

Organisms as Antennas in an Information Landscape

by Michael Striem

1. The starting point: the organism as an antenna

We began with the idea that a living organism, especially a human being, can be viewed as an **antenna-like system**.

Rather than being only a computational brain, the organism continuously:

- receives information from the environment
- processes and integrates it through the body
- sends signals back into the environment through behavior, language, and physiological cues.

Importantly, this antenna is **not limited to the brain**. It includes the entire organism:

- nervous system
- endocrine system
- metabolism
- immune system
- microbiome
- sensorimotor behavior.

The brain acts largely as an **integrator and coordinator** within this distributed sensing system.

2. Information is stored as embodied history

A key insight was that biological information from the past is not stored primarily as explicit data.

Instead, the past **persists as constraints** in the system:

- neural connectivity patterns
- hormonal regulation thresholds
- metabolic and immune set-points
- learned motor patterns and habits.

Thus, the organism **embodies its own time history**.

Development from zygote to present is literally written into the structure of the organism. This biological information has non-binary and continuous nature, creating infinite complex interactions.

3. Agency as an emergent property

Agency, the sense that “I act”, is not a separate thing nor merely a fleeting feeling.

Rather it appears as a **stable pattern of organization** in a highly integrated biological system.

Agency emerges from:

- memory
- prediction
- valuation (joy/pain signals)
- motor control
- environmental interaction.

It is therefore a subjective, **dynamic property of a living system**, not a discrete object.

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4. The brain as filter, not the mesh type to remove objects from a fluid, rather than sorting function, generator, Coordination Hub. Several modern research areas suggest that the brain functions partly as a **filter or regulator of information flow**:

- predictive processing models (brain suppresses expected signals)
- thalamic gating (sensory filtering before awareness)
- psychedelic studies showing reduced network constraints while subjective experience increases.

These findings support the idea that the nervous system **limits and shapes the informational stream reaching awareness**.

5. Biological channels of communication

Information exchange between organisms occurs through many biological channels:

- visual signals (eye contact, facial expression)
- auditory cues (speech rhythm, tone)
- body movement and posture
- hormonal and metabolic signals
- microbial and immune interactions
- physiological rhythms (breathing, heart rate).

Together these create a **rich multi-layer communication network** between organisms.

6. Social synchronization between organisms

When several people interact closely, measurable synchrony can appear:

- brain rhythms may align
- breathing and heart rhythms can synchronize
- movement and timing become coordinated.

This has been demonstrated in studies of conversation, music performance, and cooperative tasks. Such coupling suggests that interacting individuals can form **temporary integrated systems**.

7. Collective systems: the orchestra metaphor

For example, a **philharmonic orchestra** illustrates how many agents can form a larger coordinated system.

Key components include:

- individual agents (musicians)
- coordination mechanism (conductor)
- shared informational structure (score)
- balanced signaling (instrument loudness)
- shared goal (the performance).

Similar temporary collective systems occur in:

- sports teams
- political assemblies
- scientific collaborations
- emergency responses.

These systems may influence large audiences and leave **long-lasting informational traces** through recordings and cultural memory.

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8. Civilization as a large-scale antenna network

Human civilization itself can be viewed as a vast network of interacting information agents.

Language, science, technology, and digital media connect billions of individuals.

Through these networks, information patterns can persist and evolve **across generations**, effectively extending the reach of the antenna system.

9. Open questions that remain

Despite the insights above, several deep questions remain unresolved:

- How exactly do multiple organisms synchronize their internal states?
- How far can such synchronization scale?
- What mechanisms allow coordinated information to ripple across large social systems?
- How do metabolism, reproduction, and basic life processes shape these information exchanges?

These questions point toward a more **holistic science of living information systems**.

The central idea emerging from the discussion

A living organism is not merely a machine processing symbols.

It is a **dynamic, embodied information system** that:

- accumulates history through development
- exchanges signals with other organisms
- participates in larger collective systems
- and continuously regulates its relationship with the environment.

Seen this way, life becomes a network of interacting **biological antennas embedded in an evolving information landscape**.

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