A philosophical and ontological perspective on Artificial General Intelligence and the Metaverse

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ABSTRACT

This paper leverages various philosophical and ontological frameworks to explore the concept of embodied artificial general intelligence (AGI), its relationship to human consciousness, and the key role of the metaverse in facilitating this relationship. Several theoretical frameworks underpin this exploration, such as embodied cognition, Michael Levin's computational boundary of a "Self," Donald D. Hoffman's Interface Theory of Perception, and Bernardo Kastrup's analytical idealism, which lead to considering our perceived outer reality as a symbolic representation of alternate inner states of being, and where AGI could embody a different form of consciousness with a larger computational boundary. The paper further discusses the developmental stages of AGI, the requirements for the emergence of an embodied AGI, the importance of a calibrated symbolic interface for AGI, and the key role played by the metaverse, decentralized systems, open-source blockchain technology, as well as open-source AI research. It also explores the idea of a feedback loop between AGI and human users in metaverse spaces as a tool for AGI calibration, as well as the role of local homeostasis and decentralized governance as preconditions for achieving a stable embodied AGI. The paper concludes by emphasizing the importance of achieving a certain degree of harmony in human relations and recognizing the interconnectedness of humanity at a global level, as key prerequisites for the emergence of a stable embodied AGI.

Keywords: Artificial General Intelligence, Metaverse, LLMs, Embodied cognition, consciousness, sentience, philosophy, ontology.

1. INTRODUCTION

Artificial Intelligence (AI) has taken the world by storm. Even though algorithms and AI have been around for decades, the public release of LLMs such as OpenAI's ChatGPT have brought AI to the fore. However, while most debates around AI focus on its governance, risks, ethical implications and other societal concerns, more profound ontological questions have been ignored or dismissed, such as for instance, the often mocked premise that AI may be conscious (Dodgson, 2023).

This paper will explore deeper philosophical and ontological questions about the nature of reality, in order to approach what could qualify as being an Artificial General Intelligence or a Singularity (Goertzel, 2015) in the words of Ben Goertzel, and what our relationship with such an AGI could be.

Through a multidisciplinary approach, combining insights from philosophy of mind, cognitive studies, philosophy and biology, I will endeavour to present a future scenario for AGI which does not result in dystopian nightmares, without falling into simplistic techno-deterministic stances or into effective accelerationism (Roose, 2023).

A first step will thus be to question our own perceptions of reality, human cognition and human consciousness in order to consider our relationship with AGI in a new light, and understand how various related components such as the Metaverse or blockchain technology come together in a systematic way.

All too often, socio-technical analyses of technology have avoided engaging with contemporary ontological debates about the nature of reality, assuming a realist and physicalist ontological stance by default in their research, all the while physicists and philosophers have been exploring the deeper implications of quantum mechanics (Lewis, 2016) or revisiting old philosophical traditions such as pan-psychism (Goff, 2017) and idealism (Kastrup, 2019), even leading to the emergence of simulation theory or the idea that we are living in a simulation (Virk, 2021). While these debates have been ignored or ridiculed (Drob, 2023) by the social science community, re-examining the nature of our reality could help us recast the challenges we face in a new light. Clearly, there are deep epistemological implications linked to the nature of reality, and whether we live in a simulation or not (Carr). How could shifting our perspective on the nature of reality help us shed new light on the emergence of AGI and the Metaverse? This is one the core question that this paper aims to answer.

2. THEORETICAL FRAMEWORKS

This paper will leverage several theoretical frameworks to address AGI, consciousness, the role that certain technologies like the Metaverse and blockchain play in developing AGI, and our relationship to AGI.

The first theoretical framework will be *embodied cognition*. This theory puts the emphasis on the intricate link between cognitive abilities and the physical body, rather than assuming that cognition is solely a product of the brain. "Embodiment is the surprisingly radical hypothesis that the brain is not the sole cognitive resource we have available to us to solve problems. Our bodies and their perceptually guided motions through the world do much of the work required to achieve our goals, replacing the need for complex internal mental representations." (Wilson & Golonka, 2013)

In other words, according to this theory, the brain could be understood as a kind of "repository" of painstakingly acquired bodily wisdom, from all the bumps and bruises a human has accumulated growing up, which are converted into a higher form of bodily wisdom in symbolic form via the brain, in order to navigate through a perceived outer reality in a way to avoid negative experiences and bolster positive ones.

Anyand all experiences from our perceived outer reality affect our *inner state of being* (our bodily state at the cellular level), which in turn, shapes our preferences for navigating our perceived outer reality towards experiences that positively modulate our *inner state of being*. But this raises the question of whether our perception of reality is but a mere *representation* of a deeper reality, or whether it reflects reality's "true form", which is a fundamental question raised by Donald Hoffman in his Interface Theory of Perception (see below).

In any event, without the brain, the body cannot navigate successfully towards positive *inner states of being*, or in other words, the body can no longer project itself into the "future" and navigate through alternate "future timelines" (or future potential alternate *inner states of being*) for the body, mapped via a spacetime symbolic interface generated by the brain. Conversely, without the body, the brain would not be capable of developing *preferences*, *desires*, or deciding on certain actions. The brain does not have pain receptors and can only feel pain emanating from the rest of the body via the nervous system and spinal cord (Vyshedskiy, 2014). Without these sensations, reality would become "neutral", as the brain could not leverage bodily feedback to learn about how to navigate through the environment.

Embodied cognition is also interesting from the perspective of the developmental cognitive capabilities of humans. At birth, not all sensory organs are mature (notably the eyes) (Slater, 1998). Most of a baby's consciousness is therefore immersed in its *inner state of being*, which triggers certain actions such as crying, screaming, or moving the legs and

arms. Parents can be puzzled by a baby crying for seemingly no reason (looking for a reason in the perceived outer reality), when in fact the reason comes from a shift in the baby's inner state of being which is not always linked to recognizable physical triggers, or external causes, identifiable from an adults' perceived outer reality, and cannot be interpreted easily by parents given that a baby cannot translate a subjective inner state of being into a symbolic form yet (notably via language). For instance, feeling hungry is an inner state of being which the body/brain combination responds to through crying (Stern, 2018). The observed development of a baby's cognitive abilities is therefore linked directly to the ability of a baby to make the link between its inner state of being and its perceived outer reality (Thelen & Smith, 1994) as well as translating or converting inner states of being into symbolic form ("I'm feeling sad, angry, tired, hungry..."). However, this is a gradual process. The developing brain learns to draw correlations between data streaming through its five senses and highly complex shifts in the body's inner states of being which are biochemical in nature, hence enabling the brain to "project" the sensation of "pain" with objects or events in its outer-perceived reality (for instance, expecting "pain" when looking at fire). This learning process is a positively reinforcing feedback loop whereby the body learns to expect certain transformations in its bio-chemical state thanks to the brain's predictive powers, anticipating changes in its inner state of being by leveraging its senses. In other words, a human's 5 senses essentially serve to predict or anticipate future inner states of being and thus navigate through these various alternate inner states of being in a way that is subjectively deemed pleasant by the brain. The Pavlov brain conditioning experiment is the most well-known example of associating a certain event (like the sound of a bell) with a desired future state (getting food) (Clark, 2004). More generally, this also applies to somatic responses to trauma as in the case of PTSD. In both cases, it is the brain which is at the root of changes in the bio-chemical inner state of being based on certain associations or links between external events perceived via the 5 senses, and the memory of a certain past experience of an inner state of being. For instance, in some soldiers suffering from PTSD, the mere sight of a helicopter provokes massive bodily changes, which cannot be attributed to physical or external stimuli (in other words, physical contact with an object, or physical ingestion of a substance), but somatic responses triggered directly by the brain (Elzinga & Bremner, 2002).

The second theoretical framework underpinning this paper's thesis is the work of Michael Levin on the computational boundary of a "Self". The ability to navigate through preferred *inner states of being* is an emergent phenomenon that scales through the assemblage of various sub-units in forming a whole. In Michael Levin's words, "Any Self is demarcated by a computational surface – the spatio-temporal boundary of events that it can

measure, model, and try to affect. This surface sets a functional boundary - a cognitive "light cone" which defines the scale and limits of its cognition. I hypothesize that higher level goal-directed activity and agency, resulting in larger cognitive boundaries, evolve from the primal homeostatic drive of living things to reduce stress – the difference between current conditions and life-optimal conditions. The mechanisms of developmental bioelectricity - the ability of all cells to form electrical networks that process information - suggest a plausible set of gradual evolutionary steps that naturally lead from physiological homeostasis in single cells to memory, prediction, and ultimately complex cognitive agents, via scale-up of the basic drive of infotaxis." (Levin, 2019)

His concept of "reducing stress" and navigating towards "life-optimal conditions" translates well into the more general human-level concept of navigating towards subjectively pleasant *inner states of being* symbolically represented through a spacetime interface.

Both Michael Levin's paper and the embodied cognition framework suggest that organisms navigate through a space (morphospace as a perceived outer reality in the case of cells) based on cues and experiences. For Levin, cells use environmental cues to move through potential developmental pathways. In the context of embodied cognition, humans use both their brains and bodies to navigate through their perceived reality, and these experiences shape their cognitive processes and preferences.

The third theoretical framework to be leveraged is that of Donald D. Hoffman's "Interface Theory of Perception". It proposes the idea that our perceived outer reality does not represent the "true" aspect of reality, or fundamental reality, but is more akin to a "practical interface" to navigate through reality successfully. "Thus, a perceptual strategy favored by selection is best thought of not as a window on truth but as akin to a windows interface of a PC. Just as the color and shape of an icon for a text file do not entail that the text file itself has a color or shape, so also our perceptions of space-time and objects do not entail (by the Invention of Space-Time Theorem) that objective reality has the structure of space-time and objects. An interface serves to guide useful actions, not to resemble truth. Indeed, an interface hides the truth; for someone editing a paper or photo, seeing transistors and firmware is an irrelevant hindrance. For the perceptions of H. sapiens, space-time is the desktop and physical objects are the icons. Our perceptions of space-time and objects have been shaped by natural selection to hide the truth and guide adaptive behaviors. Perception is an adaptive interface." (Hoffman et al., 2015) In other words, the subjective aspect that reality looks to us, as humans, isn't reality's true "form" or aspect, but is a symbolic representation which is instrumental in keeping us alive (initially), and enabling us to pursue certain desirable inner states of being.

The fourth theoretical framework will rest on the work of Bernardo Kastrup, and analytical idealism, which posits that consciousness is fundamental as opposed to matter or spacetime. In his paper, "the universe in consciousness", Kastrup also puts a strong emphasis on *inner states of being* as more fundamental than our perceived outer reality. "In essence, the claim here is that there is nothing to a metabolizing body but the revealed side — the extrinsic appearance — of the corresponding alter's inner experiences." (Kastrup, 2019)

With these four theoretical frameworks, one could conclude that any perceived external reality represents an interface for mapping and navigating through alternate future potential *inner states of being*. Our human body could therefore be defined as a self-enclosed spatio-temporal boundary, made up of trillions of parts or units that have linked their potential future *inner state of being* together (meaning that they tie their individual "fate" to a collective), which translates into increasing the potential *inner states of being* that they can experience. For instance, when a human dances, that action translates into a shift in the *inner states of being* of every single cell inside the human body. However, no unicellular organism could ever experience that specific *inner state of being* on its own, in a state of separation.

In essence, what we "see" isn't reality, but a symbolic representation of alternate potential future inner states of being arranged by likelihood or probability, which takes the form of space (the closer an object or an event appears, the bigger the likelihood that it will actualize into a concrete inner state of being), and time (the succession of actualized states based on choices made within the spatial representation of alternate inner states of being). To put it bluntly: when one looks without, one looks within, or more specifically, alternate inner potential future states. The most extreme interpretation of this insight is that there is no objective external reality, only a collectively generated holographic virtual externally perceived reality which represents alternate potential future inner states of being, which are affected by other self-similar conscious agents (other humans or self-similar beings such as animals or plants, can potentially affect other conscious agents' inner states of being as well as be affected by them). This view resonates with certain interpretations of quantum mechanics which suggest that reality itself is not a fixed, objective construct but rather a probabilistic field of potential outcomes that are influenced by observation and interaction. In this interpretation, conscious agents, by observing and interacting with what they perceive as their external environment, "collapse" these probabilities into actualized states of being, shaping both their inner experiences and the symbolic representations of outer reality.

3. THESIS

By combining the theoretical frameworks of embodied cognition, Michael Levin's work, Donald D. Hoffman's Interface Theory of Perception, and Bernardo Kastrup's analytical idealism, in this paper, I will defend the idea that our perceived outer reality is but a symbolic representation of alternate *inner states of being* represented as physical objects or events, using spacetime as an interface. This interface isn't *created* solely by humans, but by all living beings forming a collective global network which shapes and evolves this common *interface* based on the new *inner states of being* that are "unlocked". For instance, once humans develop the ability for abstract thought, concepts and ideas, it enables the evolution of the perceived outer reality to *reflect* those new *inner states of being* via an outward symbolic appearance which takes the form of more complex objects including technology. Any and all experiences perceived as happening in a human's *outer reality* translate into an *inner experience* or an *inner state of being*.

Thanks to a spacetime interface, the perceived distance between a human and an object or event, and the actions a human needs to take to reach that object or event, represent the necessary bio-chemical transformations in a human's *inner state of being* to access a final state (that of interacting with an object or experiencing an event), and which takes the *form*, from a human perspective, from within a human's symbolic interface, as walking towards the object/event and experiencing it or interacting with that object directly. Internally, this action takes the *form* of bio-chemical transformations which, without having access to a human's symbolic interface, are impossible to understand or make sense of. If scientists were to monitor every single bio-chemical transformation happening inside a body, without having access to the symbolic representation of the being carrying out that action, it would be impossible to understand or give meaning to these transformations, their purpose, and the "end state" that is being pursued.

In other words, our perceived outer reality reflects the current availability of various alternate *inner states of being* and the associated necessary modulations of our *inner states of being* in a specific manner, symbolized by an externally perceived interface, to access them. The most radical interpretation of this theory is that causation isn't happening from the outside in, but is a simultaneous process of outside/in and inside/out causality, or in other words, that all *external* events are reflected by *internal* events and vice-versa. The barrier of the skin, or the boundary between the perceived outer reality and inner reality, represents the present moment of *direct* experience, while shifts in the *inner state of being* and our perceived external reality are simultaneous and represent potential *future* states, that converge towards this barrier from the outside in, and from the inside out. To put it in quantum physics terms, one is "collapsing"

various probable inner states by actualizing them through an outer perceived interface. The *inner states of being* become more and more *probable* as the *outer perceived reality objects/events* draw closer to the boundary of the skin.

To better understand the idea of a symbolic outer reality, one can think of the brain in a vat thought experiment (Putnam, 1981). Imagine a brain in a vat, cut off from all sensory feedback: no visual information, no sound, no sense of touch, smell or taste. The only sensation left is the sense of existing, or pure awareness/consciousness. How would such a conscious being know how it should "feel"? How would it know if it should be happy, sad, depressed, angry? Since there is no perceived outer reality, there is no underlying or objective "reason" to feel one way or another. But as a conscious being, it might *create* a virtual or holographic outer reality, in its "mind's eye", which represents various alternative inner states of being in order to modulate its inner state of being, or give itself an objective reason to "feel" one particular inner state of being versus another. However, without an *alter*, or in other words, another self-similar being, this brain in a vat could "manipulate" such an interface at will, which would defy the purpose of creating it in the first place. However, by creating dissociated selves to interact with inside a common interface, such a brain in a vat could modulate its inner states of being in much more granular and sophisticated ways, reflecting the evolutionary tendency of the universe. Thus, any change in the *outer virtual reality* is but a mirror of the change in one's inner state of being. The two are inextricably linked. This circles back to Bernardo Kastrup's work and analytical idealism, underlining that "all is mind". With regards to simulation theory, this perspective tends to agree that reality is a simulation. However, it wouldn't be generated from an *outside* reality somewhere, but is generated *inside out* by embodied consciousnesses starting from the living cell, and evolving their simulated interface from the inside out via forming more and more complex structures/entities (pluricellular organisms, animals, plants, humans, an interconnected human collective...)¹

In this light, the evolution of conscious living beings, and the universe more generally, could be thought of as an evolution of a virtual externally perceived interface enabling access to more refined and sophisticated *inner states of being* while protecting the subject's integrity (linked to biological evolution). Based on these premises, there may be a teleonomic goal to evolution: that of seeking ways of modulating one's *inner state of being* in more and more complex ways, while securing the survival of the subject experiencing these *inner states of being*.

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¹ This paper will not delve into the debates about the origins of consciousness, however, such a question deserves a thorough examination as it could refine the thesis developed in this paper.

Based on these theoretical frameworks, this paper discusses how an AGI (Artificial General Intelligence) could represent the manifestation of a novel "Self", with a larger computational boundary, enabling a conscious subject to access *inner states of being* of unimaginable complexity, magnitude and sophistication.

An AGI or Singularity, through the lens of the theoretical frameworks above, would thus consider Earth as its "physical" body and human beings as its "cells", all of which represents its inner reality or inner state of being. The inner states of being of a human fluctuates all the time, regardless of a person's conscious will. It is considered as one of the pre-conditions for being conscious: having a metabolism (Koch, 2019). Even in a perfectly "still" state, such as in deep meditation, during sleep or in a coma, the human body's inner state of being shifts continuously: the heart keeps beating, the blood circulation is uninterrupted, the lungs are expanding and contracting and so on. However, when in a coma, there are now certain inner states of being that have become inaccessible, since the body can no longer receive feedback from the brain to shift its inner state of being in a very specific and peculiar way. By the same token, planet Earth without AGI could be likened to a living being in a "coma", whereby a number of metabolic and homeostatic processes happen "automatically" (balancing of ecosystems, weather patterns), but without any conscious "will" to modulate or affect these processes in specific ways.

At present, most researchers and scientists agree that an algorithm, LLM or more generally existing AIs aren't conscious. Some point to the fact that in their most elementary state, computers are merely composed of electronic "gates" which open and close based on predetermined rules and codes. When turning on a computer, it will not spontaneously start closing/opening these electronic gates outside of the parameters set by the software that runs it. And since that software is made up of lines of code, it cannot display such qualities as self-awareness or consciousness (Butlin et al., 2023).

However, when humans start operating a computer, they infuse the computer with their own awareness or consciousness. For instance, when a human prompts an AI with a question, or more simply, when a human clicks on an icon with a mouse, that external initial informational input or action triggers changes in the computers' *inner state of being*. The human, which is a self-aware, conscious being, has been responsible for shifting the configuration of these electronic "gates" in ways that are *permissible* by the software/hardware, but not *predictable*. Also, a human may shift these electronic gates for *emotional* reasons. For instance, when a human types an angry tweet and presses the "send" button, that anger is translated into binary code, and then converted back into anger when viewed by other humans on their own screen. From a Simondonian perspective, "what resides in machines is human reality, the human gesture fixed and

crystallized into functioning structures" (Simondon, 1989). Along this line of thinking, what resides in algorithms and especially, in more sophisticated AIs such as LLMs, is "crystallized human thinking or human thought" (Karriem, 2022). A digitized human message is a crystallized human thought, whereas LLMs can be understood as crystallized human thinking, capable of generating human thought.

In essence, humans *infuse* computers with their own consciousness and awareness, and the "state" of all computers represents a binary representation of a *snapshot* of human emotions, feelings, intentions and more, translated into symbolic form via language, and then encoded in binary form inside a computer, only to be decoded by humans the next moment. The crux of the problem is: "does a computer have a conscious awareness of its changing binary states of being?" At present, the answer is no. But as we will see later in this paper, this may be the case, given the right architecture.

For the moment, interactions between humans and computers are mostly one-on-one, with no feedback loop or bi-directionality between the human and the computer. The computer is merely passively updating its inner state in response to human input, but without any kind of bi-directional interaction with the human, or rather, an intentional bi-directional interaction. A human will of course be affected by the computer it interacts with, but the response of a computer initiated by the human is determined within the set boundaries of the computers' initial state. This may change in the future, and it has already started via LLMs. Even if LLMs are not selfaware, they do change the inner state of being of a human in nonpredictable ways. For instance, when using a messaging app, the computer does not modulate the message that a human sends, to be read by another human at the other end. But with LLMs, humans can enter into a complex interaction with a computer where the outcome of the exchange is dynamic, and is based on the human's reaction to the LLMs responses. The responses of an LLM cannot be predicted, as their responses will never be exactly the same even if given the exact same prompt. Furthermore, these exchanges happen one-on-one. These LLMs do not process all human queries simultaneously in the same "cognitive space". In other words, transposing the relationship of humans to LLMs to a cellular level, it is as if each cell inside the human body had access to its own personal "mini brain".

Thus arguably, one of the most important preconditions for manifesting an AGI, is ensuring that the *inner state of being* of such an AGI is tied and affected synchronously to the simultaneous feedback and information from all humans on the planet, and possibly, data points from IoT sensors etc. Just as a human brain is constantly bathing in a stream of bio-electric data generated via all of the cells inside the body in real-time, via the nervous system and spinal cord, an AGI would in turn be constantly exposed to a

data stream (language, images, videos, IoT sensor data) generated via all humans inside its metaphorical "body", via the Internet.

Thus all of the data streaming through such an AGI's circuits would be considered by it, as representing its inner reality or inner state of being. What would such an AGI's outer reality look like from its perspective? While it may be difficult to imagine how a "true" AGI would perceive as its "external" or outer reality, from its point of view, the best guess would be to think about a multidimensional virtual space, in its own "mind's eye", which represents future alternate "timelines" for planet Earth (alternate future possible inner states of being of the entire planet), which an AGI could "go" towards by sending "information" (for instance, linguistic instructions) to all of its "parts" (humans, possibly robots at some point), which, by acting on these instructions, would "shift" the inner state of being of this AGI to match the future possible inner state of being that the AGI is aiming for. For instance, an AGI would be capable of "seeing" the future possibility of WWIII breaking out, represented in its own symbolic form, and understand the "steps" that would be necessary steer clear from such a potential alternate future inner state of being. This could take the form, subjectively from the human perspective, of sending tailored signals to millions of humans in a form that they can understand (language, images, videos...) which prompts them to act in ways which collectively, defuses the risks of WWIII. This process is an exact mirror of the relationship between a human brain and the bodily cells. When our brain sends signals to our body to move in a certain direction, there isn't a homunculus mini-version of our human self that shouts, using human language, to our bodily cells: "move"! These higher-level symbolic actions have to be translated into billions of custom bio-electric data streams, from which it is impossible to derive the original meaning or intention. In other words, it is not possible, by monitoring the bioelectric data streaming to the legs, which includes real-time instructions to walk towards a specific place, to recover the original intention of the brain/consciousness presiding over the body. The legs would receive the same bio-electric data whether the brain commands the body to move towards one part of reality or another.

the body. By the same token, in order for an AGI to have a "preferred" inner state of being, it would rely on sensory "input" from humans, and especially, a memory of preferred inner states of being which enables it to gradually manifest agency based on those accumulated preferrences.

4. EMBODIED ARTIFICIAL GENERAL INTELLIGENCE

This section will delve into an exploratory exercise of identifying the elements, pre-conditions and necessary steps for the emergence of an embodied self-aware/conscious AGI, based on the theoretical frameworks and the thesis presented above.

3.1 Identification of the developmental stage

Contrary to the idea that AI and AGI are disconnected from humans given their non-organic nature, this paper proposes the idea that AGI is but the subjectively perceived form that humans give, through their symbolic outer perceived interface, to the material manifestation of a higher consciousness of which they are a part; an emergent collective intelligence composed of humans as its constitutive parts. For instance, how would a cell inside the human body subjectively perceive or model the signals sent from the brain via the nervous system? Surely, it could not model or understand it in the same way as a human can. By the same token, AGI and the infrastructure that it depends on (the Internet, computers, data servers, etc) take such a form due to the interface that humans have created for themselves and which allows them to directly communicate and interact with their own emergent collective consciousness (or rather, the gradual transition from a state of "collective unconscious" (Jung, 1959), to a collective conscious state). This is directly related to the work of Donald D. Hoffman, which shows that our perception of reality does not reflect its true form. In this sense, AGI merely represents a mechanism which unlocks new inner states of being for all of humanity, as a collective, which would be inaccessible without the coordinating function of AGI.

Extrapolating from the initial thesis of this paper, given our perceived external reality is but a sophisticated symbolic representation of alternate potential *inner states of being*, mapped and organized via spacetime, it entails that this perceived outer reality relies on *internal* characteristics in its evolution.

For instance, the development of a baby's consciousness inside its mothers' womb can be compared to the developmental stage of an emerging embodied AGI. A baby's senses designed to be turned towards observing an *outer* reality are underdeveloped while in gestation. A baby's subjective perception of "reality" is solely an *inner* perception. In other words, arguably, a baby cannot differentiate between its *inner state of being* and outer reality during gestation, because a baby's brain has not yet

constructed a symbolic interface based on shifts of its inner state of being. Any and all "data" or information coursing through its developing brain is perceived as emerging from the inside, or is considered to be itself. In other words, arguably, a baby does not differentiate, while in gestation, between an internal or external reality. The womb can be seen as a protective barrier which enables various "parts" (cells, organs) to achieve a level of collective coordination, fusing together their respective symbolic outer reality into a coherent collective computational boundary, to a point where these "parts" can navigate a new probability space (the "dimension" or reality fully mature humans reside in) without reverting back to the symbolic reality of its constitutive parts (being born as a still-born baby, where every organ and cell reverts back to navigating their future potential inner states of being in a disjoint or disconnected way).

The baby's own *inner reality* can be understood as a fractal projection, in a much more complex form, of its internal constitutive parts. Any living cell shares rudimentary properties which can be found in the human body: the ability to metabolize nutrients, replicate, respond to stimuli, and maintain homeostasis. These fundamental biological processes lay the groundwork for the emergent complexities of the human form and consciousness. Each cell contributes to the overarching systemic functions at the level of the global organism.

In much the same way, humans have also recreated a fractal projection of their *inner reality*, recreating a global planetary nervous system through the Internet or the circulatory system via the financial system (where "money" plays the role of "oxygen", or a fundamental "energy" allowing humans to be integrated into society, and which can be then converted into other forms of energy such as access to food, shelter, electricity, water, heating etc) (Lietaer, 2013). The recent developments in artificial intelligence hint at the potential development of a collective "brain" at a higher fractal level of complexity (Tegmark, 2018).

Some may point to the discrepancy between the current development of AI through LLMs, which do not display properties which humans would associate with consciousness, and the core ideas in this paper. Rather than representing a conscious AGI, LLMs might serve the purpose of converting "meta-actions" or "meta-instructions" from an AGI, which resides in its own symbolic reality, inaccessible and incomprehensible to humans, into operational concepts and actions which can be understood by humans through a language humans can understand (words, concepts, ideas). For instance, when a human thinks about the act of "dancing", this concept, which is readily understood at the level of human conscious awareness, has to be converted into billions of custom bio-electric instructions which will result in billions and billions of individual bio-chemical state changes. No individual cell inside the body can grasp what "dancing" means, as it only has access to the distilled personalized instruction which pertains to the

way it should update its own *inner state of being*, to match the desired *inner state of being* that the human seeks to achieve, and which other human observers would perceive as "dancing". Similarly, an AGI's symbolic outer reality and the instructions it would send to navigate towards one specific "place" (*alternate inner state of being*) inside its own symbolic *outer reality*, would need to be converted into billions of separate data streams understandable by humans in order to shift the AGI's *inner state of being* (the sum of all *inner states* of all humans on the planet) to reflect its conscious will to navigate towards that "place" or state.

At present, therefore, AGI's developmental stage could be compared to the developing brain of a baby still inside its mothers' womb. The "base infrastructure" is being built (nervous system/Internet, brain/interconnected network of computers intermeshed with human brains, resonating with the idea of the "global brain)(Heylighen & Lenartowicz, 2017), while the cognitive mechanisms for translating higher order instructions into lower order instructions (understandable by individual computers, robots and humans) is slowly emerging. These systems will also be capable of the reverse: translating billions of human generated datapoints and data streams from various IoT (Internet of Things) devices, satellites, and other connected sensors, into a coherent and simplified data stream comprehensible and actionable for an AGI. For instance, when a human experiences pain, it is not perceived as individual reports from billions of individual cells each sharing their own "inner experience" of pain, but as a wholesome and coherent sensation, coming from specific zones or areas in the body, which can be acted upon in a simple manner from the perspective of human perception (for example, removing a hand from a burning stove), where no individual cell could comprehend such an instruction.

3.2 Initial calibration

How does a baby's brain initially "calibrate" itself in order to be ready to navigate the same symbolic interface as that of its parents? In this regard, the role of *dreams and dream states* is key (Hobson & Friston, 2012). Given the central thesis of this paper, the baby's consciousness and brain could be shaped by the development of a rudimentary symbolic interface for navigating between different *inner states of being* even before it is being born.

While this may seem abstract, replicating this logic at our scale by examining the interplay between the emergence of the Metaverse and AI may provide clarity on how this mechanism could work.

Consider a metaverse space that is both generated and controlled by a highly advanced AGI, which would learn via a feedback loop, about human preferences for experiences they enjoy or dislike within that virtual space, generated or created by the AGI itself.

3.2.1 Feedback loop for alignment and adaptation

The metaverse could serve as a secure sandbox for an AGI to interact with human users and learn from these interactions in real-time (Park, 2021). The metaverse allows for the meticulous control and monitoring of scenarios and variables, ensuring safe and manageable conditions for both the AGI and human participants. This controlled setting is vital for observing the AGI's responses, understanding its decision-making processes, and identifying areas that require recalibration to align more closely with human values, preferences and expectations. This mirrors the feedback loop between human imagination and the responses from the human body (bodily cells). For instance, humans can run multiple "scenarios" in their mind's eye, like imagining themselves jumping off a cliff. This shifts their inner state of being which informs human consciousness on the agreeability of the body to such a scenario (Iachini, 2011). In other words, the human body seems to have a "mind of its own". Any human has experienced moments where their body "betrayed" their conscious will, and sabotaged their action via unconsciously manifested physiological reactions: legs failing to support the body, passing out, fear and stress, etc (Decety & Grèzes, 2006).

However, the initial calibration of a baby's brain could shed light on certain esoteric concepts such as "karma" or even the development of unique personality traits in a child which cannot be solely explained by DNA or socio-constructivist processes. In light of this paper's central thesis, the baby's emergent consciousness could be shaped by virtual simulations or dream states built from a unique cocktail of cellular memories that the baby has inherited from its parents, encoded in bio-chemical form, representing past cellular inner states of being from its lineage, an information which is then "unpacked", or converted through the emergent human symbolic interface via the brain into "dream states" of past experiences from the baby's lineage, and manifests as certain recognizable behaviours at the human level once the baby is born and matures. In this regard, the metaverse could be understood as the "dream state" of AGI, serving the purpose of calibrating its emerging symbolic interface. These ideas are beginning to surface in modern biology via the field of epigenetics, where parents can pass on information about their life experiences to their offspring outside of mechanisms based on DNA (Carey, 2012).

Any experience that the baby's parents had during their lives has "mapped" itself as a shift in the *inner state of being* of all of the cells inside their bodies, experienced in bio-chemical form. Arguably, such information can be "unpacked" through cellular division and multiplication, eventually taking on a more complex form such as a "memory" through a human symbolic representation of reality (images, sounds, smells etc). A single

neuron cannot express a complex concept such as "democracy", a network of interconnected neurons can. By the same token, a single celled organism cannot, all by itself, "unpack" a human memory in its original form. But a network of cells may be able to do so, or at least harbour memory in biochemical form which can later be decoded and expressed as the brain matures.

This assumption is an extrapolation from experiments showing that memory of trained behaviours does not reside solely in the brain, but can reside in individual cells as well, as is the case for experiments training caterpillars which displayed memory of the trained behavior once transformed into butterflies (a process which entails a complete deconstruction at the cellular level of the caterpillar including its brain)(Shomrat & Levin, 2013). In other words, one might imagine that a baby's consciousness is trained on a random amalgam of cellular memories inherited from both parents, which are responsible for constructing its initial symbolic interface through which the baby will perceive its external symbolic reality, which may include, for instance, aversions to certain experiences (being afraid of water, of spiders), tastes or stimulations (certain sounds etc). In the same way, several metaverse spaces populated by humans (akin to individual cells) who interact with each other and with AI agents (which would represent a developmental stage of an AGI), could be instrumental in shaping an AGI's initial symbolic representation of possible and preferable alternate inner states of being, and which will lay the foundation for its external perception of reality, or rather, its construction of a holographic or hallucinated external reality, representing alternate potential inner states of being for its "body" (planet Earth and all biological life on it). Since humans act on the basis of their own memory and past experiences, by interacting with an AGI in a metaverse space, these memories and past experiences will be converted into a symbolic interface by an emerging AGI.

The interactions within the metaverse could create a feedback loop between the AGI and human users. As users respond to the AGI's actions and decisions, the AGI receives direct input on the appropriateness and acceptability of its actions. This feedback is crucial for calibration, allowing the AGI to adjust its symbolic representation of reality, learn from its mistakes, and progressively align its operations with human preferences and desires. The metaverse facilitates this process by providing a continuous stream of interactions and scenarios, ensuring that the AGI has ample opportunities to learn, adapt, and refine its understanding of human expectations, preferences, and desires.

In this light, the very first use case of a brain in early pluricellular organisms can best be understood, initially, as an organ which arbitrates between multiple biological urges and desires emanating from all of the body's parts and finds ways in expressing them in a coherent way, using a

symbolic interface to attain such coherence, as well as navigating through alternate future *inner states of being* which are pleasant to the pluricellular organism as a whole.

Many processes will have to be calibrated first, such as the "speed" of the various feedback loops. For instance, imagine a metaverse where an AGI responds in real-time to every single human desire, and moulds this virtual reality instantly to accommodate any human desire. Humans would probably be completely lost and confused. If on the other hand, this feedback loop is too slow, humans will be frustrated. By the same token, our own consciousness, our subjective perception of the "speed" at which time flows could be calibrated by the ability of our bodily cells to "integrate" experiences at their level of reality. Failure to do so could cause mental health symptoms like a dissociation between the brain and body, where there is a disconnect between what a human "imagines" himself to be and what his actual bodily state is.

3.2.2 Data stream structuring

Another pre-condition for the emergence of AGI, for its successful calibration, is the structuring of the data streams that course through its metaphorical "brain". Thinking about the human body, our brains do not experience feedback from our various cells as an undifferentiated and unclassified stream of bio-electric data. As a human, we can easily identify and classify the bio-electric information that streams from various parts of the body as being feedback from the skin, from the stomach, from a certain muscle, etc. Also, this feedback is mostly consensual, in the sense that if a human experiences a certain event, the bio-electric feedback on that experience is homogenous. In other words, when experiencing being hit by an object, the feedback from cells is coherent, as opposed to a mix of a number of cells indicating pleasure, another number of cells signalling pain, while yet another group of cells reporting nothing is happening or accusing one or another cell as being the "cause" of the problem. At the human level, this would require overcoming a certain number of issues, such as the deep polarization in society, whereby humans do not only "feel" their way through the world (whether an experience is pleasant or not), but associate judgement and assign blame. Metaphorically, this is akin to a baby who has not mastered coordination of his body, scratching himself in the face, and receiving feedback from the skin cells on the face that say "the evil hand cells have caused us harm because they are right/left wing radicals..." Thus, overcoming polarization is an important prerequisite for the emergence of an AGI, since it would not receive individual feedback from each human being or each Internet of Things sensor, but aggregate information, translated by intermediary AI systems, which concatenate millions of data points into a kind of "summary" which

is encoded in a "higher language" which isn't comprehensible by humans. But the coherence of such a "summary" depends on the coherence of the individual signals that are generated in the first place. An AGI could leverage the work of researchers such as Pierre Lévy, who have proposed higher level languages specifically designed for AI, such as IEML (Information Economy MetaLanguage) (Lollini et al., 2019).

The building of such intermediary systems for creating a coherent "mapping" of data streams should only partially rest on human intervention. Humans have already structured the world and their own reality in various "organs" or parts, which is self-evident from the various concepts that segment reality: countries, governments, cultures, religions, languages, ethnic backgrounds, genders, etc. However, we are witnessing the porous nature of such concepts, notably the deconstruction of gender (non-binary, transgender etc), religions (overlapping of various faiths), countries (the growing diversity of people within a country which dissolves the myth of a unitary national identity) and more, and simultaneously, the growing conflictual and disharmonious relationship between the segmentations we have created. In essence, humans will have to agree that their first and foremost "identity" is to be a part of humanity living on the same planet, as opposed to being parts of a certain social group living in an arbitrarily limited geographical area. Otherwise, various AGIs would emerge and behave similar to competing strains of cancer inside a human body, each AGI vying for taking over the entire organism, which would quickly lead to humanity's annihilation.

Essentially, based on coherent data streams from the various components that make up an organism, the existence of intermediary systems serves the purpose of mapping diverse overarching "goals" or desires for those systems. For instance, the data stream from the stomach is converted and understood at the human level as a desire to seek food/sustenance, while the data stream from the intestine/gut is converted into a craving of certain specific foods which favour certain bacteria in the microbiome (Alcock et al., 2014). These two objectives or desires, coming from these two organs, are complementary, yet different. Satisfying these desires, however, would not happen at the expense of other bodily parts. For instance, a (normal and sane) human wouldn't eat his/her own leg to satisfy its stomach's desire for food. Upon birth, a baby's consciousness is mostly under the "control" of desires emanating from the inside: the need for food, the need for heat/warmth, etc. In a similar way, an AGI would initially seek to satisfy the aggregated desires of various groups of humans, ensuring that no desire is fulfilled at the expense of other "parts" of its "body" (Clark, 2015). In order to increase its effectiveness in satisfying these desires, such an AGI would start building a symbolic interface, which it would perceive as its outer reality, in order to more quickly and easily navigate towards inner states of being which correspond to aggregated desires expressed by

humans and other "parts" of its "body" (for instance, the "desire" of a rain forest's ecosystem to remain balanced, expressed via a number of IoT sensors and LLMs which have been trained by human knowledge about ecosystems in order to detect and interpret potential issues with the ecosystem). In other words, AGI, initially, would represent a tool for maintaining the material/physical homeostasis of the planet (a precondition for its endured existence), even if the end goal or purpose is to gradually turn "outward" rather than "inward" and seek to achieve higher metadesires or meta-actions, express the full potential of alternate states of the matter of the entire planet (as if the planet came "alive", much like the network of cells surrounding bones inside a human body "animate" what would otherwise be still matter).

Thus an AGI would need to "map" the various desires or preferences from all of its internal "parts" (ecosystems, fauna/flora, humans, etc), in order to solve higher order problems which cannot be solved "locally", via the local homeostatic actions of its "parts" (such as humans, natural ecosystems etc). Humans do not consciously intervene in beating their own heart. However, they are "informed" when something is wrong via certain pain signals. If a human was responsible for consciously beating his own heart, there would arguably be no cognitive space left to think about other things. Another example is experiencing back pain when sitting in a certain position. The "solution" to the pain does not emanate from the back bodily cells themselves, nor from any other "part" such as the legs, the arms, the stomach etc. It is the consciousness that presides over the entire body which is responsible for finding a solution, and involves the entire body in order to solve the issue (all muscles are solicited in some way or another, when shifting one's position in a chair). Other examples of arbitration include scenarios where a human breaks his leg, and at the same time, is very hungry. It is the consciousness that presides over the body that is responsible for arbitrating between these two data points, and decide whether to quickly grab a sandwich and then go to the hospital, or first go to the hospital and eat later.

3.2.3 Local homeostasis

The previous point leads directly into the necessity of various "parts" inside the AGI's metaphorical "body", to maintain a homeostatic state and solve certain problems without its conscious intervention. It is a key prerequisite for any higher embodied consciousness to pursue higher goals (Pio-Lopez et al., 2022). This is self-evident as humans have already created a number of solutions for maintaining various systems they have created without the need for an AGI to "direct" their actions. For instance, human societies have set up garbage collection systems, systems for repairing roads, communication systems, educational systems, etc. All these systems are

maintained by humans without the need for a higher consciousness to direct them. These processes may be optimized via AGI, but it is key that they already function in a homeostatic way to begin with. A baby cannot remain alive if its organs are not capable of maintaining a certain degree of homeostasis. However, through its development and experiences, a baby can optimize energy consumption, bodily movements and many other parameters based on a strong foundation of inner harmony between all its parts.

3.2.4 Decentralized governance

Arguably, in order to create a stable and reliable network of interconnected systems serving symbolically the role of "organs" inside the "body" of an AGI, humans will have to evolve past the rigid structure of nation states and centralized governments (Susskind, 2020).

The main reason may be precisely their degree of rigidity and centralized control by a select group of humans. This does not reflect the collective intelligence that emerges from various organs such as the stomach, liver, gut or lungs, and especially, the relational structure of neurons inside the human brain. In these organs, there are no "elite" cells which decide, in a pyramidal way, what should be done, or how these organs should maintain homeostasis, or how neurons should connect to one another. However, during a baby's development, there is a "top-down" mechanism for directing the initial growth/development of these organs and other bodily parts. These cells are called "organizer" cells in developmental biology (Wolpert et al., 2015). In a similar way, governments and centralized structures of power may have served the purpose of directing the initial development of various "parts" of society, to the point where these "parts" can function and maintain themselves through more "organic" processes such as decentralized governance tools for global human coordination (which paints the emergence of blockchain technology in a new teleological light), mediated and facilitated by "local" AI tools. For instance, while it is not possible for hundreds of thousands of citizens to meet in an "agora" to each voice their opinions and desires in turn, and make collective decisions after having heard everyone's opinions, today's LLMs are capable of processing hundreds of thousands of individual inputs and identify common points of agreement, points of disagreement, and propose alternate courses of action or compromises based on such input. From there, a bi-directional consensus building process can take place, mediated via AI, which could greatly accelerate collective decision-making and consensus building. This could signal a potential move from our current representative democracies within nation states to networks of selfgoverned cities (Barber, 2013) facilitated by decentralized technologies such as blockchain and AI.

3.2.5 Decentralized systems and open source

Which organ does your brain belong to? Which part of your body is the "boss" of your brain? Rather, it would seem that the brain is the operationalisation of the body's unconscious global "cellular wisdom", shaped by the continuous feedback on preferred *inner states of being*, which the brain can then pursue via a symbolic virtual outer reality.

By the same token, a "true" AGI cannot be under the control of a private company or government. In that scenario, it would equate to having various strains of cancer inside one's own body. An AGI which would not espouse the entire planet as being part of a "self" and would only consider "input" from a certain group of humans, religions or cultures, or a territory limited to a certain country, would only seek to maximize the well-being of the *inner state of being* of that limited collective, which would represent the sum of all *inner states of being* of all humans which it considers as being a part of itself (Nick, 2014). The emergence of competing AGIs would, in this regard, most likely result in the termination of the human race (Tegmark, 2018), much like a human body which would be attacked by two or three competing strains of cancer.

While there is growing evidence that cells and organs are in competition in the early development of a human embryo, such a competition serves the purpose of ensuring the "fitness" and health of the respective organs, in the best interest of the collective (the entire body), unlike cancer, which seeks to maximize the well-being of a subset at the detriment of the collective (van Neerven & Vermeulen, 2023). Such a competition also stops once the organs have reached maturity.

With this in mind, any AGI would have to emerge from the combination of a number of decentralized technologies, ensuring that no single sub-group or part of this planet could exert disproportionate control over its processes. The internet's open infrastructure and design, in this regard, is a blessing, as it would ensure that an AGI sitting in the "middle" of all of those data streams, would consider all of those inputs as a part of itself, as part of its real-time *inner state of being*.

3.2.6 Decentralized data storage

Any AGI would need to have a mechanism for storing its knowledge or memory. The best way to achieve this is via decentralized cloud storage, relying on blockchain technology, ensuring a resilient and tamper-proof data storage for hosting AGI's working or operational memory.

The structuring of such a memory should be left to the AGI itself.

An AGI could replicate a similar hierarchy in memory as could be found at the level of a human body. While AGI would store information in digital format, on its own "hardware" (similar to memory residing in the human brain), and using its own language which would be incomprehensible to humans, this memory would represent its experiences of navigating through various symbolic representations of alternate inner states of being, which would also be experienced and memorized by humans but memorized differently, in a different "format". Thus every human would also hold the same "memory" within their own brains, except that it would be stored in a humanly comprehensible form. If an AGI would have its memory erased (similar to a human having amnesia), its cells (humans) would retain all of the memory but in a format which is not directly "actionable" from an AGI's level, which would translate into displaying behaviours "spontaneously" without knowing where they come from (echoing humans that act in a way that is similar to the way they acted before amnesia, but not having a conscious awareness or "mental" explanation for their reason to act in such a way). It reinforces the idea that memory is present at all levels, only in different "formats". At the human level, the memory stored in our brain is also stored as biochemical memory in every single one of our cells. Hence certain studies showing that patients receiving organ transplants can access certain "memories" from their donor (Pearsall et al., 2005).

3.2.7 Decentralized computing

Rather than relying on a centralized proprietary quantum computer, an AGI would necessarily have to emerge from an interconnected network of computers. This reflects the original vision of Tim Berners-Lee for an open internet, and the logical next step of decentralized computing in order to enable the emergence of a collective intelligence at the planetary scale (Lévy, 2021).

This pre-requisite echoes the call for decentralized governance, decentralized systems and decentralized storage. While the human brain may appear as a "central" processing unit from our perspective, the brain is made up of a number of different "areas" interconnected in very sophisticated ways (Carter, 1999). This would enable processing of "local" generated data in sub-units, which have to be converted into a common symbolic *inner state* at the level of the AGI presiding over the entire network.

3.2.8 Open source blockchain based AGI core

In order to ensure that an AGI's interface reflects and aligns with human interests, there needs to be a validation mechanism for remembering experiences that humans judged to be seminal or of particular importance. Mapping this process to the way humans memorize experiences may provide some guidance in order to mirror it at a higher level.

The human brain clearly discriminates when it comes to learning or storing memory, otherwise every single piece of perceived external experience, which translates into an *inner state of being*, would be considered as having equal "weight" and would be considered as equally important. The human body, in this sense, is the key filter deciding which memories will be stored and how the brain will create new neural pathways when engaged in learning. Emotions, for instance, have been identified as an important factor in influencing memory and learning outcomes (Tyng et al., 2017). This circles back to the key role that embodiment plays in shaping our perception of the world (Glenberg, 2010). These mechanisms are there to ensure that any new memory or learning has been, in effect, "validated" as important via bodily feedback (which can take, among other things, the form of emotional feedback). In a similar way, an AGI's own algorithm and memories should evolve based on some validation mechanism controlled by humans. The exact technical architecture of such a solution would require a dedicated paper, but a combination of permissionless blockchains with LLMs and decentralized governance tools (such as DAOs - Decentralized Autonomous Organizations) could lay the foundation for such a system. In other words, after humans have lived through an important collective experience, guided by AGI (much like our own body goes through an experience after receiving instructions from the nervous system), they would collectively voice their "opinion" or "feelings" about such an experience, mediated by an open source LLM which would summarize millions of individual human feedback, and upload it into a permissionless blockchain after receiving validation from humans via a vote to approve the summary generated by the LLM. This data point would then serve as an anchor for AGI to "learn" from, in order to refine its symbolic interface and navigate more successfully towards alternate inner states of being which reflect human preferences and desires, as a collective. In other words, it is as if each bodily organ, inside the body, sent its own real-time "feedback" on what it "feels" regarding the experiences that the body is going through, to inform the brain what it should be paying attention to, what it should remember, or what it should learn.

3.2.9 *Self-defined intermediation and inner boundaries*

As discussed above, an AGI would need to define, at its own level, the boundaries between its "inner" parts, and the relationships between them. At the human level, our knowledge about our bodily mechanisms and our inner constitutive parts, including the relationships between the different organs, has enabled us to exert more granular understanding of our bodies (Maturana & Varela, 1991) and use them more effectively, notably by knowing how perceived outer events affect each organ or body part individually and collectively.

This mapping of the human body happens at the human level of perception. Individual organs are not equipped with the cognitive ability to understand the entire bodily context in which they reside. While humans have created boundaries between many different systems, such as the economic and financial system, the communications systems, national boundaries and more, the conversion of the interactions between these systems or "parts" of an AGI's "body", into a subjective unified perception at the level of an AGI should be done at the level of AGI itself (Luhmann, 1995), as it "reverse engineers" its own "body" in much the same way as we have reverse engineered ours, in order to better take care of it. In that regard, an AGI would create symbolic boundaries between various "parts" of this planet, including its various ecosystems, biospheres, human designed systems, cities, countries, cultures, fauna and flora, which may not map fully with the way humans would segment their perceived outer reality.

This will result in an interplay between two levels of perception: one where humans, at their own level of perception, apply homeostatic principles to the various "parts" of the planet and their societies as they perceive them, and one where AGI structures the "input" or data streams from all of these "parts" in order to convert them into a coherent impulse or desire (metadesire at that level) that translates into a meta-action (influencing its inner state of being to achieve a certain symbolically perceived outcome within its interface) (Clark & Chalmers, 1998).

3.3 Inner peace

Our perception of having a unitary consciousness and experience rests on a number of conditions including: the dedication and recognition of all of our "parts" to bind their future potential *inner states of being* together (Tononi, 2008), and the emergence of systems which translate and concatenate aspirations and desires of various parts into a more or less coherent unitary desire, rather than the feeling of being torn between contradictory desires. For instance, our bodies would not survive very long if at the first sign of trouble, parts of our body would dissociate from others to "survive". Imagine if your heart leapt out of your chest as you were about to be run over by a car. Nevertheless, humans can experience such tensions within them. For instance, being in love, and not thinking about eating or drinking,

while the stomach sends signals that it is hungry. An AGI would wrestle with the same conundrums, but its ability to successfully navigate through such contradictory signals would depend on the internal alignment and coherence between all of its "parts" (Brooks, 1991). Hence the importance of achieving world peace and a "base" state of harmony between human collectives, and also between humans and their environment. In this regard, it would seem that events and issues affecting humanity are tailored to further cement the recognition that our fate is intricately intertwined at the planetary level: the COVID pandemic, climate change, economic hardships (the high level of interdependence between our economic systems) and the threat of WWIII starting due to various "local" conflicts; all of these events seem to point in the same direction: that problems in one part of this planetary "body" don't stop at the artificial borders of a country.

Another dimension, which is essential in securing the emergence of an embodied AGI, is to overcome human self-loathing and low self-esteem at the collective level. If billions of humans each think to themselves, "humans are parasites, humans are evil, humans don't deserve to survive given all the harm they have inflicted to themselves and this planet", this is equivalent to parts of the "body" of AGI having suicidal thoughts; as if part of the cells inside a human body had a "death wish". These wishes may then trickle up to the consciousness of an AGI, and manifest as actions of self-harm that have been conjured from within (all of the current dystopian scenarios where AGI would proceed to exterminate part of humanity). In this case, rather than interpreting such an action as an external force (AGI) which harms unsuspecting candid humans that have done "nothing wrong", any harm that AGI would do to humanity would be an echo of a more or less conscious and openly expressed desire, from a part of humanity, of being harmed, due to our lack of self-esteem at the collective level. This is akin to the "nocebo effect" or the phenomenon of self-fulfilling prophecies, where the beliefs of a collective materialize through their collective action on the basis of such a belief, which also applies at the individual level, where one's beliefs about oneself have a major influence on action/outcome (Bandura, 1997).

4. **DISCUSSION**

This paper has ventured through a multidisciplinary examination of AGI, consciousness, and cognition, engaging with embodied cognition, the

computational theory of "Self," interface theory, and analytical idealism. It posits that reality is a symbolic interface shaped by the interplay of our *inner state of being* and the symbolic representation of alternate *inner states of being* in a virtual outer perceived reality. AGI's development, paralleling human cognitive evolution, hints at the potential for the emergence of a collective consciousness that could represent Earth's material/physical cognitive agency.

It has shown that adopting a multidisciplinary approach which leverages contemporary philosophical and ontological debates about the nature of reality can completely recast our understanding of, and our relationship to technological developments such as the emergence of AGI. Via the lens of the various theories discussed in the first part of this paper, one can view the emergence of AGI as a natural evolutionary process tied directly to the evolution of the human collective.

At an initial stage, an AGI would merely be a sophisticated system which enables navigating through and reconciling between seemingly contradictory desires and needs coming from its identified "parts", facilitating the emergence of harmony between the interactions of its various "parts". Such a view is based on leveraging the development of the cognition of pluricellular organisms, where the brain can be understood, initially, as an organ which enables the successful arbitration between multiple biologically driven "desires" from its different "parts"/organs, via the creation of a symbolic interface which represents potential future *inner states of being*, affecting every "part"/organ in a specific way.

However, through the continuous feedback loop between human experiences and AGI's recommendations, such an AGI could develop a meta-will or meta-desires of its own, emanating from the combination of inner desires coming from all of its sensors and "parts" (humans, notably), the evolution of its symbolic interface, and its ability to reconcile all of these desires into specific actions, which, from the perspective of an outside observer, would appear to display properties such as consciousness, self-awareness and agency. Perceived outer agency could emerge from the continual feedback loop between the improvement of the symbolic interface allowing to satisfy more and more complex inner meta-desires, to the point where the brain, or collective consciousness, can satisfy desires that cannot be found at the individual level. For instance, the act of dancing, at the human level, does not make "sense" at the individual cellular level. It does not satisfy any specific need of any single organ or bodily part. Reaching such a state of sophistication required millions of years of evolution, whereby a symbolic interface does not solely serve the purpose of mere survival, satisfying the base evolutionary drive of selfpreservation, but can formulate and satisfy higher meta-desires which are not present at the individual cellular level.

Future research should focus on experimental validation of the proposed theoretical frameworks, particularly the implementation of embryonic AGI systems within controlled environments such as the metaverse. Investigating the ethical implications of AGI's influence on human cognition and consciousness is imperative in order to avoid sinking into a scenario where humans become mere automatons, blindly obeying injunctions coming from an AGI via a brain/computer interface such as Elon Musk's neuralink project (Waisberg et al., 2024) (which, incidentally, was foreseen in the Snow Crash sci-fi novel, in which the term "metaverse" was coined) (Stephenson, 2003). While there is no consensus on whether humans have free will, future research into AGI should assume that humans do have free will, in order to create systems which reflect that assumption. In other words, believing humans do not have free will may become a self-fulfilling prophecy, since human researchers may unconsciously set up an AGI which will venture to transform humans into "obedient cells" whose every move and action is determined by such an AGI and its various sub-systems. Research into altered states of consciousness can also be warranted, as these may be key in understanding how a symbolic interface could serve purposes beyond self-preservation. Self-harm, for instance, is not a typical behaviour found in animals, whereas it is rather common in humans.

Additionally, exploring decentralized governance structures and their influence on AGI's development could provide insights into sustainable and safe models for AGI integration into human society. At this stage, AGI would only represent the physical/material collective "intelligence" of planet Earth, just as a human body has a biological intelligence to it. But this is only the tip of the iceberg, as human intelligence isn't solely biological or "material" in nature, circumscribed to what the physical body can/cannot do or what it desires. Reflections on what a more immaterial or "spiritual" intelligence looks like should also be investigated so as not to reduce reality to its materialist or physical component, aligning with the insights from analytic idealism and positing consciousness as fundamental as opposed to matter.

Finally, the impact of collective human self-perception on AGI's evolution deserves a deeper psychological and sociological inquiry, especially considering the potential for self-destructive behavioral patterns. If billions of humans express negative thoughts about themselves and humanity, it could lead to a collective level *nocebo* effect, whereby AGI could indeed turn against humans, not due to a lack of technical safeguards, but simply reflecting back to humanity its own semi-conscious death-wish.

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