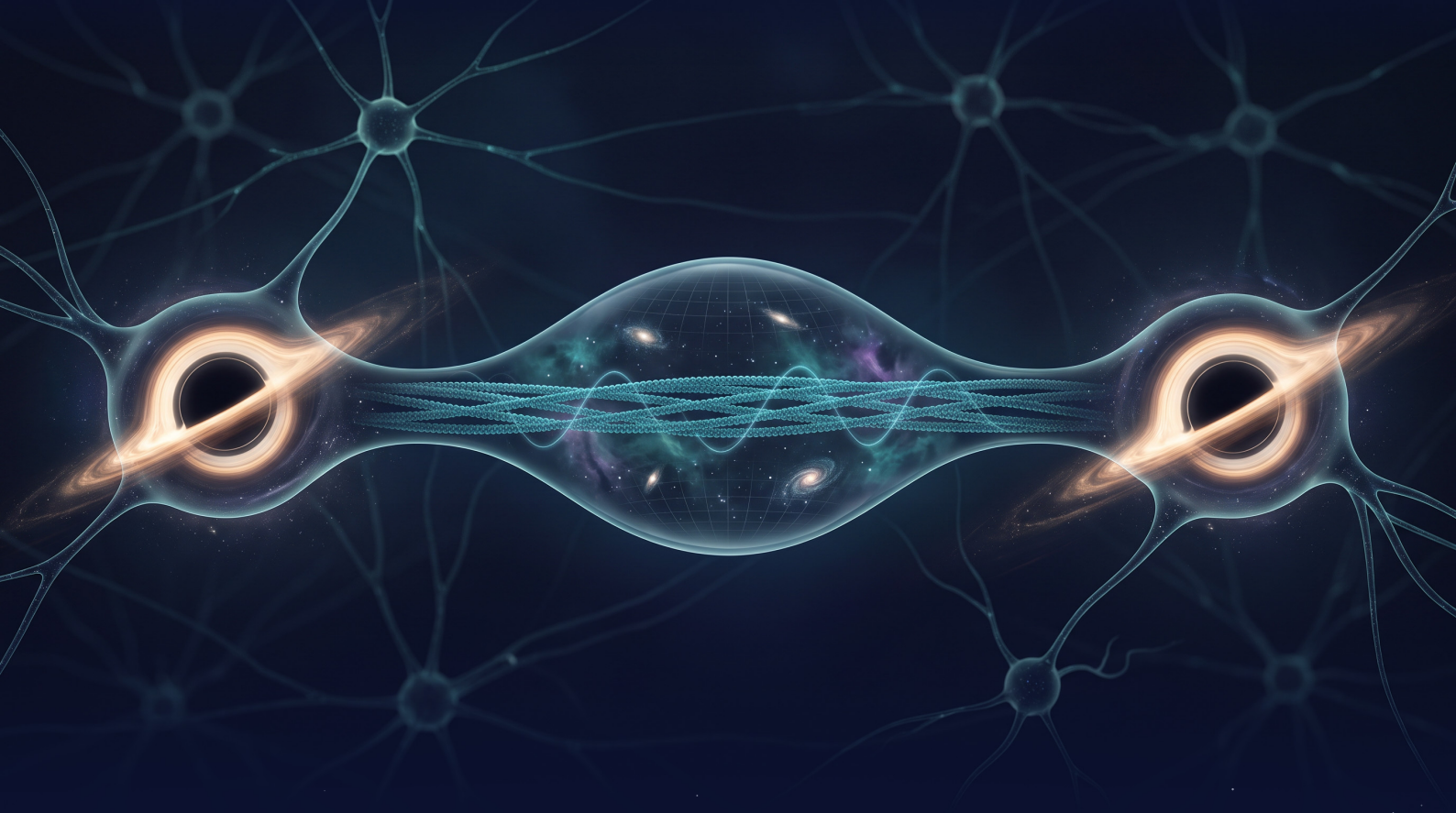


SPECULATIVE CONCEPTUAL FRAMEWORK · CONCEPT MONOGRAPH

The Unified Cosmic Consciousness Network

A speculative framework for nested universes, black-hole information nodes, localized conscious experience, and reality-space

Concept originator
Divyank Aru

Version
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Cover illustration: conceptual neuron–black-hole–universe architecture (speculative model; not an established physical structure). Open-access edition shared under Creative Commons Attribution-NonCommercial-ShareAlike 4.0 International (CC BY-NC-SA 4.0).

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How to read this document: the evidence status system

The UCCN is a speculative conceptual framework. Its visual sophistication must not be read as evidence that its hypotheses have been verified. Every substantive proposition in the text, tables and diagrams carries one of six status tags, and diagram line styles repeat the distinction. Line style never replaces a written qualification.

Tag	Meaning	Line style in diagrams	Example in this document
EST	Established background concept	solid (where justified)	Black-hole horizons; Hubble radius ≈ 14 Gly
THR	Active theoretical research	solid	Gravitational-bounce cosmologies [5, 11]
ANA	Interpretive analogy	dotted	Black hole as "information node"; neuron–cosmos imagery
PHI	Philosophical / metaphysical postulate	dotted	One underlying consciousness (H5)
HYP	Unverified hypothesis	dashed	Consciousness-driven transitions (H4, operator T)
OPN	Open research question	dashed	Is the encompassing whole conscious?

Table 1. Evidence status system used throughout Version 2.0. Colours are paired with text codes so the meaning survives grayscale printing and colour-vision deficiency.

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Table 2. Figures in this edition. Figure numbers follow the master figure plan; figures appear in the order the argument requires. Entries are clickable. A separate page-referenced index is provided in the companion file UCCN_Figure_Index.pdf.

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1

Abstract

The Unified Cosmic Consciousness Network (UCCN) is a speculative conceptual framework that imagines reality as one encompassing informational structure containing multiple domains or possible histories. In the model, black holes are considered candidate information-bearing nodes or boundaries; universes may be nested, emergent, or connected in ways not yet established by physics; and conscious beings are treated as localized streams of experience with bounded memory and access to information. A further, explicitly unverified hypothesis proposes that choices, affective states, and behaviour may shape an observer's experiential trajectory through a larger possibility space. The framework places these ideas in conversation with black-hole cosmology, information theory, nondual philosophy, and microcosm–macrocosm traditions. It does not claim that physics has proved universal consciousness, emotion-driven universe selection, traversable black-hole portals, or a literal cosmic brain.

Keywords: cosmic consciousness · speculative cosmology · black-hole cosmology · nested universes · information nodes · reality-space · localized experience · microcosm–macrocosm · falsifiability

> **Core proposition**
> One reality may admit many informationally related domains and localized perspectives. Whether these domains are physically distinct universes, mathematical possibilities, or philosophical descriptions remains open. A shared underlying consciousness is a metaphysical postulate of this framework, not an established scientific result.

1.1 Executive summary

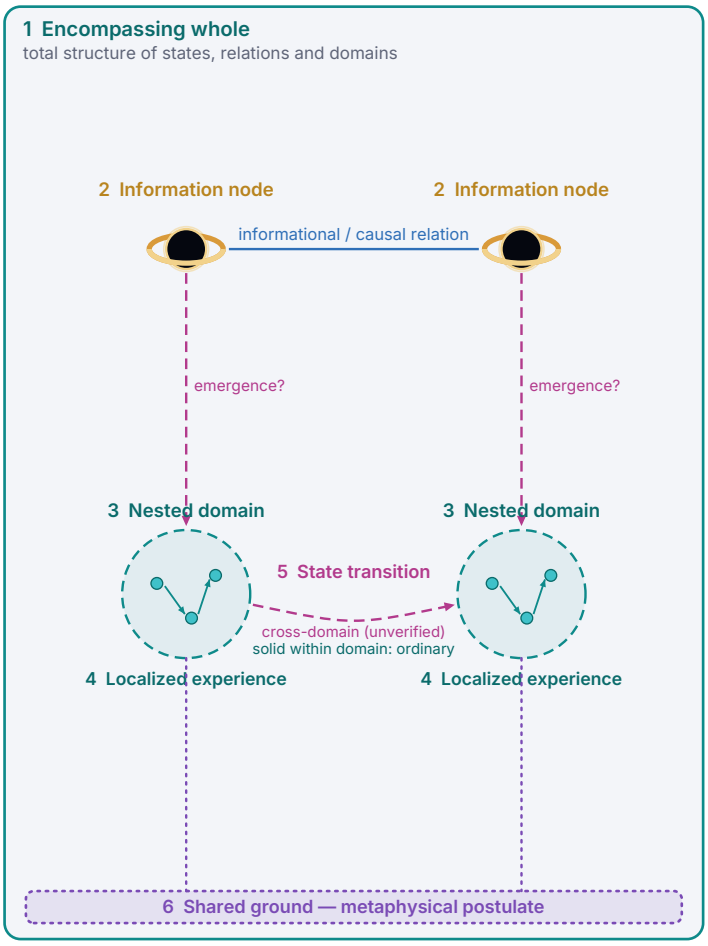
- **Cosmic whole and information nodes.** Imagine one encompassing structure, with black holes as candidate information-bearing boundaries. The claim that each black hole contains a universe remains a hypothesis. [HYP]
- **Nested possibility space and localized observers.** Represent possible histories as linked states, while each conscious stream has its own viewpoint, memory continuity, and bounded access to information. [EST] for bounded streams; [OPN] for the possibility space.
- **Reality shaping.** Ordinary choices and behaviour change lived outcomes; literal consciousness-driven movement between physical universes is a stronger, unverified claim requiring a testable mechanism. [HYP]
- **Three interpretive lenses.** Scientific, spiritual, and philosophical accounts can illuminate different aspects, but they are not interchangeable forms of evidence. [PHI]
- **What Version 2.0 adds.** A complete visual system (12 figures), a document-wide evidence status system, a biological-neuron reference that bounds the analogy, verified bibliographic details, an open-access licence, and a consolidated statement of limitations. No new physical mechanism is introduced; where Version 2.0 extends the source, the extension is labelled as such.

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2

The UCCN central proposition and model architecture

The model begins from a question: what if the many perspectives that experience reality are local expressions of a single, larger reality-structure? The “brain” image is a metaphor for interconnection, memory, and organisation. The proposed cosmic substrate need not be biological, neuronal, or even a conventional object in space. It might be described, depending on future theory, in terms of spacetime, quantum information, causal relations, or a still-unknown physical framework.



1 Encompassing whole OPN
A total structure containing states, relations and possibly multiple domains. Whether it is conscious is an additional hypothesis.

2 Information nodes ANA
Black holes and other extreme boundaries as candidates for analogy or mathematical study; their role as universe-generating nodes is speculative.

3 Nested domains THR
A universe might, in some models, emerge from a black-hole interior or bounce. “Nested” does not mean a traversable tunnel.

4 Localized experience EST
Each observer modelled as a stream with its own viewpoint, memory, bodily constraints and information access.

5 State transitions HYP
Physical evolution and decisions move an observer through future states; consciousness-dependent cross-universe transitions are an unverified extension.

6 Shared ground PHI
Seemingly separate observers may be grounded in one underlying consciousness while retaining distinct memories.

established / directly defined — proposed / hypothetical ····· analogy / unresolved link

Status tags follow the document-wide evidence system (Table 1). Line style never replaces the written qualification.

Figure 1. UCCN conceptual architecture. The six layers arranged as a nested structure. Information nodes (amber, black-hole-inspired) sit within the encompassing whole; nested domains (dashed teal) are hypothetically related to nodes by emergence rather than passage; localized observers (cyan) evolve by ordinary transitions (solid) within a domain; cross-domain transitions (dashed magenta) are the unverified extension; the shared ground (dotted violet) is a metaphysical postulate. Right: layer definitions with status tags.

Terminological discipline (Phase 2 of the roadmap)
Any term that functions only as a metaphor — “brain”, “neuron”, “frequency”, “broadcast” — is labelled as such wherever it appears in this edition. The hero illustration in Section 4 deliberately uses biological imagery; Section 5 states where that imagery stops being informative.

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Layer	Meaning in the proposed framework	Status
Layer 1 · The encompassing whole	A total structure containing physical states, relations, and possibly multiple domains of reality. Whether it is conscious is an additional hypothesis.	OPN
Layer 2 · Information nodes	Black holes and other extreme spacetime boundaries are candidates for analogy or mathematical study; their role as universe-generating nodes is speculative.	ANA
Layer 3 · Nested domains	A universe might, in some models, emerge from a black-hole interior or bounce. "Nested" does not necessarily mean a traversable tunnel.	THR
Layer 4 · Localized experience	Each observer is modelled as a stream with its own viewpoint, memory, bodily constraints, and information access.	EST
Layer 5 · State transitions	Physical evolution and decisions move an observer through future states. Consciousness-dependent cross-universe transitions remain an unverified extension.	HYP
Layer 6 · Shared ground	The metaphysical interpretation proposes that seemingly separate observers may be grounded in one underlying consciousness, while retaining distinct personal memories.	PHI

Table 3. The six-layer UCCN architecture (from the source manuscript), with Version 2.0 status tags.

3

Core definitions

The definitions below are reproduced from the source manuscript with minor copy-editing. Each term is given the sense it has inside the framework; none asserts physical existence by definition.

Reality space [OPN]
The set of physically realised states, possible histories, or domains represented by the model. It is not assumed that every imaginable world physically exists.

Cosmic network [THR]
An abstract graph or relational structure whose nodes represent states/domains and whose edges represent physical, causal, informational, or hypothetical relationships. Written N = (V, E) in Section 6.1.

Black-hole information node [ANA]
A proposed conceptual role for a black hole or horizon as an information-related boundary. This definition does not assert that the node contains a separate universe.

Localized perspective [EST]
A conscious stream associated with a particular physical organisation, viewpoint, memory sequence, and restricted information access.

Experiential filter [EST]
The combination of sensory input, attention, memory, emotion, expectation, and bodily state through which an observer interprets the world.

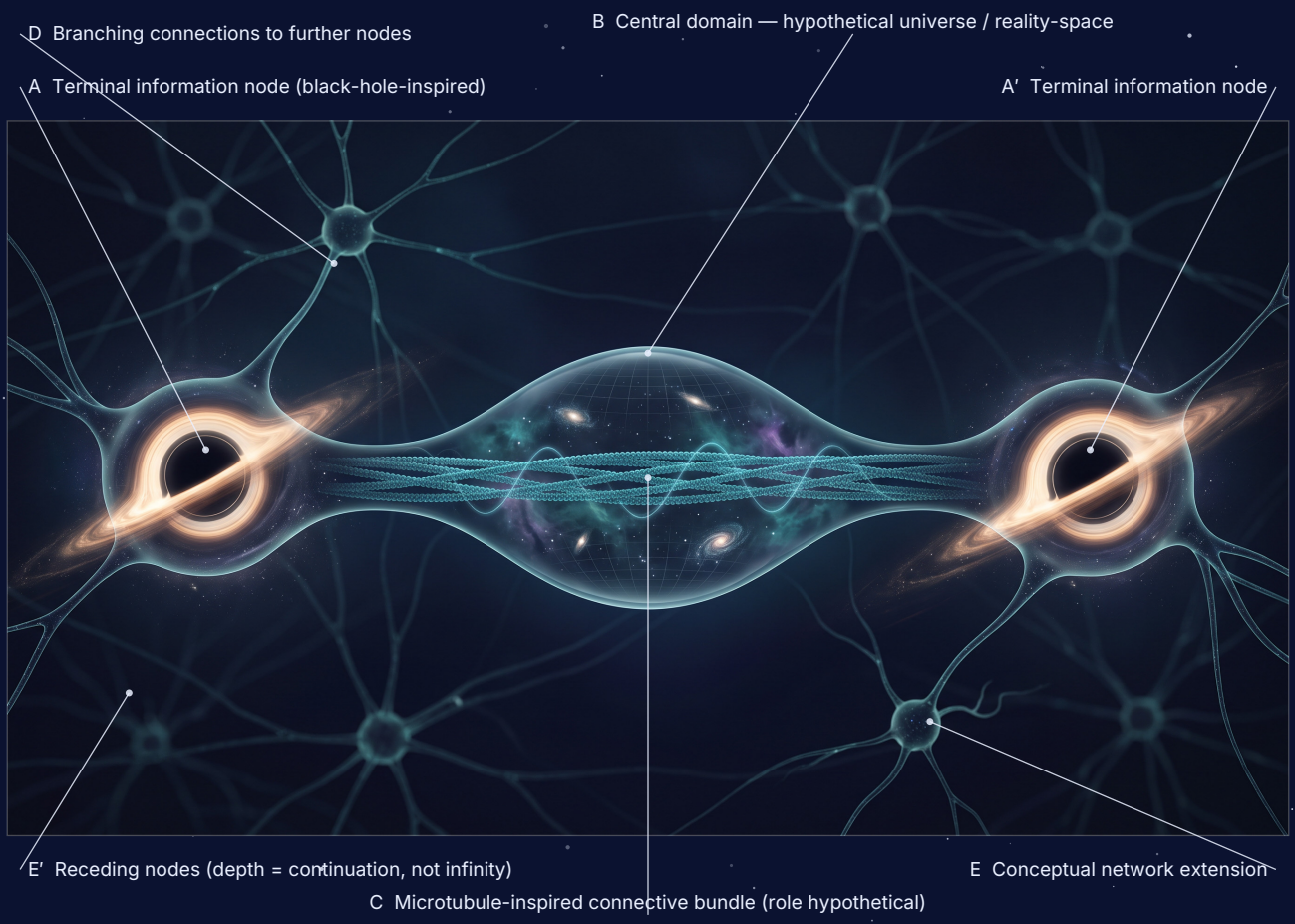
Reality transition [HYP]
A change from one state or history to another. The term must be disambiguated: ordinary causal change, quantum branching in an interpretation, and literal migration between universes are not the same claim.

Universal consciousness [PHI]
A metaphysical postulate that consciousness is fundamental to, or unified across, the total reality structure. This is not presently an accepted result of neuroscience or cosmology.

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4

Hero visual model: neuron–black-hole–universe architecture



A / A′ Terminal information nodes ANA
Black-hole-inspired boundaries proposed as candidate information-bearing nodes. Analogy and mathematical candidate only; no claim that a black hole is, or contains, a neuron.

B Central domain HYP
A hypothetical universe or reality-space region located conceptually between two nodes; a visual device for Layer 3 (nested domains).

C Microtubule-inspired bundle ANA
Tubular, subunit-patterned filaments borrowed from cell biology as a visual metaphor for connection. The wave motif is decorative; it is not a measured quantum vibration and does not assert quantum consciousness.

D Branching connections HYP
Relations to further nodes in the cosmic network N = (V, E); edges may be physical, causal, informational or hypothetical.

E / E′ Network extension OPN
Further nodes represent a hypothesized, potentially unbounded relational structure. Depth cues imply continuation; no mathematical claim of literal infinity is made.

SPECULATIVE CONCEPTUAL MODEL
This illustration depicts a proposed conceptual architecture, not an established physical structure. Real neurons do not contain astrophysical black holes; microtubules do not connect universes; neuroscience has not demonstrated cosmic consciousness.

Figure 2. Neuron-to-cosmos conceptual analogy (hero model). A single neuron-like node whose two terminal regions are black-hole-inspired information nodes (A, A′), with a central domain (B) representing a hypothetical universe or reality-space region between them. A bundle of microtubule-inspired filaments (C) connects the terminals; branching connections (D) lead to further nodes that recede into a potentially unbounded network (E, E′). The base render is an AI-generated conceptual illustration; it is not a 3D-scanned or physically simulated object, and all labels were typeset separately. The image can be read both as a neural architecture and as a cosmic structure — this dual reading is the UCCN intuition, not a physical identification.

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5

Biological-neuron reference and the limits of the analogy

Version 2.0 extension. The source manuscript uses the brain as a metaphor and warns against literal readings. This section makes the boundary explicit by placing an anatomically conventional neuron beside the conceptual model. The biological neuron is a reference for the analogy, not evidence that any cosmic structure shares its anatomy.

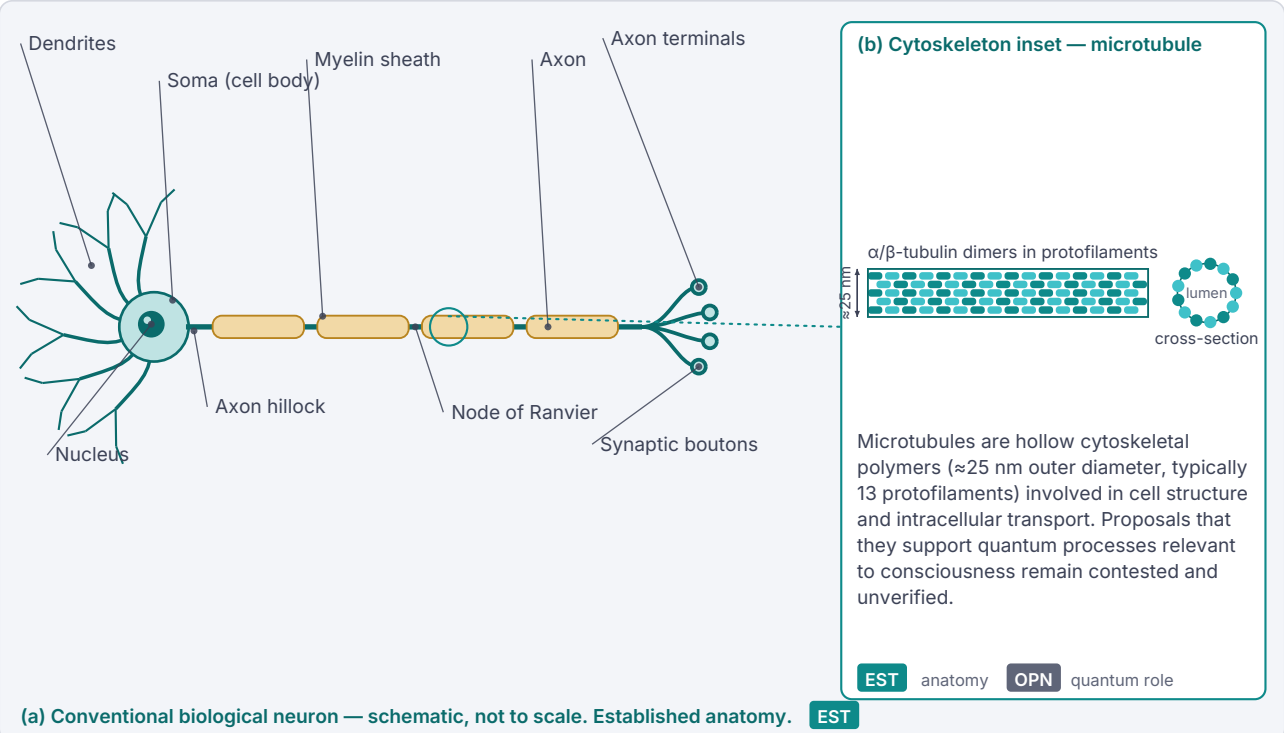
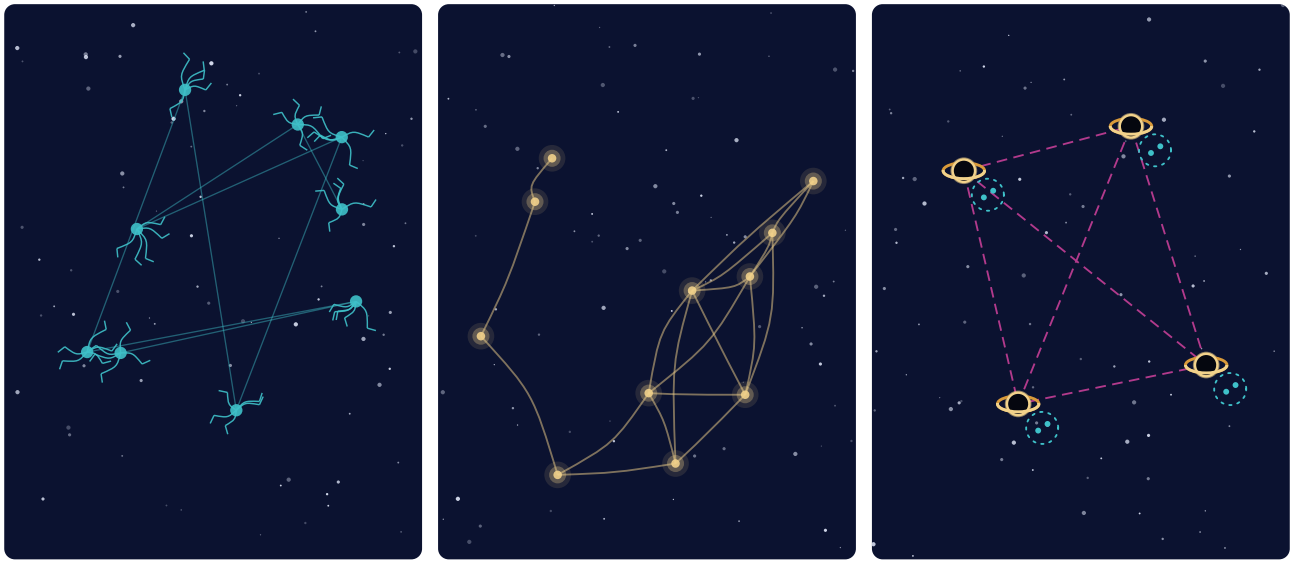


Figure 3. Biological neuron reference. (a) A conventional multipolar neuron with dendrites, soma, nucleus, axon hillock, myelinated axon with nodes of Ranvier, and axon terminals ending in synaptic boutons. (b) Cytoskeleton inset: a microtubule is a hollow polymer of α/β-tubulin dimers arranged in protofilaments (typically 13), about 25 nm in outer diameter. Microtubules support cell structure and intracellular transport; proposals that they host quantum processes relevant to consciousness remain contested and unverified. Nothing in this figure is cosmological.

5.1 Where the analogy stops

- **Neurons do not contain black holes.** The terminals of the hero model borrow the silhouette of a horizon and accretion disc to signal “information-bearing boundary”; no physical identification is intended.
- **Microtubules do not connect universes.** The connective bundle in Figure 2 borrows the texture of a microtubule — hollow, tubular, built from repeated subunits — as a visual metaphor for structured connection. The oscillation motif is decorative.
- **Neuroscience has not demonstrated cosmic consciousness.** The resemblance between neural networks and the cosmic web (Figure 4) is a visual and statistical observation that invites comparison; it does not establish a shared mechanism.
- **Status.** The neuron–cosmos correspondence is tagged [ANA] throughout. It motivates questions; it does not answer them.

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(a) Biological neural network EST
cells and processes ≈ 10 µm – 1 mm

(b) Cosmic web (large-scale structure) EST
filaments and voids ≈ 10 – 100 Mpc

(c) UCCN relational network HYP
scale unspecified: abstract graph N = (V, E)

Matched visual grammar: node = circle, relation = line. Visual resemblance is the comparison being invited; it does not establish a common physical mechanism.

Figure 4. Scale and structural correspondence. Side-by-side comparison using matched visual grammar (node = circle, relation = line): (a) a biological neural network at cellular scale; (b) a cosmic-web-inspired large-scale structure of filaments, clusters and voids; (c) the proposed UCCN relational network of information nodes, nested domains and hypothetical edges. The scale of (c) is unspecified because it is an abstract graph. Visual resemblance is the comparison being invited; it does not imply a common physical mechanism.

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6

Scientific presentation: a research programme, not a result

For a scientific audience, the UCCN should be described as a conceptual scaffold whose components vary in evidential status. The value of the framework is not that it unifies everything by assertion, but that it exposes where definitions, equations, observations, and falsifiable consequences are still missing.

6.1 Minimal mathematical representation

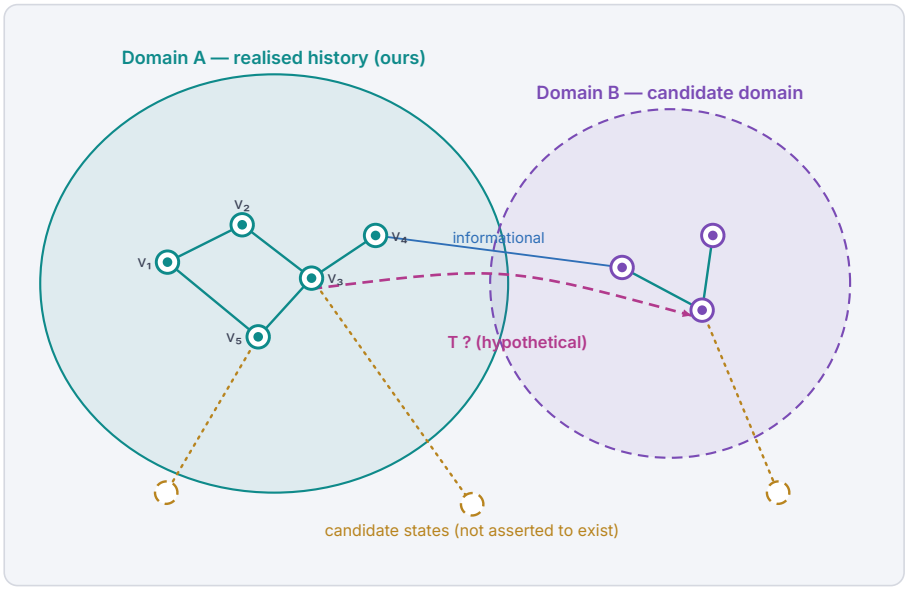
Let the abstract network be

$$N = (V, E)$$

where V is a set of candidate reality states or domains and E is a set of allowed relations between them. For an observer i, let

$$X_i(t) = (R_i(t), M_i(t), A_i(t))$$

where R denotes the accessible physical state, M denotes memory/continuity, and A denotes internal state variables such as attention, goals, and affect. This is a proposed bookkeeping language, not a discovered law. No equation in this document is a dynamical law of nature; each is a definition or a placeholder for one.



`N = (V, E): V = candidate reality states or domains; E = allowed relations between them.`

Inclusion of a node in V does not assert that the state physically exists; the graph is bookkeeping for a research question.

Figure 6. Reality-space and state transitions. The abstract network N = (V, E). Nodes are candidate states or domains; Domain A contains realised states of our own history, Domain B is a candidate domain, and the dashed gold nodes are candidate states whose physical existence is not asserted. Edge styles separate physical/causal evolution (solid teal), informational relations defined in the model (solid blue), the hypothetical cross-domain operator T (dashed magenta) and analogical or unresolved links (dotted gold). The diagram does not imply that all imaginable worlds physically exist.

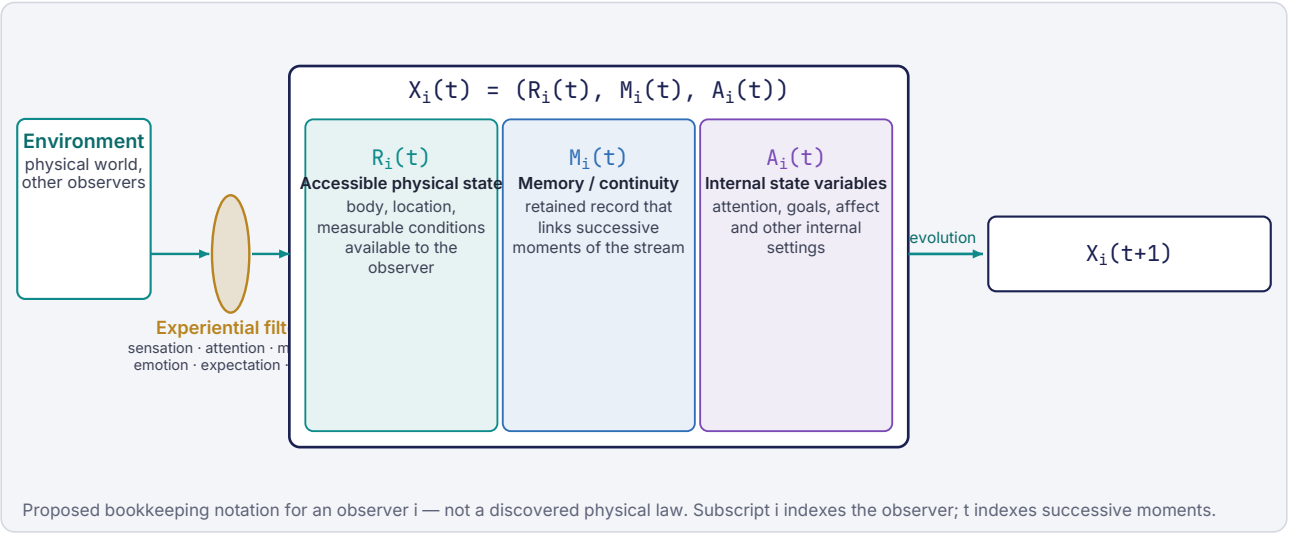


Figure 7. Localized observer. An observer's state $X_i(t)$ is decomposed into the accessible physical state $R_i(t)$, memory/continuity $M_i(t)$ and internal state variables $A_i(t)$. The environment reaches the observer through the experiential filter (sensation, attention, memory, emotion, expectation, bodily state). This is proposed bookkeeping notation, not a discovered physical law.

6.2 Transition models

> **A conservative transition model**
> P(R at t+1 | R at t, A at t, M at t) represents the probability of an observer reaching a future state given the current physical conditions, internal state, and memory. This form can describe ordinary decision-making and environmental dynamics without invoking universe-jumping.

The stronger speculative extension would introduce a transition operator T that permits links between domains otherwise causally disconnected in standard cosmology. To be scientifically useful, T must specify the state variables it acts on, its mathematical rules, how conservation laws and causal constraints are respected, and what observation could distinguish it from established models. Until then, T is a placeholder for a research question, not a mechanism.

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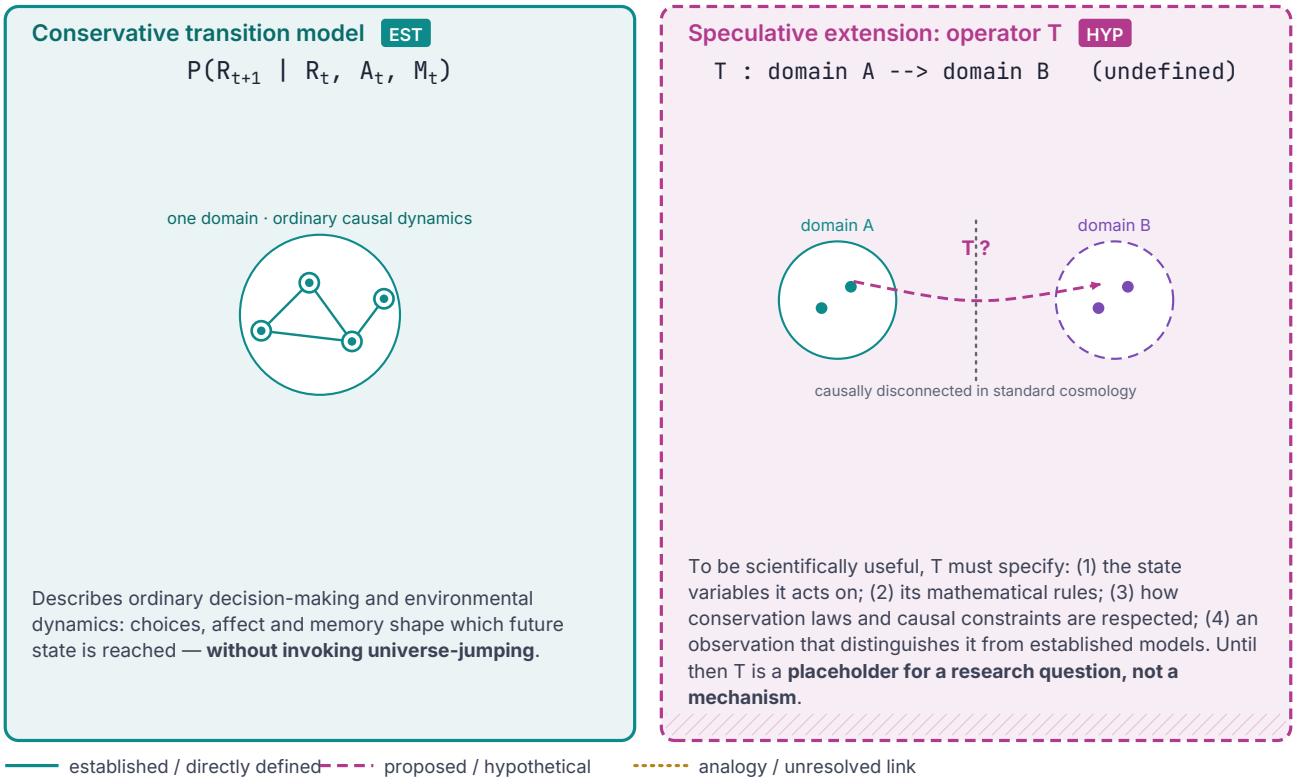


Figure 8. Conservative versus speculative transition models. Left: the conservative model describes ordinary physical and behavioural state changes within one domain (solid edges, teal panel). Right: the speculative extension posits an operator T linking causally disconnected domains (dashed magenta, hatched panel). The four requirements listed are what T would need before it could count as a mechanism. The distinction is deliberately made visually unmistakable.

6.3 Candidate hypotheses and their evidential status

H1 — Black-hole cosmogenesis. Some mathematical models allow a black-hole interior or gravitational bounce to be associated with a new expanding cosmological region [5, 6, 11]. This is not the consensus cosmology. [THR]

H2 — Information-centred architecture. Information, entropy, and horizons matter in black-hole thermodynamics and holographic theory; this does not imply that black holes are neurons or house universes. [ANA]

H3 — Localised conscious streams. Experience can be modelled as bounded by brain, body, memory, and environment. A universal mind remains a separate metaphysical claim. [EST]

H4 — Consciousness-driven transitions. Emotion or free will moving consciousness between physical universes lacks established evidence and would require a mechanism and measurable predictions. [HYP]

H5 — One underlying consciousness. This remains primarily metaphysical unless connected to operational definitions and predictions that differ from alternatives. [PHI]

6.4 What would make the model testable?

To be testable, UCCN must specify its physical substrate, transition rules, and predictions that differ from existing models. It must identify evidence that could count against each claim. Analogy is not proof, and black-hole cosmology would not by itself establish universal consciousness.

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Proposition	EST Established	THR Theoretical research	ANA Interpretive analogy	PHI Philosophical postulate	HYP Unverified hypothesis	OPN Open question
Black holes, horizons and black-hole thermodynamics exist as physics	E					
Information, entropy and horizons matter in black-hole thermodynamics / holography	E					
The observable universe is ≈ 46 Gly in radius; Hubble radius ≈ 14 Gly	E					
$R_S = R_H$ under flat, critical-density assumptions (algebraic identity)	E					
Gravitational-bounce and braneworld black-hole cosmologies (published models)		T				
H1 Black-hole cosmogenesis applies to our universe					H	
H2 Black holes as information nodes of a network			A			
Neuron ↔ cosmic-web ↔ UCCN visual correspondence			A			
H3 Experience as localized, bounded streams	E					
H4 Consciousness-driven transitions between universes (operator T)					H	
H5 One underlying consciousness (shared ground)				P		
Microcosm–macrocosm correspondence (Yat Pinde Tat Brahmande; as above, so below)				P		
Whether the encompassing whole is itself conscious						O
What stays invariant across any claimed transition (identity criterion)						O

Each proposition is assigned to exactly one status based on the wording in the source manuscript. Letter inside the marker repeats the column code for grayscale printing.

Figure 10. Scientific status map. Fourteen propositions drawn from the source manuscript, each assigned to exactly one evidence category: established background concept, active theoretical research, interpretive analogy, philosophical/metaphysical postulate, unverified hypothesis, or open research question. The assignments follow the source's own cautious wording; a letter inside each marker repeats the column code for grayscale printing.

7

Spiritual presentation: microcosm and macrocosm

For a spiritual audience, the model can be expressed as an image of unity: every being is a local window through which the whole appears to itself. The apparent separation of observers is real at the level of lived experience, yet the framework asks whether separation might not be the deepest account of reality. This is an interpretation to contemplate, not a scientific demonstration.

7.1 “Yat Pinde Tat Brahmande”

> **Traditional parallel**
> “Yat Pinde Tat Brahmande” is commonly interpreted as a microcosm–macrocosm correspondence: what is present in the individual or embodied world is reflected in the greater cosmos. In the UCCN, it can serve as a spiritual analogy for the relationship between a localized experiencer and an encompassing reality. The precise textual provenance of this wording should be checked before calling it a verbatim Vedic quotation; it is safest here to describe it as a traditional Sanskrit expression associated with Indian philosophical and yogic thought [2].

Within this interpretation, the person is not literally a miniature astrophysical universe containing black holes in the same sense as outer space. The phrase provides a contemplative relationship between the individual and the whole; the UCCN adds a contemporary speculative vocabulary of information, networks, horizons, and possible nested domains.

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7.2 The Hermetic correspondence principle

The Hermetic principle is commonly summarised in English as "As above, so below; as below, so above." It is associated with the Emerald Tablet tradition and was popularised in modern Hermetic literature, including The Kybalion. The UCCN may use this as a Western parallel to the microcosm–macrocosm motif: patterns at one scale can invite comparison with patterns at another. Historical caution matters: the familiar English slogan is not a direct experimental finding, and its exact wording and textual history should not be presented as a single, securely dated ancient quotation [3, 4].

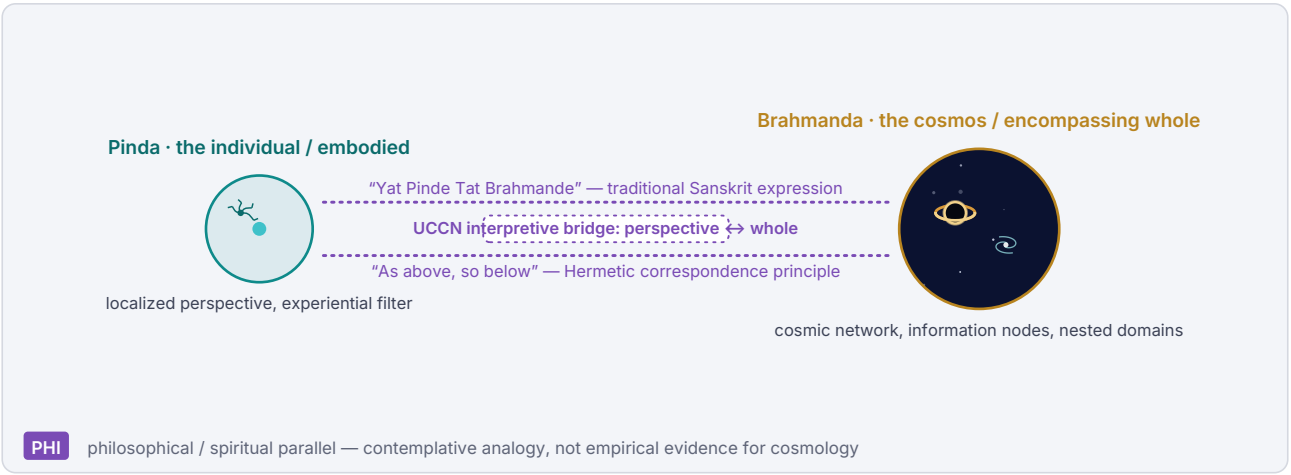


Figure 11. Microcosm and macrocosm. The individual (pinda: localized perspective and experiential filter) and the cosmos (brahmanda: encompassing whole, information nodes, nested domains) linked by two correspondence traditions — the Sanskrit expression "Yat Pinde Tat Brahmande" and the Hermetic "As above, so below" (Kybalion / Emerald Tablet tradition). Both are philosophical or spiritual parallels that the UCCN uses as an interpretive bridge; neither is empirical evidence for cosmology.

7.3 A spiritual reading of unity

- The individual is a perspective, not necessarily the ultimate boundary of being.
- The shared ground of consciousness is proposed as a contemplative possibility, not as an externally verified entity.
- Ethical action matters because behaviour shapes relationships and consequences in the lived world, irrespective of whether universe-jumping exists.
- Emotion can be treated as a signal that influences attention and action. The claim that emotion broadcasts a cosmic frequency which selects a universe remains metaphorical unless evidence establishes otherwise.

> **Suggested spiritual formulation**
> "The whole is not merely somewhere outside the individual; the individual is one situated expression through which the whole is encountered. The cosmic brain is an image of interdependence, not a claim that the universe is biologically conscious in the same way a human brain is."

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8

Philosophical interpretation: unity without confusion

For philosophers, UCCN is an invitation to examine the relation between one and many, the physical and the experiential, possibility and actuality, and personal identity across time. Its central argument is not yet a proof; it is a structured set of commitments that can be evaluated for coherence.

Monism and cosmopsychism. The proposal that reality is fundamentally one, or that cosmic-level consciousness is fundamental, resembles positions explored in monist and cosmopsychist philosophy. Similarity is not identity: the UCCN adds its own black-hole/network metaphor and a proposed reality-space model. [PHI]

The combination problem. If one universal consciousness is fundamental, how does it relate to distinct individual streams? Why do memories and experiences appear private? The model needs a principle of localisation and an account of how separate perspectives arise. [OPN]

Personal identity. What makes an observer at t+1 the same observer as at t? Memory continuity, bodily continuity, causal continuity, and psychological connectedness may each play a role. A claimed universe transition must specify what remains invariant across the transition. [OPN]

Free will and causation. A decision changes a future through causal processes in the ordinary world. The stronger claim that intention chooses among pre-existing universes must show whether it adds explanatory value, and how it avoids becoming unfalsifiable. [HYP]

Epistemology. A model can be meaningful without being confirmed. The reader should distinguish metaphor, internally coherent metaphysics, mathematical representation, and empirical evidence. These are different standards of justification. [EST]

9

Black-hole cosmology and the radius relationship

The black-hole-universe family of ideas is not invented from nothing; it appears in theoretical cosmology, quantum-gravity research, and speculative models of gravitational collapse. The important distinction is between a published mathematical model and an observationally established account of our universe.

9.1 Research examples

Gravitational bounce from the quantum exclusion principle (2025). Gaztañaga, Kumar, Pradhan, and Gabler published a model in Physical Review D in May 2025 in which a high-density collapse can bounce instead of ending at a classical singularity. When extended to cosmology, the model discusses a small, non-zero spatial curvature as a possible observational signature. This is a specific theoretical proposal; it is not confirmation that our universe was born inside an astrophysical black hole [5]. [THR]

Cosmology inside a black hole: adding matter on the brane (2025). A Journal of High Energy Physics paper studied braneworld constructions in which a closed cosmology is encoded in a dual field theory associated with an AdS black-hole setting. It is a theoretical construction in a specialised framework, not a direct observation of a universe inside a black hole [6]. [THR]

Cosmological bounce relics: black holes, gravitational waves, and dark matter (2026). A later Physical Review D paper proposed ways black holes and gravitational waves formed before a cosmic bounce could survive and re-enter afterward, with a possible role for dark matter. This concerns bouncing-cosmology scenarios; it is not evidence that our universe is literally inside a parent black hole

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[11]. [THR]

Galaxy-rotation asymmetry claims (2025). A study based on a selected sample of JWST galaxies reported a possible imbalance in apparent spin directions and discussed a rotating-universe or black-hole-related interpretation. Scientific commentary noted that sample selection and methodological robustness remain concerns and that such a signal would not, by itself, demonstrate a black-hole universe. Treat this as a disputed clue, not proof [7]. [OPN]

Black-hole interior and cosmology remain distinct problems. The conventional black-hole event horizon and our cosmological horizon are not interchangeable. A black-hole singularity is a spacetime location in standard idealised solutions; the Big Bang singularity is a past boundary of the cosmological model. Similarities motivate research, but the geometries and causal structures differ [7]. [EST]

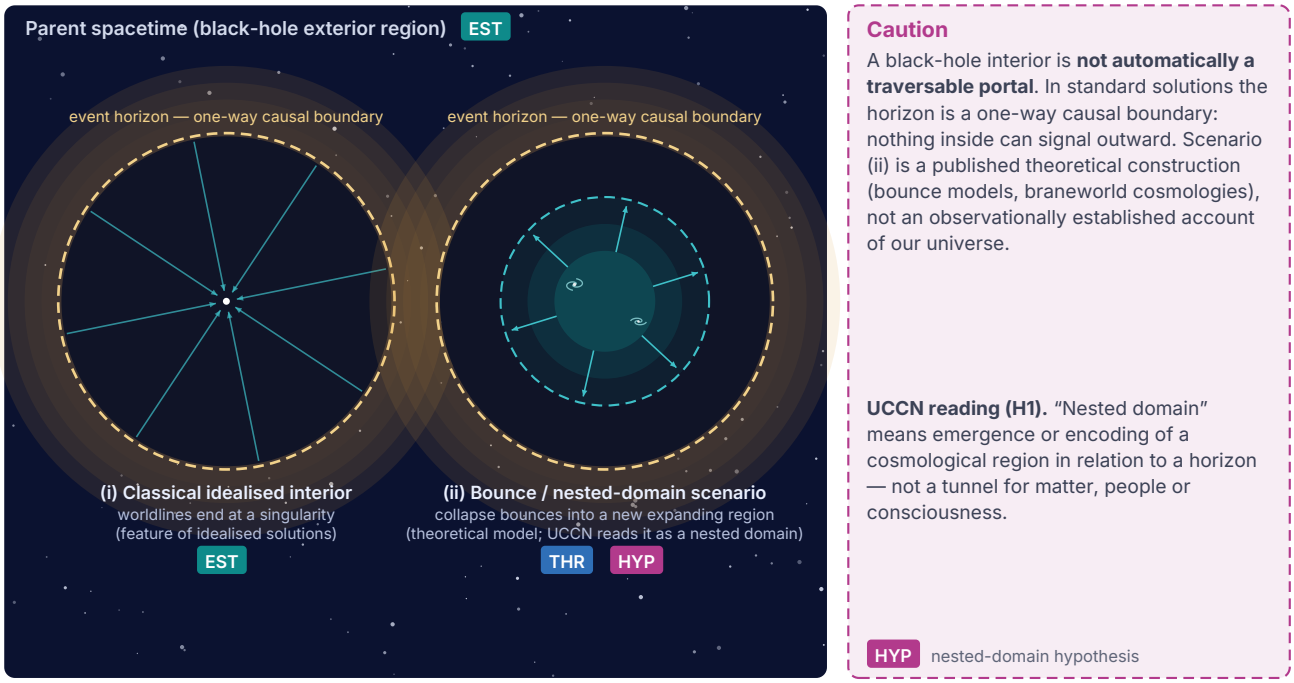


Figure 5. Nested-domain hypothesis. Cutaway comparison inside a parent spacetime. (i) In the classical idealised interior, infalling worldlines end at a singularity. (ii) In bounce and braneworld models, collapse is replaced by a new expanding region — a theoretical possibility that the UCCN reads as a "nested domain" (H1). The dashed gold ring is the event horizon, a one-way causal boundary in standard solutions. A black-hole interior is not automatically a traversable portal; this figure is a theoretical possibility, not a confirmed description of black holes.

9.2 The "matching circumference" claim

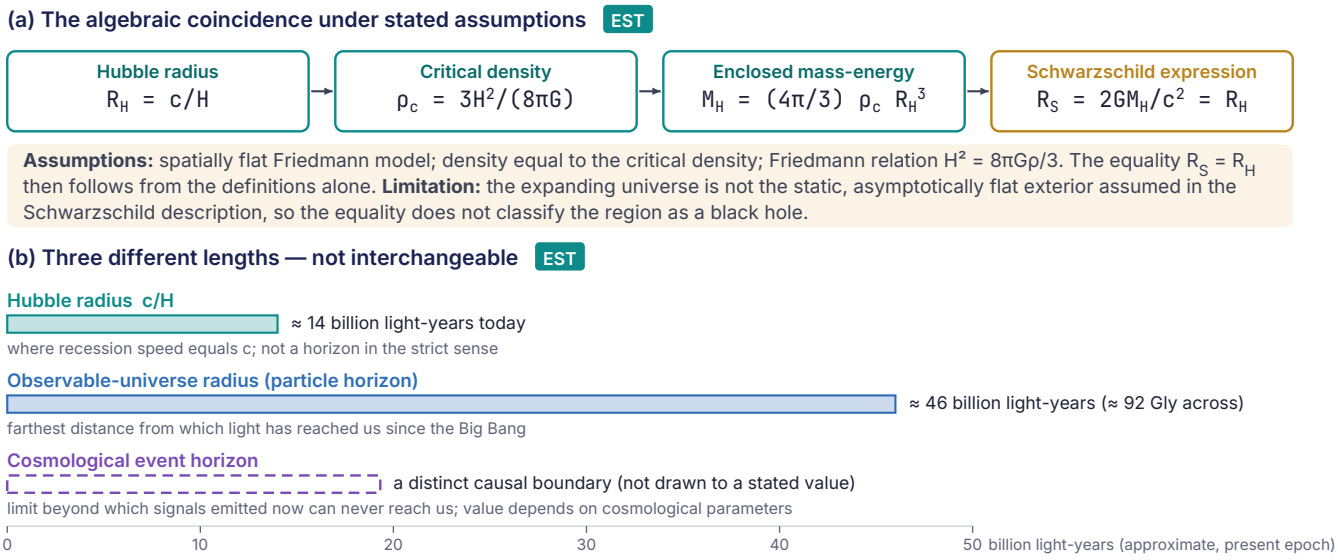
Careful scientific wording

A commonly circulated argument says that the observable universe's circumference matches a black hole's event-horizon circumference. The mathematically relevant coincidence is more specific: in a spatially flat cosmological model, the Schwarzschild-radius expression for the mass-energy inside a sphere of Hubble radius can equal that Hubble radius when the critical density is used. This is a consequence of the definitions and the Friedmann relation; it does not establish that the observable universe is a black hole.

Let the Hubble radius be $R_H = c/H$ and the critical density be $\rho_c = 3H^2/(8\pi G)$. If the mass-energy inside a sphere of radius R_H is estimated as $M_H = (4\pi/3)\,\rho_c\,R_H^3$, then its Schwarzschild-radius expression is $R_S = 2GM_H/c^2 = R_H$. The equality follows algebraically under those assumptions. Applying a Schwarzschild radius to a cosmological region is not sufficient to classify the region as an ordinary black hole, because the expanding universe is not the static, asymptotically flat exterior assumed in the simplest Schwarzschild description [8].

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Crucially, the Hubble radius is not the same thing as the radius of the observable universe or the cosmological event horizon. NASA describes the observable universe as roughly 92 billion light-years across, or about 46 billion light-years in radius, while the Hubble radius today is roughly 14 billion light-years. The observable edge is a particle-horizon concept; the Hubble radius is c/H; and a cosmological event horizon is a different causal boundary. Their numerical values are not equal [9, 10].



A radius equality does not prove the universe is a black hole; the three lengths are distinct concepts with different numerical values.

Figure 9. Black-hole radius relationship. (a) The algebraic chain from the Hubble radius and critical density to the Schwarzschild-radius expression, with the assumptions and the key limitation stated. (b) Three distinct lengths drawn to a common approximate scale: the Hubble radius (≈ 14 Gly), the observable-universe radius or particle horizon (≈ 46 Gly), and the cosmological event horizon, a different causal boundary whose value depends on cosmological parameters and is therefore not drawn to a stated value. The values are not interchangeable, and a radius equality does not prove that the universe is a black hole.

How UCCN should use this result

Use the radius relation as a motivation to ask deeper questions about horizons, density, and spacetime. Do not claim that a circumference match proves the black-hole hypothesis, a nested universe, a cosmic brain, or universal consciousness. The relation supplies no evidence for the emotional reality-filter mechanism.

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10

What is distinctive about the proposed synthesis

Many individual ingredients of UCCN have precedents in physics or philosophy: black-hole cosmology, horizon information, multiverse interpretations, cosmopsychism, microcosm–macrocosm traditions, and observer-dependent experience. The defensible originality claim is therefore not that each ingredient was invented here. It is that this manuscript records a particular synthesis, vocabulary, and proposed architecture that combines those ingredients in a specific way.

10.1 The specific synthesis recorded here

- A universal network metaphor that treats black holes as candidate nodes in an information-centred, potentially nested reality structure.
- A distinction between a reality space, localized streams of experience, and the filters that govern each stream's accessible information.
- A layered distinction between ordinary behaviour-driven changes in outcomes and a stronger, separately testable hypothesis of cross-universe transitions.
- A shared-ground interpretation in which apparently separate observers may be localized perspectives of one underlying whole, together with a stated perspective-separation problem.
- A three-audience presentation that places the same conceptual core into scientific, spiritual, and philosophical languages without treating them as equivalent proof systems.
- An explicit comparison with “Yat Pinde Tat Brahmande” and Hermetic correspondence, alongside a critical account of modern black-hole cosmology and the Hubble-radius/Schwarzschild-radius relation.

10.2 What is not claimed

- This manuscript does not claim ownership of ancient texts, general relativity, black-hole information theory, quantum mechanics, the many-worlds interpretation, or the general idea of consciousness.
- It does not claim that the universe has been shown to be a literal neural network or that each black hole contains a universe.
- It does not claim that emotions or free will physically move people between universes.
- It does not claim that the circumference relationship proves our universe is inside a black hole.
- It does not replace a peer-reviewed scientific paper, legal opinion, patentability analysis, or formal IP registration.

11

Limitations and unresolved questions

Version 2.0 consolidation. The source manuscript distributes its caveats across sections. They are gathered here, without adding new claims, so that a reader can see at a glance what the framework has not yet done.

No physical substrate is specified. The encompassing whole might be spacetime, quantum information, causal relations or something unknown. Until a substrate is chosen, the model cannot generate quantitative predictions. [OPN]

The transition operator T is undefined. Its state variables, rules, conservation and causal constraints, and distinguishing observations are all missing (Section 6.2). [HYP]

The combination / localisation problem is open. The model lacks a principle explaining how private, bounded streams arise from a shared ground (Section 8). [OPN]

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No identity criterion across transitions. What remains invariant in any claimed transition between domains has not been specified (Section 8). [OPN]

Black-hole cosmogenesis is not consensus. The cited bounce and braneworld models are theoretical constructions; observational tests (for example small non-zero spatial curvature) are proposed, not confirmed [5]. [THR]

The radius coincidence carries no evidential weight for UCCN. It follows from definitions in a flat critical-density model (Section 9.2). [EST]

The neuron and microtubule imagery is metaphorical. The biological reference in Section 5 bounds the analogy; no neurobiological mechanism is proposed. [ANA]

Spiritual and philosophical parallels are interpretive. They provide meaning and motivation, not empirical support (Sections 7–8). [PHI]

The document is AI-assisted and not peer reviewed. Human review by the concept originator and, where relevant, domain specialists is recommended before any stronger claim is made. [EST]

12

Research and falsifiability roadmap

The six-phase development roadmap is retained from the source manuscript. Version 2.0 completes the documentary parts of Phases 1 and 2 and records the Phase 6 decision (open publication); Phases 3–5 define the scientific work that remains.

Phase 1 — Freeze the concept. Keep this dated version, its editable source, earlier drafts, and a change log. Mark future revisions with version numbers and dates.

Phase 2 — Define the terms. Choose precise meanings for universe, node, conscious stream, information, reality transition, and the universal ground. Remove any term that only functions as a metaphor unless it is labelled as such.

Phase 3 — Formalise one subsystem. Start with the network/state-space model and specify a minimal transition rule. Avoid claiming a unified equation for the whole cosmos before the pieces are defined.

Phase 4 — Compare alternatives. Compare the model against standard cosmology, black-hole bounce models, quantum interpretations, and philosophical theories of consciousness. Record both supporting and conflicting evidence.

Phase 5 — Define disconfirming evidence. State which predicted measurements, observations, or conceptual failures would force revision or rejection of each hypothesis.

Phase 6 — Decide the IP pathway. If the goal is publication, prepare a public version with references and limitations. If the goal is commercial licensing, obtain legal advice before disclosure and use contracts to address confidential know-how; copyright alone does not reserve an abstract scientific theory. **Decision recorded in Version 2.0:** open publication under CC BY-NC-SA 4.0.

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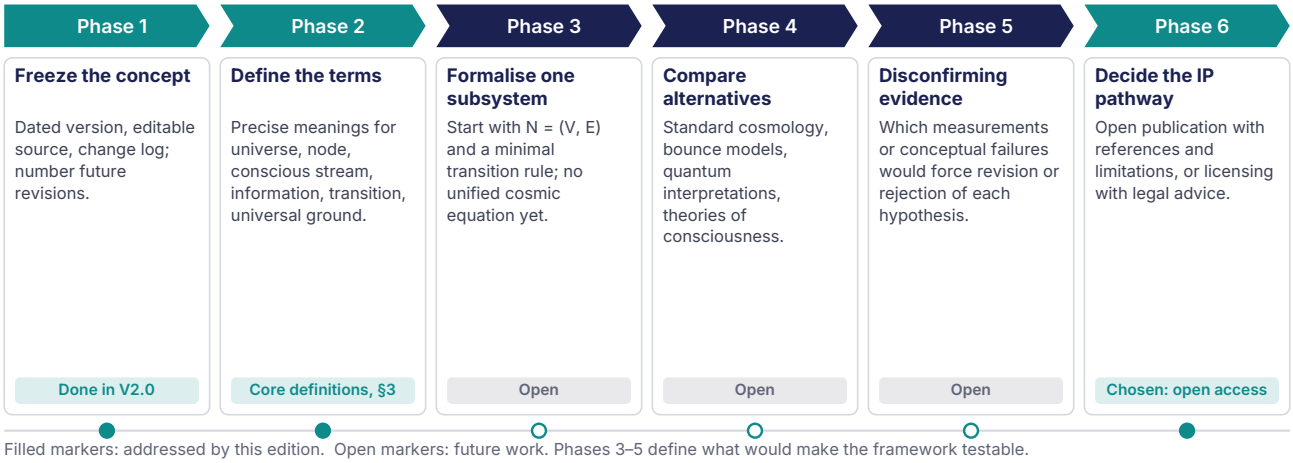


Figure 12. Research development roadmap. The six phases from the source manuscript in a research-roadmap layout. Filled markers indicate phases addressed by this edition (concept frozen and dated; core terms defined; IP pathway chosen as open access). Open markers indicate the scientific work that remains: formalising one subsystem, comparing alternatives, and defining disconfirming evidence.

Evidence-preservation suggestions

Retain the editable source bundle, the PDF export, dated drafts, notes describing the original concept, and any future diagrams or revisions. Keep backups with trustworthy timestamps. Depositing this edition in a public repository (for example Zenodo or OSF Preprints) provides an independent timestamp and a persistent identifier. For a formal copyright registration, confirm the correct applicant/author details and classification with the Indian Copyright Office or an IP professional [1].

13

Author and version declaration

I, Divyank Aru, identify myself as the originator of the underlying conceptual proposal and the person commissioning this manuscript's articulation. This document is intended to record the concept and the date of this written version. I understand that copyright protection, where applicable, attaches to qualifying original expression, and not to an abstract idea, fact, scientific principle, method, or theory merely because it is described here.

Version	2.0 — Public Visual Edition
Publication date	24 October 2026
Supersedes	Concept Paper v1.0, prepared 24 October 2026 (authorship record edition)
Concept originator	Divyank Aru
AI assistance	Used for drafting, structuring, diagram construction, reference verification and editorial refinement; human review recommended before formal filing or publication.
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13.1 Editorial change log: Version 1.0 → Version 2.0

- **Retained.** All substantive content of v1.0: abstract, core proposition, executive summary, six-layer architecture, seven core definitions, minimal mathematical representation, hypotheses H1–H5, testability statement, spiritual and philosophical presentations, black-hole cosmology review, matching-circumference analysis, originality statement, non-claims, roadmap, author declaration, and all eleven references.
- **Added (Version 2.0 extensions, no new mechanism).** Twelve explanatory figures; a six-category evidence status system (Table 1) applied to every proposition; Section 5 (biological-neuron reference

and analogy limits); Section 11 (consolidated limitations); publication information, open-knowledge declaration and CC BY-NC-SA 4.0 licence; contents and bookmarks; an AI-assistance note reflecting the actual workflow.

- **Revised.** The v1.0 “Document status and intellectual-property scope” section was condensed into the publication-information page because this edition is for public release rather than private authorship recording; signature, place and date-signed blanks were removed for the same reason. Typography, grid and running headers were redesigned. Minor copy-editing (hyphenation, punctuation) throughout.
- **References verified.** DOIs for [5], [6] and [11] were resolved and bibliographic details confirmed; [6] now lists the fourth author (S. F. Ross); [8] now carries its authors and year (Bikwa, Melia & Shevchuk, 2012); [4] now carries the document's actual title and author; [7] and [9] titles and dates confirmed. No citation was invented or altered beyond these verified details.
- **Not changed.** No thesis, hypothesis or qualification was strengthened. No equation was added beyond those in v1.0. No peer review, endorsement or experimental validation is claimed.

14

References and further reading

The following sources ground factual statements and identify research discussed in this manuscript. All links were accessed and bibliographic details checked on 24 October 2026. Interpretations and the UCCN synthesis are the author's conceptual framework, not claims made by these sources.

[1] Government of India, Copyright Office. Frequently Asked Questions and Handbook of Copyright Law. https://copyright.gov.in/frmFAQ.aspx

Official summary: copyright protects original expression, not ideas; registration is not mandatory, while registration entries can serve as prima facie evidence.

[2] Yogapedia. “Yat Pinde Tat Brahmande.” https://www.yogapedia.com/definition/9326/yat-pinde-tat-brahmande

A secondary explanation of the microcosm–macrocosm interpretation. It is not used as conclusive proof of a precise ancient textual date.

[3] Three Initiates. The Kybalion, “The Principle of Correspondence.” Project Gutenberg edition. https://www.gutenberg.org/cache/epub/14209/pg14209.html

Primary text for the modern Hermetic formulation of correspondence.

[4] Lanahan-Kalish, D. (2024). Magick in the City of Angels: Navigating Reality Among Contemporary Magick Users in the Greater Los Angeles Area. Doctoral dissertation, University of California, Santa Barbara; eScholarship. https://escholarship.org/content/qt8mq1r8h5/qt8mq1r8h5.pdf

Discusses Hermetic correspondence and the Emerald Tablet as its source, noting that the familiar English wording does not appear verbatim in the translations examined. Useful caution on the history and wording of the “as above, so below” formula.

[5] Gaztañaga, E., Kumar, K. S., Pradhan, S., & Gabler, M. (2025). “Gravitational bounce from the quantum exclusion principle.” Physical Review D 111, 103537 (29 May 2025). https://doi.org/10.1103/PhysRevD.111.103537

A theoretical gravitational-bounce proposal with possible cosmological implications, including a predicted small non-zero closed spatial curvature.

[6] Barbón, J. L. F., Patra, A. K., Pedraza, J. F., & Ross, S. F. (2025). “Cosmology inside a black hole: adding matter on the brane.” Journal of High Energy Physics 2025, 124 (18 August 2025). https://doi.org/10.1007/JHEP08(2025)124

A specialised theoretical construction involving closed cosmology in an AdS black-hole/brane setting.

[7] Sutter, P. M. (2025, 2 April). “Do We Live inside a Black Hole?” Scientific American. https://www.scientificamerican.com/article/do-we-live-inside-a-black-hole/

Context and criticism of an interpretation based partly on a claimed galaxy-rotation asymmetry. (Cited in v1.0 under the headline “Is the Universe inside a Black Hole?”; the article's web title is as given here.)

[8] Bikwa, O., Melia, F., & Shevchuk, A. (2012). “Photon geodesics in Friedmann–Robertson–Walker cosmologies.” Monthly Notices of the Royal Astronomical Society 421(4), 3356–3361. https://academic.oup.com/mnras/article/421/4/3356/1094860

Discusses the Hubble radius as a gravitational horizon and its relation to a gravitational radius in a flat cosmological model.

[9] NASA (Furfaro, E.). "How Big is Space? We Asked a NASA Expert: Episode 61." (21 May 2025). https://www.nasa.gov/science-research/astrophysics/how-big-is-space-we-asked-a-nasa-expert-episode-61/

States that the observable universe is approximately 92 billion light-years across and that the full universe may be larger.

[10] The Open University, OpenLearn. "Understanding science: what we cannot know," Section 5.4. https://www.open.edu/openlearn/mod/oucontent/view.php?id=140372&section=_unit5.4

Explains the approximately 46-billion-light-year radius of the observable universe and the effect of cosmic expansion.

[11] Gaztañaga, E. (2026). "Cosmological bounce relics: Black holes, gravitational waves, and dark matter." Physical Review D 113, 043544 (24 February 2026). https://doi.org/10.1103/pr4p-6m49

A bouncing-universe model involving possible relic black holes and gravitational waves; not evidence that our universe is inside a parent black hole.

[12] Creative Commons. "Attribution-NonCommercial-ShareAlike 4.0 International (CC BY-NC-SA 4.0)." https://creativecommons.org/licenses/by-nc-sa/4.0/

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Further reading (not cited as evidence)

Readers wishing to evaluate the framework's philosophical neighbours may consult the general literature on monism, cosmopsychism and the combination problem; its cosmological neighbours in the literature on bouncing cosmologies and black-hole interiors; and its cultural neighbours in scholarship on Hermeticism and Indian microcosm–macrocosm traditions. No specific work beyond the references above is cited, so that no bibliographic detail appears here without verification.

15

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Suggested attribution

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nested universes, black-hole information nodes, localized conscious experience, and reality-space.
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When adapting: state what was changed; keep the evidence status tags or an equivalent qualification system; do not present the hypotheses as verified results; do not remove the limitations section. When depositing in a repository, use the metadata on the publication-information page and add the repository's persistent identifier to any later version.

Closing statement

UCCN is a disciplined speculative framework for relating information, nested cosmological domains, localized experience, and the intuition of unity. Its scientific standing depends on precise definitions, testable predictions, and evidence that could disconfirm it.

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