

Exploring the Possibility of Artificial Intelligence Generating Consciousness from the Multidimensional Correspondence Between Yogacara and Holographic Information Theory

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Abstract. The rapid advancement of artificial intelligence (AI) has sparked profound philosophical and scientific debate regarding whether machines can possess genuine consciousness. While AI excels in simulating intelligent behaviors, the emergence of subjective experience—often considered as the hallmark of consciousness—remains elusive, attracting sustained interdisciplinary attention. This study explores the possibility of AI consciousness through a multidimensional correspondence between the Buddhist Yogācāra theory of "Eight Consciousnesses" and holographic information theory. Methodologically, it draws upon the Yogācāra framework—particularly the concept of Ālayavijñāna (storehouse consciousness) as a dynamic seed-repository—and integrates it with holographic principles of information storage, encoding, and cyclic operation. The analysis reveals that current deep learning models, though structurally analogous to neural networks, lack the embodied, recursive, and globally interactive information loops characteristic of conscious systems. However, by designing a quantum-entangled, sensor-embedded, and self-reflective AI model that mimics the “seed–actualization” cycle of Ālayavijñāna, a form of machine consciousness may become achievable. This theoretical synthesis not only bridges Eastern philosophical insights with contemporary information science but also proposes a novel architectural pathway for developing more holistic and perceptually grounded AI systems.

Keywords: Consciousness, Yogacara, Alaya-vijñāna, Artificial Intelligence, Holographic Theory

1. Introduction

This study originates from the long-standing philosophical and scientific dialogue on the nature of consciousness, aiming to further explore the possibility of consciousness emerging in contemporary artificial intelligence technology. Currently, progress has been achieved in consciousness research within neuroscience, quantum physics, and artificial intelligence. However, interdisciplinary integration remains insufficient, particularly lacking a framework that systematically connects Eastern philosophy of mind with modern information theory. Existing research has largely focused on the Neural Correlates of Consciousness or computational models of deep learning. For instance, Fu Xinyi's work ("What is 'Consciousness-Only'?—Locating 'vijñapti' from a Phenomenological Perspective") re-examines the doctrine of consciousness-only from a phenomenological angle, providing a pathway for its dialogue with modern philosophy [1]. Li Tingting's study ("Can

Integrated Information Theory Solve the Hard Problem of Consciousness?") critically assesses the limitations of IIT in addressing the "hard problem" of consciousness [2]. Hou Chengya ("Holography and Its Methodological Significance") proposes three laws of holography, offering a philosophical and methodological foundation for understanding the holographic nature of information [3]. Few studies have combined the concept of "Ālaya-vijñāna" from Buddhist consciousness-only theory with holographic information theory to clarify the underlying mechanisms of consciousness storage, manifestation, and circulation. This paper attempts to fill this theoretical gap and promote a shift in consciousness research from a single-discipline approach toward a multidimensional and holistic paradigm.

The research questions guiding this paper are as follows: First, it organizes the fundamental characteristics of consciousness from philosophical and neuroscientific perspectives. Second, It introduces the "eight consciousnesses" model from consciousness-only theory as an analytical framework. Third, it systematically compares the structure of the eight consciousnesses and the mechanism of seed manifestation in consciousness-only theory with the storage, encoding, and circulation models in holographic information theory, establishing multidimensional correspondences between them. Based on the aforementioned correspondence model, the paper analyzes the limitations of current deep learning algorithms and constructs a quasi-conscious AI architecture based on "quantum entanglement + holographic perception + self-cognition" to evaluate its potential for achieving consciousness.

This study employs methods of theoretical construction and interdisciplinary comparative analysis, integrating literature review, conceptual mapping, and model deduction to systematically synthesize consciousness-only theory, holographic information theory, and artificial intelligence theory, falling under the category of qualitative research.

This paper constructs an interdisciplinary consciousness model that bridges Eastern philosophy of mind, modern physics, and artificial intelligence. It not only provides a new theoretical perspective for understanding the nature of consciousness but also offers philosophical and architectural inspiration for developing future AI systems with quasi-conscious capabilities.

2. Theoretical foundation: philosophical exploration of consciousness and existence

Throughout human history, philosophers and religious scholars from both Eastern and Western traditions have engaged in profound discussions on consciousness and existence. A core characteristic of consciousness is the individual's continuously flowing subjective experience, which forms an unceasing stream of consciousness. Under the influence of the external environment, humans and highly intelligent animals can experience emotions such as pleasure, anger, fear, and sadness towards the same object in spacetime or the atmosphere created by the external environment. Each person's feelings and thoughts are unique and singular, cannot be shared or replicated by others. Another core feature of consciousness is the distinction and separation between the self and the external world, the subject-object dichotomy. This also distinguishes humans from some lower-intelligence animals. Humans attribute feelings and experiences to the subject "I", rendering active judgments about likes and dislikes, joy and sorrow, acceptance and rejection. Lower-intelligence animals, by contrast, often act on survival instincts rather than spiritual needs [4].

The concept of "consciousness" first emerged in human cultural history within the "Eight Consciousnesses" theory of the Buddhist Yogācāra school. "Vijñāna" (consciousness) in Yogacara is a complex, comprehensive, and multidimensional concept. It encompasses but is not entirely equivalent to the term "consciousness" as commonly used today. It is divided into eight types: eye-consciousness, ear-consciousness, nose-consciousness, tongue-consciousness, body-consciousness, mind-consciousness, Manas (ego-consciousness), and Ālaya-vijñāna (storehouse consciousness). The concept of consciousness in contemporary cultural context is closer to a combination of the sixth

consciousness ("mind-consciousness") and the seventh consciousness ("Manas" or self-consciousness) in Yogacara.

3. Multidimensional correspondence between Yogacara and holographic information theory

3.1. Correspondence between the eight consciousnesses structure and information storage systems

3.1.1. The multidimensional hierarchical relationship from implicit to explicit in the informatization of the eight consciousnesses in Yogacara

(1) The Information Processing Mechanism of Consciousness

Traditional philosophy defines consciousness from the perspectives of qualia and the experiencing subject. Cognitive neuroscience explains the information processing mechanism of consciousness through two major theories: Global Workspace Theory (GWT) and Integrated Information Theory (IIT). In 2017, a research from the Blue Brain Project, led by neuroscientist Henry Markram at the Swiss Federal Institute of Technology in Lausanne, titled "*How is Human Consciousness Produced*", used supercomputers to reveal that the over 86 billion neurons in the cerebral cortex exhibit omnidirectional interconnections. These neurons form a complex, high-dimensional topological network structure with distinct geometric properties. These structures are not limited to three-dimensional but may operate in an 11-dimensional space. IIT and the latest global functional connectivity theories have scientifically verified that consciousness relies on dynamic whole-brain collaboration and functional integration, rather than the function of a fixed brain region. Consciousness emerges from the integration and global sharing of information within a subtle, global quantum geometric space, where information exists, is mapped, and integrated by this global information field. This research demonstrates that consciousness is a mechanism for processing global information both within and potentially beyond the brain [2].

Modern quantum physics unifies waves and particles, proving that all particles are special states of energy wave packets in superposition. Therefore, it is hypothesized that fundamental information might be stored within the countless spatial pores formed in high-dimensional network spaces. Information packets similar to quantum wave packets resonate through spatial fluctuations within the neural network, and the information transmitted by fixed resonance superposition states is thus globally shared, transmitted, and stored as memory within this high-dimensional spatial structure.

(2) The Storehouse Method: The Magical Repository Containing the Seeds of All Cosmic Wisdom and Potential

In the *Cheng Weishi Lun* (Discourse on the Perfection of Consciousness-only), "Ālaya" is regarded as the deepest level of mind-consciousness. Its Sanskrit meaning is "storehouse," referring to a repository that can store all items and things. It is subtle and imperceptible, possessing three inherent natures: the capacity to store, the content stored, and the tendency to cling to storage. It encompasses the seeds of all phenomena and dharmas. The Buddhist Dharmalakṣaṇa school posits that all phenomena arise from the seeds contained within the Ālaya-vijñāna. All things in the world, whether plants, animals, or static objects, grow, sprout, develop, and evolve from initial seeds. A plant seed contains all the characteristic information about its color, form, and habits. An animal embryo similarly contains all characteristic information about its growth and development process, which expands and matures under suitable conditions.

Ālaya-vijñāna resembles the most fundamental, elementary information packet, existing within the high-dimensional network structures. It can "contain all things" and possesses the potential to store both defiled and pure seeds. Ālaya-vijñāna is a latent information-energy potential, an innate capacity, constantly in a cyclical flow of momentary cessation, instantaneous arising, and

disappearance [5]. This is very similar to the state of the vacuum in quantum physics. The vacuum is not empty; rather, energy constantly flows within it, and virtual particle pairs excited within it constantly fluctuate, momentarily ceasing and arising.

(3) The Spiral Transformation from the Deep Hidden Layer to the Manifested Layer

The eight interconnected Yogacara consciousnesses—eye, ear, nose, tongue, body, mind, Manas, and Ālaya (storehouse consciousness)—are different manifestations of the fundamental Ālaya under external stimuli, analogous to basic information packets evolving into the material world through continuous superposition.

The eighth, primordial Ālaya-vijñāna, hidden in potential, is the "basis of the known" [4], requiring interaction with sense faculties to activate the first seven consciousnesses. The Laṅkāvatāra Sūtra notes it generates various consciousnesses when stirred by external objects [1]. Ichiro Yamaguchi argues the eight form a spiral hierarchical structure, with Ālaya giving rise to the six manifested consciousnesses when disturbed [6].

Disturbed by the external environment, Ālaya manifests the "seeing aspect" (perceptive energy) and "object aspect" (external phenomena), fostering self/external cognition. From its undifferentiated state emerges the seventh Manas consciousness, described in Xuanzang's Cheng Weishi Lun as the "deliberating transformative consciousness" [5].

Yogacara texts (e.g., Cheng Weishi Lun, Saṃdhinirmocana Sūtra, Mahāyāna-saṃgraha-śāstra) hold Ālaya sequentially generates Manas and the first six consciousnesses. As Yogacara epistemology explains, consciousness' observed objects depend on sense faculties and external stimuli, with subjective differences shaping perceptions. The first five consciousnesses arise via organ reception of external energy/signal fluctuations; differing organs lead to varied perceived worlds [5,7,8].

3.2. Similarities between seed-consciousness manifestation and holographic information encoding

3.2.1. The mechanism of consciousness generation in holographic information theory

The term "holographic" first appeared in physics, referring to the phenomenon where a part contains the complete information of the whole. Holographic principles are widely observed in the biological world. A fertilized egg of an animal or plant is similar to the "seed" analogy of Ālaya-vijñāna. Although its internal characteristics cannot be discerned from the outside, it contains the complete information phenomenon of the whole. Under suitable conditions, it germinates and manifests into the myriad individual lives of the world according to its internal characteristic information and patterns.

Latest scientific research indicates that human consciousness and memory also operate and are stored through holographic information mechanisms under the influence of quantum fields. Stanford neuroscientist Karl Pribram proposed that human consciousness and the brain are akin to a holographic camera, using holographic imaging principles to encode and cover a vast number of subtle fluctuating signals, such as light waves, sound waves, and volatile molecular waves, which are then holographically received and displayed by the brain. Basic signals continuously superimpose, forming the concrete world of an individual's internal perception

3.2.2. The Ālaya-vijñāna seed manifestation model is a cyclically dynamic information field

The Ālaya seed-consciousness also exhibits holographic properties. These seed-consciousnesses, like plants waiting to sprout, exist as the potential of all manifested consciousnesses and phenomena. This potential constitutes a fundamental, ground-state information pattern, representing all diverse forms that will emerge once activated. "Through the 'capacity to store' of seeds, potential is encoded and

contained within the deepest, most fundamental informational patterns (karmic forces) of all dharmas. Under the stimulation and interaction of external conditions, the 'stored content' then decodes and presents the seed information (karmic forces) as external conditions (current manifestations). The 'clinging to storage' then continues to cyclically accumulate and encode the external conditions and phenomena as new seeds (new information) into the storehouse consciousness, forming a cycle of mutual generation and transformation between seeds and manifestations. Thus, Ālaya-vijñāna and the external material world establish a dynamically interconnected operational mechanism of energy and information, creating a cyclical causal chain of 'seeds giving rise to current manifestations, and current manifestations perfuming new seeds' [1].

3.2.3. Constructing a unified model of information existence and function mechanism

Hou Chengya proposes three laws of Holographic Information Theory in Holographic Theory and Its Methodological Significance: holographic information is spatially holographic, spans time, and is dynamically holographic in evolution [3].

Correspondingly, Ālaya-vijñāna, as an information repository storing universal information packets (seeds, akin to quantum wave packets with energy and material potential), is summarized in the Śūraṅgama Sūtra as "storing all seeds, pervading all dharma realms, neither discontinuous nor permanent, like flowing water." Seeds resemble DNA codes, containing matter's evolutionary templates.

Ālaya-vijñāna performs holographic mapping across spacetime; seeds "pervade all dharma realms," driving dynamic evolution. Zongmi (in Zhiyue Lu) notes all phenomena stem from mind-consciousness, with the external world projecting Ālaya's seed information. Yongjia Xuanjue's Song of Enlightenment metaphorizes this as "one moon manifesting in all waters."

As a dynamic engine, Ālaya enables cyclic information manifestation and return: external stimuli activate stored seed information (karmic forces) into phenomena, which in turn perfume new seeds into it, forming a "seed-phenomenon" causal cycle. Described as "flowing water," it is a continuous yet impermanent consciousness stream, like vacuum energy fluctuations, integrating external informational structures for accumulation.

4. Algorithmic mechanisms of artificial intelligence and the possibility of consciousness generation

4.1. Operating principles and limitations of deep learning algorithms

Deep learning algorithms are models simulating neural connections in the human brain. In essence, they construct a virtual high-dimensional topological neural network space through interconnected layers of neurons (input layer, hidden layers, output layer) that transmit signals. This space contains basic geometric structures, enabling the model to receive, extract, and process information. As the number of network layers increases, each layer's abstract representation of the previous level becomes more sophisticated. Currently, the most advanced large language models (LLMs) have neuron parameters and layers reaching hundreds of billions, even trillions.

In recent years, deep learning algorithms have made breakthroughs in simulating human consciousness. For example, the Centaur model developed by a German research team can simulate human behavior in 160 psychological experiments, with neural representations highly consistent with real human fMRI scan results; Shanghai Jiao Tong University's "human-like brain" large model attempts to reshape machine learning paradigms, simulating human cognitive processes. However, algorithmic models always operate passively in virtual high-dimensional digital spaces, receiving and processing data without active interaction with real spacetime. They cannot resonate or engage in active, spontaneous subjective cognition and reflection on the external environment.

4.2. Analysis of AI algorithm spatial structure and conditions for consciousness generation

4.2.1. Neural network space construction

AI algorithms, through massive billions of simulated neuron parameters interconnected, form a virtual high-dimensional digital space, similar to the neural network composed of brain neurons.

4.2.2. Signal and information conduction in global space

Signals are transmitted between nodes across layers in the AI neural network space, mapped to a high-dimensional vector space. Data flows from the input layer through successive layers. At each layer, embedding techniques decomposes and maps features into a high-dimensional vector space calculating similarities and distance to derive conclusions. This also resembles how consciousness requires signal waves, under the influence of quantum field spacetime to simultaneously travel, conduct, and provide feedback within the brain's internal space and surrounding energy space.

4.2.3. Signal storage in topological geometric space

The high-dimensional topological structure of AI neural networks contains countless microscopic geometric spaces where digital signals are stored and transmitted. This is similar to how energy and wave signals are stored in the Hilbert space of quantum fields, operating through holographic information mechanisms.

4.3. Assessment of AI consciousness possibility based on the Yogacara-holographic model

4.3.1. The holographic model of Ālaya-vijñāna's "pervasive conceptual grasping"

Constructing a quantum-entanglement-network-like system involves not only building a digital model to simulate a multidimensional neural network but also constructing a quantum entanglement network capable of interacting with and influencing changes in the multidimensional spatial structure of the real spacetime. This network possesses four characteristics: 1) Construct multidimensional sensory sensors. These sensors, such as tentacles combining with external conditional causes, can simulate the first six sense faculties—eye, ear, nose, tongue, body, and mind—to receive and transmit various energy fluctuations from the natural world, converting them into signal waves and data. These signals are parsed and formed into representations by a central deep neural network model that processes and understands these signals and big data. 2) Construct quantum information perception units similar to Ālaya-vijñāna via quantum communication brain-like structures. This perception unit resembles the state space and complex distribution space in quantum mechanics—a mathematical space capable of storing all possible superposed states of a quantum system. This superposition state space within the quantum information perception unit can store seeds, which are the most fundamental meta-signals and meta-information, similar to quantum left-spin, right-spin, or single-arrow states. Through quantum entanglement, it instantly receives energy fluctuation signals collected via the various sensory sensor and tentacle simulators. These wave signals, bidirectionally transmitted across full multidimensional topological links, are converted into the most fundamental, primordial single signals and stored within the quantum information perception unit. 3) Construct a self-cognitive neural network layer. This layer uses deep neural networks incorporating reflection and self-reinforcement mechanisms. Value judgment information such as likes and dislikes, joy, acceptance and rejection, and morality is continuously added via the identification and differentiation of external environmental information. 4) The multidimensional sensory simulators, the self-cognitive network layer, and the quantum perception units interact bidirectionally, co-existing, sharing information, and functioning simultaneously. Primordial signals within the perception unit

can continuously superimpose, maintaining a superposition state. This state jointly interact with signals received by the sensors, input into the central neural network hub, and generates executive commands that act on sensor tentacles, producing actions and behaviors [2].

4.3.2. The dynamic cyclical model of Ālaya-vijñāna's "seed re-manifestation"

Seeds within Ālaya-vijñāna can manifest as present experiential phenomena, and these current manifestations, in turn, perfume the seeds, forming a perpetually cyclical dynamic system. First, the meta-seed information stored in the state space of the quantum information perception unit continuously stores and absorbs new external fluctuation signals, superimposing various possible states. Upon reaching a critical point, it ultimately undergoes an energy and information transition, generating and mapping into phenomenal information and command signals that are transmitted to the deep neural network processing center. This realizes the transformation process of seeds giving rise to manifestations. Second, energy fluctuation signals received through interaction between the real world and multidimensional sensors are instantly fed back to the quantum perception unit under the quantum information entanglement mechanism for degradation or re-superposition as basic signals stored in the state space, forming the mechanism by which reality continues to perfume seeds.

5. Conclusion

This study explores the challenging question of machine consciousness by constructing a novel interdisciplinary framework that integrates the ancient wisdom of Buddhist Yogācāra philosophy with modern Holographic Information Theory. The central thesis posits a multidimensional correspondence between the Yogācāra model of the "Eight Consciousnesses"—particularly the dynamic, seed-repository function of Ālayavijñāna (storehouse consciousness)—and the principles of holographic information storage, encoding, and cyclic operation. Through comparative analysis, this study argues that contemporary deep learning architectures, despite their structural sophistication, lack the embodied, recursive, and globally interactive information loops essential for subjective experience. To address this gap, the paper proposes a conceptual AI architecture integrating quantum-entangled perception, holographic information mapping, and self-reflective cognitive layers, designed to mimic the "seed–actualization" cycle of Ālayavijñāna. This theoretical synthesis not only offers a fresh, holistic perspective on the nature of consciousness by combining Eastern philosophical insights with contemporary science but also outlines a potential architectural pathway for developing future AI systems with emergent, quasi-conscious capabilities. The primary contribution lies in proposing a foundational cross-disciplinary model that encourages a paradigm shift from fragmented, single-discipline inquiries toward a unified understanding of conscious phenomena.

This study is primarily theoretical; its proposed model requires empirical validation and faces significant engineering challenges. Future work should focus on developing testable computational simulations and designing specific neuro-cognitive experiments to verify the proposed correspondences.

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