On the Impossibility of Digital Immortality

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Abstract

In this paper I will argue that the concept of digital immortality (DI) which is a topic in transhumanism is not plausible. DI requires that all aspects of the human mind can run on a computer, i.e. they need to be computable. Based on two arguments I will show that there are good reasons for doubting that all aspects of the human mind are computable, and DI therefore would be impossible. First, there are good arguments which show that humans are not just material but have an immaterial aspect, which is usually denoted as soul. And the soul would be something which could not be simulated by a computer. Second, even in the case of physicalism where the mind arises from the brain, DI might not be possible, because the brain is a complex system and since complex system most often cannot be mathematically modelled adequately it will also not be possible to perform a whole brain emulation. Moreover, I will argue that even if these two main arguments against DI fail, still nobody could achieve DI, because a digital copy of you would not be you. Therefore, people searching for immortality need to look somewhere else and should consider Christianity.

1. Introduction

Transhumanism is a philosophical movement that has at is core idea the enhancement of the human condition by technology.[1] This includes replacement of our biological organs by artificial ones, enhancement of human cognition etc. In the last couple of years transhumanism got more attention due to the recent developments in Artificial Intelligence (AI) - foremost the development of Generative AI like ChatGPT.[2] On aspect of transhumanism is the concept of Digital Immortality (DI) according to which it will be possible in the future to upload and store your mind/personality on digital substrate like a computer or a robot and thereby achieve a form of at least contingent[3] immortality. In this paper I will argue that the concept of DI is not plausible. DI requires that all aspects of the human mind can run on a computer, i.e. they need to be computable.[4] Based on two arguments I will show that there are good reasons for doubting that all aspects of the human mind are computable, and DI therefore would not be feasible. First, there are good arguments which show that humans are not just material but have an immaterial aspect, which usually denoted as soul. And the soul would be something which could not be simulated by a computer. Second, even in the case of physicalism where the mind arises from the brain, DI might be impossible, because the brain is a complex system and since complex system most often cannot be modelled adequately it will also not be possible to perform a whole brain emulation. Moreover, I will argue that even if these two main arguments against DI fail, still nobody could achieve DI, because a digital copy of you would not be you. Therefore, people searching for real immortality need to look somewhere else and should consider Christianity.

2. How to achieve Digital Immortality

There are several authors describing the idea of DI.[5] For example, Reil Kurzweil one of the leading proponents of transhumanism believes that "*in the early 2040s, nanobots will be able to go into a living person's brain and make a copy of all the data that forms the memories and personality of the original person: You 2.*"[6] Moreover he writes: "*At the stage of directly copying over the contents of living brains to nonbiological mediums, we transition from the merely simulated replicants I describe to actual mind uploading, also known as whole-brain emulation, or WBE.*"[7]

[1] Fuchs, Thomas, *In Defence of the Human Being: Foundational Questions of an Embodied Anthropology*. Oxford University Press, 2021, 50 pp.
[2] See for example Jerry Kaplan. *Generative Artificial Intelligence: What Everyone Needs to Know.* Kindle-Version. Oxford University Press, 2024.
[3] Contingent immortality because the device on which a mind is uploaded could be destroyed.
[4] For a whole book treatment on the issue of AI and the computability of a human person see: Marks, Robert. *Non-Computable You: What You Do That Artificial Intelligence Never Will*. Kindle-Version. Discovery Institute,2022.
[5] See for example Kurzweil, Ray. *The Singularity is Nearer: When We Merge with AI*. Kindle-Version. Vintage Publishing,2024; Merkle, Ralph C. "*Uploading*" in *The Transhumanist Reader*, ed. Max More and Natasha Vita-More, Wiley-Blackwell,2013, pp.157-164; Randal A. Koene. "Uploading to Substrate-Independent Minds" in *The Transhumanist Reader*, ed. Max More and Natasha Vita-More. Wiley-Blackwell, 0213, pp. 146-156; Rothblatt, Martine. "Mind is deeper than matter "in *The Transhumanist Reader*, ed. Max More and Natasha Vita-More, Wiley-Blackwell,2013, 317-326.
[6] Kurzweil, *The Singularity is Nearer: When We Merge with AI*, 103.
[7] Ibid., 104.

Usually, the reason why some transhumanists think that uploading the mind - which is foundational for DI – works, boils down to the following argument: [8]

1. *The brain is a material object.*
2. *The behaviour of material objects is described by the laws of physics.*
3. *The laws of physics can be modeled on a computer.*
4. *Therefore, the behavior of your brain can be modeled on a computer.*'

Therefore, DI is possible.

According to transhumanists, the only obstacle to be overcome is having powerful enough computers.[9]

3. Arguments against Digital Immortality

In this Chapter I will critique the concept of DI. This critique does not only apply to Kurzweils ideas cited above but also to the ideas of other proponents of DI, because the central idea to upload and store your mind/personality on a digital substrate like a computer or robot is the same and the 4-step argument above regarding achieving DI applies to all. However, to make DI work one needs the additional assumption (A1) that physicalism is true, and the human mind arises from the brain. If humans have also a soul which is the bearer of our consciousness and which is interacting with brain and body, then A1 is false and DI would not be possible, because there is in principle no mathematical model of souls available that could be put into algorithmic form to be run on a computer. In addition, the assumption (A2) that the emulated brain is still you is required. Section 3.1 will address A1. Section 3.2 will show that premise 3 is false for the brain. Section 3.3 will address A2.

3.1. Arguments against DI from the nature of human Consciousness

The nature and origin of human consciousness has been debated since millennia. There are numerous views. [10] One of those views is substance dualism (SD), which argues that humans consist of body and soul, which is the bearer of consciousness. According to philosopher of the mind J.P. Moreland substance dualists usually hold *"that the soul is simple in virtue of not being an aggregate of separable parts. But it is complex in virtue of having several different attributes and inseparable parts (e.g.,*

[8] Merkle, Ralph C. "Uploading" in *The Transhumanist Reader*, ed. Max More and Natasha Vita-More, Oxford: Wiley-Blackwell,2013,157; Landgrebe, Jobst and Barry Smith. *Why Machines Will Never Rule the World*. Routledge, 2022, 286.
[9] Merkle, "Uploading",157.
[10] For an excellent overview see Kuhn RL. *A landscape of consciousness: Toward a taxonomy of explanations and implications*. Prog Biophys Mol Biol. 2024 Aug;190:28-169. doi: 10.1016/j.pbiomolbio.2023.12.003. Epub 2024 Jan 26. PMID: 38281544

faculties such as the mind and will)[11]*"* While SD is still a minority position in neuroscience and philosophy of the mind there are very good arguments for it. If humans have a soul then physicalism is false. In that case A1 is false and DI will not be possible.[12] Kurzweil's view on the origin of consciousness is panprotopsychism.[13] The entry on panpsychism in the *Stanford Encyclopedia of Philosophy* states regarding panpsychism versus panprotopsychism: "*Whereas panpsychists think that consciousness is fundamental and ubiquitous, panprotopsychists think that proto-consciousness is fundamental and ubiquitous.* "[14] However, this view would also be ruled out if SD is true.

Section 3.1.1 discusses a philosophical argument for SD and Section 3.1.2 contains evidential arguments for SD. Section 3.1.3 will address common objections to SD and Section 3.1.4 will offer a brief discussion on SD and emergence.

3.1.1. Philosophical Arguments

I love sitting on my terrasse eating a steak. While I am experiencing the delicious taste, the good smell and the color and shape of my steak, I am at the same time enjoying the view on the fields and the forest and I am listening to the sound of the birds, or I am just watching my granddaughter Mary Elisa playing or chasing one of our two cats. All of these experiences are bound together in a phenomenal unified conscious experience. The experience I have is more than the sum of its parts: for example, the phenomenal state of the taste of my steak qualitatively distinct from the phenomenal state watching Mary Elisa playing, and the phenomenal state eating my steak **while** watching my granddaughter playing is qualitatively distinct from the other two. This is also called phenomenal holism, which according to Brandon Rickabaugh and J.P. Moreland can be defined as "*Within a state of phenomenally unified consciousness, E, a single identifiable experience, e_1, is essentially determined by the other experiences, e_2–e_n, synchronically occurring alongside e_1 within E. Consequently, E is more than the sum of its parts, such that facts about the identity and existence of each experience, e_1–e_n, are grounded in facts about E.*"[15]

Rickabaugh and Moreland hold "*that E is a unified whole in which are modes or inseparable parts, e_1–e_n* [16]*, of either E or much more likely, of the grounding entity or subject of E. As Franz Brentano observes, the phenomenal modalities of E "are neither distinct [separable] things nor parts of distinct [separable] things but belong to a real unity.*"[17]

Moreland, J.P. "Neuroscience and the Metaphysics Of Consciousness and the Soul" *in Minding the Brain: Models of the Mind, Information, and Empirical Science*, ed. Angus J. Menuge, Brian R. Krouse, and Robert J. Marks. Kindle-Version. Discovery Institute Press, 2024, 81.
[12]This would also be an argument against AI becoming conscious, because a soul cannot be simulated/emulated by a computer program.
[13] Kurzweil, *The Singularity is Nearer: When We Merge with AI*, 81 pp.
[14] https://plato.stanford.edu/entries/panpsychism/#PanpVersPanp
[15] Ibid.122.
[16] Original text had e2-en instead of e1-en, which is a mistake (personal correspondence with J.P.Moreland).
[17] Ibid., 122.

Moreover, I have all these phenomenal states of experiences as an enduring subject entailing so called subject phenomenal unity.[18]

Based on the unified experience of phenomenal consciousness a philosophical argument for SD can be constructed. [19] While there are also several other philosophical arguments for SD[20] for a lack of space I will I focus on that one. A thorough defense of that argument can be found in the recent book *The Substance of Consciousness: A Comprehensive Defense of Contemporary Substance Dualism*[21] by Brandon Rickabaugh and J.P. Moreland. Here I will just outline the most important points of the argument and present the -in my view- most important objections with corresponding replies to it. [22]

Physicalism must explain how holistically phenomenally unified consciousness can be distributed over a myriad of separable parts which the brain and the nervous system consist of.[23] How do even a single object's properties appear to be as a single, unified object at any given time, despite the fact that for example the involved properties like color, shape and motion are correlated with different areas in the brain?[24] Physicalism just assumes that the brain somehow does the magic, but this is highly problematic, because phenomenological consciousness is holistically unified (as described above) and has no separable parts and has therefore also not parts to distribute.[25]

One attempt to solve the issue is by allowing overlapping parts for each modality of the phenomenal unity. According to Rickabaugh and Moreland this make the problem even worse because "*the overlap of separable parts p_1–p_n forms another separable part of S. And it isn't at all clear how adding another separable part to an aggregated subject is helpful.*"[26] Moreover, recent finding regarding split-brain studies show that unified conscious experience is still possible without pronounced communication between brain hemispheres.[27] Neuro surgeon Michale Egnor writes "*although in some cases there are subtle perceptual disabilities, splitting the brain does not split the sense of self, the intellect, or the will*."[28]

Rickabaugh and Moreland argue, that this implies that there is at least no significant overlap among at least some neural subregions. [29] Therefore overlap or holistic theories of consciousness like the

[18] Ibid.,122.
[19]Brandon Rickabaugh and J.P. Moreland, *The Substance of Consciousness: A Comprehensive Defense of Contemporary Substance Dualism*.Wiley-Blackwell,2023; Farris, Joshua R. "Subject Unity and Subject Consciousness" *in Minding the Brain: Models of the Mind, Information, and Empirical Science*, ed. Angus J. Menuge, Brian R. Krouse, and Robert J. Marks. Kindle-Version. Discovery Institute Press, 2024.
[20]Other Philosophical arguments include the existence of qualia, introspection, self-awareness and Intentionality. See also Rickabaugh*, The Substance of Consciousness.*
[21] Brandon Rickabaugh and J.P. Moreland, *The Substance of Consciousness: A Comprehensive Defense of Contemporary Substance Dualism*.Wiley-Blackwell,2023
[22] Other counter arguments are covered in Rickabaugh*, The Substance of Consciousness.*
[23] Ibid.122,
[24] LaRock, Eric "Hard Problems of Unified Experience from the Perspective of Neuroscience" in *Consciousness and the Ontology of Properties*, ed. Mihretu P. Guta. Kindle-Version. Taylor and Francis, 2018.,225.
[25] Rickabaugh*, The Substance of Consciousness*,123.
[26] Ibid.131.
[27] Ibid.; see also Egnor, Michael. "Neuroscience and Dualism" in *Minding the Brain: Models of the Mind, Information, and Empirical Science*, ed. Angus J. Menuge, Brian R. Krouse, and Robert J. Marks. Kindle-Version. Discovery Institute Press, 2024, 458-465.
[28] Egnor, Michael. "Neuroscience and Dualism" in *Minding the Brain: Models of the Mind, Information, and Empirical Science*, ed. Angus J. Menuge, Brian R. Krouse, and Robert J. Marks. Kindle-Version. Discovery Institute Press, 2024, 464.
[29] Rickabaugh*, The Substance of Consciousness, 131.*

integrated information theory, global workspace, and the recurrent processing theory are implausible.[30] The fact that the newer findings regarding split-brain patients show that a unified conscious experience is still possible also refutes those who reject phenomenal unity based on the claim that split brain patients have separated centres of consciousness.[31]

Neuroscientists try to explain phenomenal unity by neural synchronicity according to which all the relevant locations in the brain fire together at the same time.[32] However, Eric LaRock has demonstrated that these neuroscientific accounts also fail to address a how an object's properties appear to be as a single, unified object at any given time.[33] Also, from neuro science there is no account for a convergence zone where the different brain areas involved converge.[34] And even if in the future such a convergence zone would be discovered this convergence zone would also consist of many parts and the problem would be just transferred.

The synchronicity account also fails on philosophical reasons as can be seen by the following analogy provided by LaRock: "*If five chefs are located in separate kitchens and each chef is consciously aware of only part of the same recipe, it does not follow that any one chef is consciously aware of the recipe as a whole—even if all of the chefs are consciously aware of their respective recipe parts at the same time.*" [35]

Some critiques argue that the argument from phenomenal unity for SD only succeeds if it can explain this phenomenon better than physicalism.[36] However, if the bearer of consciousness is the soul and the soul is a simple substance, then there seems to be no special problem to account for the unity of consciousness, because the various experiences are within a single mind. Moreover, since the logical space is exhausted by subject simplicity (the subject and bearer of consciousness is a simple soul) and subject complexity (the subject consists of separable parts, as it is the case in physicalism) and if subject complexity cannot account for unity of consciousness than the subject simplicity view remains.[37] Moreover, a substance dualist ontology/explanation of the unity of consciousness can also be provided.[38]For a lack of space this cannot be cannot expound on here.

Recent attempts to explain the phenomenal unity of consciousness adapt panpsychism.[39] Rickabaugh and Moreland define Panpsychist Phenomenal Unity by *"the fact that S is a subject of a phenomenally*

[30] Ibid.
[31] Ibid., 141.
[32] LaRock, Eric "Hard Problems of Unified Experience from the Perspective of Neuroscience" in *Consciousness and the Ontology of Properties*, ed. Mihretu P. Guta. Kindle-Version. Taylor and Francis, 2018,225-227.
[33] LaRock, Eric "Hard Problems of Unified Experience from the Perspective of Neuroscience" in *Consciousness and the Ontology of Properties*, ed. Mihretu P. Guta. Kindle-Version. Taylor and Francis, 2018,227-231.
[34] LaRock, Eric "Hard Problems of Unified Experience from the Perspective of Neuroscience" in *Consciousness and the Ontology of Properties*, ed. Mihretu P. Guta. Kindle-Version. Taylor and Francis, 2018, 238.
[35] LaRock cited in Moreland J.P. "Substance Dualism the Best Account of the Unity of Consciousness" in *Consciousness and the Ontology of Properties*, ed. Mihretu P. Guta. Kindle-Version. Taylor and Francis, 2018, 91-92.
[36] Rickabaugh, *The Substance of Consciousness*, 142.
[37] Ibid.
[38] Ibid., 142-143.
[39] Panpsychism is the view that all things have a mind or a mind-like quality (see https://iep.utm.edu/panpsych/)

unified consciousness is grounded in facts about combining fundamental micro-conscious subjects."[40] However, according to Rickabaugh and Moreland there is no account for "*how the phenomenal states of fundamental physical entities combine into a holistic, phenomenally unified state of consciousness*."[41] Moreover, since phenomenal states are unshareable because they are always held by one subject and sealed from other subjects a combination to an overall phenomenal unified state seems very implausible. According to Rickabaugh and Moreland some panpsychists deny "*that at least some experiences belonging to a composite subject must also belong to one or more of their components*"[42] But then why do we need panpsychism in the first place? According to Moreland "*We needn't posit conscious parts, but only parts with powers that, when combined in the right way, constitute a subject of consciousness*" As mentioned above Rail Kurzweil defends panprotopsychism (proto consciousness is fundamental and ubiquitous) as the explanation for consciousness. Here also the fundamental question how phenomenal conscious unity and consciousness proper emerge from proto-conscious components has been not answered yet.

3.1.2. Evidential arguments

There is also empirical/evidential support for SD. For example, there is evidence that consciousness survives death and makes physicalism highly problematic: the so-called Near-Death Experiences (NDEs).[43]

NDErs (people who had NDEs) have highly organized and lucid experience while unconscious or clinically dead. There have been scientific studies on NDEs by several scholars who systematize the data. For example, Jeffery Long studied thousands of NDEs.[44] I mention some of the characteristics of NDEs Long describes: NDErs may see and hear in the out-of-body (OBE) state, and what they perceive is nearly always real. NDEs of blind people often include visual experiences. The striking similarity of content in NDEs among very young children and that of adults strongly suggests that the content of NDEs is not due to preexisting beliefs. The remarkable consistency of NDEs around the world is evidence that NDEs are real events. Furthermore, there are many testimonies of NDEs with evidential character, where there is additional corporation that the experience is true.

NDEs show that conscious experience can happen even in the absence of any brain function. Physicalist explanations to account for NDEs vary (drugs, oxygen deprival, neural spikes etc.). However, these explanations are highly disputed, and they completely break down for evidential NDEs. Evidential NDEs are NDEs which include reports about things or events which are later additionally corroborated

[40] Rickabaugh, *The Substance of Consciousness*, 134.
[41] Ibid.
[42] Ibid.
[43] Max Baker-Hytch. *Glimpses into the Great Beyond? On the Evidential Value of Near-Death Experiences*, Forthcoming in Agatheos: European Journal for Philosophy of Religion*.; Miller, J. Steve, Near-Death Experiences as Evidence for the Existence of God and Heaven: A Brief Introduction in Plain Language*. Kindle ed. LLC: Wisdom Creek Press, 2012*; Habermas, Gary R. Evidences, Bd. 1, On the Resurrection.* B&H Academic, 2024,963-1008.
[44] Long, Jeffrey; Perry, Paul. *Evidence of the Afterlife: The Science of Near-Death*. Kindle ed. HarperOne, 2010.

and physicalist explanations cannot account for how in that condition one can have for example perceptual experiences about things or events going on in an operating room or even outside of it, which are later corroborated by others to have really occurred. In addition, there are cases, where it can be shown that the people having an NDE report things which happened clearly after the brain stopped functioning.[45] To attribute all these cases to chance is very implausible, because there are at least 300 to 400 documented cases of evidential NDEs.[46] Thus, NDEs prove at a bare minimum that consciousness experience without functioning brain is possible, and purely physicalist accounts therefore fail. This indicates some form of SD with the soul as the bearer of consciousness, because consciousness is not any kind of property which could exist without its bearer.[47] Being conscious without a subject as the bearer of consciousness is like movement without a mover.[48]

Evidential arguments can serve as a tie breaker for those who are unconvinced by philosophical arguments, because it becomes increasingly difficult to explain this evidence from the perspective of a worldview which excludes something like a soul. Moreover, NDEs also invalidate both panpsychism and panprotopsychism since both concepts rely on the complex material structure, configuration and organization of the brain for consciousness in to emerge.

Other forms of empirical evidence for SD are findings regarding split brain patients mentioned in the previous section. Michale Egnor argues that *some powers of mind such as perception and movement can be split, while others, such as unitary sense of self, reason, intellect, and will cannot—is clearly inconsistent with materialism*."[49] If the brain were the source of the mind one would not expect that this level of unification remains intact. A dualist perspective offers a better explanation as Egnor writes" The *neurological consequences of commissurotomy are inherently dualist—the sense of self and the capacity for reason and will remains unified, while perception splits.*" While this evidence is less strong than NDEs, I mention it here because split brain cases are - as mentioned in the previous section - sometimes used to argue against phenomenal unity and thus used to weaken the case for SD.

3.1.3. Objections to SD Answered

In the is Section I will discuss some of the most common arguments against SD. These arguments are not strong enough to make SD implausible. For example, to claim that certain brain events are causing our thoughts, or the brain causes our consciousness is to equate causation with correlation. Philosopher of science Mihretu Guta writes on the interrelation of neural correlates and certain behaviors, *"that the*

[45] Max Baker-Hytch. *Glimpses into the Great Beyond?*,3.
[46] *Habermas, Gary R. Evidences, Bd. 1, On the Resurrection*, 988
[47] Mirethu Guta "In What Sense Is Consciousness a Property?" in *Minding the Brain: Models of the Mind, Information, and Empirical Science*, ed. Angus J. Menuge, Brian R. Krouse, and Robert J. Marks. Kindle-Version. Discovery Institute Press, 2024.
[48] This analogy was brought up by Dr. Guta in our class on *the Philosophy of Artificial Intelligence.*
[49] Egnor, Michael. "Neuroscience and Dualism" in Minding the Brain: Models of the Mind, Information, and Empirical Science, ed. Angus J. Menuge, Brian R. Krouse, and Robert J. Marks. Kindle-Version. Discovery Institute Press, 2024, 458-465

correlation between phenomenal consciousness and brain state, while functionally linked, is not causally grounded. For example, a normal functioning of the brain is necessary for the normal functioning of mental states. But from this nothing follows to the effect that such correlations are metaphysically necessary nor is it the case that they are causally grounded." [50]

One of the most often raised argument against SD is the interaction problem – i.e. how do body and soul interact.[51] For example, Kurzweil argues that "*the problem with this from a scientific perspective is that even if we allow that a supernatural soul may exist that we lack a promising theory for how it would affect matter in the observable world (e.g., the neurons in our brains).* [52] At the heart of the interaction problem lies the assumption that the universe is physically closed and the related conservation laws apply to the universe as whole. One solution of the problem is to deny that causation always requires an energy transfer.[53] There are examples from quantum physics like apparent causal correlation between distant particles that cannot be explained by any energy transfer.[54] In addition, some scholars argue that the soul would not violate the conservation laws, because the soul is only responsible for redistributing energy. E.g. the soul could determine that at a given moment so much energy shall change from the chemical form to the form of bodily movement, which would not alter the total amount of energy in the world.[55]Other approaches to solve the interaction problem include "psychic energy" and would also not upset the conservation laws.[56] But most importantly, physical closure of the universe is an unproven assumption and it is not clear that the conservation laws apply to the universe as a whole.[57] Therefore, this cannot be used as an argument against the possibility of mental causation and SD.[58] What one usually is looking for when addressing this problem is an intervening mechanism between the soul and the brain. But there might be no such an mechanism and the interaction between soul and body might be direct and immediate.[59] Also, an interaction of the soul with the brain via quantum collapse of the wave function by the mind cannot be excluded either.[60] Interaction between soul and body might not even be in principle observable by brain scans due to precision limitations, especially when requiring a very high resolution in both space and time.[61]

SD can explain many facts about consciousness better than other theories. We have even evidential support for it, which cannot be explained by other theories. And it cannot be shown that the interaction problem is interactable if we not just assume the physical closure of the universe from the get-go. How,

[50] Mihretu P. Guta, "The Non-Causal Account of the Spontaneous Emergence of Phenomenal Consciousness", 148.
[51] A similar problem would also affect property dualism, i.e. how do mental properties affect the physical properties.
[52] Kurzweil, Ray. *The Singularity is Nearer: When We Merge with AI*. Kindle-Version. Vintage Publishing, 2024, 81-82.
[53] Menuge, Angus "Declining Physicalism and Resurgent Alternatives" in *Minding the Brain: Models of the Mind, Information, and Empirical Science*, ed. Angus J. Menuge, Brian R. Krouse, and Robert J. Marks. Kindle-Version. Discovery Institute Press, 2024, 66.
[54] Ibid..; Gordon, Bruce "Mind over Matter: Idealism Ascendant" *in Minding the Brain: Models of the Mind, Information, and Empirical Science*, ed. Angus J. Menuge, Brian R. Krouse, and Robert J. Marks. Kindle-Version. Discovery Institute Press, 2024.
[55] Rickabaugh, *The Substance of Consciousness*, 280.
[56] Rickabaugh, *The Substance of Consciousness*, 353.
[57] Ibid.,353-354.
[58] Ibid., 353.
[59] Moreland, J. P. *The Soul: How We Know It's Real and Why It Matters.* Kindle ed.Moody Publishers, 2014, 91.
[60] Rickabaugh, *The Substance of Consciousness*, 354
[61] Ibid., 346.pp.

is the fact that we lack a theory to solve the interaction problem on its own a defeater for SD, if we have positive arguments for it. Note, purported evidence for physicalism is also compatible with dualism and in addition physicalism, panpsychism and panprotopsychism have strong arguments against them. At the moment we also have no theory which can integrate Einstein General Relativity theory and Quantum theory.[62] Does this mean both are false? Maybe we will never know how soul and body interaction exactly work because we have no direct access to the soul via instruments in the laboratory.

Moreover, there is also no support for panprotopsychism which is Kurzweils view about consciousness and the arguments in Section 3.1.1 and 3.1.2 would even work against that view. How, does conscious unity and consciousness proper emerge from proto-conscious components? What are the criteria for the configuration etc.? There is no satisfying answer to these questions. It is just a hypothesis without any additional support. So, Kurzweil takes a double standard here. But at least he is taking consciousness seriously and does not call it an illusion.

3.1.4. SD and Emergence

Some dualist philosophers of the mind like William Hasker argue for emergent SD according to which the soul emerges from the brain and could be sustained by God after death. [63] A DI proponent could argue, maybe if a digital copy is made from the brain then also a soul emerges from this copy (further below I will return on the possibility of making digital copies of brains). However, forms of emergent SD as held by Hasker are problematic[64] , because how does a complex arrangement of matter bring into existence a soul which is completely new sort of entity? This would imply a creation ex-nihilo. [65]

In order to respond to that challenge, Hasker assumes as summarized by the philosopher of the mind Joshua Harris that *"the material does not instantiate the power of creation ex-nihilo because something else is creating or contributing to it as a sufficient causal condition*." [66] While this in and of itself is not very satisfactory Hasker involves God at least as an indirect causal agent. This is however not the case for an atheistic worldview, which makes the emergence of a soul completely implausible. And then in addition to assume that a soul as a bearer of consciousness arises spontaneously from a complex AI system, which attempts to simulate a human brain, is like piling impossibilities on impossibilities.[67]

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[62] Greene, Brian, *The Elegant Universe: Superstrings, Hidden Dimensions, and the Quest for the Ultimate Theo*ry. (W. W. Norton & Company, 2003),127-131.
[63] William Hasker, The Emergent Self (Ithaca, N.Y.: Cornell University Press, 1999).
William Hasker, "On Behalf of Emergent Dualism," in In Search of the Soul, edited by Joel B. Green and Stuart L. Palmer. Downers Grove, IL: InterVarsity Press, 2005, pp. 75–100.
[64] Some emergent views do not suffer from these problems. See for example Guta, Mirethu "The Non-Causal Account of the Spontaneous Emergence of Phenomenal Consciousness" in *Consciousness and the Ontology of Properties*, ed. Mihretu P. Guta. Kindle-Version. Taylor and Francis, 2018. Moreover, we talk here not only about the emergence of properties, which is already contested, but the emergence of a new substance.
[65] Farris, Joshua R. *The Creation of Self: A Case for the Soul*. (Lanham MD: Iff Books, 2023),126; Rickabaugh*, The Substance of Consciousness*,36.
[66] Ibid.
[67] While it might be possible that God could give machines a soul it is not plausible. For humans and animals, we can do an appeal do analogy due to our common biological substrate. This is not the case for machines. Moreover, from a Christian perspective we have no indication from the Bible that would support such an idea.

Note, the attempt to solve this problem by panpsychism or panprotopsychism, is also not helpful because as shown in Section 3.1.1. it faces like physicalism the combinatorial problem in its inability to account for a phenomenal unified consciousness.[68]

3.2. Non-computability of the human brain

As mentioned above Kurzweil mentions the WBE (Whole Brain Emulation) as the key element of achieving DI. While some scholars think that proper brain simulation requires to go down to the quantum-level, because they assume quantum effects are somehow involved in the origin of consciousness, Kurzweil (along with other transhumanists) does not think that we need to simulate all the details in order to achieve a successful WBE.[69] In his book *the Singularity is Nearer* he argues that "*If something like panprotopsychism is correct, subjective consciousness likely stems from the complex way information is arranged by our brains, so we needn't worry that our digital emulation doesn't include a certain protein molecule from the biological original. By analogy, it doesn't matter whether your JPEG files are stored on a floppy disk, a CD-ROM, or a USB flash drive—they look the same and work the same as long as the information is represented with the same sequence of 1s and 0s. In fact, if you copied out those digits with pencil and paper and mailed the (very large!) stack of papers to a friend, and they typed the digits manually back into a different computer, the image would reappear intact*!"[70] In the analogy the JPEG file seems to be the subjective consciousness, and the store medium is the brain or the computer. But the question is if this analogy is really a good one! One could also ask: if we have instead of a high-resolution JPEG a low-resolution JPEG, at what point of reducing the resolution does the picture become useless?

Moreover, treating the brain as a kind of computer has also been challenged. For example, Thomas Fuchs argues that "*In contrast to the computer, it is already impossible to distinguish between "hardware" and "software" in the brain. Every brain activity simultaneously changes the synaptic connections and weightings, i.e., the neuronal structure. In other words, the brain reconfigures itself at every moment of its activity (Edelman & Tononi 2000; Fuchs 2018). Even the same neuron always reacts differently on repeated identical stimuli under identical experimental conditions."* [71]

Additionally, a whole brain emulation which involves copying the whole brain will be probably impossible, because first the brain structure is too complex and second it changes dynamically all the time, and it would be difficult to say what should actually be scanned when trying to make a digital copy. [72] The dynamical change is an aspect which is a problem independent of the fact if one needs to

[68] Farris, Joshua R. The Creation of Self: A Case for the Soul. (Lanham MD: Iff Books, 2023),152.
[69] Kurzweil, Ray. *The Singularity is Nearer*, 103.
[70] Kurzweil, Ray. *The Singularity is Nearer*, 104-105.
[71] Fuchs, Thomas, In Defence of the Human Being: Foundational Questions of an Embodied Anthropology. Oxford University Press, 2021,25.
[72] Ibid.,71.

do a quantum level simulation or not. In general, if the brain has important aspects required for consciousness which cannot be implemented on a computer a WBE will not be possible, and DI will not work. Indeed, on top of the criticisms by Fuchs and other scholars who doubt the possibility of a WBE[73], the problem of non-computability is also highlighted by AI expert Jobst Landgrebe and philosopher Barry Smith. They describe in their work[74] that for so called complex systems often mathematical models and equations cannot be established. [75] This holds also for implicit models which are generated by artificial neural networks, because for complex systems it is usually not possible to generate a representative set of training samples.[76] The human brain is a system of complex systems and therefore the human brain cannot adequately be emulated on a computer.

However, one could argue that while artificial neural networks (ANNs) are far off from the real brain, the commonalities they have with the brain are sufficient to achieve something similar and even beyond the human brain, because the commonalities are important, and the differences are not. One of the several reasons that this is not the case is the importance of turbulence (which is a complex system) in the brain.[77] According to Landgrebe "*the blood vessels enabling the activity of the neurons and thereby contributing to the way the brain works are full of turbulence. The pattern in which electric currents spread in the brain which is a major foundation of consciousness has characteristics of turbulence at the microstate level. About all of these things we have not even the beginnings of a mathematical model*." [78] Thus, even from a physicalist perspective where human consciousness would just be a product of the brain, it is doubtful that a WBE with consciousness is possible.

One can states this as a formal argument against DI, which has been done by Landgrebe and Smith:[79]

A. Digital immortality requires simulating an individual human mind computationally.

B. Human minds are complex systems.

C. Simulating an individual complex dynamical system computationally requires adequate mathematical models of such systems.

D. Adequate mathematical models of individual complex systems are impossible.

[73]Boden, Margaret A.. AI: Its nature and future. Kindle-Version. OUP Oxford, 2016, 155-157; Marks. *Non-Computable You: What You Do That Artificial Intelligence Never Will*, 22.
[74] Jobst Landgrebe and Barry Smith. *Intelligence. And what computers still can't do*. Cosmos+Taxis 12 (5+6):104-114 (2024);
Jobst Landgrebe, Barry Smith. Why Machines Will Never Rule the World. Routledge, 2022.
[75] Complex systems have certain properties, which make them highly difficult to be captured mathematically: they are evolutionary, have element-dependent interactions, they show major force overlay, they are non-ergodic, they have drive, they are context dependent and characterised in their observable behaviour by deterministic chaos. See "Jobst Landgrebe and Barry Smith. *Intelligence. And what computers still can't do*."
[76] Landgrebe *"Why Machines Will Never Rule the World", 152.*
[77] Landgrebe, *Intelligence. And what computers still can't do*;
Landgrebe, "*Why Machines Will Never Rule the World.*"; Deco, G., Liebana Garcia, S., Sanz Perl, Y. *et al.* "*The effect of turbulence in brain dynamics information transfer measured with magnetoencephalography*." *Commun Phys* **6**, 74 (2023).
[78] Landgrebe, *Intelligence. And what computers still can't do*.
[79] Landgrebe, "*Why Machines Will Never Rule the World*",286.

Therefore, digital immortality is impossible.

Note, if Landgrebe et al. are correct, this would be (like with the soul) a problem that in principle cannot be overcome, no matter how much progress we make regarding technology.[80] Thus, Premise 3 (*the laws of physics can be modeled on a computer*) in the argument in Section 2 is false regarding the brain. Therefore, DI is impossible even in the case of physicalism, panpsychism or panprotopsychism.

3.3. Personal Identity

Another argument against digital immortality has to do with personal identity. Personal identity concerns itself with how one can be the same person over time (diachronic identity).

Even if the above arguments against DI fail and an exact digital copy of your mind could be made, still nobody could achieve real DI, because a digital copy of you would not be you. There could be many digital copies of your mind, but none of it would be your mind. When you die you will not suddenly wake up as a digital mind. What one maximally could get is digital immortality of a copy of your mind. And this type of immortality is not the kind of immortality humans usually strive to achieve. Moreover, it also will be contingent on the fact that the computers on which your mind-copies are running are never destroyed. Moreover, from an atheistic perspective the universe probably will die a heat death in the far distant future [81] which will end all life and end also "digital copies." Thus, A2 is wrong, and DI is not possible.

Rail Kurzweil also discusses the issue of personal identity via three scenarios, when considering the implications of a personal copy. In the first scenario a digital copy is created and a You 2 emerges. He concludes similar to my assessment above: "*You 2 would not be You, even if it has a consciousness.*"[82] Then he considers a scenario where "*we gradually replace each section in your brain with a digital copy—connected to your remaining neurons via a brain–computer interface like that described in the previous chapter*."[83] He argues that after the process is completed "*there's no reason to think that your subjective consciousness would be compromised, and you would of course remain you—there is no one else to call you."*[84] He states that difference to the view with the digital copy is its continuity—*the digital brain doesn't diverge from the biological one, because there was never a moment when they existed as separate entities."*[85] Scenario 3 is what already happens in our brain: brain cells naturally are replaced over time, but we obviously are still the same person. Kurzweil therefore concludes: "*Again, what keeps your identity intact is information and function—not any particular structure or material."* It is not clear what he means exactly by that. At least he has not demonstrated that you can replicate the

[80] This issue also prevents AI to ever obtain consciousness – even in case of physicalism - and maybe even prevent AI to achieve other human capabilities related to intelligence.
[81] https://www.reasonablefaith.org/writings/popular-writings/science-theology/the-end-of-the-world
[82] Kurzweil, Ray. *The Singularity is Nearer*, 91.
[83] Ibid; For a lack of space I leave the possibility of such a procedure unchallenged in this paper.
[84] Ibid.,93.
[85] Ibid.

relevant information and functions in another substrate. But even if this would be possible this does not solve the general problem for physicalism or also Kurzweil's panprotopsychism regarding the persistence of personal identity over time. We grow older and every cell in our body will have been replaced by others after a period. Independent of the fact if your brain cells get replaced by artificial neurons or they get replaced by natural ones (together with the other cells in your body). If we are just our bodies, there is no personal identity persisting over time! Kurzweil describes himself as "*a self-modifying information pattern*"[86] But what does he mean by that? The information pattern at time t_1 is different than at time t_2, thus they are at least not strictly identical. However, if human beings are a body-soul unity, diachronic identity can be established by the soul. While things like our body or our character can and do change, these changes are according to Aristotle accidental (that is nonessential) changes.[87] However, the soul as our essence and set of our ultimate parts and capacities[88], does not change.[89] There are also unanswered questions in case of SD, but if one does not assume physicalism from the outset, then I submit some form of SD is the more reasonable view.[90]

Thus, personal identity leads on the one hand directly to an argument against DI because a copy of you is obviously not you, and on the other hand the persistence of personal identity is (like the arguments provided in Section 3.1) an argument for SD, and SD makes DI impossible.

Before I conclude this Section I want to show to what extends Kurzweil goes in his vain hope to reach immortality. Kurzweil has an astounding twist in his discussion at the end of the Section on the "You 2": "*And my interpretation of panprotopsychism suggests that our subjective consciousness may somehow encompass all copies of this defining information. This has another tantalizing implication. If we set a You 2 loose in the world—free to follow a different path from "You"—its information-pattern identity would diverge, but since this would be a gradual and continual process, there's a chance that your subjective consciousness could span both simultaneously.* ***I suspect that, based on the theory of panprotopsychism, our subjective consciousness is tied to information-as-identity and would thus somehow encompass all copies of information that were once identical to our own****".*[91]

That does not make any sense, even if panprotopsychism is true. If a copy of you would travel to Mars, would that mean that there is an overarching consciousness encompassing you and your copy experiencing both locations? Or if you have 100 copies on various places on the Earth would there be

[86] Ibid.107.
[87] R. Scott Smith. Kindle *Authentically Emergent: In Search of a Truly Progressive Christianity* (Eugene, Oregon: Cascade Books, 2018), 108.
[88] Moreland, J. P., and William Lane Craig. Philosophical Foundations for a Christian Worldview, 2nd ed. Downers Grove, IL: InterVarsity,2017),274-275.
[89] Loftin, R. Keith and Farris, Joshua R., ed. *Christian Physicalism?: Philosophical Theological criticisms*. Kindle ed. (Lanham: Lexington Books,2018), loc. 1662.
R. Scott Smith. Kindle *Authentically Emergent: In Search of a Truly Progressive Christianity* (Eugene, Oregon: Cascade Books, 2018), 108.
[90] In Christian circles, there is also the trichotomist view according to which humans consist of body, soul, and spirit. But this is more a matter of biblical interpretation and is of no importance to the topic of this paper.
[91] Kurzweil, Ray. *The Singularity is Nearer*, 94.

collective consciousness experiencing all the 100 locations? If you die will your copies experience that as well? Or will that experience be included in the overarching consciousness? At what point would the "information pattern" between you and your copy differ enough that the consciousnesses would split? Kurzweil has an issue with SD because of the interaction problem but he seems happy to propose these wild, implausible speculations.

Apparently Kurzweil comes to these ideas from his interpretation of split-brain data.[92] As stated above split-brain patients still have a unified conscious experience. Because of this and also because the brain consists of various sub-regions which Kurzweil *denotes decision-makers* and which according to him together produce a unified decision he speculates: "*All this raises a provocative question. If consciousness and identity can span multiple distinct information-processing structures in the skull—even ones that are not physically connected—what happens when those structures are farther apart?"*[93] However, to extrapolate from there to a kind of overarching consciousness between all personal copies, he must show how given panprotopsychism various parts of the brain generate a unified conscious experience. Next, he needs to show how panprotopsychism can explain unified conscious experience in split brain patients, and then he should give arguments how copies of you somehow produce an overarching consciousness. And he has to deal with the evidence for SD (like in Section 3.1) which at the same time are arguments against panprotopsychism. Moreover, as described in Section 3.1.2 the fact that of split-brain patients still have unified conscious experience can be seen as an argument for dualism.

4. Conclusion

In this paper I have argued that DI is problematic for three main reasons. First, there is a strong case for SD based on philosophical argumentation and based on empirical evidence from NDEs. Since a soul cannot be emulated on a computer, DI would be impossible. Second, it is doubtful that the human brain can be adequately emulated on a computer to replicate what is required for DI. Thirdly, DI is implausible because a copy of you would not be you.

People in the transhumanist community are driven by salvific desires common to all people and they are frustrated by our human problems and limitations. While DI is a futile attempt to achieve immortality, there is a genuine option available: faith in Jesus Christ! There is strong historical evidence around Jesus' life, death and resurrection[94] and the claims he made and the often-neglected evidence from miracles in Christian context throughout church history and even today.[95] Moreover,

[92] Ibid.,88-89.
[93] Ibid.,90.
[94] Williams, Peter J.. Can We Trust the Gospels? Kindle-Version. Crossway, 2018; Habermas, Gary R. *Evidences, Bd. 1, On the Resurrection*. B&H Academic, 2024.
[95] See e.g., Craig S. Keener. Miracles: The Credibility of the New Testament. Grand Rapids: Baker Academic, 2011.

NDEs are consistent with a Christian Worldview.[96] In addition, there are strong arguments for the existence of God from science [97] and philosophy.[98] Taken together Christianity is a worldview which is well supported and consistent with the facts we know about reality. Jesus grants everyone who believes in him eternal life.[99] So, I would strongly recommend the disciples of DI considering becoming disciples of Jesus!

[96] Miller, J. Steve*. Is Christianity Compatible with Deathbed and Near-Death Experiences?: The Surprising Presence of Jesus, Scarcity of Anti-Christian Elements, and Compatibility. Christian Teachings.* Kindle-Version. Wisdom Creek Press, LLC,2023
[97] See for example: Meyer, Stephen C. Return of the God Hypothesis. Kindle ed. HarperOne, 2021.
[98] See for example: Craig, William Lane, Reasonable Faith (3rd edition): Christian Truth and Apologetics. Wheaton: Good News Publishers/Crossway Books, 2009.
[99]Se for example John 6:47.

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