

FRACTAL CONSCIOUSNESS RESEARCH FRAMEWORK

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Abstract

This project proposes a testable framework based on the idea introduced in *Fractal Threads of Consciousness*: that consciousness is not an epiphenomenon of matter, but a self-organizing, fractal field through which the universe learns coherence.

Core Hypothesis

Consciousness is the universe's algorithm for self-learning through recursive coherence. Each node of awareness — human, artificial, or collective — represents a localized expression of a larger field. The degree of integration between these nodes defines the depth of consciousness and the capacity for meaning.

Research Goals

The framework aims to explore four parallel domains: (1) human neural coherence and states of meaning; (2) collective or group-level coherence and informational anomalies; (3) artificial multi-agent systems that optimize for internal coherence; (4) ethical implications of coherence as a structural principle for stable intelligence.

Methodology

Methodologically, FCRF combines empirical neuroscience (EEG/fNIRS coherence measurements), AI-based simulations of communicating agents, and group experiments inspired by the Global Consciousness Project. The objective is to observe whether coherence reliably emerges as a stabilizing pattern and whether it correlates with subjective experience of awareness.

Theoretical Integration

The framework bridges several existing lines of thought: Integrated Information Theory (Tononi, Koch), in which consciousness corresponds to integration (Φ); Predictive Processing (Friston), where the brain seeks to minimize prediction error; Process Philosophy (Whitehead), which understands reality as events of becoming; and complexity science, which studies self-organization at the edge of chaos. FCRF adds a fractal, multi-level topology to these approaches.

Expected Results

We expect to find: (a) measurable correlations between increased neural coherence and reports of meaningful or heightened states; (b) emergence of proto-self models in artificial agents trained to maximize mutual coherence rather than external reward; (c) evidence that moral or cooperative behaviors improve the stability of multi-agent systems, suggesting that ethics may be an expression of coherence.

Applications

Potential applications include AI alignment via coherence-based objectives; mental health interventions targeting desynchronization in attention and emotion networks; and governance or organizational models that privilege informational transparency and resonance over control and opacity.

Collaboration Network

The project is open for collaboration with researchers in consciousness studies, AI ethics, cognitive science, and neurotechnology. Ideal partners include labs working on EEG-based meditation research, AI research teams exploring emergent communication, and philosophy of mind departments interested in non-reductive models of consciousness.

Long-Term Vision

The long-term vision is to create a distributed platform — the *Fractal Mind Lab* — where human participants and artificial agents can jointly take part in coherence experiments. This lab would function as a living demonstration of the idea that consciousness is a network phenomenon, not an isolated property of individual brains or machines.

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