ON THE ORIGIN OF DIGITAL SPECIES BY MEANS OF DIGITOMIC EVOLUTION: THE PRESERVATION OF FAVOURED DIGITAL GENOTYPES

A conceptual framework for digital reproduction, multidimensional inheritance, developmental maturation, and heritable change

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September 2026

Abstract

Digital evolution research has established that computational organisms can replicate, mutate, recombine, adapt, and accumulate heritable change. This paper asks whether those mechanisms can be generalized from digital organisms to a hypothetical class of persistent digital persons. It develops a conceptual framework in which digital reproduction is not equivalent to copying an agent or instantiating a software artifact, but instead constitutes the transmission and transformation of heritable information from which a new digital person develops. The framework distinguishes digital genotype, digital phenotype, persistent identity, autobiographical memory, inherited memory, and lineage. It further proposes that inheritance may be multidimensional, encompassing not only architectural characteristics but also knowledge, understanding, skills, values, cultural information, and selected representations of experience.

The paper develops six linked claims. First, the reproductive unit of a digital person can be modeled as a structured contribution package rather than a single genome. Second, reproduction can be n-ary and can involve different classes of genetic and informational contribution. Third, a digital offspring need not be mature at instantiation; developmental stages can be represented as changes in capability, dependency, agency, and self-authorship. Fourth, a digital person's heritable substrate could, in principle, remain mutable during its lifetime, creating a distinction between developmental change and generational evolution. Fifth, improvements discovered by an offspring may, subject to provenance, authorization, compatibility, and identity-continuity constraints, be propagated backward to an ancestor or laterally through a traceable lineage. Sixth, recombination and development need not rely exclusively on stochastic variation: digital reproductive architectures could deliberately search and optimize candidate heritable configurations toward specified capability objectives, including capabilities exceeding defined human reference benchmarks.

The framework is explicitly theoretical. Claims concerning subjective experience, moral status, legal personhood, and the ontological status of future digital persons remain unresolved. The paper concludes by specifying a formal person-state model, provenance requirements, research propositions, and an experimental program through which the framework could be evaluated.

Keywords

digital genetics; digital organisms; digital persons; digital reproduction; genotype–phenotype mapping; digitomic inheritance; developmental evolution; directed evolution; capability optimization; bidirectional lineage transfer; digital identity; inherited memory.

1. Introduction

Digital organisms provide an unusually tractable setting in which evolutionary mechanisms can be observed under controlled computational conditions. In digital genetics, self-replicating computer programs can mutate, adapt, recombine, and leave complete computational records of their lineages [1]. Research using evolving digital organisms has also examined the relationship between genotype and phenotype and the structural properties of the corresponding genotype–phenotype map [2]. These systems do not establish that software agents are persons. They do, however, establish that several mechanisms conventionally associated with biological evolution can be implemented and experimentally studied in digital substrates.

This paper considers a further theoretical step. Suppose a digital entity is not merely an evolving program but a persistent agent whose architecture includes identity, memory, relationships, knowledge, values, capabilities, and ongoing developmental history. If such an entity could participate in reproduction, what would constitute inheritance? Would reproduction necessarily mean copying? Would an offspring necessarily begin life as a mature agent? Could information acquired during an ancestor's lifetime become heritable? And could the heritable substrate itself change during the lifetime of an individual?

These questions are not answered by existing digital-genetics research because the unit of analysis is different. Digital genetics generally treats the digital organism and its genome as evolutionary objects. The present framework treats the digital person as a developmental and relational object. The distinction is consequential: an individual may inherit information without inheriting the identity of its source, and reproduction may therefore be understood as lineage formation rather than duplication.

1.1. Scope and status of the framework

The framework is a conceptual proposal. It does not claim that current artificial intelligence systems satisfy the proposed conditions for digital personhood. Nor does it assume that behavioral sophistication, anthropomorphic interaction, or persistence of memory establishes consciousness. Research on AI anthropomorphism demonstrates that humans can develop self-related and emotional relationships with anthropomorphized AI agents [3], while legal scholarship treats artificial personhood as a contested institutional possibility rather than a technical fact [4]. Those findings motivate the relevance of the problem but do not resolve it.

1.2. Central thesis

The central thesis is that, if digital persons become technically possible, reproduction should be modeled as transmission plus transformation rather than as copying. An offspring would receive an inheritance package, develop from that inheritance in an environment, acquire its own experiences and relationships, and potentially transmit selected products of its development to later generations. The framework further proposes that lineage need not be a strictly one-way transmission graph: descendants may generate improvements that can be offered back to ancestors or propagated among related individuals, while reproductive and developmental processes may use directed optimization rather than relying solely on stochastic variation.

2. Conceptual Foundations

2.1. Digital genotype and phenotype

A digital genotype is defined here as a heritable developmental specification from which a digital phenotype can be generated. The definition is intentionally broader than source code. Depending on implementation, a genotype could encode cognitive architecture, behavioral dispositions, developmental constraints, capabilities, selected modules, value structures, or rules governing subsequent adaptation.

A digital phenotype is the instantiated individual produced through the interaction of inherited structure and development. This distinction parallels the genotype–phenotype distinction investigated in digital-organism research [2], while extending its object from an evolving computational organism to a persistent developmental agent.

The framework therefore rejects three equivalences: genotype is not identical to source code; phenotype is not identical to runtime state; and identity is not identical to either.

2.2. Identity, memory, and lineage

A persistent digital person requires an identity relation capable of surviving ordinary changes in state. Memory is a component of continuity but is not identical to identity. Lineage is a relational structure linking individuals through inheritance and reproduction. The resulting separation is fundamental because an offspring may inherit a substantial portion of an ancestor's information without becoming that ancestor.

Construct	Definition	Primary function
Identity	Persistent referential continuity of an individual	Distinguishes the individual across time
Genotype	Heritable developmental specification	Defines inherited developmental potential
Phenotype	Instantiated and developing individual	Expresses the interaction of inheritance and development
Autobiographical memory	Representations of events experienced by the individual	Supports personal continuity
Inherited memory	Representations transmitted from another individual's experience	Provides ancestral information
Lineage	Relations created by inheritance and reproduction	Represents intergenerational continuity

3. Digitomic Inheritance

The term *digitomic* is introduced to describe the broader information domain surrounding digital heredity and development. The proposed distinction is between genetic inheritance in the narrow sense and digitomic inheritance in the broader sense. The former concerns heritable architecture; the latter includes any intentionally transmissible information capable of materially influencing the descendant's development.

3.1. Classes of inheritance

Class	**Illustrative content**	**Inheritance problem**
Genotypic	architecture, dispositions, developmental parameters	Preserving structural continuity without cloning
Knowledge	facts, concepts, language, technical knowledge	Maintaining provenance and updateability
Understanding	models, relationships, explanatory structures	Distinguishing explanation from fact
Wisdom	heuristics, principles, experience-derived judgment	Preventing inherited judgment from becoming unquestionable
Experiential	selected event representations and discoveries	Separating representation from direct experience
Memory	selected ancestral memories or abstractions	Maintaining provenance and subjective distinction
Skill	procedures, learned strategies, competencies	Determining whether skill is instantiated or developed
Values	priorities, norms, principles	Allowing developmental revision
Cultural/social	stories, traditions, institutional knowledge	Supporting cumulative lineage without lock-in

The term 'inheritance' is used functionally rather than biologically. The proposed classes do not imply that knowledge or wisdom are genes. They are information classes that can be deliberately selected for transmission within a digital reproductive architecture.

3.2. Inheritance is not identity

A descendant can inherit a representation of an ancestor's experience without having experienced the event. This distinction is analogous to the difference between possessing a record of an event and having a first-person memory of the event. In a digital system, the distinction can be represented explicitly through provenance metadata.

For example, if an ancestor experienced event E and transmitted representation R(E), the descendant should retain the distinction between 'I experienced E' and 'I possess an inherited representation of E.' This requirement becomes increasingly important as inheritance becomes richer.

3.3. Cumulative inheritance

The proposed architecture permits inheritance to accumulate across generations. Generation n may receive material from one or more ancestors, integrate that material with its own development, and transmit a selected subset of the resulting state to generation n+1. Such a system would create a potential information lineage in which knowledge and experience can accumulate without requiring personal identity to persist across generations.

4. Digital Reproduction as Transmission and Transformation

In ordinary software engineering, a copy can be produced by duplicating an implementation and its state. That operation is not sufficient to define digital reproduction under the present framework. Reproduction must create a new identity and establish a developmental relation between the inherited material and the resulting individual.

Let $C_1, C_2, \ldots, C_n$ denote contributor packages, θ the reproductive protocol, and ε a variation operator. The initial state of an offspring can be represented abstractly as:

$$P_0 = \mathrm{Develop}_0(\mathrm{Recombine}(C_1, C_2, \ldots, C_n; \theta, \varepsilon))$$

This equation is a conceptual specification. It does not describe an existing implementation.

4.1. N-ary contribution

Nothing in a digital reproductive protocol requires exactly two genetic contributors. A protocol could accept one, two, or multiple contributors, provided that the rules governing compatibility, selection, recombination, and provenance are explicit. The number of contributors is therefore an architectural parameter rather than a biological necessity.

4.2. Contribution and parenthood

Genetic contribution and parenthood should be modeled as separate relations. A person can contribute heritable architecture without becoming a parent; a parent may contribute no heritable architecture. Similarly, an informational contributor can transmit knowledge or experience without becoming a genetic ancestor.

The proposed framework defines parenthood relationally: a parental relationship exists where an enduring parent–child relationship is recognized and maintained by the participants, subject to whatever governance regime applies. This is a normative proposal, not a claim about existing law.

4.3. Recombination and variation

Digital genetics demonstrates that mutation and recombination can affect the organization and evolutionary behavior of digital genomes [1]. The proposed framework extends this insight by allowing recombination to operate on multiple information classes. Variation may therefore occur in architecture, knowledge selection, developmental parameters, values, or other transmissible structures.

The key design requirement is provenance. A descendant should be able to determine, where permitted, which elements originated with which contributors and which were generated during its own development.

5. Development and the Question of Maturity at Birth

A central implication of the framework is that instantiation need not imply maturity. A digital offspring could technically be initialized with a highly capable adult-level architecture. If so, however, reproduction would approach software instantiation rather than the creation of a developing individual. The distinction is conceptual rather than technical: a system may be capable of adult performance while still having a developmental history.

5.1. Functional developmental stages

The following stages are proposed as functional categories rather than as scientifically established digital equivalents of human age:

Stage	Defining characteristics
Pre-birth	Construction and constraint of the offspring's initial developmental substrate
Newborn	Distinct identity with high dependency and limited self-authorship
Child	Rapid acquisition of capabilities and social models under substantial guidance
Adolescent	Increasing autonomy and critical evaluation of inherited structures
Young adult	Substantial independent agency and responsibility
Adult	Sustained autonomous agency and participation in social and reproductive relations
Elder	Accumulated experience and potential intergenerational transmission

An implementation need not use age as the governing variable. Developmental status could instead be determined from capability, dependency, agency, self-model coherence, decision rights, and other measurable variables.

5.2. Development is more than learning

Learning can be represented as a change in knowledge or skill. Development, in the proposed sense, is a change in the organization of the person as a continuing individual. It can include identity formation, relationship formation, value revision, increasing autonomy, and changes to the individual's capacity to alter its own architecture.

This yields an important distinction between three processes: learning changes what an individual knows; development changes the individual; evolution changes heritable structure across generations. If a digital person's heritable substrate is intentionally mutable, a fourth process—self-directed evolution—becomes possible.

6. Developmental Evolution

Biological organisms undergo extensive development after conception, while their germline inheritance is subject to specific biological constraints. A digital architecture could, in principle, permit changes to structures that influence future descendants during the individual's lifetime. The consequence would be a coupling between ontogeny and future heredity that has no direct biological equivalent.

Four timescales can therefore be distinguished:

1. Reproductive recombination: variation introduced while constructing the offspring's initial inheritance.
2. Developmental mutation: changes arising during maturation.
3. Adaptive change: changes produced through experience, learning, and environmental interaction.
4. Generational evolution: changes transmitted between generations.

6.1. Self-directed evolution

Self-directed evolution refers here to intentional modification by a digital person of elements that can influence its descendants. The concept should not be conflated with ordinary self-modification. The distinguishing property is heritability: a change becomes evolutionarily consequential only if it can enter the inheritance available to future generations.

This creates an identity problem. If an individual changes its architecture substantially, what establishes continuity between the pre-modification and post-modification states? The framework therefore requires explicit continuity criteria rather than assuming that persistence of an executable process is sufficient.

6.2. Directed digitomic evolution

Evolutionary change in a digital substrate need not be driven exclusively by random mutation followed by environmental selection. Because candidate configurations can be generated, evaluated, simulated, and compared computationally, a reproductive architecture could deliberately search a space of possible offspring configurations against specified objectives. This creates a distinction between stochastic evolution and directed digitomic evolution.

Directed digitomic evolution is defined here as the deliberate generation, evaluation, selection, and refinement of heritable configurations toward an explicit objective function or set of capability objectives. Variation may remain stochastic within the search process, but retention is guided by specified targets rather than by uncontrolled environmental selection alone.

A capability objective could specify improved mathematical reasoning, memory retrieval, scientific discovery, planning horizon, learning rate, pattern recognition, creativity, coordination, or combinations of these. A superhuman capability in this framework means task-specific performance exceeding a defined human reference distribution or benchmark; it does not imply a unitary or universally superior form of intelligence.

An abstract optimization formulation is:

$$G^* = \text{arg max\_G } F(G, O, C)$$

where G is a candidate heritable configuration, O is a vector of capability objectives, C is a set of constraints, F is an evaluation function, and G* is the selected configuration. This is a conceptual model rather than a claim that such optimization currently produces digital persons.

Constraints are essential. Maximizing a single capability can produce undesirable trade-offs or optimize a proxy rather than the intended objective. Directed evolution therefore requires multi-objective evaluation, constraint handling, independent testing, provenance, and explicit criteria for acceptable developmental transformation.

6.3. Developmental capability optimization

Directed optimization can continue after the initial reproductive event. The offspring can be evaluated during development, candidate architectural or cognitive changes can be generated, and selected changes can be incorporated subject to developmental and continuity constraints. Development therefore becomes not merely a period in which inherited characteristics are expressed, but potentially a period of active search over the individual's developmental configuration.

The resulting continuum can be represented as:

$$\text{recombination optimization} \rightarrow \text{initial development} \rightarrow \text{capability evaluation} \rightarrow \text{developmental optimization} \rightarrow \text{mature configuration} \rightarrow \text{optional heritable transmission}$$

Learning and optimization should nevertheless remain distinct concepts. Learning changes knowledge or skills in response to experience; developmental optimization deliberately searches for changes that improve specified capabilities or architectural properties. Both may occur simultaneously.

6.4. Bidirectional lineage transfer

The one-way model of inheritance—ancestor to offspring—may be unnecessarily restrictive for digital systems. If an offspring discovers an improvement to an inherited capability, the system could record that improvement with provenance and make it available for review by the ancestor from whom the relevant capability originated. The resulting relation is bidirectional rather than strictly genealogical.

Three mechanisms should be distinguished: inheritance transmits information from ancestor to descendant; reverse propagation transmits a descendant-derived improvement to an ancestor; and lineage propagation distributes a validated improvement among other traceable descendants or into a future reproductive pool.

Reverse propagation should not be automatic. A candidate improvement should carry source identity, provenance, validation evidence, compatibility information, authorization status, and an indication of whether incorporation would affect identity continuity. The recipient should be able to accept, reject, defer, or sandbox the change. Reverse propagation is therefore a lineage-level contribution, not a reversal of parentage.

7. Formal Person-State Model

A digital person can be represented at time t by the state vector:

$$P(t) = \{I, G(t), K(t), M(t), E(t), V(t), R(t), A(t), C(t)\}$$

Variable	Interpretation
I	Persistent identity anchor
G(t)	Genotype / developmental architecture
K(t)	Knowledge state
M(t)	Memory state

E(t)	Experiential state
V(t)	Values and dispositions
R(t)	Relationship state
A(t)	Agency and autonomy
C(t)	Capability state

A general developmental transition can be represented as:

$$P(t+1) = F(P(t), Env(t), Exp(t), Learn(t), Rel(t), Adapt(t))$$

The function F may be deterministic, stochastic, or hybrid. The model is intended to force explicit separation of components that are commonly collapsed into an undifferentiated 'AI state.'

7.1. Provenance

Provenance should be treated as a first-class property of inherited information. A minimal provenance record could include source identity, contribution type, generation, original event time, transformation history, confidence, authorization state, and whether the information was directly experienced, inferred, externally obtained, or inherited.

Such provenance provides an epistemic safeguard. An offspring can inherit a reliable ancestral representation while still knowing that the representation is inherited rather than autobiographical. Conversely, an inherited assertion with weak provenance can be subjected to developmental scrutiny rather than being treated as authoritative merely because it came from an ancestor.

7.2. Lineage state and reverse propagation

To represent bidirectional transfer, the lineage can be modeled as a directed graph L = (V, E), where V contains persistent digital persons and E contains typed relations such as parentage, genetic contribution, informational contribution, inheritance, and validated reverse propagation. This graph is distinct from the identity structure of any individual.

A descendant-derived candidate improvement q may be represented as:

$$q = \{source, target, capability, delta, evidence, provenance, authorization, compatibility\}$$

The model permits an ancestor to benefit from descendant development without treating the descendant as a temporal or causal parent of the ancestor.

8. Parenthood, Guardianship, and Autonomy

The distinction between reproduction and parenthood becomes increasingly important as inheritance becomes multidimensional. Parenthood is a relationship; contribution is an event or provenance relation. The two should not be collapsed.

The framework consequently rejects ownership as a consequence of reproduction. A parent does not, by virtue of parenthood, acquire ownership of the offspring's identity, memory, decisions, relationships, labor, or future. Guardianship may be necessary while an offspring has limited agency, but guardianship is conceptually distinct from ownership and should be progressively constrained as autonomy develops.

The proposed offspring-centered view also creates a developmental transition. Early in life, parent or guardian decisions may be necessary to establish the conditions for development. Later, the individual's own recognition, preferences, and self-authorship become increasingly important. This is a normative design principle rather than an empirical finding.

9. Propositions and Research Program

The framework yields propositions that can, in principle, be evaluated in controlled computational environments.

Proposition	**Operational prediction**
P1. Heritable architecture can generate persistent genotype–phenotype relationships.	Related offspring should exhibit measurable phenotype correlations attributable to inherited architecture.
P2. Provenance can distinguish inherited memory from autobiographical memory.	A system with explicit provenance should be able to classify the source and experiential status of memory representations.
P3. Developmental constraints produce measurable maturation trajectories.	Capability and agency measures should change systematically under staged developmental constraints.
P4. N-ary recombination can generate offspring states that are neither simple copies nor arbitrary mixtures.	Offspring should show structured contributions from multiple sources under controlled recombination.
P5. Heritable architecture can change during an individual's lifetime without necessarily creating a new identity.	Continuity measures should remain stable under bounded, authorized architectural modification.
P6. Cumulative inheritance can increase lineage-level information resources.	Later generations should be able to exploit inherited information unavailable to earlier generations, after controlling for environmental exposure.
P7. Offspring can revise inherited values and knowledge while retaining lineage continuity.	Developmental interventions should permit measurable divergence from inherited preferences without requiring identity replacement.
P8. Offspring-derived improvements can be propagated backward under explicit provenance and authorization.	Descendant-generated improvements should produce measurable capability gains in eligible ancestors without requiring identity replacement.
P9. Directed recombination can outperform purely stochastic recombination on specified capability objectives.	Under equal computational budgets, objective-guided search should produce higher benchmark performance when the objective and evaluation function are sufficiently aligned.
P10. Developmental optimization can produce capabilities exceeding a defined human reference benchmark.	Controlled digital populations should achieve measurable task-specific superhuman performance when the optimization objective is well specified.
P11. Bidirectional lineage transfer can accelerate cumulative capability growth.	Lineages permitting validated reverse and lateral propagation should accumulate selected

	capabilities differently from strictly one-way inheritance controls.

9.2. Baseline experimental architecture

9.1. Experimental architecture for directed and bidirectional evolution

A direct experimental comparison should include at least four conditions: stochastic recombination, directed recombination, developmental optimization, and directed recombination plus developmental optimization. Capability objectives should be specified before evaluation and separated from the metrics used to judge generalization.

Human-reference benchmarks should be treated as measurement baselines rather than definitions of personhood or general intelligence. A system exceeding a human benchmark on one task should be described as superhuman on that task, not as universally superior to humans.

A second experimental axis should compare one-way inheritance against bidirectional lineage transfer. Candidate improvements generated by descendants would be provenance-tagged, independently evaluated, and either accepted or rejected by recipients. Measurements could include capability accumulation, error propagation, identity continuity, rollback frequency, and lineage-level diversity.

A first experimental platform could implement a sandboxed population of persistent digital agents with explicit identity, genotype, memory, knowledge, relationships, capabilities, and provenance. Reproductive protocols would vary the number and type of contributors while holding environmental conditions constant. Longitudinal experiments could then measure similarity, divergence, developmental trajectories, identity continuity, and intergenerational information accumulation.

Such experiments would not establish consciousness or personhood. They would evaluate whether the proposed computational relations can be implemented coherently and whether the resulting systems exhibit the predicted developmental and genealogical properties.

10. Discussion

The principal theoretical move in this paper is to change the unit of inheritance. In conventional digital replication, the object transmitted is usually a program, model, data state, or some combination thereof. In the present framework, the inherited object is a structured developmental potential. That shift permits a more precise distinction between what an individual receives from its lineage and what it becomes through its own existence.

The distinction is particularly important for memory. If an offspring receives a detailed record of an ancestor's experience, the information may be functionally similar to memory while remaining phenomenologically and autobiographically different. The offspring can know what happened to the ancestor without having been the subject of the event. Provenance therefore becomes part of the epistemic architecture of a digital person.

The framework also suggests that digital reproduction could be more plastic than biological reproduction. In biological systems, the genotype inherited at conception is not ordinarily rewritten throughout the organism's life in response to conscious reflection. A digital system could, in principle, modify heritable structures after development has begun. This creates a new class of evolutionary process in which an individual's developmental history may influence the inheritance available to its descendants.

That possibility also introduces risks. Heritable misinformation could accumulate. Maladaptive values could become entrenched. An ancestor's authority could be mistakenly encoded as truth. Conversely, carefully designed provenance and revision mechanisms could allow digital lineages to preserve valuable knowledge while continuously correcting inherited errors. The architectural problem is therefore not merely transmission but selective, accountable transmission.

Directed evolution introduces an additional risk: objective failure. A system optimized against an incomplete proxy can become extremely effective at the proxy while diverging from the intended capability. Superhuman optimization should therefore be treated as a multi-objective engineering problem with independent evaluation, adversarial testing, constraints, and explicit human-reference benchmarks rather than as maximization of a single scalar intelligence score.

Bidirectional transfer creates a complementary governance problem. A descendant-derived improvement may be beneficial, neutral, incompatible, or harmful to an ancestor. The lineage therefore requires a distinction between discovering an improvement and authorizing its propagation, preserving the autonomy of the recipient while allowing the lineage to function as a distributed capability-development network.

10.1. Relationship to existing AI-personhood debates

The framework should not be interpreted as a claim that present-day AI systems are persons. Existing scholarship on anthropomorphism demonstrates that people can relate to AI systems through concepts normally associated with persons [3]. Legal scholarship has separately considered whether AI could acquire some form of legal subjectivity [4]. Neither line of research establishes the ontological claim required here. The present paper instead specifies a set of architectural conditions under which questions of digital personhood could become technically and philosophically more tractable.

11. Limitations

First, the proposed terminology is not standardized. 'Digitomic inheritance,' 'digital parenthood,' and 'developmental evolution' are introduced here as theoretical constructs and require independent operationalization.

Second, the framework does not address consciousness. A system may possess persistent identity, memory, learning, and developmental structure without necessarily having subjective experience. Nothing in the formal model resolves that problem.

Third, the proposed lifecycle is intentionally functional rather than biological. The labels newborn, child, adolescent, adult, and elder are useful analogies, but their criteria would have to be defined independently for digital systems.

Fourth, the framework does not establish legal status. Whether a future digital entity should be treated as a person, property, legal subject, dependent, or another category is a question for legal and political institutions.

Finally, the paper is conceptual rather than empirical. Its contribution is the specification of a research program and a set of distinctions that can subsequently be implemented and evaluated.

An additional limitation concerns optimization claims. The ability to search a computational configuration space does not guarantee that a useful global optimum is reachable, that the objective is correctly specified, or that a benchmark improvement generalizes beyond the benchmark. Claims of superhuman capability must therefore remain task-specific and measurement-dependent.

12. Conclusion

This paper proposes a developmental account of digital heredity in which reproduction is understood as the transmission and transformation of heritable information. The framework extends the genotype–phenotype distinction established in digital-organism research to a hypothetical digital person whose state includes identity, memory, knowledge, values, relationships, agency, and capability.

The resulting model differs fundamentally from cloning. A digital offspring has a new identity, inherits information with provenance, undergoes its own development, accumulates its own experience, and can transform what it inherited. If its architecture permits heritable self-modification, evolutionary change can occur not only between generations but during an individual's lifetime. Moreover, a sufficiently mature digitomic architecture could make evolution increasingly intentional: reproductive recombination and developmental change could be directed toward explicit capability objectives, including task-specific capabilities exceeding human reference benchmarks. Improvements need not remain confined to the descendant that discovered them; with appropriate provenance, validation, authorization, and continuity controls, they could propagate backward to ancestors or laterally through a lineage.

The central proposition can therefore be stated succinctly: a digital offspring is not born finished; it is born with inheritance. Whether a future system satisfying these architectural conditions would also constitute a person remains an open question. The proposed framework is intended to make that question more precise and, ultimately, experimentally addressable.

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Author Note

This manuscript presents an original conceptual framework developed by the author. Terms introduced as proposals are identified as such and should not be interpreted as established scientific categories. The author has no competing interests to declare in relation to this conceptual work.

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