and its limits – […] the medium's critical role in allowing its publics to imagine and think through the realities that science, technology, and cinema itself might make possible in a biocybernetic world' (2016:

33). Sherryl Vint suggests that this criticality does not occur in *Blade Runner 2049* however. She draws a connection between Wallace's ambition and the contemporary commodification and capitalization of life sciences, specifically genetic research and biotechnologies, where she describes 'the reorganisation of life processes on a cellular level in order to make them better serve capital' (2020: 17), specifically the capital invested by global corporations. Vint argues that the enslaved replicants and the 'life' enabled by the Wallace Corporation are not only an embodied indentured labour-power, but 'a unit of fixed capital' that serves to represent the neoliberal drive to control and commodify nature not for a wider societal good, but of capital gain (2020). Through his actions and exposition Wallace suggests that the manufactured replicants are free of the human qualities of empathy and therefore excluded of any ethical consideration. This is only challenged by the evidence of K's self-realisation beyond his formation as a bioengineered machine. It is the implication of a replicant birth through procreation that serves as the catalyst for K's self-actualisation as a conscious being rather than it being the case. Though, as K puts it, a natural childhood enables replicants to 'have a soul', the notion of this 'miracle' as having occurred is referred to by Sapper Morton early in the film and ratified in Freysa's revelations to K, serves as the establishing principle of faith for the rebel replicants. Mirroring human religious belief systems it is the replicant's *belief* in this miracle birth that instigates their faith (and, in this case, sentience), over and above any *evidence* of the event. This idea serves as a gossamer thread from Philip K. Dick's source material through Scott's film, Villeneuve's commissioned shorts and his feature sequel is that consciousness is born of faith and an engagement in culture. In Deckard's case this is evident throughout the franchise in his references to music and literature, something he commends to K when they meet within *Blade Runner 2049*.

This cult of billionaire tech personality is familiar to contemporary audiences, holding a mirror to today's 'digital dominance' (Moore & Tambini 2018) of companies including Google, Amazon, Facebook and their founders Larry Page & Sergey Brin, Jeff Bezos, and Mark Zuckerberg. Like the Wallace Corporation, the software interests of these companies have come to creep to include everything from retail, entertainment, farming, manufacture, defense, and tech infrastructure. This work is often framed as in service of society, but motivated by a capitalist discourse centered around the accumulation of capital. Like the legal and regulatory facilitators of these companies, Joshi represents the complicit enabling of figures such as Wallace, maintaining the biopolitical structures fully aware that replicants are capable of untruths and presumably have, before K's own awakening, developed emotions beyond their work-related agency, revealed in her revelation that protocols demand that K would typically be retired following his baseline test failure.

Taşkale's critique of contemporary science fiction denies the form as a technocritical art, instead suggesting that 'dystopian cinema has already accepted the currently reigning political imaginary of corporate capitalism as an inevitable part of our future' (2020: 118), reinforcing rather than challenging existing biopolitical or thanapolitical structures of racism, colonialism, and patriarchy. Hans Ulrich Gumbrecht describes the familiarity of such understandings, arguing that cinematic projections into the future occupy a philology of 'the complex present' in which representations of the future are 'occupied by threats that are inevitably moving towards us (think of "global warming", as an example)' (2015). There is much of the complex present to

recognise in Villeneuves' sequel. The toxic and decaying world, part of the background of the original film, is brought to the foreground in several set pieces - the toxic post-industrial 'trash mesa', complete with scavenging bedouins, that replaces the San Diego coastline resembles Asian shipbreaking yards such as the Bangladesh city of Chittahong. The radiation strewn Las Vegas borrows from the abandoned landscapes surrounding the Chernobyl and Fukushima nuclear plants, and where cinematographer Roger Deakins and production designer Denis Gassner acknowledged real-world influences of the Beijing smog and Eastern Australian dust storm of 2009 (Grobar 2018). In the film's climax, the impact of climate change is represented by the giant Sepulveda Sea Wall protecting Los Angeles from the 'risen ocean' (Fancher and Green 2017).

The *Blade Runner* cinematic universe presents a narrative orientated around the perception of technological change which is perhaps not as extreme as it first appears. Many of its themes are familiar to our own personal, social, economic, and political circumstances. The deployment of the technologies that characterise the fourth industrial revolution – artificial intelligence, big data, and the amalgam of physical and digital spaces – is repeatedly chastised around a lack of globally agreed ethical guidelines or regulation, while the ethics of tax avoidance form a well-reported central principle of global corporate accounting (Oswald and Babuta 2020). As in the filmic world, despite their impact on our shared environment and social obligations of the nation-state, we are increasingly reliant on such services. Despite our awareness of their power to denigrate and resist national and global regulatory frameworks, we maintain a complex relationship with the values of corporate capitalism and neoliberalism, while mirrors of the popularism and cult of personality manifest in the *Blade Runner* billionaires Tyrell and Wallace are evident in our political, cultural and business leadership.

Science fiction has long presented worlds in which mechanisation, automation, and digitisation have disrupted individual identity, as well as social and economic structures and traditions. Perhaps in the familiar positioning of so many aspects of *Blade Runner 2049* to own contemporary world and a sense of inevitability in a future dominated by corporate power, unbridled consumerism, and biopolitical influence, Villeneuve presents the audience with a choice - to become more like K, and question our relationships with the environment, understanding of society, and place and responsibilities within that society. *Blade Runner 2049* challenges us to develop our own technocritical faculties, rather than the work presenting neat solutions. We stare headfirst at the ambivalent potentiality of technologies that threaten the imposition of a totalising reduction of human beings to a stock of manipulable resources. As K is inspired to seek self-realisition and develop empathy through his encounters with inaccuracies, conflicting or incomplete information, and the subjugation of the self by corporate power enabled by weak institutions, so his realisation harbours the promise of opening up a transformed way of inhabiting the technological world more thoughtfully. Perhaps critiques of *Blade Runner* are themselves a MacGuffin, and the film themes are instead a catalyst for the audience to question the complex implications of what we do not understand - of the ethical implications of the erosion of privacy, national regulatory governance, and tax regimes together with the parallel deployment of emergent technologies such as artificial intelligence and machine learning, quantum computing, the internet of automation and internet of robotics. The lessons of the *Blade Runner* universe are to

pay more attention to the technological and global changes occurring in the twenty-first century through the mechanisms of the fourth industrial revolution, and our place within these changes as complicit enablers.

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