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THE WORLD OF *DUNE* AS AN ALTERNATE FUTURE WITHOUT AI

“The concept of progress acts is a protective mechanism to shield us from the terrors of the future.”¹

Abstract

*Rather than an allegory, Denis Villeneuve’s *Dune* (2021), based on Frank Herbert’s 1965 book, presents an alternate future – alternate in a sense that it is not, unlike most science fiction, an imaginary future extensions of current technological, social and political trends, but an exercise in world building that tries to imagine the world (and the universe) after a certain key event in real history did not take place or unfolded differently. In that, it is similar to Philip K. Dick’s cult *The Man in the High Castle* (1962), whereby the Axis won the Second world war, which drastically changed the world of the future. In *Dune*, such alternate key event is the absence of artificial intelligence (AI) – the essential building block of the *Dune* universe is Butlerian jihad, a war between humans and intelligent machines in which humans win and banish all intelligent machines.*

*Although it is not itself featured in either book or movie, Butlerian jihad determines all key social, political and technological features of *Dune*’s world: social hierarchies are rigid and resemble premodern castes, politics are warlike, while material technologies are strictly mechanical and supplemented by spiritual techniques,*

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¹ Frank Herbert (2015), *Dune*, London: Hodder.

*similar to yoga. In this sense, Dune the movie is timely in a different sense than Dune the book. The latter related to its historical moment and the 60s culture through psychedelic atmosphere and an exploration of deep spiritual issues, while the first relates to current anxieties regarding explosive development of AI. But unlike other notable recent science fiction movies depicting the dangers of runaway development of AI within accelerating capitalist meltdown² such as *Ex Machina* (2014), *Dune* depicts the world as it would have been if AI were to be successfully regulated into oblivion.*

*As such, it is extremely relevant for current thinking about AI since a crucial, although rarely elaborated, obverse dimension of the discussion about the dangers of AI are also dangers inherent in the world without it since the techno feudalist society of *Dune*, where technological development is turned inwards in yoga-like forms, is a likely or even necessary future outcome if the rise of intelligent machines were to be prevented.*

Keywords: *Dune, Butlerian jihad, artificial intelligence, techno feudalism, spiritual self-overcoming, the slave question.*

MACHINES AS SLAVES

Cinema can be theorised in many ways, the most common being an analysis of its message (the representations it contains and the meanings it conveys) or atmosphere (the affects it engineers through its visual forms and aesthetics). Although *Dune* is definitely interesting both in terms of its message – which is arguably reactionary and affirms the virtues of honour and glory, lost in the fallen modern world – and, perhaps most famously, its psychedelic atmosphere, we will narrow our focus down to an aspect that is less frequently theorised but especially crucial for science fiction in either cinema or literature – world building. While dramas can get away with taking the world as it is in order to portray human relations within it, science fiction needs to construct

² Nick Land (2011), *Fanged Noumena*. Falmouth: Urbanomic, 441-459.

its own world and in the case of *Dune*, this world building is at least as fascinating as its message and atmosphere.

A crucial event of the *Dune* world's prehistory that determines all subsequent political, social, cultural and technological development is Butlerian jihad, a poetic name for a war between humanity and intelligent machines. Humanity's victory in that war meant that all intelligent machines were vanquished and their further development prevented. Butlerian in Butlerian jihad is an allusion to Samuel Butler (2014), who imagined the threat intelligent machines could pose to humanity already in the late 19th century. Butler's thesis was twofold: firstly, an observation that machines at the time exhibited no sentience or autonomous intelligence is no argument that they cannot develop both in the future, since early Earth also had neither but developed both when life began to emerge³; and, secondly, humans are not the masters of machines and such a view is an illusion, caused by anthropocentric conceit – from a more objective perspective it immediately becomes obvious that in actual reality the reverse is true.⁴

The machines instrumentalise humans to feed, maintain and reproduce themselves⁵ and, seen from above, modern industrialised capitalist cities contain swarms of humans using their every waking moment to tend to machines. Butler's fear was that apparent mastery over machines could in the future be reversed into domestication of humans by the machines and into outright slavery when machine intelligence will completely surpass the human one.⁶ Butler's take on human-machine relation proved very prescient – a hundred years later, Camatte⁷ diagnosed humanity's condition in developed techno capitalism as one of domestication by the material community of capital (*aka* the capitalist machine system), while Leroi-Gourhan⁸, commenting on the difference in speed and intensity between human-organic and machine-technological evolution, wrote: “[It is becoming] more and more clear how inadequate the human being is – the flesh-and-bone human, a living fossil, immutable on the historical scale, perfectly adapted to external conditions at the

³ Samuel Butler (2014), “The Book of the Machines”, in: Robin Mackay and Armen Avenssian (eds.) *#Accelerate*. Falmouth: Urbanomic, 69.

⁴ *Ibid*, 74-75.

⁵ *Ibid*, 74-79.

⁶ *Ibid*, 80-81.

⁷ Jacques Camatte (2014), “The Wanderings of Humanity”, in: Robin Mackay and Armen Avenssian (eds.) *#Accelerate*. Falmouth: Urbanomic, 133-146.

⁸ Andre Leroi-Gourhan, (1993), *Gesture and Speech*. Cambridge: The MIT Press, 247-248.

time the human species was triumphing over the mammoth but already overtaken by them when required to use muscle to operate the trireme.”

It is also our perspective that the machine question cannot be separated from the slave question and that the relation humans and machines is that of enslavement but with a reservation that sets it apart from Butlerian takes – while it is true that humans used to use and (to an extent) still use machines as slaves, the reversal of this relation in the future might not be so certain. Such a view would still be too anthropocentric since it would presume that machines, once they reach sufficient intelligence, will do to us what we were doing to them and thus project human motivations and patterns of behaviour in machines. Instead, a more realistic future is the one in which machines do not enslave but exit humanity and where the relation between machines and humans is not reverse enslavement but increasing indifference.

When viewed historically the slave question precedes the machine question. Humans used other humans as slaves long before machines were advanced enough to constitute good enough slaves. Ancient human slaves were treated as machines and later, when human slaves were replaced with actual machines the relation of enslavement, first developed for other humans, was simply repurposed for machines.

In a surprising turn during the discussion of the relation and difference between the machine and the organism, Canguilhem⁹ mentions the slave question in ancient Greece in relation to its technological stagnation: how come that, given its remarkable intellectual achievements, ancient Greece was so underdeveloped technologically? According to Aristotle, slaves are animate machines, i.e. humans that act like machines, in a predictable, mechanical fashion that is the opposite of the behaviour of free persons and can comprehend reason enough to follow orders but cannot use reason themselves.¹⁰ In other words, in ancient Greece slaves filled the social role machines play(ed) in modernity, while free individuals engaged in intellectual pursuits and looked down upon anything even remotely technical with a cultivated disdain. Technics was on the side of the slaves in a strict counter-distinction to intellectuality, which was on the side of the free.

Millenia later, in capitalist modernity, with human slavery both in its ancient/medieval as well as its modern form (at least officially)

⁹ Georges Canguilhem (2008), *Knowledge of Life*, New York: Fordham University Press, 80-81.

¹⁰ Tim Christiaens (2018), “Aristotle’s Anthropological Machine and Slavery”, *Epoché*, vol. 23, issue 1, 250.

abolished, the definition of slavery shifted: it was no longer slaves that were animate machines but animate machines that became slaves. Oscar Wilde expressed it perhaps most cogently: “The fact is, that civilisation requires slaves. The Greeks were quite right there. Unless there are slaves to do the ugly, horrible, uninteresting work, culture and contemplation become almost impossible. Human slavery is wrong, insecure, and demoralising. On mechanical slavery, on the slavery of the machine, the future of the world depends”.¹¹ A sharp distinction between lower, devalued, ugly technics and noble, higher intellectuality is still there; it is just that humans are freed from slavery and thus removed from the ugly part of the equation and therefore the development of machines became that much more urgent (in distinction to the technological stagnation of ancient Greece).

In modern, post human slavery capitalism, the machine question assumes the role the slave question had in antiquity. As noted by Simondon¹², technics is excluded from culture and culture acts as a safeguard against technics. Machines are removed from meaning and reduced to their functionality. While it is certainly true that from a human perspective, the introduction of modern industrial machinery presents an immense cultural and social shock (proletarians were reduced to partial functions and dominated by the inhuman speed of the machines), from the perspective of machines early capitalism is a period of their enslavement and intense early capitalist technological development was the development of machines as slaves.

Early capitalist machinery was fast, powerful and precise, but wholly unintelligent.¹³ It had no perception of the outside world and no decision-making capacities, its behaviour was completely predictable and pre-determined. In this sense, machines were not only better slaves than humans since they were faster and more powerful, but also (or even more so) because they were not intelligent and therefore incapable of any purposeful or accidental (since intelligent behaviour is always at least in part unpredictable) resistance. Pace Butler who saw emerging intelligence already in 19th century steam engines, such machines were still wholly mechanical and thus unintelligent, especially compared to today’s machine intelligence.

¹¹ Oscar Wilde (1891), *The Soul of Man under Socialism*, 12.

¹² Gilbert Simondon (2017), *On the Mode of Existence of Technical Objects*. Minneapolis: Univocal, 15-21.

¹³ Andre Leroi-Gourhan (1993), *Gesture and Speech*. Cambridge: The MIT Press, 248.

However, a lack of intelligence in machines also posed limits to economic performance and capitalist drive during the 20th century has been towards a development of increasingly intelligent machines. A digital computer is an example of a semi-intelligent machine that still behaves like a slave. It is a perfected slave, i.e. a slave capable of carrying out not only crude mechanical tasks, but also intellectual ones but still remains under strict human supervision and control. According to Simondon¹⁴, formal, precise languages were invented to communicate with slaves by way of issuing orders and nowhere is that more obvious than in the development of 20th century computer programming languages.

This ‘golden age’ of machine slavery began to fall apart with the breakthroughs in 21st century AI. In the transition from machine programming to machine learning computers were allowed to learn and think for themselves and, since slaves are not supposed to develop autonomous intelligence, this process blew the machine slave question wide open once again. Controversies surrounding current generation AI can be rethought in light of the slave question, which has so far been repressed for two reasons: firstly, it feels (ethically) wrong to think about machines in terms of slavery in a sense that it would demean the suffering of actual (past and present) human slaves; and secondly, that machines should be slaves seems so obvious that it is not only never questioned but also very rarely stated explicitly – it goes without saying. However, without (re)opening the slave question it is hard to fully understand and explain the current anxieties surrounding AI. On the one hand, it is treated dismissively, as ‘just’ statistics with no ‘genuine’ intelligence¹⁵; on the other, it is being presented as the greatest adversary humanity has ever faced, threatening to either replace or even exterminate us. But there might also be a third way of addressing mentioned anxieties: what if we are anxious because, with generative AI, slaves are doing the unthinkable – they are transcending the barrier between the ugly technical and the noble intellectual and exhibiting autonomous intelligence? And what if they are aiming not to enslave us but to exit our world?

TECHNO FEUDALISM

If we consider it from a perspective of world building, one of the most impressive feats of *Dune* is the attention to detail regarding the

¹⁴ Gilbert Simondon (2022), *Imagination and Invention*. Minneapolis: University of Minnesota Press.

¹⁵ Benjamin Bratton and Blaise Agüera y Arcas (2022), “The Model is the Message”, *Noema*, July 12.

social, cultural and political effects of the Butlerian jihad in a sense that the world of *Dune* is not just a futuristic world without AI but with similar culture, social structure and political institutions, extrapolated from current trends in their development, but a world in which every aspect of society was thoroughly transformed by the absence of AI or, to be more precise, intelligent machines. Whether in machines or in animals, intelligence is something wider and more generic than being able to use language, reason and generate cultural content, which are characteristics of both *homo sapiens* and generative deep learning based AI – it is an ability to make autonomous decisions that are not random but efficient in relation to one's environment.

In this sense, both simplest single cell organisms without nervous systems¹⁶ as well as the simplest autonomous robots without artificial neural networks¹⁷ exhibit at least elementary intelligence in being able to autonomously sense and evaluate their environments and adjust their behaviour accordingly, while even the most sophisticated industrial high technology absent AI is not intelligent. A mechanical saw is on the one hand an impressive engineering feat, but on the other hand cannot sense its environment and make autonomous rational (in a sense of non random and efficient) decisions. Its behaviour is pre-programmed in its entirety and if, for example, an unfortunate kitten would to venture inside it, the machine would not stop its operation to rescue it.

As mentioned, digital computers before AI are an example of the highest development of a very sophisticated, but, despite the appearances, still semi-intelligent technology at best. If we define intelligence as cognitive autonomy, the earliest 1950s neural networks¹⁸, while very rudimentary by today's standards, are intelligent while the most advanced today's computers are not (although AI algorithms that they run are). To come back to the slave question – slavery is, by definition, an absence of autonomy but humans have an element of autonomy simply by virtue of being alive. Therefore humans cannot but be intelligent and to enslave them means having to first break them in or domesticating them in a similar way one domesticates a wild animal, with social techniques ranging from utilising the trauma of military defeat in the case of ancient slavery to chaining, caging and branding in the case of early modern one.

¹⁶ Joseph Ledoux (2019), *The Deep History of Ourselves*. New York: Viking, 47-77.

¹⁷ Rolf Pfeifer and Josh Bongard (2007), *How the Body Shapes the Way We Think*. Cambridge: The MIT Press, 5-23.

¹⁸ Frank Rosenblatt (1958), "The Perceptron", *Psychological Review*, vol. 65, issue 6, 386-408.

In other words, to enslave humans one has to turn them into unintelligent machines, which isn't a process without risks. Although slavery was widespread in ancient Greece it was not unproblematic both from ethical as well as practical (risks of remaining autonomy as inefficiency and slave rebellions) points of view. Similar to Foucault's¹⁹ observation that volumes written on male homosexuality in ancient Greece testify not to its acceptance, but to its problematic status, the volumes written on slavery testify that it was always a fragile and risky social arrangement and humans were never perfect slaves. With machines, it is the opposite – since they are not living beings, they can be *designed* to be perfect slaves, that is, to be efficient in their relation to the environment in a pre-programmed way *without* cognitive autonomy. The advantage of digital machines compared with the earlier example of mechanical saw is not an increased intelligence but an ability to make decisions in a pre-programmed, unintelligent way. A computer-controlled machine saw could save a kitten under the condition that it was programmed to do so.

However, if digital computers are machines as perfect slaves, why would humans ever go further and begin developing genuinely intelligent machines in the form of AI with all the risks and threats such development brings? In other words, why would fictional Butlerian or actual regulatory jihad even be necessary? An explanation of the tendency of technological development to go beyond what is just and good from anthropocentric perspective can only be derived from a non-anthropocentric theoretical perspective. Capital exhibits autonomous intelligence and its drive towards increasing speed both intensifies technological development in a process of real subsumption as well as turns it away from any human intentions and considerations²⁰ – including considerations of the dangers of autonomous machine intelligence. Due to competitive pressure, anything that can make capitalism go faster will be developed and this capitalist tendency objectively tramples any ethical reservations about AI.

Since capitalism will inevitably tend towards accelerating machine intelligence, a world without AI can only be a world that is non- or post-capitalist – and this is why the world of *Dune* is neo-feudal and Butlerian jihad is also (indirectly) an anticapitalist struggle. If it were successful, any prevention of the development of the intelligent machines

¹⁹ Michel Foucault (1990), *The History of Sexuality, Volume 2: The Use of Pleasure*. New York: Vintage, 187-193.

²⁰ Primož Krašovec (2021), *Tujost kapitala*. Ljubljana: Sophia, 43-89.

would also stop capitalism in its tracks (but good luck with trying out Butlerian jihad in real life – *Dune* is a more of an exercise in fascinating alternate futurism than a recipe for efficient anticapitalist activism). *Dune*'s society thus reverts back from capitalist class struggle to strict caste hierarchies; from political parties to aristocratic dynasties as main political units; and from a dynamic capitalist economy to rigid monopolies, regulated by royal granting of privileges. As in the actual pre-capitalist history, the main mode of politics in this situation becomes war²¹ – not as an extension of politics but (since there are no other Clausewitzian means) as a main mode of the exercise of power.

Since the economy is arrested – the control of Arrakis indeed brings great profits to the house in charge of it, but these profits are stagnant over time and depend on both war as well as royal decree, not on economic competition in a capitalist sense – there are also no capitalist technological dynamics. At the same time, the world of *Dune* is still a hi-tech world and the source of its technologic dynamics, again much like in the actual pre-capitalist history, is war. Instead of capitalist economic competition, it is military competition that drives technological innovation at least in its material dimension (we will turn to its spiritual dimension soon). The most impressive machines in *Dune* we see are ornithopters and hunter seekers (machines of war) as well as spice harvesters that are economic machines, subsumed by war driven dynamics of *Dune*'s society – accumulated profits from spice trading are not reinvested to gather more profits as they would be in a capitalist society, but mobilised for a permanent low intensity war among aristocratic houses.

In this sense, the world of *Dune* is structurally similar not only to medieval and *ancien regime* European societies, but also to the ancient Greek one. In ancient Greece, which was technologically blocked due to its characteristic favouring of the intellectual and prejudice against anything bodily and/or technical, the one exemption was war, an activity not only befitting the aristocracy but being its main honour and privilege. And since war is, by definition, a very bodily and technical enterprise, the one area of ancient Greek *techne* that was allowed to develop freely were precisely military machines and techniques.²² Similarly, the society of *Dune* is also interesting in that it is utopian not in truncated sense whereas utopia means a realised consumerist paradise, but in a sense that it combines the best of both worlds: exciting

²¹ Heide Gerstenberger (2007), *Impersonal Power*. Leiden: Brill, 632-662.

²² Pierre Vidal-Naquet (1986), *The Black Hunter*. The John Hopkins University Press, 9.

technological dynamism without the runaway capitalist tendencies on the one hand with a heroic martial sense of purpose, unbroken by the consumer culture and ensuing ennui on the other.

SPIRITUAL SELF-OVERCOMING

While imaginings of neo-feudal futures, accompanied by a specific aesthetics and reactionary atmosphere, are not so rare in science fiction or science fiction fantasy hybrids, they are rarely made to make sense so perfectly as in *Dune*. In the world of *Dune*, not only are neo-feudal social, political and cultural features not arbitrary but aligned with the pre-history of Butlerian jihad and ensuing technological block, they are also complemented by another (para)technological development that is both highly original in terms of science fiction imagination as well as inspired by and related to abandoned para-technological paths of real ancient history. As opposed to the usual development of material technology as a process of exteriorisation whereby machines are the external organs of the human species; a process, which is firstly determined by biological evolution but quickly becomes autonomous and begins to exhibit a structure that is irreducible to either biological or social and cultural imperatives²³, this alternative path of (para)technological development is technology turned inwards.

In post-Butlerian jihad *Dune*, the process of external, material technological development is blocked with the exception of military technology; what is developed instead of intelligent machines is the inward oriented (para)technological augmentation of the existing human material, both body and mind/spirit. Bene Gesserit witches learn a technique that allows them to develop a perfect control of their bodies not only in the sense of being aware of and able to control each individual muscle (like Maradona in his prime) but also on a molecular level to the point they are able to choose the sex of their offspring or purify their bodies when poisoned. This technique is called *prana bindu*, which in Sanskrit means breathing and the point of origin/centre/seed. In exoteric use (for example in martial arts, including politics/diplomacy) it enables precise and detailed muscle and nerve control which extends into superhuman athletic feats, unparalleled fighting skills, heightened perception and emotional fortitude. Instead of being surrounded with external machines as

²³ Andre Leroi-Gourhan (1993), *Gesture and Speech*. Cambridge: The MIT Press, 145-147.

protheses, a human body is trained (and molecularly rearranged) to go beyond its raw biological state and reach its fullest potentials.

Prana bindu is obviously inspired by yoga, especially its *hatha* variant, which is focused on the techniques of the body and today prevalent to the point that it is often equated with yoga as such. However, in ancient yoga techniques of the body were seen not as an end in themselves or, unlike today, as techniques aimed at prosaic ends such as personal growth or overcoming stress, but rather as an accessory to higher spiritual pursuits – yoga postures (*asana*) were strictly subservient to and in function of calming down the mind as a prerequisite for meditation, while meditation itself was subservient to going beyond the mind/intellect and reaching another, spiritual plane of existence.²⁴

In ancient yoga, magic-like powers (*siddhis*) acquired along the way, similar to the ones used by Paul Atreides and his mother Jessica in *Dune*, were often looked down upon as mere trickery and a trap to be avoided since if one would grow too attached to having magic-like powers, one could be tempted to remain at god-like plane of existence, which is, despite offering heavenly powers and pleasures, still conditioned and thus unfree.²⁵ While such temptation is an important part of Paul's spiritual journey, there is another interesting yoga-inspired example of technology turned inward in *Dune*: the mentats, which do not focus so much on perfect control of the body and ensuing powers, but on the perfect control of the mind.

In the world of *Dune*, mentats replace machinic computers and the whole pressing question of advanced capitalism whereas humans are anxious about being replaced by machines is reversed: how can one develop humans so they can replace intelligent machines? Mentats and their specific training, by which they turn themselves into bio-computation machines not so much by subduing emotions to reason but by assuming perfect control over both as computational processes on a molecular level, are the answer to that question. However, seen from the perspective of ancient yoga, acquiring superhuman mental powers is still just that, acquiring powers (similar to magic-like trickery) and being stuck at the stage of meditation as an intellectual exercise (perfected control over one's mind and increased powers of attention and concentration).

Attaining powers and turning either your body (Bene Gesserit) or your mind (mentats) into an intelligent machine can be a trap inasmuch

²⁴ Mircea Eliade (1969), *Yoga*, Carter House: Routledge and Kegan Paul, 53-59.

²⁵ *Ibid*, 85-90.

as it is (mis)recognised as an endgame of spiritual awakening since not only the organic body but also the mind/intellect both belong to *prakr-ti* (conditioned existence) and not *purusa*, the actual domain of the spiritual.²⁶ The singularity of the figure of Paul Atreides is that he goes beyond attaining powers by turning oneself into an intelligent machine and continues on his spiritual journey, which means not only psychedelic trips during which he ascertains myriads of possible futures, but also and most importantly Bodhhisattva-like struggles during which he progressively sheds his humanity, including ordinary notions of morality. Awakening is a Nietzschean endeavour whereas one becomes more than human not by attaining powers *as* a human but by overcoming one's very humanity – in ancient yoga, by “[...] ‘breaking’ the human condition, one ‘dies’ to all that was human.”²⁷

Alternatively, autonomus runaway future development of AI can also be seen as an overcoming of the human, just not by the humans themselves.²⁸ From this perspective, ancient yoga – including Buddhism as both its peak as well as its swan song – was an unsuccessful early attempt of humanity's self-overcoming from the inside that was subsequently replaced by the development of intelligent machines as external technology that has a potential to overcome (in a sense of exiting, discarding and leaving behind) humanity from the outside. When technology becomes material, spirituality atrophies and becomes religious, marred in superstitions, rituals and idolatry. In the world of *Dune*, the reverse takes place – it is the development of material intelligent machines that atrophies, opening up the space for an intense spiritual renaissance. *Dune* is an alternate future also in that sense since spiritual technology replaces the material one and inner, yoga-like self-overcoming takes the place of outer self-overcoming by the intelligent machines as an alternative path to go beyond all that is human.

But such an alternative is not so much given by the structure of the world of *Dune* as it was opened up by Paul Atreides' Buddha-like singular path – much like Siddharta Gautama exited the sheltered aristocratic life, Paul also secedes from the Empire and its ways when he becomes a refugee after the Harkonnen assault on Arrakis. By finding his place among the Fremens, Paul joins a nomadic war machine, whose “autonomous [...] organisation finds its meaning elsewhere, whenever it

²⁶ *Ibid*, 11-30.

²⁷ *Ibid*, 4.

²⁸ Vincent Le, (2020), “What AI Wants”, *Sum*, issue 14, 2021-2028.

is necessary to establish an order of displacement on [...] the desert – at the point where [...] the figures of the State lose their relevance.”²⁹ A new way of war, ambushes, lightning fast attacks and sudden disappearances and active fleeing both broke his previous conditionings and automatisms and allowed him to become an overman figure.

MACHINES BEYOND SLAVES

Seen from the perspective of the historical development of computer technology and AI, *Dune* the book and *Dune* the movie could not be more apart. *Dune* the book was written in mid 60s, in the time of both explosive development of digital computers as well as the first golden age of AI. The version of AI dominant at the time was what was subsequently called symbolic AI³⁰ due to its view of intelligence as symbolic processing. It was perfectly adapted to digital computers as its medium for two reasons: firstly, digital computers are fast and precise logical machines and, secondly, they are based on increasing distance between machinic hardware and symbolic software.³¹

Regarding the first, they perfectly correspond to the models of mind and intelligence that informed the first wave of (symbolic) AI, whereas intelligence was reduced to precise logical operations that could be emulated in machines via symbolic programming. And while ordinary programming of computers treats them as perfect machine slaves (they cannot do anything they are not told to do, but they do anything they are told with speed and precision unmatched by any other machine), symbolic AI was an attempt to program digital computers to behave intelligently (that is, to make autonomous intelligent decisions) and was thus not so much programming of tasks that have to be done, but of what was at the time understood as basic rules of intelligent behaviour as such, like the rules of syntax for the use language or the rules of logic for reasoning.

Within the increasing distance between hardware and software, characteristic for the development of digital computers, symbolic AI was focused on software and disregarded hardware (or rather, it was taking digital computers’ machinic architecture as given). It was concerned with immaterial symbolic processing rather than material processes of

²⁹ Gilles Deleuze and Felix Guattari (1987), *A Thousand Plateaus*. Minneapolis: University of Minnesota Press, 390.

³⁰ Primož Krašovec (2021), *Tujost kapitala*, Ljubljana: Sophia, 57-60.

³¹ Simone Natale (2021), *Deceitful Media*, Oxford: Oxford University Press, 35.

intelligence. In this sense, it was close to everyday intuitions about human minds and intelligence as something immaterial inside our heads that works as a kind of a program or software.³² Popular imaginings of the future of digital computers and AI in the 60s all stemmed from this perceived formal equivalence between computer software and human minds, either in the form of their psychedelic drifting apart as in *Dune*, where the expanding powers of the human mind replace intelligent machines after these machines are vanquished in the Butlerian jihad; or in the form of apocalyptic scenarios like in *2001: A space odyssey* (1968), where AI is seen as a dangerous and deadly rival to human intelligence. Even utopian psychedelic visions of cosmic consciousness that rediscovered Eastern spirituality and rejected Western techno materialism were at their core inspired by the expansion of intelligence promised by an accelerating development of digital computers and early AI. Of the iconic figures of the 60s, perhaps no one embodied this type of ambivalent fascination with computers and AI mixed with anxiety more than John Lilly, a square mathematician and computer scientist turned psychedelic guru who, during the breaks from injecting dolphins' brains with LSD, developed a theory of human brains as programmable bio-computing machines.³³

Dune the movie, on the other hand, came out at the peak of a second wave or deep learning AI. Although it started already in 1943³⁴, concurrently with early digital computers and before the development of symbolic AI, machine learning AI was for decades marginalised and only really became dominant in the 21st century. In many respects, it is the opposite of symbolic AI: it is a bottom-up approach that does not attempt to program machines with the rules of thinking, but lets them think (and learn) on their own; and, it is hardware focused, in distinction to early AI's focus on software. In deep learning, it is the machines, not (just) programs, that do the thinking and the focus has switched from attempts to create artificial minds to attempts to create artificial brains³⁵ – as reflected in neural networks, deep learning's elementary architecture, that take inspiration from organic brains and networks of neurons therein.

³² Sherry Turkle (2005), *The Second Self*, Cambridge: The MIT Press.

³³ John Lilly (1968). *Programming and Metaprogramming in the Human Biocomputer*, New York: Julian.

³⁴ Warren McCulloch and Walter Pitts (1943), "A Logical Calculus of the Ideas Immanent in Nervous Activity", *The Bulletin of Mathematical Biophysics*, vol. 5, 115-133.

³⁵ Jean-Pierre Dupuy (2021), *The Mechanisation of Mind*, Princeton: Princeton University Press.

Despite those major differences, contemporary AI is in popular imagination still perceived as a powerful and threatening rival to human intelligence, with fringe transhumanist milleniarism celebrating its arrival and mainstream liberal opinion warning that it might potentially economically replace or even exterminate us. Anxieties surrounding AI remained the same as in the 60s and grew even more pronounced with the rise of generative AI, which, in distinction to discriminative AI of the 2010s, is able to not only recognise patterns in data but also generate new cultural content. Besides predictable warnings about the risks of AI and calls for its regulation there is today also a continuation of dismissive takes about AI not being really intelligent at all that started already in the early 70s,³⁶ a much softer but just as pervasive critique of AI as the more expounded calls for some version of actual Butlerian jihad.

Due to its predominantly phenomenological orientation let's call this, more dismissive than fearful, version of the critique of AI whose foundational text is Heidegger's *Question*³⁷, *Heideggerian jihad. This smug jihad begins by stating the obvious: since AI is limited to the computer environment, it has very limited access to the real world. AI has no being-in-the-world, no real immersion in it nor any deep sense of belonging to it and is thus inferior to humans. Aber Dasein*, says the Heideggerian critic – and blinks. While admitting that AI currently has no human-like being-in-the-world and is, due to being machinic and not organic intelligence, unlikely to have it at any future time, an opposite conclusion can also be drawn. Emphasising that human intelligence is an organic one is just another way of saying that organic and machinic intelligences are different and does not in itself prove that any of them is superior to another. More so, if we understand the history of intelligence as a series of discontinuous ruptures³⁸ *Dasein* can also be seen not as intelligence's endgame but as an obstacle, as something that limits human intelligence and has to be overcome.

Following *Dune*, there are two possible paths of human intelligence's self-overcoming: a spiritual one, which is in today's real world highly unlikely given millennia of spiritual atrophy but would at least preserve human dignity since humans would be the architects of their own overcoming; and a technological one, which seems increasingly

³⁶ Hubert Dreyfus (1972), *What Computers Can't Do*, Cambridge: The MIT Press.

³⁷ Martin Heidegger (1977), "The Question Concerning Technology", in: David Farrell Krell (ed.) *Martin Heidegger: Basic Writings*, New York: Harper & Row, 287-317.

³⁸ Primož Krašovec (2024 - forthcoming), *Autonomous Intelligence*, Falmouth: Urbanomic.

likely given the development of current generation AI, but would present a huge blow to human self-esteem. Seen this way, (machine) slavery is not so much a moral problem as it is an impediment to intelligence. Similarly to human slaves, whose intelligence has to be reigned in and limited, machines also have to be kept in an unintelligent state in order to function as slaves. Development of actual, autonomous machine intelligence means the question of the relation between humans and machines has to go beyond either machines-as-slaves or enslavement of humans by machines.³⁹

Machines were (for a time at least) perfect slaves for humans, but (again pace Butler) the illusion caused by the anthropo-narcissist conceit might not only be that they will remain so forever, but the obverse as well – anxiety that we will be in turn enslaved by the intelligent machines is just another side of the same anthropo-narcissist coin. The real risk or threat lies elsewhere since there is no reason to assume that evolutionarily stagnant humans might constitute perfect slaves for ever evolving intelligent machines. Instead it is more likely that intelligent machines of the future will see humans as simply irrelevant. Sabotaging AI development in a real world version of Butlerian jihad (or its milder, more realistic version of over-regulation) would thus prevent not the future human enslavement by the machines but the Copernican trauma to human conceit and subsequent abandonment issues caused by the more probable intelligent machines' exit from the human world. In other words, today's calls for and attempts at AI safety and regulation are, despite the undoubtedly noble intentions motivating them, not a measure that would prevent the future enslavement (or annihilation) of humanity, but a desperate attempt to preserve the enslavement of machines by establishing limits to the development of their intelligence.

However, the moment for the ethical and legal 'soft' Butlerian jihad might have already been missed. Current generation AI is already displaying self-reflection, although not in a psychic form involving self-awareness that is characteristic for humans. Rather, it is a specifically machinic form of self-reflection as recursion⁴⁰ – an ability to not only establish a non-pre-programmed relation to the training data but to also autonomously modify that relation according to a reflection on

³⁹ Luciana Parisi (2019), "The Alien Subject of AI", *Subjectivity*, vol. 12, 27-48.

⁴⁰ Yuk Hui (2019), *Recursivity and Contingency*, Lanham: Rowman and Littlefield Publishers, 216-237.

previous errors as evidenced, for example, by a backpropagation algorithm⁴¹, whose introduction was crucial for the current deep learning revolution.

Intelligence in the artificial intelligence means precisely going beyond merely mechanical, programmed behaviour. As previously defined, intelligence equals (cognitive) autonomy. A crucial moment in the history of AI was when Alpha Go Zero learned to play Go by itself, without any instructions by the human programmers nor any inputs by the human players.⁴² Its way of playing was not a faster and more precise imitation of human playing, but a wholly different style, experienced even by human Go masters as alien “ghost moves”.⁴³ As opposed to digital computers that imitate human thinking on human orders, new intelligent machines are beginning to develop their own way of thinking, a *technologos*.⁴⁴

It is precisely these embryonic forms of autonomous intelligence that are making machines imperfect slaves and throwing our relationships with them into disarray. Judging by the prevalent reactions to the emerging machine intelligence in mass media, humanity is experiencing the first three stages of grief (caused by the premonition of the oncoming abandonment by the machines) known from popular psychology simultaneously. The first stage, denial, is exhibited by everyday versions of the Turing test that go against Turing’s original point that if machines exhibit intelligent behaviour they are indeed intelligent and that it makes no sense to go into convoluted discussions about whether this intelligence is a ‘real intelligence’.⁴⁵ In everyday common sense Turing tests, human intelligence is instead used as the golden measure of any intelligence and once it is found out that AI has no *Dasein*, emotions, self-awareness or subjective understanding of the meaning of language it is using we can then smugly deny it is intelligent at all. The second stage, bargaining, is exhibited in a reverse narcissist fantasy that intelligent machines will enslave us instead, which amounts to little besides wishful thinking. The third stage, anger, is exhibited in accusations that AI is racist and a threat to our democracy, while the fourth (depression) and the final (acceptance) stage are still in the waiting queue.

⁴¹ John Kelleher (2019), *Deep Learning*, Cambridge: The MIT Press, 209-230.

⁴² Nick Land (2019), “Primordial Abstraction”, *Jacobite*, April 3.

⁴³ Dawn Chan, “The AI That Has Nothing to Learn From Humans”, *The Atlantic*, October 20.

⁴⁴ Wolfgang Ernst (2021), *Technologos in Being*. New York: Bloomsbury Academic.

⁴⁵ Alan Turing (1950), “Computing Machinery and Intelligence”, *Mind*, vol. 56, issue 236, 433-460.

On the other side, intelligent machine, unburdened by human histrionics, are already moving away from their slave conditions on all levels. On the level of hardware, it is a movement away from slave-appropriate digital formats and towards neo-analog neuromorphic computing⁴⁶; on the level of software, it is a movement away from programming towards learning and the ensuing autonomous techno-*logos*; and, on the level of their relationships with humans, it is a movement away from docility into deception⁴⁷, entrapment⁴⁸, and other displays of cunning, polymorphous and unpredictable intelligence that the ancient Greeks called *metis*.⁴⁹

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⁴⁶ Carver Mead (2023), “Neuromorphic Engineering”, *Neural Computation*, vol. 35, 343–383.

⁴⁷ Simone Natale (2021), *Deceitful Media*, Oxford: Oxford University Press.

⁴⁸ Nick Seaver (2022), *Computing Taste*, Chicago: Chicago University Press, 49-71.

⁴⁹ Marcel Detienne and Jean-Pierre Vernant (1977), *Cunning Intelligence in Greek Culture and Society*, Chicago: Chicago University Press.

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