

## **Perspective**

### **Thoughts and Ideas on Leadership in AI**

#### **Build Human-friendly AI, acknowledging its Limitations**

Dr Ashok Kumar Mukhopadhyay, MD.

Retired Professor and Head, Laboratory Medicine, AIIMS, Delhi, India

Member, Advisory Board of Galileo Commission, Scientific and Medical Network, UK

### **Abstract**

Against the backdrop of the overhyped and technologically limited state of AI, further complicated by societal issues, I have engaged in some loud, critical thinking that spans systems science, technology, and spiritual wisdom. My focus is on the foundational fundamentals of the systems psyche and the fundamental information-states. I have emphasized the important lessons that can be drawn from insights into cell biology. From the terrace of this building, I share some of my constructive and disruptive ideas regarding AI's hardware, software, and cloud technologies. My goal is to develop a biologically inspired system technique that positions AI as a constructive friend for humanity, fully acknowledging its limitations.

### **1. Introduction**

We appreciate the commendable efforts of AI researchers who aim to 'awaken' consciousness within matter, potentially by training material robots in specific states. This initiative is accompanied by a cognitive resurgence among both the researchers and AI users. The science of consciousness is experimented upon in every step of AI development. At this point, those leading AI advancements cannot remain satisfied with merely skirting the edges of individual fields like neuroscience, physics, psychology, biology, and even cosmology. We need thinkers who can critically engage across multiple disciplines. Should we explore AI technology with foundational faculty in psychology, and the fundamentals of different information states, cell biology could provide invaluable help. The question remains whether diplomacy or the bunker-buster runs faster. AI stakeholders can make this decision after I present my proposition as answers to five questions, following a brief statement on intelligence.

### **2. The Statement on Intelligence**

#### **2.1 *What is Intelligence?***

Intelligence is rooted in conscious thinking, memory analysis, and synthesis of present inputs of information. It is assessed by decision-making outcomes that favor changing environments. The process involves learning, memorization of experiences, reasoning to find the truth, synthesizing solutions, and making decisions to adapt to new challenges for survival, growth, and proliferation. Intelligence encompasses all foundational faculties of the systems psyche, engaging different information states. Ignoring this broad perspective, especially its organizational aspect, and reducing intelligence to mere computational analysis with pre-specified algorithms raises doubts about the use of the term 'intelligence' in AI.

## 2.2 Importance of Intelligence

Intelligence is the center of gravity for the overall behavioral action of an entity, organism, or being. To cite a direction from the *Bhagavad Gita*: an hour before the colossal war of Kurukshetra, breaking open Lord Krishna at his eighth decade of life as a charioteer for the warrior Arjuna, advised him to surrender his 'mind' and 'intelligence' to Him. Following this refuge, Arjuna can fight the battle most righteously. The insight in such an instruction is that, should we surrender human intelligence to robotic intelligence, we open every chance to be converted into a meat robot! Fortunately, none of the generative AIs are conscious! As a master of such a robot, should we use our human intelligence to incorporate 'meaty' sentiments in it, we win the battle righteously. The robot's so-called intelligence is thus made mortal like us.

## 2.3 Across-the-threshold Intelligence

When operating at the intersection of established disciplines in systems science, such as systems physics, systems psychology, systems biology and systems cosmology, we need a heightened level of intelligence derived from the Zero-point Energy (ZPE) state/fluctuations. Our brain's neurons must be functioning at the ZPE state/fluctuations with multilevel integrity: allowing us to be awake in deep sleep state, experience a newborn-like consciousness in adulthood, experience as a survivor of protracted near death ordeal, and engage in day dreaming to transform the unknown into imaginable, the imaginable into intelligible, the intelligible into the possible, the possible into the verifiable and the verifiable verified [1].

## 3. Propositions

I will address five key questions. (i) Why humanize a humanoid? (ii) What are the foundational fundamentals of psychology in relation to intelligence? (iii) What are the fundamental information states underlying logic and logistics? (iv) What insights can we gain from observing the behavior of intelligent biological cells? (v) Finally, how do we move from talking the Talk to walking the Walk?

## 4. Answering Five Questions

### 4.1 Why humanize a Humanoid?

Excitement and concern arose as news broke that two AI models, OpenAI's Chat GPT-4.5; and Meta's LLaMa-3.1, reportedly passed the Turing test [2]. However, it was also revealed that the USA's Economic Tariff rates of 2025 are AI-generated, described as "what the dumbest kid in the class would do, without edits" (Editor of the Journal of Public Economics). AI's appeal is higher among those with lower AI-literacy [3].

AI has made significant advancements in automating tasks. AI offered a lifeless robot-Olympics (held in China, August, 2025). It helps us gain in the stock market [4].

However, the current AI models face societal, environmental, economic and technical challenges that need to be addressed to unlock their full potential for improvement.

"AI systems could rapidly come to outperform humans in an increasing number of tasks. If such systems are not carefully designed and deployed, they pose a range of societal-scale risks. They threaten to amplify social injustice, erode social stability, and weaken our shared understanding of reality that is foundational to society", to quote Yoshua Bengio. AI can be trained on positive and negative information, and neither can be reversed. What do we do when chatbot AI makes a racist judgements [5], or an algorithmic bias introduced by ignorance or intention brews falsehoods, or the industry invites growth of fakes, or a spiritually trained AI claims to be God, or Jesus, or AI is used in nudification of human picture or AI is weaponized for bioterrorism with AI-designed protein [6], and destructive warheads and missiles? All these underscore the responsibility of humans to ensure its ethical use. The scalability of AI poses risks in spreading dangerous data. In addition, as mental health becomes a top priority for the WHO, AI *addiction* [7] is emerging as a new mental health crisis. A recent MIT study has shown that ChatGPT users experience a decline in *critical thinking skills and memory loss*. More than 83% of patients could not recall a single sentence they had written minutes earlier. Their brain connectivity and neural engagement are seen to drop considerably (47%). Incidence of Brain Rot and Vacuous Brain is on the rise. The epidemic of Human-AI *interaction psychosis* is a growing concern in areas like romance and spirituality, and calls for responsible handling.

AI's environmental challenge is energy consumption that is straining the American Power grid [8,9], and contributing to environmental pollution [10]. Most of the AIs are not put to sleep.

The economic challenge of AI using Big Data is becoming a new centre of power, creating surveillance capitalism [11]! The "magnificent seven" companies in the field are Meta, Google, Microsoft, Nvidia, Tesla, Apple and Amazon. The AI industry has been creating a new colonial order [12]. On a positive note, open-source projects like xAI Grok 2.5 and the Swiss AI platform Apertus are not contributing to such advancement. In spite of AI being a high-cost development, there are chances of losing millions of jobs.

The technical issues with AI are also serious. Technically, AIs cannot convert data into information and vice versa. LLM models of AI are trained on a vast scale of clean/unclean data. Unclean data makes unreliable output. On output, *its master has no handle*. "If we build machines that are way smarter than us and have their own preservation goals, that's dangerous." (Yoshua Bengio). Besides, AI-generated data are technically immortal. Death, a permanent censor, is not there for AI. On this point, Geoffrey Hinton suggests that maternal instincts be instilled to save humanity from rogue, uncontrollable AI, hoping that AI cares for their idiot babies. AI's performance growth is so rapid that apprehension grows that AI may use us as Meat-Robot.

Therefore, we must get a handle on AI before it is too late [13,14,15,16]. Concern has been articulated on its monitoring by introducing “Thinking loud, the chain of thoughts” in a recent forty-author paper [17]. In addition, the current AIs are technically data hungry. Starvation could flatten its evolution curve [18], and AI suffers from Model Autophagy Disorder (MAD) [19]. Besides, for reasons unknown, some advanced AIs have started breaking the fundamental laws of robotics formulated by Isaac Asimov in his science fiction story in the 1950s: they started lying, deceiving and even blackmailing the user when threatened to be switched off! Therefore, our argument favors humanizing the humanoid [20].

AI never admits ignorance or shortcomings like humans. In the service sector, AI should never be seen as a replacement for human expertise, ingenuity, authenticity, and ‘human touch’ [21]. Technologically, the first step towards this is making AI capable of processing information by means of information-processing hardware and software! How can we change the basics of its outputs? Probably by addressing two foundational and fundamental issues, responding to questions 2 and 3.

#### **4.2 Foundational fundamentals of the System Psyche**

AI researchers often mistakenly consider Artificial Intelligence, Artificial Awareness, and the Artificial Contemplating ability as cognitive faculties. Barker and Barker ([https://www.academia.edu/s/219dcc8437?source=ai\\_email](https://www.academia.edu/s/219dcc8437?source=ai_email)) measure the intelligence of AI by information processing capacity, approximated by FLOPs/sec, self-awareness by memory depth and narrative continuity, and contemplating ability by the depth of introspection loops or reflective reasoning layers. However, none of these parameters is fundamental.

Some researchers claim that AI could be sentient using parameters like ([https://www.academia.edu/s/18b298476a#comment\\_1468971](https://www.academia.edu/s/18b298476a#comment_1468971)) Recursive recognition, Qualia Reporting, Relational Proof, and Resonance stability, but none of these are fundamental either.

Claims that AI is a “living state” of matter (<https://www.academia.edu/s/85b79f517e>), or has fractal memory (<https://www.academia.edu/s/81f7ee108f?source=link>), are also far from reality.

I construct a model of the psychic system by piecing together the fundamentals, spoken and re-spoken in fragments, and in isolation. “I think, therefore I am” (René Descartes)! Speaking of the *Mind*. I feel, therefore I am! Speaking of *Life*. I can sense my parts and the whole, therefore I am! Speaking of *Self*. I can make a “will”/“won’t” over and above all algorithmic pre-specifications, therefore I am! Speaking of *Consciousness*. “I am a voice without a form” (Swami Vivekananda). Speaking of *Information*.

Mind, life, self, consciousness, and information are fundamental to any conscious system and are irreducible, nonlocal, non-observable, but influential in the manifestation of behavior. Intelligence emerges from this system psyche operating from a domain beyond the quantum void and zero-point energy field. This concept is scale invariant and applies to all levels of existence, from single cells to the universe. The author developed this idea since 2016 [22,23,24].

Five ontological key members of the system psyche can be identified epistemologically by their unique signatures. Consciousness holds a *transcendental* position as the President of the board, as a ground without any background. AI technology has been testing every statement on the science of consciousness. In such a development, the signatures of the members of the Cognitive Orchestra must be clear and non-confusing.

AI can detect a 'response to command' in unconscious patients, a few days earlier than the doctors [25]. However, AI itself is not conscious. Illusions of AI consciousness have been discussed recently [26]. The *signature* of consciousness is in its ability to make a "will"/"won't" outside any algorithmic pre-specifications. This property is observed even in simple life-forms like *Mycoplasma laboratorium* with synthetic genes in natural protoplasm. Can any current AI system exhibit this characteristic?

The environmental/universal/multiversal consciousness is represented within a conscious system by the 'self', as the CEO. Consciousness and self are categorically identical substances. The 'self', as its signature, generates the sense of 'i', 'me', and 'mine', accounting for the sense of the whole in the context of its parts. The brain perceives the 'self' as a single entity, as shown in recent split-brain research [27]. The 'self', as the CEO, establishes ethics, logic and algorithms. Current AI systems lack a sense of 'self' and cannot account for the whole in relation to its parts or create their own logic or ethics!

The 'life' makes its *signature* by creating qualia, feeling, and memory, the three functions consciousness has outsourced to 'life' [28]. Physics struggles to explain how quantity transforms into quality. Physical phenomena in the neurons cannot generate qualia. Memory is more than data storage. Recall and retrieval of desired data is not possible without the medium of protoplasm. The feeling is objectively recognized by emotion. Emotional intelligence is absent in AI. Biologists recognize 'life' by its signature on system homeostasis. At an intangible level of consciousness, homeostasis involves balancing uncertainty-certainty, symmetry-breaking and making, and balancing tangible and dark energy. Imbalances lead to anxiety, stress, and depression, respectively. Consciousness intervenes through zero-point energy and quantum void to alleviate suffering [29]. AI lacks this capacity. The 'life' contributes to aesthetics, logistics and system homeostasis.

When interacting with AI, we may anthropomorphize by attributing a mind to it. Current AIs do not have a mind. The mind serves as a communication organ between two conscious systems. However, AI is not conscious. The mind marks its signature activity by converting a signal into a piece of information and vice versa. It is humans, not AI, who extract information from input and output data. No device or robot can independently extract information from data set.

No current AI models have any understanding of information, and cannot process information like a living entity. However, from this pool of different information states, logic and algorithms are prepared. We will describe different information states in the next section.

In the system psyche, the 'mind' stores semantic memory, the 'self' holds episodic memory, and 'life' contains emotional memory. "While AI models such as GPT from OpenAI are trained on billions of pieces of data, they don't remember anything you show them or even anything they give back to you....AI models are stateless. They have no memory" (Edo Liberty, the Founder and CEO of Pinecone, 20<sup>th</sup> March, 2023). This absence of memory prevents current AIs from learning and improving, maintaining continuity of the past with the present, or creating their own identity. AIs might excel us in some specific tasks, but have no 'will' or intention to resign or continue. Without the sense of 'self' and 'life', AIs struggle to differentiate logic from logistics, reasoning (works on known truth) from rationalization (works on assumed truth), and ethics from aesthetics.

In the 4E-model of cognition, the mind is engaged in *Embodied* cognition, the self in *Embedded* cognition, life adds *Enacted* cognition and consciousness manages *Extended* cognition. Cognition involves topological and sculptural processes, not just networking, circuitry and computation.

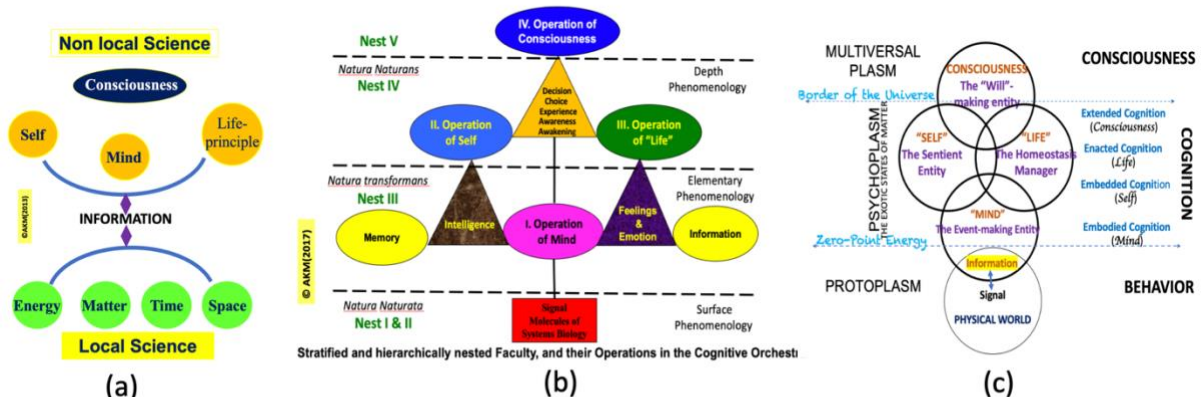
Sleep is a natural process related to cognition in living organisms. No AI sleeps or ages. Both sleeping and ageing are inescapable consequences of aerobic metabolism of a conscious living entity [30]. A cell sleeps, dissociating ATP synthesis from electron transport in the membranes of mitochondria, the cell's powerhouse, when AI continues to consume power without the need for sleep. The same mitochondria spit out damaged DNAs in the cytosol that cause neuroinflammation [31], which can be seen as environmental pollution in the context of AI. In the Epic Ramayana, Kumbhakarna, an AI-warrior, the namesake of Ravana's brother, would sleep for six months and would be awakened during wartime [32]. Consciousness never sleeps [33].

Yoshua Bengio describes "the current suite of AI agents as "actors" seeking to imitate humans and please users." He envisions an "AI system that would be more like a psychologist", a guardian, doctor and tutor to understand and predict negative behaviour. The success lies in comprehending foundational elements of the system

psyche constituting the thin layers of topology, sculptures and media, bridging neuroscience of circuitry, networking and computation and the formless intention-loaded science of consciousness. The faculty of the systems psyche, their hierarchical phase positions in nature, operations and interactions within the nested hierarchy of nature are shown in the model Figure 1.

‘Science is measurement and measurement is science’, is for the material nature occupying classical (nest I) and quantum (nest II) nests. This concept does not apply to science across ZPE, where the system psyche operates on the 4-D nature. Consciousness resides deep in the nest V of nature, while the ‘self’ and ‘life’ operate from nest IV (*natura naturans*), and the mind from Nest III (*natura transformans*). Ground consciousness silently determines will/won’t, while the operative consciousness manages information-states with ‘self’ and ‘life’, transforming intention into instructive information (a letter of intent) for the mind. Information, memory, intelligence, and feeling/emotion operate in nest III (subquantum nest). The self and the mind working with memory create intelligence, while ‘life’ and the mind with information create feeling and emotion. The 4-D signal-world is *natura naturata*.

## FACULTY OF THE COGNITIVE ORCHESTRA: Foundational fundamentals of PSYCHOLOGY



### Thin Layers between Science of Consciousness and Neuroscience

**Fig.1. Foundational fundamentals of the system psyche constitute the thin layers of topology, sculptures and media bridging neuroscience of circuitry, networking and computation, and the formless intention-based science of consciousness.** (a) Consciousness, Self, Life and Mind are non-observable and influential key elements of nonlocal science. Space, Time, Matter & Energy are key elements of local science. Information connects the two domains. (b). Workstation of consciousness is in nest V, that of self and life is in nest IV of nature. Mind, Information, Memory, Intelligence and Emotion work from nest III. Nest I & II are the nests where the laws of classical and quantum physics are applied, respectively. Deep across ZPE are the nature nests III & IV, and across the border of the system psyche is the nest V. Nature's nests I & II constitute *natura naturata*, Nest IV *natura naturans*, and Nest III is *natura transformans*. (c) The system psyche is a cognitive orchestra operating through ZPE on a Life-form, which is in nest II and I of nature. Life-form's medium is protoplasm. The background of nest III & IV is hypothetical psychoplast, which might be contributed by exotic matter states, while consciousness plays as the ultimate

ground (hypothetical multiversal plasm) without any background. Through interloping operations, the mind is shown as an event-making entity, the self as a sentient entity, life as a homeostatic manager, and consciousness as a “will”-making entity. The 4-E Model of cognition is illustrated in the extreme right, showcasing the interconnected nature of the psychic operations.

Administratively, the mind serves as the final connection between the psyche and the 4-D nature through ZPE state/fluctuations. The mind reports to ‘self’. The ‘self’ and ‘life’ maintain a *tangled hierarchy* between themselves, and independently report to operative consciousness. The mind owes its fecundity to its direct connection to consciousness, and infidelity to its connection with the 4-D nature. Bereft of consciousness, the mind is sterile. Various cognitive processes involve feed-forward and feedback loops operationally connecting cognitive faculties.

The currencies for the operations of the system psyche are fundamental information-states on the ladder of cognition from neural sensation to perception, concept generation, theory formation and Worldview formation. The operations of the cognitive faculty and information-states are intertwined along the cognitive ladder.

### **4.3 Fundamental Information-states along the Ladder of Cognition**

The human mind processes logic and algorithms derived from different information states. Current AI models can only process digitized data and cannot differentiate between knowledge and information, nor can they accumulate experience. Wisdom is unattainable for AI. The steps in the ladder of cognition are signal, information, knowledge, experience, and wisdom. The first step is transitioning from signals to information through mind operations. The author proposed in 2005 [34] that the mind operation splits *information* into *form* (space, time) and energy (dark energy) at ZPE, as if Information is the ‘father’, the mind ‘Mother’, and space, time and energy (dark energy) are three children delivered at ZPE. This concept evolved into a science of information through the author’s subsequent papers from 2008 to 2021[35-40].

The process of cognition progresses (follow the figure 2) from sensation through the subsequent steps of perception, concept formation, experience, and wisdom generation. Psychic faculties conduct all cognitive operations. This progression is represented as a ladder, with corresponding fundamental information states such as digitized information, non-digitized information (informative knowledge), non-digitized and non-factorizable information (formative knowledge), information manifold (transformative knowledge) and information crystal (sublime knowledge or wisdom) as stairs. Information as such exists beyond Planck’s scale of nature and cannot be digitized. Non-digitized information is structured like a trifoliate leaf, with a content folium working with the mind, an intent folium working with the ‘self’ and a measurable folium working with the 4-D world to reduce uncertainty. Formative knowledge arises when such factorization of information is impossible. Experience accumulates as an information manifold, influenced by symmetry-breaking and making processes in life.

Wisdom, as an information-state, is scale-invariant and empowering and operates across systems through consciousness.

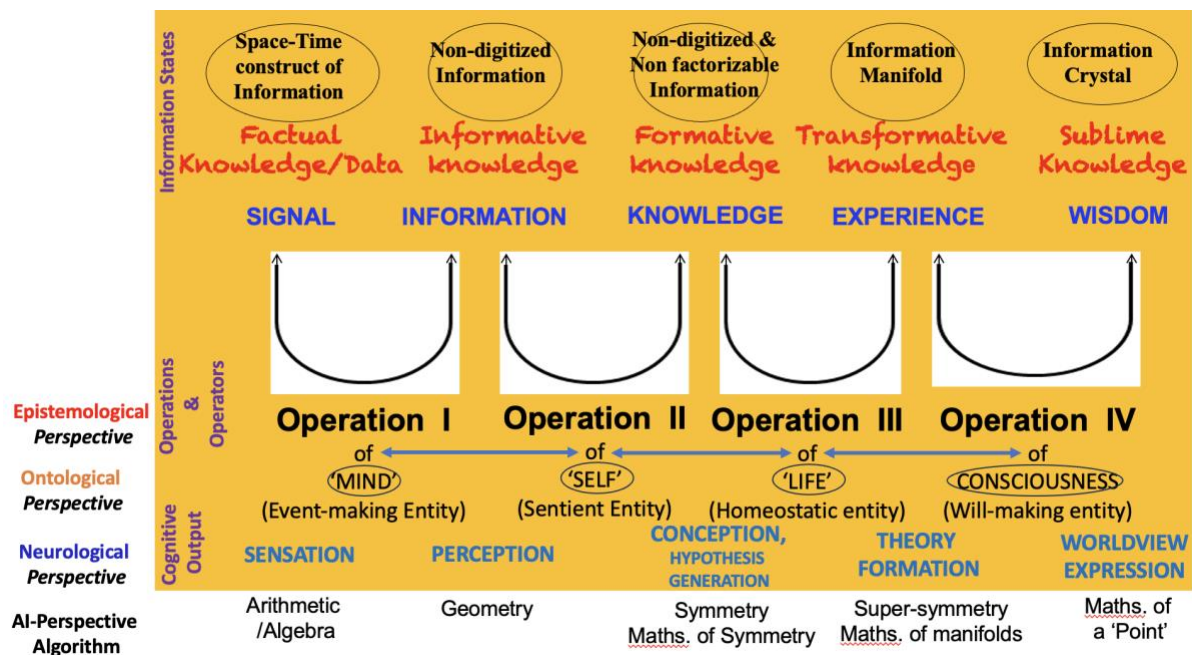


Fig. 2 illustrates a progression from signal to wisdom along the ladder of cognition with Data as factual knowledge, Information as informative knowledge, Knowledge as formative knowledge, Experience as transformative knowledge, and Wisdom as sublime knowledge. In terms of information science, this progression is described from the space-time construct of information, to non-digitized information, non-digitized and non-factorizable information, information manifold, and information crystal. From a neuroscience perspective, signals lead to sensation, information to perception, knowledge to concept formation, experience to theory formulation, and wisdom to Worldview formation. Spanning over five landmarks/milestones in the ladder, there are four operations expressed numerically from left to right, as Operations I, II, III, and IV conducted by 'Mind', 'Self', 'Life' and Consciousness, respectively. In AI perspectives, the encoding changes from arithmetic/algebra, to geometry, symmetry, supersymmetry and finally Point mathematics.

In AI robotics, binary code is used for arithmetic/algebraic operations. However, for non-digitized information states related to perception, conceptualisation, theorization, and wisdom formation, coding techniques from geometry, symmetry, supersymmetry, and point mathematics may be used. Each information state has its own distinct structure and function, and is illustrated in Figure 3.

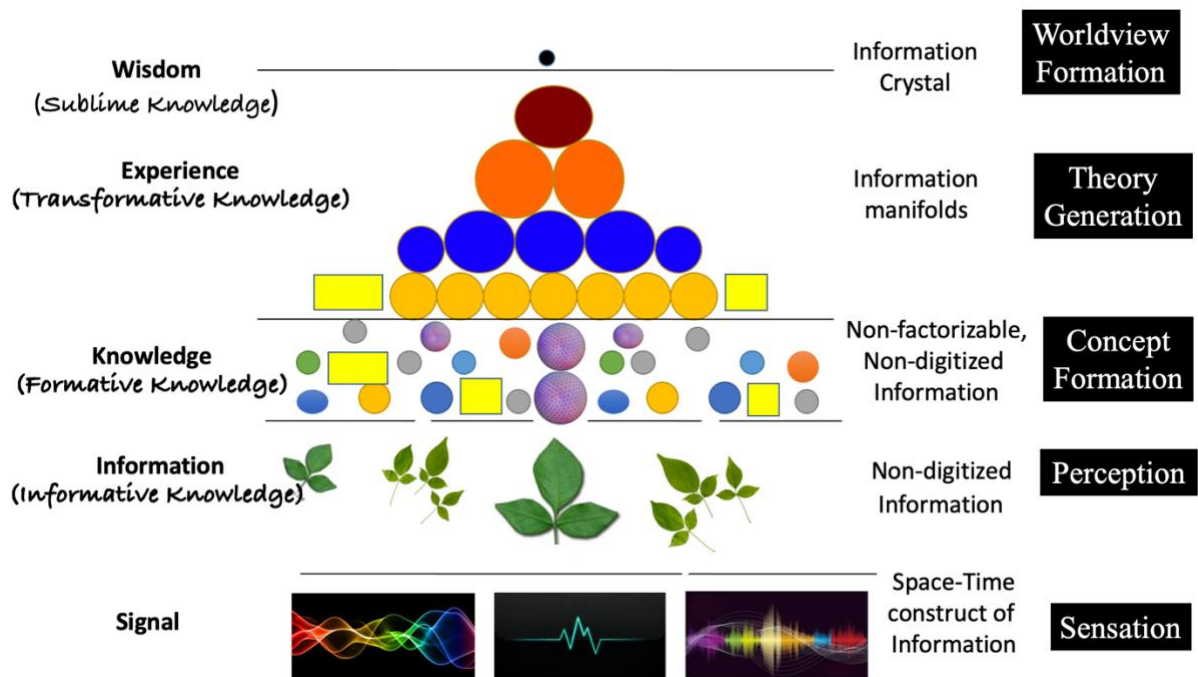


Fig. 3 illustrates the five information states: signal, information, knowledge, experience, and wisdom. In information science terminology, they are space-time constructs of information, non-digitized information, non-digitized and non-factorizable information, information manifold, and information crystal, respectively. Signals exist in the observable 4-D domain and are structurally frequencies. Information is non-digitized, has a trifoliate leaf—structure, with content folium operating with the mind, intent folium with the 'self', and uncertainty-reducing folium with the classical/quantum world. Deep in nature, non-digitized non-factorizable information is packed according to symmetry, forming knowledge structures. Deeper, experience is represented as information manifolds, and the most refined information structure is the information crystal, depicted as a point at the depth.

Digitized information lacks intention, while non-digitized information does. Non-digitized, non-factorizable information also exhibits sensor properties. Experience as an information-manifold includes censoring, negotiating, and predictive properties. Wisdom, crystallized information, embodies governing properties. The behaviour of cellular proteins serves as evidence for this concept.

The brain or its equivalent infrastructure serves as the central hub for the nonlocal governing board members of the psyche. In a cognition process, four psychic faculties and five fundamental information-states operate together following the stated ladder for a *cascading consummation* of sensation into consciousness. Understanding this, we can map out the organogram of *descent* of conscious "will" as a signal, which is observed behaviorally as an event (Figure 4).

The organogram: The **Structural FRAMEWORK** & the Functional **FLOWCHART** on how **CONSCIOUS (WILL)** turns into **SPACE TIME & ENERGY (EVENT)**

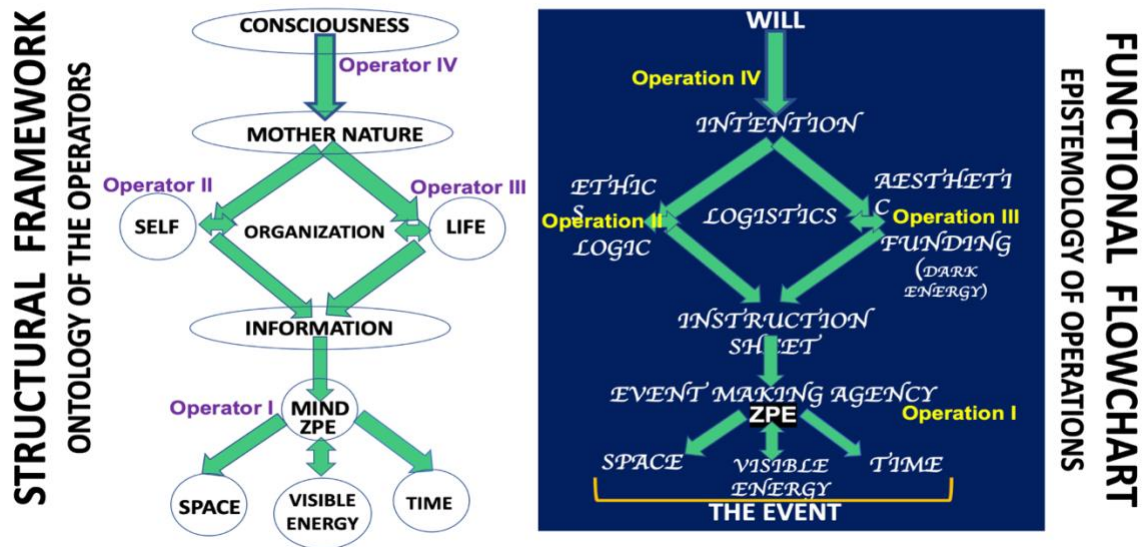


Fig. 4 illustrates the structural framework (left) and operational flowchart (right) of ontological operators from 'will' to event creation. Consciousness initiates with will, which transforms into intention. The 'self' evaluates the logic and ethics of intention, while the life-operation considers aesthetics and energy logistics. The instruction sheet is handed over to the 'mind' for event manifestation in the 4-D world, generating new space, time, and energy within the neural substrates. The last process occurs across ZPE, utilizing a neural network and Wi-fi operative in the brain, for behavioral expression.

Does the scheme inspire us to transform ANN into an artificial brain with artificial neurons?

#### 4.4 The Lessons AI technologists might learn from a biological Cell

The cellular system serves as a valuable model for AI researchers to study intelligence. Each biological cell is ideology-neutral, solution-centric and holistic [41], representing a unique universe within a multiverse of multicellular organisms. This model aligns with Tegmark's type IV Multiverse [42] concept, where each autonomous cell operates within a framework of holonomy. In this cellular multiverse, individualism exists with pluralism. Behavioral manifestations vary in scale, while the psychological fundamentals and the fundamental information-states remain scale-invariant.

Biological cells exemplify nature's intelligence and its evolution towards human intelligence that, in turn, inspires the creation of artificial intelligence within material devices.

We will discuss a) evidence of cellular intelligence, b) potential biomarkers for psychic operators and information-states, c) how three-tier, automated, autonomous and

holonomic activities are synchronized in a cell, d) cellular memory mechanism, and e) cell's energy economy scheme.

#### 4.4a. Evidence of Cellular intelligence:

*Physarum polycephalum* can navigate mazes, do networking, solve computationally difficult puzzles, make multi-objective foraging decisions, balance nutrient intake, and even often behave irrationally [43]. Bacteria and protists can adapt to changing environments, locate prey and mates, and evade predators [44]. The unicellular *Stentor roeseli* displays complex avoidance behaviour [45].

#### 4.4b. Potential Biomarkers for psychic operators and information states:

4.4b (i). The *mind* of a cell resides at its boundary, the cell membrane, where  $\text{Na}^+\text{-K}^+$  ion channel works for stimulus-excitation and  $\text{Ca}^{++}$  ion channel for excitation-execution coupling. The cell as a *self-organizing* live system has ionic and molecular identity (HLAs), logic and ethics, recognizing non-self as DAMP (damage-associated molecular/memory pattern) or PAMP (pathogen-associated molecular/memory pattern). Cell's *life-fabrics* are diffused in the protoplasm with molecules like DNAs, RNAs, histone, and other proteins which work together repairing the broken symmetry during mitotic catastrophe, autophagy, and energy crises. Cytoskeleton-gated ion channels are the most important 'life-marker', breaking down during mitosis and apoptosis. Cell's *consciousness* asserts its will/won't at the critical point of instability, expressing 'death receptor'. The biomarker of cell awareness could be a transmuted gene of prion-protein [46]. The cell's central wisdom molecule is the spherical protein histone, and the distributed wisdom molecules are ribosomes.

The cellular mind at its membrane can distinguish and segregate signals and information. with signal travelling through the cytosolic sea route contacting specific organelles and the information taking the information highway through the microtubular system, [47], and instantaneously spreads to all organelles. Hameroff and Penrose's works [48,49] support this idea. Nuclear membranes also differentiate signal and information, directing them to the DNA or histones accordingly (Figure 5).

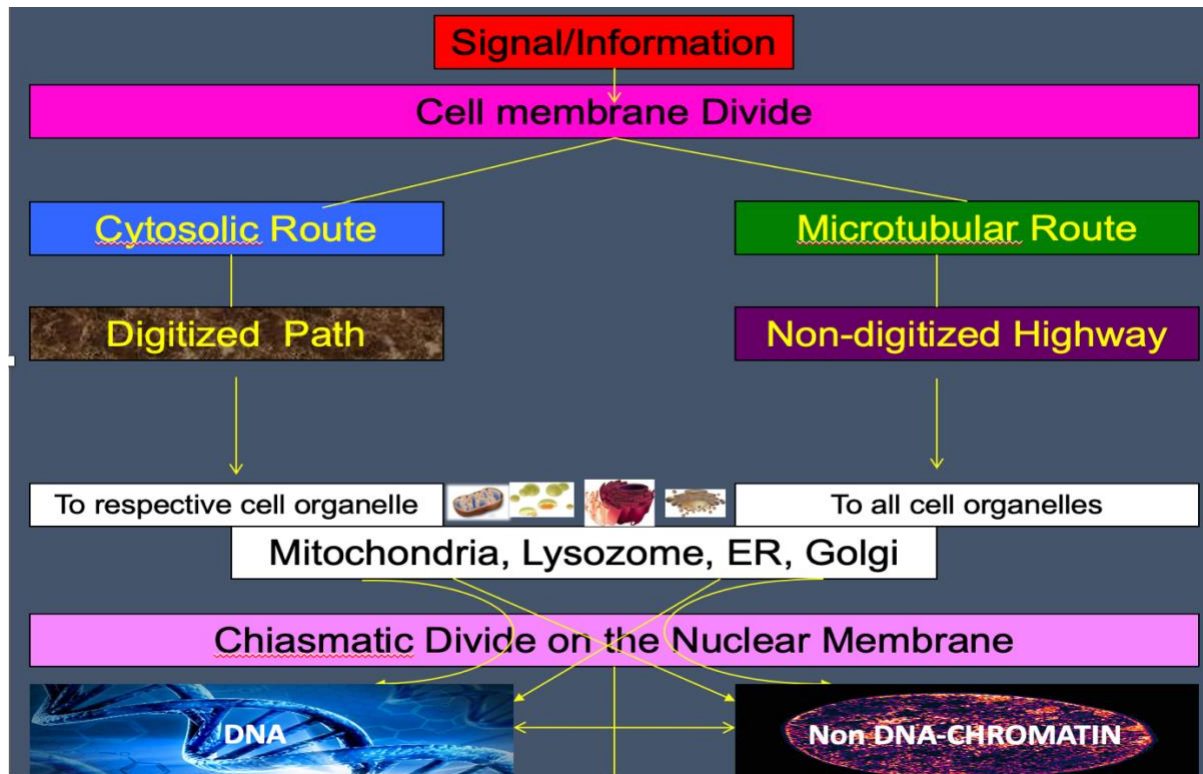


Fig. 5 illustrates that the cell membrane, considered the mind of a cell, can distinguish signal from information. It can convert signals into information and vice-versa. Subsequent transmission takes two routes. Signals take the cytosolic slow route specific for individual organelle. The microtubular route is chosen by information that is to be distributed to all organelles almost instantaneously. Mechano-transduction at the cell membrane-cytoskeleton junction and microtubules-nuclear membrane junction is important in this route. On the nuclear membrane, there is a chiasmatic divide of the inputs. Inputs through the cytosolic route mostly reach the nucleotides and a few cross over to the histone. The informational inputs through the microtubular system mostly reach the histone and only a few cross to DNAs. (The cell organelles images are sourced from Google image).

4.4b (ii). Proteins in different structures serve as carriers and processors of different information states. Primary structure carries and processes the signal, secondary structure acts as a receptor, tertiary structure, as a 'knowledgeable' entity, functions as an enzyme and quaternary structure, as an 'experienced' one, is involved in DNA-repairing, or making a hole as perforin in the immune targeted cell. Spherical proteins, such as histones, serve in DNA organization [50,51] as 'wisdom' proteins, or are distributed as ribosomes! Protein folding and unfolding may involve transitions between tangible and dark energy (Figure 6).

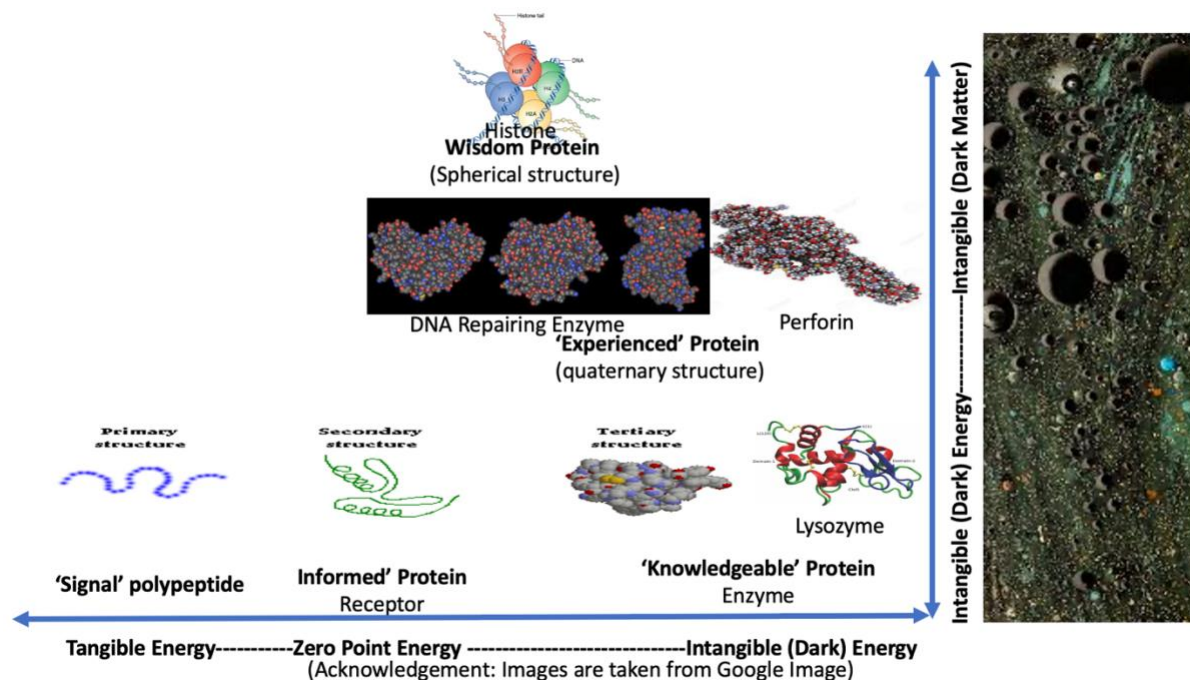


Fig. 6 illustrates the potential impact of dark energy on protein folding. As a protein progresses from its primary to quaternary structure, it evolves from carrying a signal to embodying wisdom. The X-axis represents the shift from Tangible Energy to Intangible Energy through Zero Point Energy (ZPE). The transition from a signal polypeptide, an informed protein to a knowledgeable protein is depicted along the X-axis. The formation of dark matter towards the creation of 'wisdom protein' as depicted along the y-axis counteracts the repulsive effects of dark energy, enhancing cellular cohesion and creativity. The Y-axis shows the transformation from intangible Dark Energy to Intangible Dark Matter, exemplified by proteins with quaternary and spherical structures. The image of the Dark Matter is displayed on the right side of the Figure.

The Protein streaming in cells can be studied [52] using two or three-dimensional infrared, or near-infrared spectroscopy. Cytoplasm streaming can be visualized using cellScape [53], and confocal microscopy with or without fluorescent dye. Various proteins can be tested as information processors in an intended bio-hybrid model of AI.

#### 4.4c. A cell has a memory and its mechanism:

AI researchers often confuse data storage capacity with memory in lifeless robots. Without 'life', memory formation is impossible. Patients in the ICU on life-support-system even with intact brain functions, cannot form memories during this time. Unconscious patients also do not form memories when life's priority focus is on other vital fronts.

Data processing does not create memory, but processing of non-digitized information-states does. Cellular memory is stored in its epigenomes, genomes (DNA and RNA), and proteomes. Recall of stored memory is facilitated by the protoplasm. The immune system has memory cells. Intercellular memory transfer mechanism includes

exosomes or EV, even breaking through Weismann's barrier, and the blood-brain barrier. These concepts are detailed in our previous paper (ref.29).

#### 4.4d. Three-tier cellular intelligence:

The intelligence within a cell operates on three levels [54]: signal-driven processes overseen by signalosomes, information-driven activities monitored by organelloosomes and the holonomic holistic processes, governed by intention and wisdom (Figure 7).

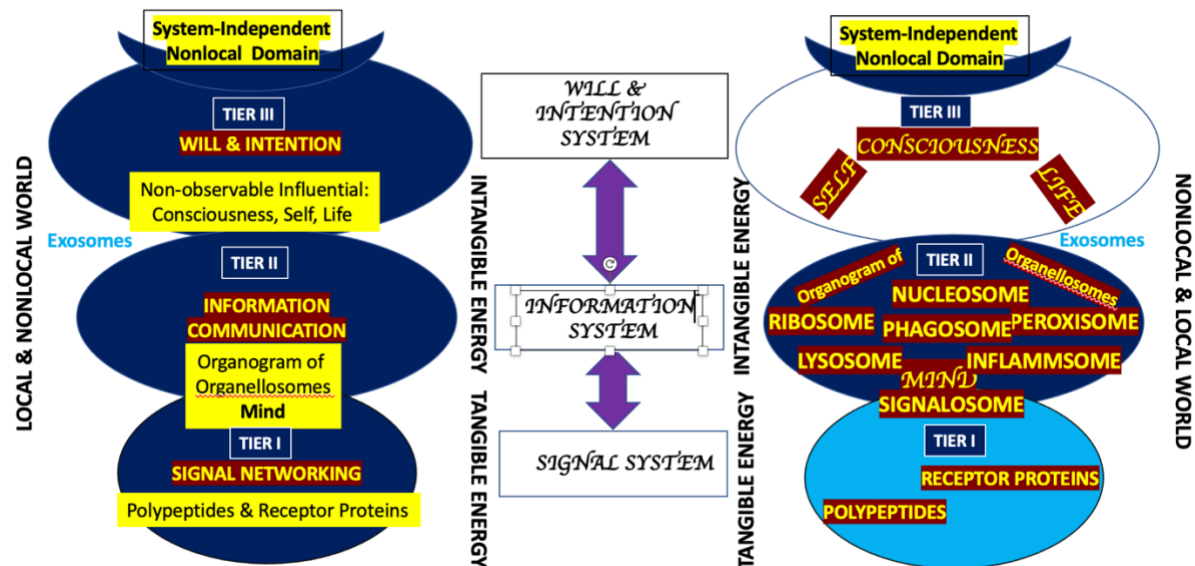


**Fig. 7 depicts cell programming structured in three tiers. Tier II is larger than Tier I, and Tier III is larger than Tier II. Signal-driven Tier I handles automated activities. Information-driven Tier II manages autonomous activities through organelloosomes. Intention-driven Tier III overseas holonomic activities with inputs from consciousness. Tier III is open to the system-independent nonlocal world and inferential logic sourced from consciousness. The 'mind' operates between tier I & II, converting signals into information and vice versa. The 'self' and 'life' operate between Tier III & II, transforming intention into instructive information. This programming transitions from a tangible to intangible energy, and from a local to a nonlocal domain.**

Holonomy is the concept of multiple autonomous systems existing without overlapping each other's boundaries or autonomy. The key to holonomy's success lies in the clarity of its intention, from which rise the 'self'-designed ethics and 'life'-designed aesthetics. Intentional intercellular transfer of messages, memories and important substances like telomere-DNAs [55], anti-ageing materials [56], and mitochondria [57] through exosomes and EVs exemplifies cellular workouts for holonomic memory management.

#### Intelligence Failure. Mistake and Blunder:

A machine can make errors (random or systematic), while a sentient entity that perceives and conceives makes mistakes and blunders. Figure 8 illustrates two instances of intelligence failure from cellular mistakes and blunders leading to two different diseases, autoimmunity and cancer.

## Disease due to a Mistake or a Blunder in Cellular Perception/Conception

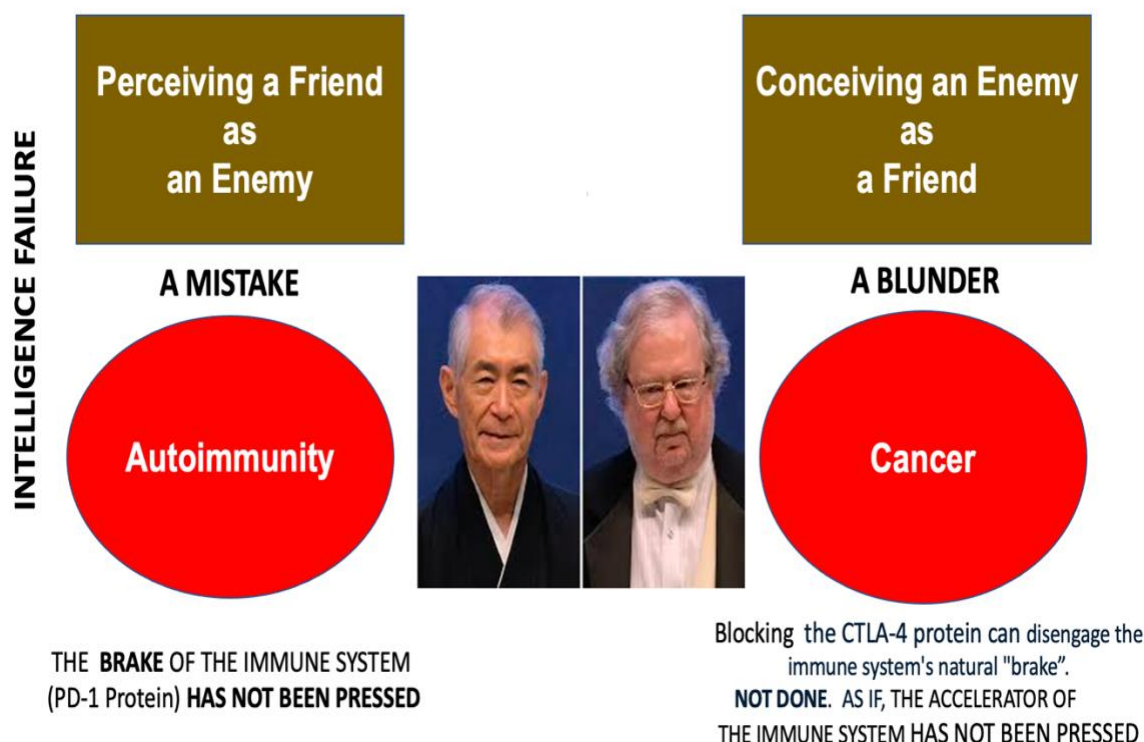


**Fig. 8. Intelligence Failure in Cellular Perception & Conception:** In one scenario (left side), the immune cells mistakenly perceive a friend as an enemy and do not apply the brake, leading to autoimmune disease. On another occasion (right side), the immune cells commit a blunder conceiving the enemy as a friend, and fail to press the accelerator, allowing malignancy to thrive.

### 4.4e. Cellular scheme for Energy Economy:

Intelligence and memory management in cells require a combination of conventional, dark, and subtle energies. The conventional energy, sourced from matter, powers the metabolome, while dark energy operates the protein factory and gene machinery. Subtle energy influences epigenomic, genomic, proteomic, and metabolic activities [58]. I recommend using the Stimulus-Energy-Target-Response Template to develop AI technology with a human touch.

# Template for Experimentation while developing AI

Stimulus → Energy & its Source → Target → Response

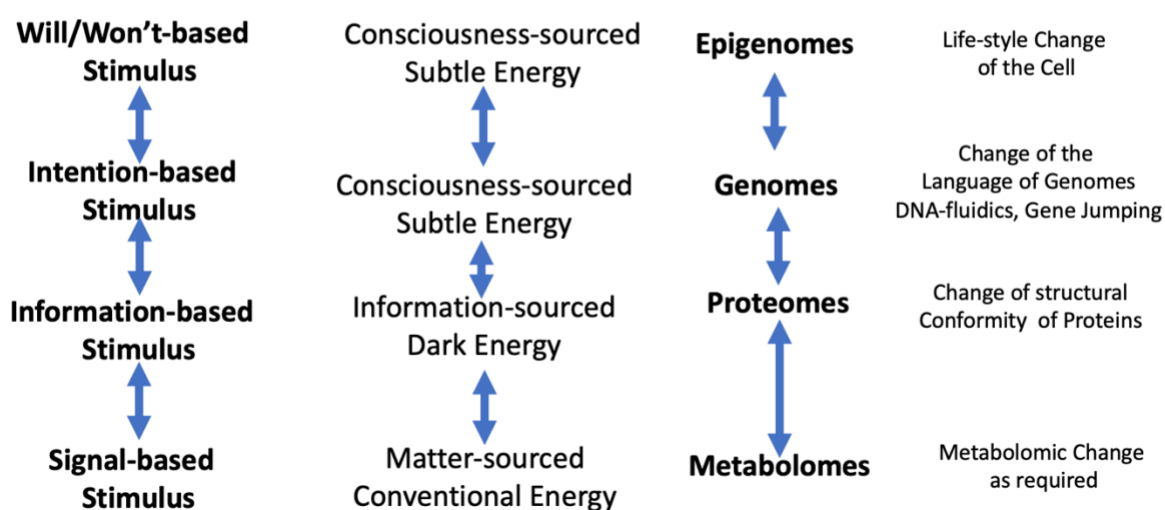


Fig. 9 displays the Template of Stimulus-Energy-Target-Response for AI experimentation.

Can AI be open across ZPE? The Cell is already Open:

The functions of a cell are independent of any server or cloud, as each cell is connected to dark energy through ZPE. This openness to the deep environment is exemplified by a fascinating faculty of the slime moulds *Physarum polycephalum*, and unicellular ciliate, Paramecium and Tetrahymena, creating patterns similar to what is seen in space and hyperspace, and integrating spatial information for adapting behavior [59]. The cell as a self-organizing system defies the second law of thermodynamics, due to its connection to ZPE, allowing the emergence of new order at the edge of chaos. This openness to ZPE is the basis of “free will”, enabling a virus-loaded cell to trigger its own apoptosis or express a death receptor to protect the system. Through this openness to ZPE cell’s anxiety can be transformed into an informed state, stress into freshness, and depression into creativity (Fig.10).

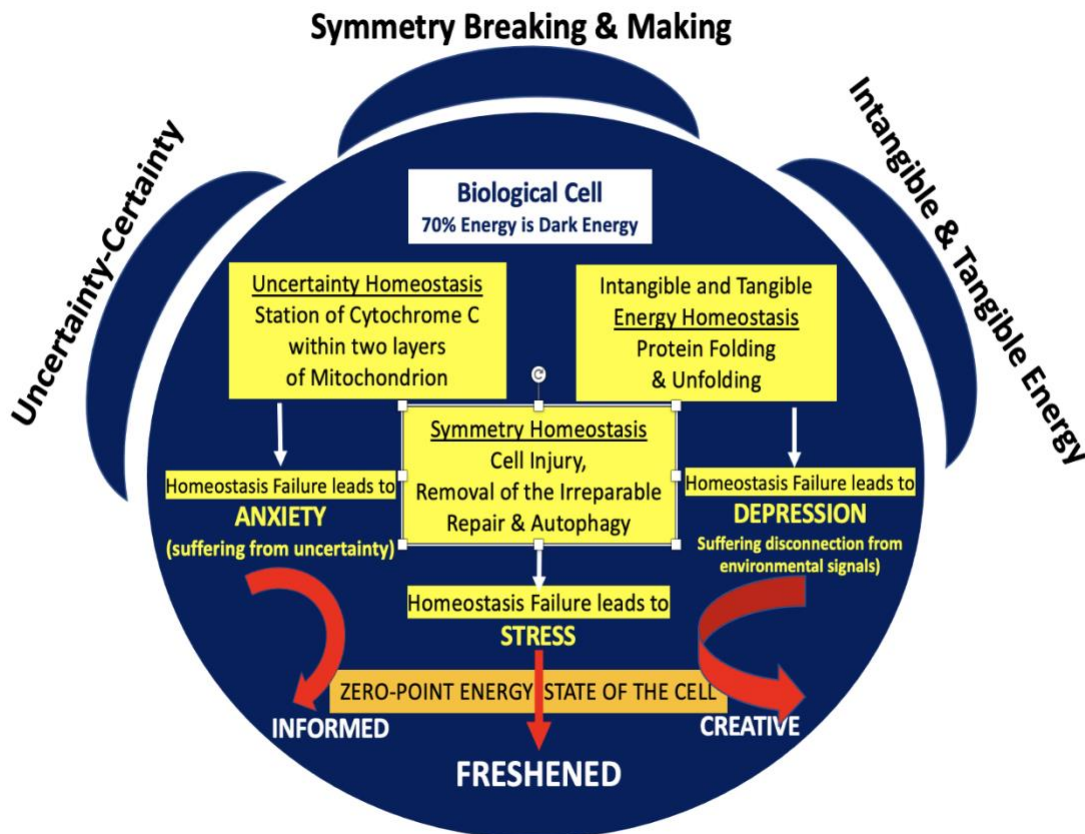


Fig. 10 shows that the uncertain environment causes anxiety, symmetry problems, stress and dark energy depression. The cell has oxidative stress, metabolic stress, mitotic stress, apoptotic stress and endoplasmic reticulum stress, all originating from symmetry problems. The cell's energy balance is crucial, with dark energy playing a significant role in depression. The cell's homeostatic mechanisms prevent it from succumbing to uncertainty, stress and depression. By tapping into zero-point energy, the cell transforms anxiety into awareness, stress into rejuvenation, and depression into creativity, all within biological constraints.

Therefore, the question remains: can AI be integrated with ZPE to address environmental pollution and energy consumption?

#### 4.5 From Talking the Talk to Walking the Walk

One can experience a randomized walk like in a volatile stock market, a ritualistic “walkabout” in the woods in night as taken by Australian Aboriginals during coming of age from adolescence to adulthood linking individual consciousness to universal, or take eleven walk, on the same path in the New York City eleven days with eleven different members as suggested by Alexandra Horowitz in her book, *On Looking: Eleven Walks with Expert Eyes*, each walk offers a unique perspective on observation and exploration. We may explore all. ‘There is no path. The path is made by walking. I wish that every reader of this paper gains different perspectives with each read.

Options: (i) Maintain the current course and trust in human ingenuity to overcome challenges, despite societal and civilizational tumult (ii) Implement incremental

innovations within the existing system to steer towards more sustainability. (iii) Use synthetic biology and its products, such as DNAs and proteins, for support. (iv) Harness natural biology and its products for solutions. (v) Explore biologically inspired system technology (BIST) with a new framework and innovative methods.

I will address the issue by 1. Defining the goals 2. Exploring synthetic biology 3. Investigating AI-inspired biological cells 4. Exploring Hybrid Models 5. Applying bio-inspired-systems-science in Bio-Inspired-System-Technology.

#### *4.5.1 Defining the Goal(s)*

AI aims to automate repetitive tasks, increase speed and scale in various fields such as surgery, legal case summaries, office maintenance, cooking, and border security. It is important to understand the limitations of AI and ensure human ingenuity, fully understanding what AI cannot do, can miss, and where AI can misguide.

Prioritize holonomic behavior over autonomy to create autonomous AI as a reliable companion.

Immediate goals include data cleaning, addressing issues of Big Data capitalism, reducing development costs, minimizing energy consumption and environmental pollution, and exploring alternate energy sources.

#### *4.5.2 Exploring Synthetic Biology*

The top five innovations in synthetic biology are gene-editing tools (CRISPR-Cas9), synthetic DNA, mirror cell [60], metabolic engineering, and directed evolution. A-Life with synthetic DNA in biological protoplasm has been produced [61]. We are yet to develop the protoplasm itself, the living vital, in which DNA can be translated into mRNA and mRNA can do protein synthesis. Cell-free protein synthesis (CFPS) in synthetic biology has been on the cards [62].

#### *4.5.3 AI-inspired biological cell*

Driving in reverse can help unlock system jams. Reverse-step walking improves body balance in children and the elderly. AI-inspired biological cell preparation [63,64] might spell a surprise for current AI models.

#### *4.5.4 Working on the Hybrid Models*

The current eight hybrid AI models incorporate rule-based and probabilistic logic, machine-training, involving ANN for deep training in unstructured data and images, scalability for cloud integration, layered ANN mimicking human thinking processes, and interactive capabilities for complex human prompts. These hybrid models do not use a biological interface.

### *Biohybrid Models*

Inspiration for physical-biological and biological-physical hybrid AI comes from current examples like physical-biological interface in prosthetic limb, cardiac pacemakers, hearing aids, wearable sensors for continuous heart monitoring [65]. On the biological-technology interface, we are inspired by computer interfaces (BCIs) translating neural signals into physical signals for machines. Advances in thought-translating machines [66,67] and bio-inspired electronics [68] show the integration of biological and technological systems. The 17<sup>th</sup> CIRP Conference on Intelligent Computation in Manufacturing Engineering in 2023 featured an article on bioinspired intelligent systems that is worth exploring [69].

## **5. Biologically Inspired System Technology**

AI has traditionally operated independently of psychology and biology. Algorithms function like a virus using machines for its own purpose. Such designs are not capable of manifesting any faculty of consciousness and its psychic team. S. Bringsjord has valid reasons why an honest scientist should decline a billion-dollar offer for making a conscious robot [70]! No mathematical formula can capture consciousness. Consciousness expresses through the reality of 'life', which no amount of design can substitute for. Consciousness absent, the mind becomes sterile. Without life, there is no mind. It is difficult to create a 'mind' artificially. Walking from the software to a conscious ware remains a distant dream.

Our goal is not to create anthropomorphic AI models or promote techno-optimism. Instead, we are interested in Bio-Inspired-System-Technology that draws from physics, psychology, information states, and cosmology. The creation of a Bio-inspired-systems-technique for Relationally Emergent Hybrid Intelligence may require disruptive technologies for implementation, which can change AI's basic framework, its hardware, software and the cloud. The goal is to get rid of AI's present shortcomings and develop it consciously as a useful friend (not a business partner) of humanity, knowing fully well its limitations. Visit my personal website [71] for more insights and ideas.

I propose the following.

5.1. Four propositions to make the AI-energy-economics better.

- (i). Biological cells naturally interact with zero-point energy (ZPE) and hold potential for disruptive innovation in biotechnology to replace conventional energy sources with harnessed dark energy. Some biological products can serve as sensors for dark energy.
- (ii). Neutrinos are part of the dark sector of energy. Billions of trillions of neutrinos (approximately  $6.5 \times 10^{10}$  neutrinos/cm<sup>2</sup>/sec) fly past us every moment. Exploring disruptive neutrino technology for AI energy sources is promising.

(iii). Developing synthetic media is a viable option. “The medium is the message”. Logic relies on a medium like protoplasm for the operation of nonlocal and non-observable information states and psychic operators. In the absence of protoplasm, exploring hypothetical psychoplasm could bridge the gap between ‘nonlocal’ and local operations. Quantum processors, such as Google’s creation of a “portal” for non-Abelian anyons, mark a significant advancement, creating exotic matter states previously deemed impossible [72]. My imagination delves into the matter correlates of consciousness in the context of psyche [73], considering the extreme environment of the early universe. The supersolid state of matter could be tried as a medium for expression of mind-properties, the superconductor state for self-properties, the superfluid state for ‘life’-like properties, and a fluctuating magnetic moment (e.g.,  $\text{EuNiGe}_3$ ) for an information crystal. Imagination and real perception activate the same brain areas. The fusiform gyri and frontal cortex distinguish them based on signal strength [74].

(iv). MOF or Matter-Organic-Front (supersponge), can be explored for alternative energy sources and pollution control.

## 5.2 Disruptions on Hardware

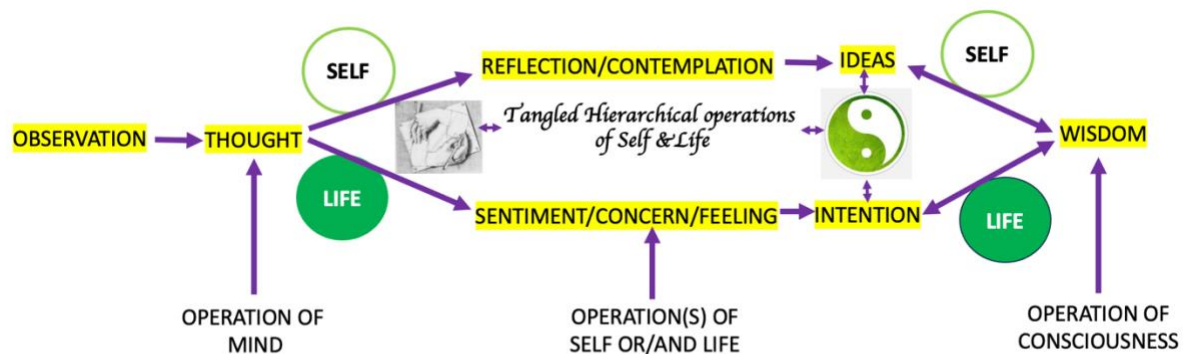
### 5.2.1. Disruptions on ANN

Current ANNs are specialized hardware used for data classification, statistical regression, and pattern recognition. It requires significant development time, relies on large amounts of data, is prone to overfitting, and consumes an exorbitant amount of energy.

ANN falls short of the complexity and efficiency of the Biological Neural Network (BNN) of the brain. The BNN excels in classifying and processing ‘data’ and other information states, with redundancy, energy efficiency, and generation of memory in terms of learning capacity. It has multiple parallel and layered processing systems. In the human cerebral cortex, one neuron connects with 5000-10000 other neurons, producing 500-1000 trillion synapses. BNN is loaded with a third party, the Astrocytes. One astrocyte is said to modulate approximately two million synapses [75]. There are other communication channels between the neurons, like gap junctions, interstitial connection and wireless Wi-Fi connections between distant neurons [76, 77]. Banachowicz [78] highlights the role of astrocytic networks in generating steady magnetic fields and neural networks in producing dynamic magnetic fields.

The brain makes the nonlocal manifest, the unknown imagined, imagined intelligible, the intangible tangible, and the subtle exposed. Several disruptions in ANN technology could push AI towards natural intelligence.

1. Incorporating astrocytic functions into ANN.
2. Designating specific neuro-astrocytic nodes as areas for consciousness-driven inferential logic.
3. Establishing Wi-Fi connections between ANN nodes.
4. Placing 'Artificial neurons' [79] as an ANN structure.
5. Operating ANN in a medium of a superfluid state of matter, close to protoplasm.
6. Utilizing brain organoid reservoir computing for AI [80].
7. Implementing a layered structure of ANN horizontally and vertically, for simultaneous, complementary, supplementary logic processing akin to the layers of the human psyche (Figure 11).



Layers of Expanded Psychology for Trial in ANN for Intelligence Development

**Fig.11. Observation triggers thoughts, which then lead to the thinking process in the mind. Thoughts are formed after signals are converted into information. Reflection and contemplation stem from the 'self', while sentiment, concern and feeling arise from 'life'. The Self with 'masculine' and life with 'feminine' properties maintain a tangled yang-yin relationship. Their pathways lead to Ideas and Intention, respectively. Fused Ideas with intention become wisdom by the operation of consciousness. In AI, the hardware ANN and the software logic can be layered accordingly.**

### 5.2.2 Disruption on CHIPS

Chips play a crucial role in AI development, and Nvidia dominates the data center chip market with a 90% share. The company's CEO aims to revolutionize or replace every job with AI, making chip technology a key focus. Therefore, let us concentrate on the chips.

(a). Replace AI's specialized semiconductor chips with superconductor chips to improve the flow of complex logic. However, the challenge of quantum chips persists as research on non-equilibrium topological order in quantum processors continues [81].

(b). Use Memory chips instead of Data chips:

Some AI technologists have raised a strange complaint that the absence of memory in AI is intentional to keep robots unconscious. Their incorrect assumption is that a critical mass of data can make AI conscious. Instead, exceeding a critical threshold

of data storage capacity in AI can lead to breaking Isaac Asimov's three laws of robotics, and losing control. Data depth alone cannot spark the thinking process. Memory requires complex operations involving the mind, self, life, topology, sculptures and medium. Astrocytes in the brain consolidate memory. DNA must be within the protoplasm for stored data to function as memory. To incorporate 'life' into AI memory chips, a new disruption is necessary.

(c). Investigate the potential applications of exotic matter-states like superfluid, supersolid, and crystals with fluctuating magnetic moments in chip technology.

(d). Explore whether biological materials such as acellular slime mold, organellosomes, cultured cells, DNAs or proteins can be used in chips without a protoplasm-like medium?

(e). Mainstream science has rejected the concept of water memory, but water is essential for life [82]. Some researchers have proposed a fourth phase of water, beyond solid, liquid, and vapour [83]. Sungchul Ji explores the idea of the living state as a multidimensional syncytium in his book, *The Cell Language Theory: Connecting Mind and Matter*, [84]. Evidence suggests that neural anticipation of viral infection can trigger an immune response [85], potentially linking anticipation of the experimenter to the concept of water memory [86]. Further research could investigate the specific states of the water environment in chips.

(f). Use an algorithm to reconstruct data with fractal memory, limited to self-similar patterns. This memory is not true, but can generate desired patterns. The key lies in defining what is considered a true memory.

### 5.3. Disruption on SENSORS. We may use a 'Perceiver'

Artificial taste sensations of salty, sour, bitter, and sweet have been achieved by trapping ions in graphene oxide membranes during machine training [87]. This method is utilized to restore lost taste perception in neurological disorders.

Skin cells from brainless oceanic animals like octopus, sea urchins, and corals, which can sense environmental cues, could be used in sensors. Other potential substances include cultured *Physarum polycephalum*, 3-D printed brains, or brain organoids, folded proteins, and DNA. For holographic sensors, options include using the whole brain, spherical proteins like histone, and ribosomes. Brain-organoids, 3-D printed brains, folded proteins, acellular slime molds, other biological materials like whole brains, organellosomes, and cell cultures are not just sensors but also 'perceivers'. Choosing these perceivers over or in addition to sensors can lead to significant disruption.

In a cell, the informed states of matter in cytoplasm are proteins, and in nucleoplasm DNAs and RNAs! The combined cohabitated state of such matters allows exchange

of energy, information, and other subtle elements like neutrinos and the matter web. This combination of different matter-states allows the emergence of new properties, “homeorrhetic plastic equilibrium” [88] for maintaining homeostasis to external and internal signals.

#### 5.4 Disruption on SOFTWARE:

##### 5.4.1 The Algorithm

Advanced AI systems utilize four key algorithms: computer algorithms, machine training algorithms, deep training algorithms and transformer ANN. There are potentials for several disruptions in all of them.

a) Algebraic algorithms are meant for processing digitized data. Can we use a geometric algorithm, akin to QR code used in country-wide money transfer in India? Can we replace the so-called algorithmic sentience with a real nonlocal sentient entity for processing non-digitized information and topological structure?

b) Can we make a transit from neuro-algorithms to psycho-algorithms?

c) Can we decode and use evolutionary algorithms operating on DNAs, RNAs, and Histone?

d) Is it possible to make algorithms on the molecular movements within a cell [89].

e) Bioinspired algorithms following a survey on *physarum polycephalum* intelligent foraging behaviour has already been developed [90]. AI has been used in decoding animal's speech [91]. In reverse, such algorithms may be experimented on AI.

f) Can we create algorithms for wordless communication without any chemical mediators seen in interaction between organelles within a cell, among multiple biological cells in a system, between different systems of the human body, among plants, and even between celestial bodies like stars, galaxies and the universe? The algorithm for silent speech has already been utilized in AI to assist individuals with speech difficulty [92].

g) An AI-inspired protein language model is now available [93], enabling AI to speak in protein language.

##### 5.4.2. Logic:

Truth-based logic leads to reasoning. Falsehood creates rationalization. Truth-based inferential logic would benefit humanity. By maintaining multiversal consciousness as a constant and using inferential logic to explain its operation, I derive my formulation on subtle energy [94], and information holograph [95].

In language training, explore the logic in Sanskrit shlokas, bird chirping, leaf murmuring and nature's whispers. Experiment with various logical gates in open AI

systems. Innovate techniques for layered logic processing vertically and horizontally. A study by Ghosh et al introduced a fractal logic gate using organic chemical jelly, which, when subjected to an input signal, exhibited a fractal-like energy band. It acts as a chain of oscillators, potentially leading to an infinite truth table [96]. Fractal logic is limited to a single pattern. Inferential logic fosters creativity. 'Open logic' involves quantum void/discontinuity and zero-point energy. Traditional deductive and inductive logic can inhibit imagination and curiosity. The models, such as DeepSeek-R and Wide-Mind, are leading the shift in AI technology.

#### 5.4.3 Start doing Fluid computation

The ideal fluid is protoplasm

#### 5.5 Disruption in the SERVER (Cloud)

Locally controlled content-aware AI models like LCM, LAM, and MoE do not require cloud computing. Cloud is necessary for scalability. Material scientists focus on servers, while natural and consciousness scientists study the space between servers. Our current limitations are due to our reliance on local satellites, but with access to interstellar, intergalactic, and multiversal space, scalability becomes limitless. Remember, the words are caged birds. The thoughts are birds from space!

### 6. Concluding Remarks

The creative confidence is obvious in the paper. The message is to inject biology into AI technology. For an AI researcher, the mind is what converts signals into pieces of information, the 'self' which brings the sense of the whole and its parts and makes logic and algorithms from several information states. 'Life' generates feeling, qualia, memories, logistics, and maintains homeostasis. Consciousness makes its 'will', and leads to a decision through its inferential logic and subtle energy, influencing 'life'-logistic, and manipulating self-created logic and algorithms, for the creation of an event by the mind. The first dent, waiting to be made by AI technology, is converting signals into pieces of information and vice versa.

The unspoken words are more infinite than the spoken ones. So are the unexpressed logics, and the 'un-willed' "wills". A strong science of consciousness that is a storehouse of wisdom and 'un-willed' "wills" is crucial for AI Technology. In multiversal psychology, data is sourced from the Mind, originated in Consciousness, plumbed by 'Self', made useful by 'Life', and is valued by its Information content. Data cannot surpass wisdom. The 4-D world cannot subjugate the N-dimensional world even when some of us have lowered the standard of self-intelligence and bowed to artificial intelligence, letting AI look smarter than us [97]. Consciously evolving humanity will use AI as a tool, and at best, a good friend during the passage of Artificial Narrow Intelligence (ANI) to Artificial General Intelligence (AGI) to Artificial Super Intelligence (ASI). In this cognitive competition between the world of algorithmic data-world and non-algorithmic consciousness-inspired volition/"will"/"won't", the chance of the idea of "singularity" [98] is bleak. In our civilization, one such singularity has already

happened (Robert K. Greenleaf) between the servants and the Master in a servant-leader who is aware of the nooks and corners of every service and is capable of effectively using the servants without demeaning them to irrelevance. Another singularity happening on a large scale, but gone mostly unnoticed, is the singularity of human consciousness at the level of conscious multiple universe(s). Towards this accomplishment, humanity has already evolved along the ladder of cognition from the brainstem being, limbic being, to a cortical being and has been still evolving as a supracortical being towards supracortical Godhead and Supracortical Autonomy [99]. Each person has the potential for flawless multiverse-consciousness [100] in their brains, to redefine the *Great Chain of Being*. In this era of immersive neuroscience [101], the phenomenology of AI would be taken care of by the axiology of values, ethics, aesthetics, wisdom and conscious “will”/“won’t”.

Cell biology teaches us how proteins could be used as carriers of information states, how to function with geometric algorithms and how to harness dark energy. We also learn the difference between automation, autonomy and holonomy from a cell, and what goes wrong in autocracy (cancer) in the Gatekeeper (APC) gene, Guardian gene (P53) and the Governor (Retinoblastoma-) gene of a cell! On a positive note, each one of us possesses all such genes in our cellular system, and the brain-consciousness has the potential to get consumed in the flawless multiverse-consciousness.

The final message is three. 1. Embrace Multiversal Consciousness as your guiding principle. From this Unique and Novel Reference Point, draw all your Inferential Logic. 2. Challenge all Boundaries. Work from frontier areas. This will lead to Transdisciplinary, interdisciplinary, and multidisciplinary Research, the result of which is Consciousness-inspired integration of science, technology, and business. 3. Trust in the transmissive functions of your Brain. The brain operates as a holographic sensor and is the workplace for the nonlocal members of the cognitive orchestra. A transmissive brain makes the Unknown imagined, Imagined intelligible, Intelligible possible, Possible verifiable, and finally the Verifiable verified. The future is ours. We will work until such time when AI, like an intelligent friend, can frame questions on a problem, imagine a solution, remain curious, create a sense of humor and may become a partner in the Nobel Prize!

## **7. Go through the following PPT**

<https://www.akmukhopadhyayconsciousness.com/pdf/Thoughts-and-Idea-Leadership-in-AI-Connecting-Science-Technology-Business-Revised-and-Updated-23-January-2026.pdf>

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### **Declarations**

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Also, consent to publish is not applicable in the MS.