THE PLAUSIBILITY OF MIND UPLOADING

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Introduction[1]

In this article, I address some philosophical questions relating to the idea of uploading the human mind onto a non-biological digital medium,[2] especially its plausibility. MU is supposed to preserve all the essential aspects of the transferred mind, including memories and personality. According to "optimistic" predictions, it is also considered to maintain personal identity and enable immortality. The idea of MU is central to radical transhumanists,[3] who believe that technology can

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2 In the following, I will use the abbreviation MU to refer to the uploading of the human mind onto a non-biological digital medium.

3 The term "transhumanism" refers to a broad range of positions and efforts. See Newton Lee, ed., *The Transhumanism Handbook* (Cham: Springer, 2019); Amnon H. Eden et al., eds., *Singularity Hypotheses: A Scientific and Philosophical Assessment* (Berlin: Springer, 2013); Stefan Lorenz Sorgner, *On Transhumanism* (University Park, PA: The Pennsylvania State University Press, 2020); Robert Ranisch and Stefan Lorenz Sorgner, eds., *Post- and Transhumanism: An Introduction* (Frankfurt am Main: Peter Lang, 2014); Mark O'Connell, *To Be a Machine: Adventures Among Cyborgs, Utopians, Hackers, and the Futurists Solving the Modest Problem of Death* (New York: Doubleday, 2017); Nick Bostrom, "Transhumanist Values," *Journal of Philosophical Research* 30 (Issue Supplement) (2005): 3–14, https://doi.org/10.5840/jpr_2005_26; Nick Bostrom, "The Future of Humanity," in *New Waves in Philosophy of Technology*, ed. Jan Kyrre Berg Olsen, Evan Selinger, and Søren Riis (Basingstoke: Palgrave Macmillan, 2009), 186–216; Nick Bostrom and Rebecca Roache, "Ethical Issues in Human Enhancement," in *New Waves in Applied Ethics*, ed. Jesper Ryberg, Thomas S. Petersen, and Clark Wolf (Basingstoke: Palgrave Macmillan, 2007), 120–52; Robert Petkovšek, and Bojan Žalec, eds., *Transhumanism as a Challenge for Ethics and Religion* (Vienna and Zürich: Lit, 2021); Wilfried, Sturm, "Transhuman-

https://doi.org/10.35469/poligrafi.2025.519 | Poligrafi, no. 119/120, vol. 30, 2025, pp. 11–33

free humans from biological limitations. In this article, I present several arguments against the plausibility of MU. I favor the view that the human mind is inextricably linked to biological, psychological, and social aspects of human existence, which cannot be reproduced on non-biological digital media without losing the mind's identity. The feasibility of MU is questionable in principle, let alone in terms of the plausibility of actual implementation.

MU is a question that is highly relevant to theology and religions,[4] as it touches on key theological issues such as human nature and the nature of the person, immortality, resurrection, and human being as the image of God, e.g. how many copies of the same person can correspond to the image of God, the meaning of the sacraments, and so on. It is undoubtedly in tension with those (religious and theological) views that understand man or the human person as an inseparable unity of mind and body. Therefore, MU needs to be investigated from the perspective of theologies: how can we understand MU from the standpoint of theologies, what interpretations of MU are possible within their horizons, is MU feasible, and is it acceptable in the light of these interpretations? Which questions regarding MU are key or relevant from the perspective of religions and theologies? How can philosophy and other sciences help us with them? In this article, I will focus on philosophical aspects and questions related to MU, which are also important from the perspective of theology and religion.[5]

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ismus und Digitalisierung: Theologisch-anthropologische Perspektiven," *Zeitschrift für Theologie und Philosophie* 143, no. 3 (2021): 425–51, https://doi.org/10.35070/ztp.v143i3.3717; Tristan Samuel Dittrich, "Transhumanistische Glückstreben und christliche Heilshoffnung: Ein Vergleich," *Zeitschrift für Theologie und Philosophie* 143, no. 3 (2021): 452–474, https://doi.org/10.35070/ztp.v143i3.3677; All transhumanists advocate for human enhancement through science, technology, and pharmacology. Their perspectives differ regarding the possibilities and aims of this enhancement. Radical transhumanists believe that we should strive to free humans from all suffering and even death, and that this goal is achievable. The aim of posthumanism, which is a form of transhumanism, is to transcend the human.

4 Calvin Mercer and Tracy J. Trothen, *Religion and the Technological Future: An Introduction to Biohacking, Artificial Intelligence, and Transhumanism* (Cham: Springer, 2021).

5 A more detailed discussion of the relevance of MU to (particular) religions is beyond the scope of this article. For an understanding of the broader context of the issue of digitalization and artificial intelligence as challenges for religion, especially from the point of view of the Catholic Church, which is certainly important for a proper understanding of the relevance of MU issue for religions, see Branko Klun, "Problem religioznega izkustva v digitalno trans-

Two Assumptions: Dualism and Functionalism

The idea of MU is based on two assumptions. We can call them the dualism assumption and the functionalism assumption, although we need to be careful using the two terms, since they are used in different senses. The dualistic premise[6] that I have in mind here claims that the human mind is something different from its actual substrate[7] and that it can also be realized on another substrate, which may be of a different substance and fundamentally different in some way. For example, it is not living matter. The dualistic assumption claims that the human mind is something different from and independent of its substrate, even if it cannot exist without any substrate. The human mind is independent of a particular type of substrate, but not of any substrate, of substrates in general. In any case, the human mind and its substrate do not form an inseparable unity.

The term functionalism in the context of the discussion of MU must be understood in the sense in which it is used in the philosophy of mind.[8] The functionalist premise that I have in mind here claims that

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formiranem svetu: Eksistencialno fenomenološki pristop [The Problem of Religious Experience in a Digitally Transformed World: An Existential-Phenomenological Approach]," *Bogoslovni vestnik/Theological Quarterly* 84, no. 1 (2024): 19–32, https://doi.org/10.34291/BV2024/01/Klun; Ivan Platovnjak and Tone Svetelj, "Artificial Intelligence and Imago Dei: A New Dilemma for Philosophical and Theological Anthropology," *Bogoslovni vestnik/Theological Quarterly* 84, no. 4 (2024): 835–846, https://doi.org/10.34291/BV2024/04/Platovnjak; Tadej Stegu, "Antropološki izzivi kateheze v času umetne inteligence [Anthropological Challenges of Catechesis in the Age of Artificial Intelligence]," *Bogoslovni vestnik/Theological Quarterly* 84, no. 4 (2024): 909–919, https://doi.org/10.34291/BV2024/04/Stegu; Roman Globokar, "Pogled Katoliške Cerkve na razvoj in uporabo umetne inteligence [The Catholic Church's View on the Development and Use of Artificial Intelligence]," *Bogoslovni vestnik/Theological Quarterly* 84, no. 4 (2024): 867–883, https://doi.org/10.34291/BV2024/04/Globokar.

6 For a good overview systematising the various forms of dualism (substantial, property, interactional, etc.) and their philosophical defences and criticisms, see Howard Robinson, "Dualism," in *The Stanford Encyclopedia of Philosophy* (Spring 2023 Edition), ed. Edward N. Zalta and Uri Nodelman, accessed May 4, 2025, https://plato.stanford.edu/archives/spr2023/entries/dualism/.

7 In this article, I always use the term substrate in the sense of a material or physical substrate.

8 The term functionalism is used in the philosophy of mind to cover a diverse range of positions and approaches. See Janet Levin, "Functionalism," in *The Stanford Encyclopedia of Philosophy* (Summer 2023 Edition), ed. Edward N. Zalta and Uri Nodelman, accessed May 4, 2025, https://plato.stanford.edu/archives/sum2023/entries/functionalism/; Thomas W. Polger,

the human mind is not essentially dependent on its substrate, but on its structure. This structure can be realized or maintained on a variety of substrates, both biological and non-biological, digital and non-digital. Functionalism can be seen as a complement to dualism. Functionalist ideas and models make dualism tangible and understandable, offering a framework for scientific research and the possibility of confirming dualistic assumptions.

The use of the word dualism is particularly problematic when talking about MU, since most proponents of MU are materialists and therefore, in a sense, ontological monists. This means that they can be described as monistic "dualists," which is, of course, contradictory in a certain sense. However, the point of proponents of MU is not the claim that the human mind is something material or physical, but a certain independence of the mind from its substrate. Dualism concerns the independence of the mind from the substrate, not the (non-)physicality or (non-)materiality of the mind or its substrate. Functionalists, however, add to the thesis of independence that it is its structure that makes the mind independent of its substrate and enables its realization on different bases. Therefore, to avoid terminological misunderstandings, it may be better to speak of the thesis of independence instead of dualism, and of structuralism instead of functionalism, when discussing the position that what essentially determines the mind is its structure, not its substrate. However, there are certainly no ideal terminological solutions, since the terms independence and structuralism are also plagued by the problem of multiple connotations. In addition, in the literature, when talking about both assumptions, we mainly talk about dualism and functionalism, so we will stick to the formulation that the fundamental assumptions of MU are dualism and functionalism. Still, in concrete discussions, it is necessary to know and take into account what form of dualism or functionalism we are talking about. I will do this in the rest of the discussion.

"Functionalism as a Philosophical Theory of the Cognitive Sciences," *WIREs Cognitive Science* 3, no. 3 (May/June 2012): 337–48, https://doi.org/10.1002/wcs.1170; Robert Van Gulick, "Functionalism," in *The Oxford Handbook of Philosophy of Mind*, ed. Brian McLaughlin, Ansgar Beckermann and Sven Walter (Oxford: Oxford University Press, 2009), 128–151.

As already mentioned, in this article, I am dealing with the philosophical foundations of the idea of MU. Therefore, it is logical that the discussion that follows will mainly revolve around the two aforementioned fundamental assumptions of dualism and functionalism.

Arguments Against MU

We can give five weighty arguments based on different dimensions of human existence:[9] the biological limitations of consciousness, the phenomenological aspect of embodiment, the active perspective of consciousness, the importance of the body model for identity, and the role of the body in our social embeddedness, relationships, and life.

Biological Constraints on Consciousness

Consciousness is based on biological processes such as metabolism, homeostasis, and self-preservation mechanisms. The complex interactions between neurons and synapses in the brain are not simply information processing, but biochemical reactions. There is currently no empirical or scientific evidence that consciousness can exist without biological processes. This is a reasonable basis for concluding that consciousness cannot be imposed on non-biological substrates, because they do not provide the biochemical conditions essential for its emergence and functioning. At this point, John Searle's analogy[10] is relevant: just as a computer simulation of photosynthesis cannot produce sugar, so a simulation of consciousness cannot produce consciousness.

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[9] Georg Gasser, "Leibliche Existenz und die Vision des Mind-Uploading," *Zeitschrift für Theologie und Philosophie* 143, no. 3 (2021): 365–87, https://doi.org/10.35070/ztp.v143i3.3753.

[10] John R. Searle, "Minds, Brains, and Programs," *Behavioral and Brain Sciences* 3, no. 3 (1980): 424, https://doi.org/10.1017/S0140525X00005756.

Phenomenological Aspects of Embodiment: Object Body and Lived Body

It is very important to distinguish between the body as a bare (physical) object, i.e. the object body, and the lived body.[11] Consciousness is inextricably linked to the experience of the lived or phenomenal body, which German phenomenology calls *Leib*[12] (Edmund Husserl, Max Scheler, Edith Stein, Hermann Schmitz), and Merleau-Ponty calls *corps propre,*[13] while in English, the terms "lived body" and "phenomenal body" are used. The lived body is not just a body as an object (German: *Körper* or *Körperding*). It has two dimensions: it is a field of subjective experience and, at the same time, a field of expressions.

The boundaries of our physical body do not limit the lived body. Evidence of this is the phenomenon of the phantom limb, when people, for example, feel pain in a part of their arm or leg that has been amputated. The phantom limb is part of the lived body, not the physical body. In addition, parts of our lived body can include other entities that are not part of our physical body. There is the well-known example of a blind man and his dog's paws, cited by Merleau-Ponty:[14] the paws with which the dog touches the sidewalk on which the blind man walks are part of the blind man's lived body. Osler[15] defends the view that ar-

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11 Maurice Merleau-Ponty, *Phenomenology of Perception*, transl. Colin Smith (London: Routledge & Kegan Paul, 1962); Maxine Sheets-Johnstone, "The Lived Body," *The Humanistic Psychologist* 18, no. 2 (1990): 115–124, https://doi.org/10.1037/HUM0000150; Tonino Griffero, *Being a Lived Body: From a Neo-Phenomenological Point of View* (Abingdon: Routledge, 2023); Shaun Gallagher, "Lived Body and Environment," *Research in Phenomenology* 16, no. 1 (1986): 139–170, https://doi.org/10.1163/156916486X00103; Kevin J. Turner, "Phenomenological Dimensions of Body in the Zhuangzi," *Dao: A Journal of Comparative Philosophy* 23 (2024): 609–626, https://doi.org/10.1007/s11712-024-09959-2; Bojan, Žalec, *Človečnost v digitalni dobi: izzivi umetne inteligence, transhumanizma in genetike [Humanity in the Digital Age: The Challenges of Artificial Intelligence, Transhumanism, and Genetics]* (Ljubljana: Teološka fakulteta, 2023), 55-59, https://www.teof.uni-lj.si/uploads/Zalozba/ZnK86-Zalec-clovecnost_elektronska.pdf.

12 Hermann Schmitz, *Der Leib* (Berlin/Boston: Walter de Gruyter GmbH & Co. KG, 2011), 143ff.

13 Maurice Merleau-Ponty, *Phénoménologie de la perception* (Paris: Gallimard, 1945).

14 Merleau-Ponty, *Phenomenology of Perception*.

15 Lucy Osler, "Taking empathy online," *Inquiry 67*, no. 1 (2021): 302–329, https://doi.org/10.1080/0020174X.2021.1899045.

tifacts such as prostheses and even texts, such as texting on WhatsApp, can also be part of the lived body, which fits nicely into the framework of the extended mind thesis. The lived body is not only a body with which I am causally externally connected, but I experience the lived body directly as something subjectively accessible, which is "present" in perception, feeling, thinking, and acting, and marks my way of being-in-the-world. I can observe my body as a thing among things, and yet my lived body has a special position in relation to me, because I cannot have distance from it, as I do from other things, but I experience and live my body through it. I can put various things aside, but I cannot put my lived body aside: my lived body is always here and never there.[16] It is always "with" me. Thus, the lived body constantly determines our perspective, which is formed through it. However, Merleau-Ponty did not only speak about our body always being here, with us, he even believed that we simply are our lived body.[17]

Our lived body is the "zero point" of our reference.[18] Things can be further from or closer to our lived body, but we can never say, in the subjective space of our lived body, where exactly this point is from which things are more or less distant. Nor can we say of parts of our body that one is closer to us than the other, closer to the zero point of reference. In this sense, we can distinguish between absolute and relative place. Absolute place is only given to us through our lived body, while relative place is a place that is precisely determined according to the frame of reference. Relative place is the place of science, while absolute place is the subjective place of the lived body. Absolute place is directly experienced through lived experiencing (Ger. *Erleben*). The German phenomenologist Hermann Schmitz calls the parts of the lived body through which this direct lived experience takes place the islands of the lived body (Ger. *Leibesinseln*).[19] According to Schmitz,

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16 Edith Stein, *Zum Problem der Einfühlung*. *Edith Stein Gesamtausgabe*, vol. 5 (Freiburg: Herder, 2010).

17 Richard Ottinger, "Körperliche Leiblichkeit als Bedingung der Erfahrungsmöglichkeit von Authentizität: Walter Benjamins Begriff der Aura, (Neue) Phänomenologie und digitale Mediatisierung," *Zeitschrift für Theologie und Philosophie* 143, no. 3 (2021): 388–404, https://doi.org/10.35070/ztp.v143i3.3667.

18 Stein, *Zum Problem der Einfühlung*.

19 Schmitz, *Der Leib*.

the corporeal, in the sense of the object body, is that which is spatially relative, and in the sense of the lived body, that which is spatially absolute.[20] Similarly, Schmitz distinguishes between the relative "now" (German: *Jetzt*) and the absolute "now" of man.[21] In this sense, we can distinguish between relative space and time and existential, absolute space and time. Absolute space and time are only formed through constant horizoning by and through our lived body, which also applies to our entire perception.[22] The lived body is constitutive of both our lived space and time and our entire perception, without which the human being-in-the-world (Heidegger) or being-toward-the-world (Merleau-Ponty (Fr. *être au monde*)) is not possible. The same can be said for human consciousness. As Merleau-Ponty claimed, the lived body is not a tool of consciousness, but its fundamental condition. Therefore, consciousness cannot be imposed on a substrate that does not allow the embodiment of the lived body. Finally, the lived body plays an indispensable role in empathy and (thereby) intersubjectivity. Without empathy, our social relationships would be severely limited, and empathy is also crucial for our ethics.[23] For example, the ethical importance of compassion, which is grounded in empathy.

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[20] Ottinger, "Körperliche Leiblichkeit als Bedingung der Erfahrungsmöglichkeit von Authentizität," 398.

[21] *Ibid*., 400–401.

[22] Merleau-Ponty, *Phenomenology of Perception*.

[23] Susanne Schmetkamp, *Theorien der Empathie zur Einführung* (Hamburg: Junius, 2024), 182–190; Kerstin Krauss, *Ethik der Empathie: Eine Grundlegung* (Tübingen: Mohr Siebeck, 2023), 171–267. This view is opposed by Prinz (Jesse J. Prinz, "Is Empathy Necessary for Morality?," in *Empathy: Philosophical and Psychological Perspectives*, ed. Amy Coplan and Peter Goldie (Oxford: Oxford University Press, 2011)), who argues that empathy is not necessary for morality. Empathy can bias moral judgments. Some other emotions are a more reliable basis for morality than empathy. Despite the interesting and imaginative nature of Prinz's argument, I do not agree with him, but a discussion of his views is beyond the scope of this article. For a criticism and refutation of his views, see: Millicent Churcher, "Can Empathy be a Moral Resource? A Smithean Reply to Jesse Prinz," *Dialogue: Canadian Philosophical Review* 55, no. 3 (2016): 429–47, https://doi.org/10.1017/S0012217316000688; Carme Isern-Mas and Antoni Gomila, "Por qué la empatía es importante para la moralidad?," *Análisis Filosófico* 29, no. 1 (May 2019): 5–26, https://doi.org/10.36446/af.2019.310; Claudia Passos-Ferreira, "In Defense of Empathy: A Response to Prinz," *Abstracta* 8, no. 2 (2015): 31-35, https://doi.org/10.24338/abs-2015.216.

It is challenging to see how a lived body could be uploaded to a digital medium. Ottinger[24] argues that this is not possible, since the digital mediatization of the absolute "here" and "now"[25] is not possible. Calculations as part of research into the possibility of quantum teleportation of the human body also show how far we are from realizing the possibility of uploading the human body to a non-biological digital medium. According to these calculations, the entire human body contains such a vast amount of data that we are currently unable to store it and do not know how to, because all the data centers in the world would not be sufficient. If we were to transfer this amount of data using a 6G network, it would take 700,000 times more than the current age of the universe. So very useless. However, it is true that, given certain data on the pace of progress in the development of data transfer technology, our capabilities could increase significantly relatively soon and we may be able to transfer such an amount of data in 150 years. It is perhaps worth noting that calculating the amount of data contained in the human body does not include, as Professor Boštjan Batagelj from the Faculty of Electrical Engineering at the University of Ljubljana put it, any "essence," "spirit," "soul," or anything similar.[26]

The Active Perspective of Consciousness

Consciousness is not static but is actively oriented toward the world through the lived body. The lived body enables a spatial and temporal perspective that is essential for consciousness. Active interaction with the environment, such as is essential for humanity, is only possible through the lived body. Therefore, MU cannot maintain the active perspective of consciousness, which leads to the loss of its essential characteristics. Consciousness is the result of a dynamic interaction between

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[24] Ottinger, "Körperliche Leiblichkeit als Bedingung der Erfahrungsmöglichkeit von Authentizität," 402–403.

[25] Ottinger uses the terms "absolute here" and "absolute now" in Schmitz's sense, as enabled and "determined" by the lived body.

[26] Teleportacija - znanstvena fantastika ali realnost. Episode of the popular science television series *Ugriznimo znanost*, TV Slovenija 1, December 5, 2024, https://www.rtvslo.si/rtv365/arhiv/175091690?s=tv.

the lived body and the environment, which a non-biological digital medium could not enable.

Identity and Body Model or Image

An individual's identity is based on a specific body model or image that determines what the individual recognizes as their own and others. Changes in the body model affect the sense of identity and can cause a loss of awareness of one's own identity. This awareness is inextricably linked to its physical anchor. Therefore, MU would destroy the continuity of the sense of personal identity, since a change in the substrate would disrupt conscious experience. There is empirical research[27] showing that awareness of what is part of me and what is not, or the distinction between the two, cannot exist without an appropriate body model.

Social Embeddedness of Consciousness, Social and Existential Consequences of MU

MU would have far-reaching consequences for the social and existential aspects of human existence. A change in the physical substrate would radically transform social interaction, identity, and perception of the world. Consciousness is formed through interpersonal relationships that are physically expressed (movement, positioning in interpersonal space, facial expressions, body language, gestures, etc.). Replacing the living substrate with a non-biological digital one would significantly affect the ability for social interaction. The social context is a key part of consciousness and identity. Therefore, MU would severely curtail the social aspects of consciousness, rendering the continuity of an individual's identity impossible to speak of, and negatively affecting the quality of their experience. Human experience, experiencing, and consciousness are embedded, situated, and open to the social environment through the lived body in ways that a non-biological substrate could not provide. This embeddedness significantly determines their quality.

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[27] Helena De Preester, "Technology and the Body: (Im)Possibilities of Re-Embodiment," *Foundations of Science* 16 (2011): 119–37, https://doi.org/10.1007/s10699-010-9188-5.

Fuchs's Critique of the Possibility of MU

As mentioned above, MU is one of the ideas that are important for radical transhumanism, which promises the liberation of human consciousness from the biological body. It is based on the idea that consciousness can be digitized and uploaded to artificial systems such as computers, androids, or even virtual worlds. This could achieve "immortality" or "infinite" longevity, the elimination of physical limitations, and liberation from the pain and suffering that are inherent in biological existence.

The German psychiatrist and philosopher Thomas Fuchs gave some weighty arguments against MU.[28] Fuchs is one of the world's leading figures in philosophical anthropology in the digital age. He is the main representative of contemporary anthropology and embodied humanism,[29] which provides the broader framework and basis for his rejection of the possibility of MU. Fuchs argues that the idea of MU, although appealing at first glance, is fraught with technical, philosophical, and ethical problems. He criticizes the basic premises on which the concept of MU is grounded. He argues that MU is currently at best science fiction, since the belief in its possibility ignores the fundamental characteristics of the human mind and bodily existence. Fuchs's arguments provide a weighty complement to the arguments against MU presented above.

Technical Limitations

Fuchs points out the technical difficulties that make MU unfeasible today. These obstacles are closely related to the complexity of the human brain and the shortcomings of current technologies. Let me mention three that he cites: 1. The complexity of the human brain: the brain is composed of more than 100 billion neurons and hundreds of trillions of synapses, forming a dynamic and changing network. This

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[28] Thomas Fuchs, *In Defense of the Human Being: Foundational Questions of an Embodied Anthropology* (Oxford: Oxford University Press, 2021), 69ff.

[29] Žalec, *Človečnost v digitalni dobi*.

network is constantly adapting based on experience, environment, and internal processes, which means that precisely mapping it is almost impossible. Fuchs highlights two facts: a) the dynamic nature of neurons: neural connections are subject to constant change and reorganization. Such a dynamic network would be complicated to record technically and would require techniques that do not currently exist; b) the combination of digital and analog signals: while some neural signals can be encoded digitally, many processes operate on the analog level. These include chemical interactions and quantum processes. This means that digital reproductions of the brain would be imperfect. 2. Destructive scanning methods: current methods, such as electron microscopy, allow for precise brain scans, but they are destructive, meaning that the brain would have to die during the process. This contradicts the idea of preserving consciousness. 3. The unidirectionality of current technologies: technologies that enable communication between the brain and computers, for example, to move robotic limbs with thought, work in one direction. Uploading information from computers to the brain, such as "downloading" a new language or skill, remains science fiction. In this context, an important argument against the possibility of MU is the nature of learning: Fuchs emphasizes that neural connections are formed gradually through repeated experiences and physical interaction with the environment. This process is incompatible with the idea of the rapid digital input of knowledge.

Criticism of Functionalism

The functionalism criticized by Fuchs,[30] which could be called computational functionalism,[31] describes consciousness as an algorithm that can be reproduced on a non-biological medium. The biology of the brain is not essential for consciousness. Fuchs criticizes functionalism for, in his opinion, poor simplifications and false assumptions.

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30 Fuchs, *In Defense of the Human Being*, 4, 24ff, 71–74.

31 Tobias Müller, "Künstliche Intelligenz und menschliches Selbstverständnis. Zu anthropologischen Herausforderungen der Digitalisierung," *Zeitschrift für Theologie und Philosophie* 143, no. 3 (2021): 359–363, https://doi.org/10.35070/ztp.v143i3.3749.

Let me mention two objections: 1. Loss of subjective experience: consciousness is not simply the processing of information, but inseparably includes subjective experience. Feelings such as joy, pain, or love are not just data, but complex, sensory, and bodily experiences. Functionalism completely ignores these dimensions and aspects. 2. Searle's "Chinese room":[32] Searle rightly concludes, based on his famous thought experiment, that even if an artificial intelligence system processes data in a way that seemingly shows understanding, this does not mean that it actually understands. The algorithmic processing of symbols is without awareness and understanding of their meaning.

Digital Neutrality

Data and algorithms do not have intrinsic value or qualitative experience in themselves. The feeling of pain or pleasure is not reducible to binary values, as digital systems cannot recreate subjectivity.[33]

The Identity Paradox and the Multiplication of Consciousness

One of the most significant philosophical problems of mind uploading is the question of identity and personal continuity. If consciousness could be uploaded, it would be possible to create multiple copies of the same consciousness. This raises several questions. I can mention two here: 1. Which copy is the "real" one? Each copy could claim to be the original individual, creating an identity paradox. 2. The subjective experience of multiple copies: if multiple copies existed simultaneously, which would be the true bearer of subjective experience? Fuchs uses these questions to illustrate the absurdity of the idea of mind uploading.[34]

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[32] Searle, "Minds, Brains, and Programs."

[33] Fuchs, *In Defense of the Human Being*, 73; Mateja Centa Strahovnik, "Identiteta in pogovorni sistemi umetne inteligence [Identity and Conversational Artificial Intelligence]," *Bogoslovni vestnik/Theological Quarterly* 83, no. 4 (2023): 858–864, https://doi.org/10.34291/BV2023/04/Centa.

[34] *Ibid.*, 73.

Neuro-reductionism,[35] the Importance of the Body, and Transhumanism as Technognosticism[36]

Neuro-reductionism is the idea that the brain entirely determines consciousness. Transhumanists often assume that all aspects of personality, emotions, and identity can be reproduced as data structures in the brain. Fuchs rejects this assumption and emphasizes the role of the body: 1. Consciousness as an interaction between the body and the environment: Consciousness is not limited to the brain but involves the entire body and its interaction with the environment. Homeostatic processes such as temperature regulation, hormonal activity, and bodily sensory perception are essential for consciousness. The brain in isolation could not reproduce these dynamic interactions. 2. The embodiment paradigm: Embodiedness means that consciousness only exists in a living body that enables interaction with the environment. The body is not just a vehicle for the brain, but a key enabler of consciousness.

Fuchs, like many others, compares transhumanism to the tradition of Gnosticism, which viewed the body as an obstacle to spiritual "purity." This new Gnosticism could be called technognosticism. Transhumanists, like Gnostics, see the body as a limitation of the mind that must be transcended. "Critiques" of the body include: 1. Contempt for the body: the transhumanist vision expresses contempt for the body, seeing it as "obsolete" and "imperfect." Fuchs, on the other hand, like Merleau-Ponty, emphasizes that the body is not just a vehicle for consciousness, but its foundation; 2. The illusion of immortality:[37] Fuchs is convinced that the idea of digital immortality is an illusion. Consciousness without a body would lose its individuality and sensory dimension, which means that it would become a mere simulation of consciousness. Finally, interventions such as the "elimination" of the body are perilous. Evolutionary processes have created a complex balance that cannot be easily improved without risk.[38]

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35 *Ibid.*, 74ff.
36 *Ibid.*, 2021, 75.
37 *Ibid.*, 2021, 73.
38 *Ibid.*, 2021, 77.

An Integral Assessment of Fuchs's Critique of the Possibility of MU and Its Supplementation

Fuchs's critique is insufficiently substantiated in his critique of functionalism and other places where he repeats or uses his arguments from this critique (the argument from digital neutrality). There is a form of functionalism that understands the mind as a structure that is maintained even when its physical substrate changes. This allows for the possibility that the mind could be maintained even if its physical substrate were to (gradually) change from biological to non-biological. Such functionalism could be called structural functionalism. The structure (of the substrate) is essential for the existence and identity of the mind, not whether it is biological or non-biological.

For some time, functionalism was the mainstream in cognitive science, though some philosophers have rejected it. Among the most famous in this regard are Ned Block and John Searle.[39] Fuchs's "concise" critique of functionalism effectively repeats a well-known argument against it: that it cannot account for phenomenal consciousness, which includes qualitative moments, the so-called qualia (the feeling of red, pain, etc.), and two related moments: the "how-to-be" aspect in the sense of Thomas Nagel ("how to be a bat")[40] and the "first-person perspective" or "being-for-a-subject" (phenomenal consciousness is always consciousness for someone).[41] Fuchs's critique is appropriate for some forms of functionalism, but not for structural functionalism.

As an example of structural functionalism, we can cite Chalmers's view.[42] David J. Chalmers points out that the biological realization of consciousness is not constant but is subject to continuous changes due to metabolic processes. The human organism is not a static structure, but a dynamic system that is in a continuous process of transformation.

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[39] Susan, Blackmore, *Conversations on Consciousness: What the Best Minds Think About the Brain, Free Will, and What It Means to Be Human* (Oxford: Oxford University Press, 2006), 263.

[40] Thomas, Nagel, "What Is It Like to Be a Bat?," *The Philosophical Review* 83, no. 4 (October 1974): 435–50, https://doi.org/10.2307/2183914.

[41] Müller, "Künstliche Intelligenz und menschliches Selbstverständnis," 346.

[42] David J. Chalmers, "The Singularity: A Philosophical Analysis," in *Science Fiction and Philosophy: From Time Travel to Superintelligence*, ed. Susan Schneider (Chichester, UK: Wiley-Blackwell, 2010), 48.

Nevertheless, it seems that the functional structures of consciousness do not perceive these changes, since the changes are not observable from either the cognitive or the phenomenal point of view. If the qualitative aspects of consciousness were tied to a concrete realization based on carbon, these constant changes should probably affect phenomenal consciousness. However, since we do not observe such an influence in our experience, we can conclude that it does not exist. Therefore, if constant changes to the basic carbon structure of the organism do not affect the phenomenal aspect of consciousness, it is reasonable to assume that even the artificial replacement of these structures would not change consciousness. Even if we do not know precisely how the cognitive and phenomenal aspects of consciousness are related, it seems crucial that the preservation of the functional organization of consciousness is more important than the specific material realization. Chalmers, therefore, argues that the human organism is a dynamic system and that the preservation of the functional organization of consciousness, not the specific material realization, is crucial. Therefore, he allows for the possibility that consciousness could be realized on an artificial, non-biological substrate.

Chalmers's structural functionalism fits nicely with his understanding of consciousness through the concept of information processing. In a conversation with Blackmore, he said:

> My own view is that where you have complex information processing, you find complex consciousness. As the information processing gets simpler and simpler, you find some kind of simpler consciousness.[43]

However, the insufficiency of Fuchs's criticism to reject structural functionalism does not mean that it is reasonable to accept the plausibility of the realization of consciousness on a non-biological substrate. At this point, we can use the reason I have already given, which is shown against the imposition of the mind by Gasser, who claims that we currently do not know of any forms of consciousness that are not realized in living beings.[44] He defines consciousness as a biological phenom-

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[43] Blackmore, *Conversations on Consciousness*, 44.

[44] Gasser, "Leibliche Existenz und die Vision des Mind-Uploading," 371.

enon and justifies his thesis by referring to Aristotle,[45] Thomas Fuchs, Michael Wheeler, Antonio R. Damasio, the biologists Schulze-Makuch and Irwin, Massimo Pigliucci, and John R. Searle.[46]

Schulze-Makuch and Irwin suggest that under terrestrial conditions, the existence of a living being that is not based on carbon is unlikely:

> [N]o comprehensive bioenergetic metabolism is known to arise from non-carbon complex chemistry, despite the high abundance of oxygen and silicon on Earth, and the relative concentration of silicon on other terrestrial planets. Thus, if elements other than carbon constitute the building blocks for any living system on other worlds, they almost surely exist under conditions far different from those on Earth, including temperatures and pressures where water could not be the solvent.[47]

Pigliucci similarly notes that the idea of realizing the mind on artificial substrates is unprovable speculation. Of course, it is possible that somewhere in the infinite universe, there are conditions for consciousness to emerge on a substrate other than carbon. But suppose we focus on what is empirically given to us and what we can specifically scientifically investigate. In that case, it is improbable that consciousness, at least under terrestrial conditions, could be separated from its biological substrate and placed on an artificial medium.[48] Damasio similarly emphasizes that the core of our consciousness lies in the constant, unconscious representation of our internal bodily milieu and is thus intrinsically connected to our biological nature:

> The proto-self is a coherent collection of neural patterns which map, moment by moment, the state of the physical structure of the organism in its many dimensions.[49]

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[45] *Ibid*., 372.

[46] *Ibid*., 372–374.

[47] Dirk Schulze-Makuch and Louis N. Irwin, *Life in the Universe. Expectations and Constraints* (Berlin: Springer 2004), 108.

[48] Massimo Pigliucci, "Mind Uploading. A Philosophical Counter-Analysis," in *Intelligence Unbound. The Future of Uploaded and Machine Minds*, ed. Russell Blackford and Damien Broderick (Chichester: Wiley-Blackwell, 2014), 119–130.

[49] Antonio R. Damasio, *The Feeling of What Happens: Body and Emotion in the Making of Consciousness* (San Diego: Harcourt, 1999), 153.

Searle also argues that consciousness is a biological phenomenon:

Whatever else intentionality is, it is a biological phenomenon, and it is as likely to be as causally dependent on the specific biochemistry of its origins as lactation, photosynthesis, or any other biological phenomenon. No one would suppose that we could produce milk and sugar by running a computer simulation of the formal sequences in lactation and photosynthesis. Still, where the mind is concerned, many people are willing to believe in such a miracle because of a deep and abiding dualism: the mind, they suppose, is a matter of formal processes and is independent of quite specific material causes in the way that milk and sugar are not.[50]

On this basis, Gasser concludes, citing Wheeler, that consciousness is a biological phenomenon that is not in conflict with other life processes, but in direct continuity.[51]

Thomas Fuchs argues in the same vein. He claims that the material for a living form must be, in a certain sense, appropriate.[52] He emphasizes that consciousness cannot simply be "attached" to any substrate but must be interpreted as an expression of a living body [Ger. *lebendiger Körper*]. Consciousness is a lived experience that is in relationship with the organism as a whole.[53]

Experience, in whatever degree of consciousness, is always the self-experience of the organism in its actual relation to the environment. It is not a pure mental space or phenomenal tunnel produced inside the brain, but rather a manifestation of the animateness of the organism as a whole.[54]

We find similar thoughts in Fuchs later:

[N]o qualitative experience as such can be derived from data and information. And this is not only because of the irreducibility of 'qualia,' which are discussed in analytic philosophy of mind, but because all experience implies a basic *self-awareness or self-affection*. It is *for me* that I feel joy or warmth,

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50 John R. Searle, "Minds, Brains, and Programs," 424.

51 Gasser, "Leibliche Existenz und die Vision des Mind-Uploading," 372; Michael, Wheeler, "Mind in Life or Life in Mind? Making Sense of Deep Continuity," *Journal of Consciousness Studies* 18, 148–167, http://hdl.handle.net/1893/11393.

52 Fuchs, *In Defense of the Human Being*, 39.

53 Gasser, "Leibliche Existenz und die Vision des Mind-Uploading," 372.

54 Thomas Fuchs, "Feelings of Being Alive: Organic Foundations of Self-Awareness," in *Feelings of Being Alive*, ed. Jörg Fingerhut and Sabine Marienberg (Berlin: Springer, 2012), 162.

perceive, or think. And this self-awareness is not based on reflection or higher-order monitoring of conscious states, nor is it composed of intentional contents or information; rather, it is already present in primary experience, for instance, comfortable, thoughtless dozing in the warm sun. It is a basal *sense of self* that forms the background to all of our experiences, a *feeling of being alive* that springs from our corporeality and which manifests itself in wellbeing or indisposition, specifically in hunger, thirst, pain, or pleasure. From a neurobiological point of view, this background experience requires not only neuronal activities in the brain but vital regulatory processes that involve the entire organism and are integrated in the brain stem and higher centers.[55]

Gasser concludes his argument against functionalism as follows:

> These considerations suggest that the functional reproduction of the biochemical basis of consciousness through other materials is unlikely to be a guarantee for a conscious system, since such a system does not depend on its causal structure, but directly on its material realization. Doubts about the propagated hardware-software model are therefore fully justified.[56]

Our current scientific knowledge and experience suggest that human consciousness is inextricably linked to a material-biological basis and that functional reproduction on artificial substrates would not enable human consciousness.

Fuchs's other arguments against the possibility of MU, apart from his critique of functionalism, are weighty and provide a good basis for concluding that we have no good reasons from a technical or a philosophical point of view for claiming the plausibility of MU. Moreover, MU is also ethically problematic (e.g., the problem of multiple copies). Consciousness is inextricably linked to the body and life, which means that it cannot be reduced to data structures. Instead of rejecting or disregarding the body, we must recognize its crucial and indispensable role in shaping human identity, consciousness, and experience.

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55 Fuchs, *In Defense of the Human Being*, 72.

56 Gasser, "Leibliche Existenz und die Vision des Mind-Uploading," 375.

Conclusion

The plausibility of MU is highly questionable, both scientifically and philosophically. Based on the available evidence, a more reasonable view is that the human mind is fundamentally connected to biological processes, the body or embodiment, and social relations, making it impossible to replicate on non-biological digital platforms. The concept of MU relies on overly simplistic assumptions and ignores vital social and existential aspects of the human mind.

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