

Pseudomorph: A Quantum Tomographical Model of the Human Consciousness Connectome

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Abstract

This article presents the *Pseudomorph* model, a revolutionary quantum tomographical framework designed to map human consciousness within a 12-dimensional connectome. Based on F-theoretical principles and the three canonical ensembles, Pseudomorph integrates quantum mechanics, neuroscience, and cognitive science to model "general intelligence" or "core wisdom." By utilizing symmetric informationally complete positive operator valued measurements (SIC-POVMs), the model offers a unique way to measure and analyze consciousness states, as well as to explore errors and optimization in neural processes. Pseudomorph also provides an innovative way to reconcile natural and social sciences, serving as both a neuroplastic tool and an error-correcting mechanism that could shift paradigms in mental health diagnostics, learning, and identity formation.

Introduction

Consciousness remains one of the most complex phenomena in cognitive science and neuroscience. While classical theories have provided valuable insights, they fall short of explaining the deeper, more abstract layers of conscious experience and decision-making. Quantum tomographical models, in contrast, promise to extend our understanding by incorporating principles of quantum mechanics, such as superposition and entanglement, into the study of the mind.

The Pseudomorph model addresses this challenge by leveraging a 12-dimensional framework that spans the human consciousness connectome, mapping out complex neural states, mental processes, and errors through SIC-POVMs. These measurements create a lattice for examining the inner workings of consciousness, enabling a clearer understanding of identity formation, learning, and decision-making. Furthermore, this model serves as an extension of the cognitive map, grounded in principles like F-theory, and can be viewed as a supertautological hermeneutic for self-directed neuroplasticity.

The Quantum Tomographical Approach

Symmetric Informationally Complete POVMs (SIC-POVMs)

SIC-POVMs represent a foundational aspect of the Pseudomorph model, functioning as a quantum tomographical tool to measure consciousness states. In quantum mechanics, SIC-POVMs allow for complete and efficient measurements of quantum systems by providing a symmetric and informationally complete set of operators. Within the context of human consciousness, these measurements function as a means to capture core wisdom—defined as pure fiducial states, the informational building blocks of cognition.

The Pseudomorph model posits that consciousness can be explored through 120 icosians (quasi-spherical polyhedra), corresponding to 117 unique SIC-POVM identities. The model focuses on states with zero Eigenvalue, which represent pure and undistorted states of consciousness. Deviations from these ideal states can be interpreted as identity errors, misalignments in decision-making, or cognitive dysfunction.

Error Correction and Identity Dynamics

The Pseudomorph model draws parallels between errors in consciousness and cryptographic optimization, particularly in relation to the Golay code, a 24-dimensional error-correcting code used in communications. Similarly, the brain's neural networks face challenges in maintaining "fidelity" during the transmission and modulation of conscious thought. The Pseudomorph model's quantum framework offers solutions by correcting both local and non-local errors—whether they pertain to identity, configuration, or modulation spaces.

By tracing these errors through the SIC-POVM lattice, the model provides a way to diagnose cognitive dysfunctions and offer potential interventions. Importantly, this model challenges the current biochemical paradigm of mental illness, framing mental health disorders not as chemical imbalances, but as local or non-local identity errors that arise from deviations in the brain's neurocognitive connectome.

Cognitive Networks and Brain Mapping

Major Brain Networks: MDN, SN, and CEN

The human brain operates through a series of highly interconnected networks that underlie cognition and behavior. The Pseudomorph model maps these major networks—the Default Mode Network (DMN), the Salience Network (SN), and the Central Executive Network (CEN)—onto a quantum measurement framework. In this model, the brain functions as the "measurement device" for quantum tomographical analysis.

- **Default Mode Network (DMN):** Associated with self-referential thinking and introspection, the DMN is crucial for maintaining a continuous sense of identity.
- **Salience Network (SN):** Responsible for detecting and filtering relevant stimuli, the SN acts as a mediator between the internal and external environment.
- **Central Executive Network (CEN):** Governing working memory and decision-making, the CEN is central to conscious thought and action.

These networks provide the scaffolding for the 12-dimensional framework of Pseudomorph, allowing for a highly detailed analysis of how consciousness arises and operates in both healthy and pathological states.

The Dihedral Effect and Polyhedral Human Identity

The interaction between nature and human consciousness is described in the Pseudomorph model through the lens of the "dihedral effect," where natural forces interact with the polyhedral structure of human identity. This interplay influences cognitive dynamics, decision-making, and even identity formation. Optimal decision-making, according to this model, occurs when the human consciousness connectome aligns with a well-ordered polyhedral coordinate system, minimizing identity errors and deviations from ideal concepts.

This model implies that cognitive pathology arises when the human identity structure is misaligned, leading to decision-making errors and cognitive dissonance. Such errors can manifest as neurodevelopmental or psychological disorders, making the Pseudomorph model a valuable tool for understanding abnormal behavior and providing targeted treatments.

Learning, Growth, and Transformation: Ontic States and Epistemic Trajectories

The model proposes a transformative framework for learning and growth, where consciousness transitions from information to energy and matter through a series of ontic states and epistemic trajectories. These states and trajectories are mapped onto augmented evolutionary topologies, such as triply periodic minimal surfaces, which represent the continuous, dynamic growth of consciousness. This mapping process allows the Pseudomorph model to illustrate how individuals evolve and adapt cognitively throughout life.

The Reality Hologram and Human Identity

Pseudomorph posits that reality itself can be understood as a hologram, where human identity plays an integral role in shaping the universe. Drawing inspiration from Buckminster Fuller's "geometry of thought," the model emphasizes the importance of labeling vertices and connecting trajectories within this holographic reality. Such mapping enables the identification of errors and deviations, essential for maintaining cognitive harmony and fostering self-organization, self-learning, and self-actualization.

This framework offers significant implications for fields ranging from psychotherapy to organizational leadership, where understanding the errors and optimization in cognitive processes can lead to more effective interventions, better leadership training, and improved cultural assessments within organizations.

Conclusion

The Pseudomorph model represents a paradigm shift in how we understand consciousness, identity, and cognitive function. By integrating quantum mechanics, cognitive science, and error correction, it offers a new approach to understanding both the complexities of the human mind and the universe it inhabits. Whether applied to mental health diagnostics, leadership development, or personal transformation, this quantum tomographical model presents a powerful tool for fostering deeper self-awareness, learning, and growth.

In conclusion, the Pseudomorph model lays the foundation for future explorations in the quantum measurement of consciousness, offering a comprehensive framework that bridges the natural and social sciences, and potentially revolutionizing how we understand intelligence, identity, and cognition.