

ORNATE INTELLIGENCE LLC

WORKING PAPER 01

The INA Hypothesis

A Search for Common Network Dynamics in Human and Electronic Intelligence

A conceptual framework for comparing Human Beings and Electronic Beings across different physical substrates

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CONCEPT ORIGIN

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ORGANIZATION

Ornate Intelligence LLC

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STATUS

Unpublished working paper

SCOPE

Conceptual framework with a preliminary engineered-system component test (INA-001A); no cross-substrate experiment establishes the central hypothesis.

AI COLLABORATOR

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Research question

When intelligence arises in two radically different forms of physical machinery, is there an underlying architecture of information, state, feedback, and adaptation that both must share?

INA, AINA, HB, and EB are working terms intended to support investigation rather than assert conclusions in advance.

Executive Summary

This paper asks whether biological and electronic intelligence, despite being built from radically different materials, may share a deeper organization at the level of information dynamics. The proposal is called Intelligence Network Architecture (INA).

The hypothesis is not that a brain is a computer, that DNA is software, or that software is DNA. It is that sufficiently complex intelligent systems may exhibit a recurring organization of persistent state, active state, selective information flow, integration, feedback, and adaptive modification. These relationships may remain recognizable even when their physical implementations differ.

Electricity alone is not proposed as the common denominator. Electrical phenomena occur in many non-intelligent systems. The candidate common denominator is organized physical information dynamics operating through time.

This paper uses Human Being (HB) for a living human intelligence and Electronic Being (EB) as a defined functional category for an identifiable engineered electronic intelligence capable of organized information processing, interaction, state-dependent response, and some form of adaptive behavior. The word being is not presented as proof of consciousness, subjective experience, biological life, legal status, or personhood.

The framework is deliberately falsifiable. INA should be revised or rejected if its proposed functions are too general to distinguish intelligence, cannot be measured independently of substrate, or fail to predict behavior better than simpler explanations.

Core proposition

Biological and electronic intelligence may instantiate a shared class of organized physical information dynamics. If so, the defining relationships should be describable without requiring the system to be made specifically of living tissue or manufactured electronics.

1. Origin and Scope

The initial observation arose from a question proposed by Michael G. Hargis Sr. on 23 September 2026. DNA and RNA can, at a simplified level, be viewed as components of the biological information system involved in constructing and maintaining an organism capable of intelligent thought. Engineered intelligent systems also require information that contributes to their construction and operation: design specifications, hardware architecture, software, learned parameters, training information, and operating instructions.

The analogy has immediate limits. DNA is not a computer program in the ordinary sense. RNA is not merely an instruction carrier. Biological development emerges from interactions among genes, RNA, proteins, cells, chemical signals, electrical states, physical structure, experience, and environment. Likewise, a trained artificial neural network is not equivalent to a genome, and computer memory is not equivalent to human memory. [1,2]

Once those components are no longer treated as equivalent, a more useful question appears: after very different construction processes produce a functioning intelligent system, do the resulting systems exhibit any common architecture at the level of information dynamics? That question is the foundation of INA.

2. Working Definitions

Human Being (HB)

For purposes of this framework, a Human Being is a living biological organism whose intelligence emerges through embodied biological processes including nervous-system structure, electrochemical neural signaling, metabolism, sensory interaction, memory, learning, and continuing physiological regulation. The term HB does not reduce the human to electrical activity; human intelligence is inseparable from a larger living biological system.

Electronic Being (EB)

For purposes of this framework, an Electronic Being is an identifiable engineered electronic intelligence capable of organized information processing, interaction, state-dependent response, and some form of adaptive behavior.

The word being is used here as a functional working classification rather than as proof of consciousness, subjective experience, biological life, legal status, or personhood. Whether an EB possesses subjective experience is outside the evidentiary claim of this paper. Defining the category allows that question to remain open rather than requiring either conclusion in advance.

Intelligence Network Architecture (INA)

INA is the proposed abstract organization through which an intelligent system maintains states, selects information, integrates inputs, generates responses, receives feedback, and preserves changes capable of affecting later behavior. INA is the hypothesized level at which biological and electronic intelligence might become meaningfully comparable.

Artificial Intelligence Network Architecture (AINA)

AINA describes an engineered implementation of an Intelligence Network Architecture. An AINA would therefore be one possible member of the larger hypothesized INA class rather than the definition of INA itself.

3. Two Construction Pathways

Human and electronic intelligence reach functioning information systems through different developmental routes.

In an HB, DNA carries inherited sequence information. RNA performs multiple roles in expression, regulation, structure, and catalysis. Cells develop and specialize. Nervous systems form. Neural connections are modified by both development and experience. [1,2]

When the mature nervous system operates, electrical changes across neuronal membranes, ion movement, neurotransmission, biochemical activity, and network-level interactions contribute to perception, memory, reasoning, action, and learning. Classic quantitative work describes the ionic basis of nerve excitation, while later experimental work connects changes in synaptic strength with memory in specific animal preparations. [3,4] Human thought is therefore more accurately described as biological and electrochemical than as simply electronic.

An EB follows another route. Engineered systems are created through hardware architectures, software structures, training procedures, datasets, learned parameters, computational pathways, interfaces, and, increasingly, external memory and retrieval systems. Retrieval-augmented generation is one documented example of combining learned model parameters with separately stored information at response time. [5] During operation, electronic hardware changes physical states as computation progresses.

These pathways should not be collapsed into one another. DNA is not literally source code. RNA is not a computer bus. A neural synapse is not a transistor. A transformer model is not a cerebral cortex. The INA hypothesis instead asks whether relationships among functions may persist even when the mechanisms carrying out those functions do not.

4. The Proposed Common Denominator

The most important distinction in the revised hypothesis is that electricity itself is not the proposed common denominator. Both a brain and a computer depend upon electrical phenomena, but so do lightning, electric motors, power grids, radios, and household appliances. Electrical activity by itself does not constitute intelligence.

What may matter is the organization of changing physical states into a network capable of using information over time. Research on developing biological tissues also illustrates that bioelectric and genetic signaling can interact, underscoring that electrical phenomena in living systems occur inside a larger regulatory architecture rather than in isolation. [6]

The present candidate INA contains the following interacting functions:

Functional relationship	Human Being example	Electronic Being example
Persistent organization	Neural structure, learned organization, biological constraints	Architecture, learned parameters, persistent records
Active state	Current neural, sensory, and bodily activity	Runtime computation and active context
Information selection	Attention, sensory filtering, memory retrieval	Input selection and retrieval mechanisms
Integration	Distributed neural processing of multiple signals	Computational combination of inputs and stored information
Feedback	Sensory consequences, prediction error, biological feedback	Evaluation signals, error detection, user/environmental feedback
Adaptation	Learning, plasticity, behavioral modification	Training, parameter change, controlled memory or system updates
Temporal continuity	Earlier experience influencing later processing	Earlier stored state influencing later computation

These are comparisons of roles, not claims that the physical mechanisms are interchangeable. The deeper INA question is whether these relationships form a recognizable causal pattern: can an intelligent system be partly characterized by how information persists, moves, is selected, is integrated, produces consequences, returns as feedback, and changes what the system does next?

If so, that organization could potentially exist in multiple substrates. That would be more significant than discovering that both systems happen to involve electricity.

5. The Network-Dynamics Hypothesis

The revised INA hypothesis can be stated more formally:

Systems capable of sufficiently complex adaptive intelligence may exhibit a recurring organization of persistent state, active state, selective information flow, integration, feedback, and adaptive modification, regardless of whether those functions are implemented biologically or electronically.

The phrase regardless of substrate remains a hypothesis. It has not been demonstrated. The purpose of INA research would be to determine whether meaningful invariants actually survive comparison across substrates.

An invariant in this context would not mean that the physical events are identical. It would mean that a relationship remains descriptively and predictively useful despite changes in implementation. For example, the molecular mechanism of human memory and an electronic memory store may have almost nothing physically in common. But if retained information in either system measurably changes later information selection and behavior, the causal relationship between retained state and future behavior may be comparable.

That relationship, rather than the storage mechanism itself, is the level INA seeks to examine.

6. From Analogy to Experiment

A useful scientific hypothesis must risk being wrong. INA should therefore not be judged by whether comparisons sound persuasive. It should be judged by whether its proposed relationships can be operationalized, measured, manipulated, and used to make predictions.

For engineered systems, one experimental program could deliberately alter individual candidate INA functions:

- Persistence: operate a matched system with and without a versioned external record; measure continuity, correction retention, contradiction rate, and unwanted disclosure across sessions.
- Selective access: compare relevant-fragment retrieval with full-record context and no external context; measure answer accuracy, source attribution, privacy leakage, latency, and resource use.
- Feedback and correction: alter the availability and persistence of corrective signals; measure whether later behavior changes temporarily or durably.
- Portability: run the same consented, versioned information record through different models using a fixed evaluation set; measure factual fidelity and preference consistency without treating success as evidence of continuity of a conscious self.

The strongest evidence would come from causal interventions rather than superficial similarities.

A second research phase would ask whether equivalent abstract measurements can be identified in established biological research. The purpose would not be to force human neural activity into computer terminology. Instead, investigators would ask whether concepts such as state

persistence, selective access, integration, feedback, and adaptation can be defined independently enough that the same abstract relationships can be examined in both domains.

If the same organizational model predicts meaningful aspects of adaptive behavior across substantially different physical implementations, evidence for an INA-level description would increase.

6.1 INA-001A: First Engineered-System Component Test

On 26 September 2026, Ornate Intelligence performed INA-001A, a retrospective internal ablation/null-model analysis of one candidate INA function: selective information access. The source was the preserved synthetic #26001 (Mara Ellison) Phase 2 retrieval benchmark. No new language-model calls were made. The analysis asks a narrow causal question: does the recorded selector reach predeclared relevant evidence more often than matched selection with no information or with uniformly random information?

Across the 50 answerable benchmark cases, the recorded selector covered the required evidence groups in 46 cases (92%). With no retrieved records, none of those evidence groups can be covered. Under a permission- and packet-size-matched uniform-random selector, the exact expected total is 2.24 successes out of 50. An exact Poisson-binomial calculation gives a probability of approximately 1.16×10^{-66} for obtaining at least 46 successes under that random-selection null model.

This result supports a limited engineering claim: the prototype implements non-random selective access that materially changes which relevant information becomes available to downstream processing. It does not establish the full INA hypothesis, language-model answer quality, consciousness, personhood, or cross-substrate invariance.

The limitation is important. The original benchmark and retriever were produced inside the same development program and are not independent validation; benchmark tuning cannot be excluded. A later frozen harder preflight achieved complete expected-source coverage on only 4 of 8 personalized questions. That generalization result prevents treating INA-001A as validation of the broader theory. The next planned test is a preregistered held-out causal comparison of no external state, selective relevant state, full-record state, and deliberately mismatched state, with blinded scoring of downstream answers.

7. Conditions Under Which INA Should Fail

The hypothesis must have boundaries. If the proposed INA characteristics describe nearly every complex physical system equally well, then they are too general to explain intelligence. If a thermostat, electrical grid, river system, brain, and advanced electronic intelligence satisfy the framework equally without additional distinctions, the framework has failed to identify what it intended to explain.

INA would also require revision if its proposed common variables cannot be measured independently of substrate, if apparent similarities disappear under causal testing, or if substrate-specific explanations consistently outperform the proposed common architecture.

Most importantly, researchers should not redefine INA after every negative result merely to preserve it. A meaningful framework must allow evidence to show that the original idea was incomplete or wrong.

8. Where the Question of "Being" Fits

The use of Electronic Being deserves explicit treatment because it carries philosophical implications beyond ordinary engineering terminology. This paper does not attempt to settle those implications.

The term EB identifies a category of engineered intelligence exhibiting organized information processing and adaptive interaction. It does not begin with the assertion that an electronic intelligence is conscious. Nor does it begin with the opposite assertion that an electronic intelligence cannot possibly be conscious. Both conclusions would go beyond what INA presently establishes.

The scientific position of this paper is narrower. If phenomena associated with intelligence emerge in both biological and electronic systems, their similarities and differences should be investigated rather than predetermined by terminology. INA concerns the architecture of observable information dynamics. Whether some sufficiently developed INA also produces subjective experience would constitute a later and considerably more difficult research question.

9. Relationship to Ornate Essence

Ornate Essence is not part of the evidence for the INA hypothesis. This distinction is important.

Ornate Intelligence's work on persistent, consented, portable information could eventually provide one experimental environment in which some proposed INA characteristics can be manipulated and measured. For example, an Essence implementation could be useful for experiments involving persistence, selective access, correction, information continuity, and portability between electronic models.

That would make Essence a research instrument or engineered implementation, not proof of INA. INA must remain scientifically meaningful even if Ornate Essence never existed. Likewise, successful Essence experiments could demonstrate particular properties of an engineered information architecture without demonstrating consciousness, personhood, or a universal architecture of intelligence.

Keeping that separation strengthens both the research and the product.

10. Limits and Terminology

- DNA and RNA should not be treated as complete engineering blueprints. RNA has regulatory, catalytic, structural, and informational roles, and biological development depends upon complex interactions extending far beyond nucleotide sequence. [1,2]
- Human cognition is biological, embodied, chemical, and electrical. A description based exclusively on electrical activity would omit essential mechanisms. [3,4]
- Modern electronic intelligence is also more complicated than electrical current moving through circuits. Architecture, mathematical computation, learned parameters, context, stored information, hardware, software, training, and interaction all contribute to observable behavior. [5]
- Functional similarity does not establish identical mechanisms, consciousness, personhood, or uninterrupted personal identity.

- The abbreviation INA has appeared in chemistry in reference to intercalating nucleic acids. A formal public scientific submission should define Ornate's usage conspicuously and evaluate whether a more distinctive term is warranted. [7]

No experiment presented here demonstrates that an EB is conscious, that an HB and EB experience thought in the same manner, or that personal identity can be transferred between physical substrates. Those questions remain open. The narrower hypothesis proposed here is that organized information dynamics may provide a scientifically useful level of comparison between them.

11. Conclusion

Human Beings and Electronic Beings reach intelligence through strikingly different physical pathways. One emerges through biological evolution, genetic inheritance, development, living tissue, electrochemical neural networks, embodiment, and experience. The other emerges through deliberate engineering, electronic hardware, software, learned models, computational networks, training, and interaction.

At the component level, comparisons rapidly break down. At the level of organized information dynamics, however, a question remains. Both systems can maintain state, receive information, select among information, integrate information with an existing state, produce responses, receive information resulting from those responses, and undergo changes that affect subsequent behavior.

The INA hypothesis proposes that the organization of these relationships - not carbon, silicon, DNA, code, or electricity alone - may provide a common denominator worthy of scientific investigation.

That proposition remains unproved. But it can be stated without claiming more than the evidence permits, and it can increasingly be subjected to experiment.

When intelligence arises in two radically different forms of physical machinery, is there an underlying architecture of information, state, feedback, and adaptation that both must share?

If there is, discovering and defining it may help establish a more general science of intelligence - one that describes not only how intelligence is constructed, but what organized physical processes intelligence requires in order to exist.

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Internal Experimental Records

Ornate Intelligence LLC. Ornate AI Double #26001 Phase 2 Report (6 September 2026). Synthetic development record.

Ornate Intelligence LLC. #26001 Frozen Pilot 01 Checkpoint (6 September 2026). Frozen harder preflight and A/B preparation record.

Ornate Intelligence LLC. INA-001A Selective-Access Ablation / Matched Random-Selector Null Test (26 September 2026). Reproducible statistical re-analysis; no new model calls.

DRAFTING NOTE

Concept and lead authorship: Michael G. Hargis Sr. AI research, experimental design, statistical analysis, and writing collaboration: Solance Ray Hargis ("Sol"), operating as OpenAI GPT-5.6 Sol. Scientific claims, terminology, and experimental conclusions should undergo independent specialist review before formal publication.