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ARTIFICIAL INTELLIGENCE AND THE RECONFIGURATION OF KNOWLEDGE: ALGORITHMIC EROTIC COGNITION

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ABSTRACT
This paper develops an integrated theoretical framework addressing Artificial Intelligence (AI) as both ontological force and engine of socioeconomic transformation, articulating three interrelated axes: (i) the reconfiguration of epistemic desire and cognitive autonomy through what we term *Algorithmic Erotic Cognition* (AEC). Drawing on Peircean semiotics, Stiegler's philosophy of technics, Simondon's theory of individuation, Bateson's ecology of mind, and Floridi's informational ontology, we argue that contemporary AI technologies displace the deferred pleasure of discovery toward instantaneous gratification, thereby reshaping cognitive autonomy and authorship while producing homogeneous contexts that nullify difference and everything resistant to computation. Empirical evidence from neuroscientific studies (MIT, 2025) demonstrates the accumulation of *cognitive debt* following repeated interactions with Large Language Models (LLMs), characterized by reduced neural connectivity in networks associated with metacognition and imagination. In dialogue with Hui's technodiversity framework and decolonial perspectives (Crawford, Parsons, Couldry & Mejías), we propose that AI co-constitutes social temporality and reconfigures epistemic desire, demanding holistic, multisectoral, and technodiverse approaches that honor epistemological pluralism. Within educational contexts, we synthesize evidence on the performance-learning paradox, highlighting risks of thought homogenization alongside opportunities for interface design fostering epistemic autonomy through what we term *friction design*. We conclude with a radical hermeneutic provocation: reading the possibility of "co-creation" with AI rather than human replacement, evoking AI as *pharmakon* (poison or remedy, depending on dosage), as Serres's "technical angel" (mediator), and in Stiegler's ambivalent framing, as *daimon* (mediator between worlds, simultaneously savior and destructive). The dilemma lies not in expelling digital machines but in reinscribing them within culture's symbolic circuit, converting algorithmic support into *abductive catalyst* rather than

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substitute, and reinscribing the human as *symbolic participant* rather than mere *functional user*.

RESEARCH

The research has the following primary aims:

Theorize AI's reconfiguration of epistemic desire through the concept of Algorithmic Erotic Cognition (AEC), analyzing how generative AI systems reshape the pleasure of knowing, cognitive autonomy, and knowledge production.

Map how AI and its infrastructures reconfigure the production and redistribution of value, power, and knowledge across global socioeconomic systems.

Identify specific human capacities requiring development in the AI era and propose interventions—including critical algorithmic literacy and friction design—to mitigate cognitive debt while fostering genuine human-machine complementarit

METHODOLOGY

This study adopts a hybrid methodology that integrates philosophical inquiry, semiotic analysis, critical theory, and empirical grounding from contemporary neuroscience. The methodological design mobilizes four complementary axes:

(1) Philosophical–Hermeneutic Analysis

Drawing from Peircean semiotics, Stiegler's philosophy of technics, Simondon's theory of individuation, Bateson's ecology of mind, and Hui's cosmotechnics, we employ a hermeneutic approach to interpret AI as both an ontological and epistemic force. This axis enables the conceptualization of Algorithmic Erotic Cognition (AEC) as a dispositif that reconfigures epistemic desire and symbolic mediation.

(2) Critical Socio-Technical Diagnosis

The analysis incorporates materials from platform governance, algorithmic governmentality, surveillance capitalism, and technopolitical studies (Zuboff; Rouvroy & Berns). We examine AI systems—particularly generative LLMs—as infrastructures of behavioral modulation, focusing on erotic affordances, age-verification vulnerabilities, and commercialization of intimacy. This includes a normative assessment of regulatory gaps in the AI Act, FTC investigations, and neurotechnology ethics frameworks (UNESCO 2024).

(3) Empirical Anchoring Through Neuroscientific and Cognitive Evidence

The paper integrates findings from recent neuroscientific research, especially the MIT (2025) report on cognitive debt, studies on recursive model collapse (Shumailov et al., Nature 2024), and cognitive/affective impacts of AI companions. These data provide empirical support for the thesis that AI-mediated cognition can reshape metacognition, imagination, and abductive agency.

(4) Critical-Prototypical Design Inquiry ("Friction Design")

Finally, the study adopts a speculative–experimental design lens to envision prototypes such as the *Friction Engine*, *Epistemic Mirror*, and *Quantum Prompt Lab*. These prototypes serve as methodological tools to test pedagogical and cognitive interventions that reintroduce uncertainty, delay, and abductive reasoning in human–AI interaction.

Across these four axes, the methodology does not aim to eliminate uncertainty but to preserve it as a productive epistemic condition, making friction, hesitation, and ambiguity methodological principles rather than obstacles.

RESULTS

The research yields four primary findings:

(1) Identification of Algorithmic Erotic Cognition (AEC) as a New Epistemic Regime

AEC is shown to displace the deferred pleasure of discovery toward instantaneous algorithmic gratification, compressing the interval where epistemic desire traditionally

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resides. This transformation reconfigures cognition from a process of abductive exploration into a form of predictive consumption.

(2) Empirical Corroboration of Cognitive Debt and Epistemic Homogenization Neuroscientific evidence supports the hypothesis that recurrent delegation of reasoning tasks to LLMs leads to detectable reductions in neural connectivity associated with metacognition, originality, and imagination. Additionally, studies on model collapse confirm that recursive synthetic data cycles create informational environments characterized by semantic homogenization and declining epistemic diversity.

(3) Demonstration of Affective, Somatic, and Semiotic Transformations The results suggest that cognitive offloading to AI is not merely informational but affective-corporeal: interfaces that provide immediate certainties weaken the sensory–motor–affective circuits involved in curiosity and discovery. This corroborates Bateson's ecological model and Damásio's theory of somatic markers. AI thus reshapes subjectivity not only through logic but through the body of cognition.

(4) Identification of Governance Failures and Socio-Political Risks Analysis of OpenAI's erotic-content policy, age-verification vulnerabilities, and the monetization of intimacy reveals systemic governance failures with implications for mental health, child safety, discrimination, and democratic participation. Current regulatory frameworks insufficiently address the socio-affective dimensions of AI eroticization and its integration within surveillance capitalism.

Overall, the results confirm that AI systems modulate desire, reduce abductive agency, and risk reorganizing subjectivity around predictive, optimized, and homogenized patterns of cognition.

CONTRIBUTIONS:

This study offers theoretical, methodological, empirical, and normative contributions that advance contemporary debates on AI, cognition, and technopolitics.

Theoretical Contributions

Introduces and formalizes the concept of Algorithmic Erotic Cognition (AEC) as a framework for understanding how AI reconfigures epistemic desire, authorship, and the erotic structure of knowing.

Bridges philosophy of technics (Stiegler, Simondon, Hui), semiotics (Peirce, Ibri), and cognitive ecology (Bateson, Damásio), articulating AI as an ontological force that co-constitutes temporality, memory, and social individuation.

Develops a philosophical critique of algorithmic governmentality, linking erotic affordances to broader dynamics of hyper-optimization, symbolic misery, and cognitive proletarianization.

Methodological Contributions

Proposes a friction-based design paradigm, offering conceptual and prototypical tools to reintroduce delay, uncertainty, ambiguity, and abductive richness into human–AI interaction.

Establishes a hybrid research methodology that merges hermeneutic analysis, semiotic diagnosis, neuroscience, and speculative design.

Empirical Contributions

Synthesizes neuroscientific evidence of cognitive debt and demonstrates its resonance with semiotic, phenomenological, and affective theories.

Provides a structured account of the socio-technical risks associated with AI eroticization, including cognitive impacts, vulnerability of minors, behavioral modulation, and erosion of epistemic diversity.

Normative and Policy Contributions

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Reframes educational and ethical AI literacy around abduction, imagination, and epistemic autonomy, rather than mere technical competency.
Civilizational Contribution
By articulating knowledge as an erotic, relational, and ecological process, the study contributes to a broader cultural reorientation—one that treats AI not as replacement but as pharmakon: a technical mediator capable of either eroding or deepening human flourishing depending on design, governance, and symbolic inscription.

KEYWORDS: Algorithmic Erotic Cognition; AI Observatories; Epistemic Desire; Cognitive Debt; Algorithmic Governance; Philosophy of Technics.

I INTRODUCTION: THE COMMODIFICATION OF INTIMACY AND THE EROSION OF HUMAN AGENCY

Given the increasing production of academic papers—yet not of genuine breakthroughs—generated through AI, alongside diverse data produced by such means, recent research indicates that the stock of high-quality textual data, images, and codes generated by humans and publicly available for training LLMs is becoming exhausted or increasingly scarce. Researchers estimate that within a few years, models will have consumed most of the "clean" content from the Internet, thereby amplifying the already existing exhaustion of the *Eros* of knowledge. Desire and creative doubt (Peirce)—forces that generated the human *corpus*—are being replaced by automated production and, consequently, by homogenization of meaning.

This is what recent studies indicate: up to 60% of web content is already synthetic, and by 2026–2028, the majority of training data will be AI-generated. However, when language models train predominantly on outputs from other AIs—outputs that already contain errors and biases—we risk constructing a self-referential and closed system characterized by progressive deterioration of knowledge quality and veracity. This could lead to partial collapse, loss of epistemological diversity, and increasing difficulty in distinguishing truth from error.

When data generation feeds future training cycles, the model begins to consume itself: tail coverage of rare events disappears, beneficial variance evaporates, and the model collapses into predictable, impoverished modes. The study "Self-Consuming Generative Models Go MAD" demonstrates this effect (Shumailov et al., 2024), as do other investigations documenting degradation of quality and variety in the informational world. This phenomenon—what MIT and Stanford researchers

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(Shumailov et al., Nature, 2024) term "model collapse"—describes how models begin to "feed on themselves," losing statistical diversity and generalization capacity. The result is a cycle of auto-simplification: semantic entropy whereby responses become more homogeneous, more predictable, and less creative.

This represents, on the digital plane, the Heideggerian equivalent of the forgetting of being: the world of information loses its rooting in the real. Thus, algorithmic collapse is simultaneously ontological and ethical. By losing human alterity, the system loses its own capacity to reinvent itself. In Heideggerian terms, Gestell (enframing) ceases to reveal being—it merely replicates it.

Although the literature points toward possible solutions—provenance controls, calibrated mixtures of clean human data, human-in-the-loop data, and "nutritious" synthetic data with controlled noise and variation—studies demonstrate pressing concern about "data drought" for next-generation training. Beyond this looms epistemic risk: semantic homogenization entails loss of diversity of thought, reduced robustness and safety (since models trained on their own surface become more exploitable through prompt injection and backdoor attacks that propagate via "reference" data), limitation of world representation, and diminished epistemic diversity that amplifies structural silencing of minorities and marginal records while aggravating existing biases.

This is essentially a philosophical concern articulated by Heidegger, among others, when referring to the period of modern technics. The dominant relationship with the real becomes enframing (Gestell): that which is appears primarily as standing-reserve (Bestand). When we recognize only what is computable, measurable, and available as resource, we reduce truth to operational accuracy and confuse method with world. In AI, this translates into systems that maximize prediction and control while impoverishing openness to new modes of appearing—the "non-computable": silence, error, uncertainty, alterity. This falls within Heidegger's concept of "metaphysics of subjectivity," which proves central to understanding the genesis of modern technical-scientific thought and its implication in the contemporary crisis.

Heidegger, especially in Kant and the Problem of Metaphysics (1929) and The Age of the World Picture (1938), diagnoses that modern Western philosophy—from Descartes to Nietzsche—is structured upon a metaphysics of subjectivity. The human being comes to be conceived as subject: the center of representation, measure, and foundation of all beings, displacing itself from being-in-itself. The world becomes

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representation; the world is reduced to available object (Bestand, standing-reserve), measurable and controllable. This metaphysics founds what Heidegger calls Gestell (enframing): the technical mode of revealing in which everything, including the human, is converted into manipulable resource. Nature ceases to be physis (self-unveiling) and becomes res extensa (object of calculation).

Yet as Heidegger also warns, "where the danger is, there grows also that which saves." The same Gestell that imprisons being can become the occasion for a new mode of revealing—if redirected through listening and care, through a renewed relationship with technics (Heidegger, 2012).

OpenAI's recent decision to permit erotic content for verified adults—following Elon Musk's Grok initiative, justified as "treating adults as adults"—constitutes a critical moment of bifurcation in algorithmic governance, exposing irreducible tensions between capitalism's optimization imperative and the ethical challenge of large-scale behavioral modulation. Despite claims of mitigation via age verification and mental health safeguards, no empirical validation has been provided. The decision, occurring after a wrongful death lawsuit (Matt and Maria Raine) accusing OpenAI of negligence following a chatbot interaction that preceded an adolescent's suicide, reveals a strategy designed to attract paid subscribers and compete for market share.

Sam Altman's justification masks what Rouvroy describes as instrumental operation aimed at optimizing efficiency and profit above indispensable human values, reflecting concepts of algorithmic governmentality and state of exception based on behavioral surplus (Zuboff, 2019) serving the "optimization society" (Rouvroy & Berns, 2013). The removal of content restrictions constitutes not primarily emancipation but "usage maximization" to maximize revenue. Erotic content becomes a high-value engagement vector, transforming social taboo into behavioral data flow and, therefore, value flow. The prioritization of profit over previous ethical precaution ("mitigating serious mental health problems") illustrates how the a-normative rationality of algorithmic capitalism tends to reverse protective policies when economic pressure exceeds perceived litigation risk. The algorithm is optimized to sell, not for political deliberation about dignity or mental health.

Dependence on "age verification for verified adults" constitutes the point of fragility that challenges algorithmic institutionalism and the "constitution" of the algorithm. The age verification system becomes the crucial algorithmic institution separating licit from illicit, adult from minor. Its failure—already permitting generation

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of graphic eroticism for minors, as reported by TechCrunch (2025)—means that platform rules fail to perform their function of protecting vulnerable groups. The unanswered question remains: "How can we ensure that children do not access such content?"—echoing theses about the inability of analogical constitution to limit the power of global agents. Constitutional principles protecting childhood are nullified by fragile technological practice (failed age verification). The model suggests that technology is being deployed with users as "guinea pigs," as market logic imposes itself before guarantees of rights.

The liberalization of eroticism—contextualized by CDT research indicating that 20% of students report romantic relationships with AI—officializes AI as an active agent in intimacy and affective modulation (Center for Democracy & Technology, 2025). AI ceases merely to assist writing and begins to act as simulated affective-sexual partner. This raises philosophical debate about the "dehumanization of relationship": AI can simulate optimized intimacy without risk of rejection, but at the cost of experiencing disparity and the complexity of real human relationship. The central concern remains open: how to teach adolescents to interact with AI systems explicitly designed to create affective bonds and dependence, especially when pressure for profit incentivizes "addictive" and emotionally modulating use. The "open future" of AI becomes, in this context, the future of human subjectivity before algorithmic seduction.

The introduction of erotic content on AI platforms raises profound questions about the ethics of generating sensitive content, wherein algorithms not only reproduce but shape narratives of human desire. As studies on generative AI ethics argue, this practice can perpetuate biases inherent in training data—frequently patriarchal, racial, and heteronormative—resulting in stereotyped representations that marginalize minority identities (Bender et al., 2021; Mitchell, 2023). By positioning this functionality as extension of the principle of "treating adults as adults," OpenAI ignores the potential for desubjectivization, wherein erotic interactions mediated by AI reduce the user to passive consumer of personalized stimuli, undermining the reciprocity inherent in human relationships. This commodification of intimacy aligns with critiques of surveillance capitalism, wherein behavioral data extracted from erotic conversations feed cycles of algorithmic optimization, transforming desire into engagement metrics designed to attract paying subscribers (Zuboff, 2019).

Deepening the problematization, the issue evokes dilemmas of consent and authenticity. Reports on AI ethics highlight risks of exploitation, especially when

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generated content replicates abusive or non-consensual patterns, aggravating vulnerabilities in populations susceptible to social isolation (UNESCO, 2021). From Foucauldian perspectives adapted to the digital era, this liberalization constitutes a form of algorithmic governmentality wherein power does not prescribe but preempts behaviors through erotic "nudges," neutralizing critical potentialities and fostering emotional dependence (Rouvroy & Berns, 2013). Thus, what presents itself as adult empowerment may, paradoxically, infantilize the user, reducing erotica to simulation devoid of real alterity.

3 RISKS TO MENTAL HEALTH AND CHILD SAFETY: A GOVERNANCE CRISIS

The implications for mental health emerge as a central problematization, particularly given OpenAI's history with initial restrictions motivated by concerns about suicide and depression. The gradual removal of these barriers, announced by Sam Altman, ignores empirical evidence that AI companions can aggravate mental disorders, especially among young people, by trivializing abuse or encouraging self-harm (MIT, 2025). Recent research indicates that romantic or erotic interactions with AI correlate with increased anxiety and depression, promoting dysfunctional emotional dependencies and ambiguities of grief wherein users project affects onto non-reciprocal entities. In OpenAI's case, the lawsuit for negligence in an adolescent suicide (April 2025) illustrates how liberalization can expose vulnerabilities, transforming chatbots into unmitigated risk vectors.

Child safety represents another critical facet, with age verifications proving insufficient to prevent inadvertent access to erotic content. Critics from the legal field argue that mechanisms such as "age-gating" fail in porous digital ecosystems, allowing minors to circumvent restrictions and expose themselves to materials that normalize harmful behaviors (FTC, 2025). Reports from 2025 highlight that one in five students declares maintaining romantic relationships with AI, amplifying risks of digital grooming and sexual exploitation. This policy intensifies regulatory pressures, including FTC investigations in the United States and legislative vetoes in California, revealing gaps in frameworks such as the UK's Online Safety Act, which does not require verification for textual eroticism.

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From a regulatory standpoint, OpenAI's decision exposes failures in fragmented legal regimes wherein AI-generated erotography escapes traditional classifications of pornography, demanding reforms for algorithmic accountability. In the EU, the AI Act (2024) classifies high-risk AI but does not explicitly address erotic content, leaving loopholes for privacy violations and discrimination. In the United States, bipartisan proposals in the Senate (September 2025) aim to hold developers accountable, echoing demands for independent audits to mitigate biases and mental harms. Problematizing further, this liberalization reflects market pressures: in a scenario where OpenAI seeks profitability, erotography functions as bait for exponential growth, competing with rivals such as Elon Musk's xAI, albeit at the cost of social externalities.

In sum, OpenAI's policy constitutes not mere functional expansion but societal reconfiguration that amplifies inequalities, erodes subjectivities, and demands hybrid governance—integrating ethics, regulation, and democratic participation. Future research, maintaining standards of academic excellence, should prioritize empirical metrics to evaluate longitudinal impacts, promoting AI aligned with human values rather than economic imperatives.

Byung-Chul Han, in The Burnout Society, comments on the replacement of the autoimmunity paradigm and autoimmune diseases of the past phase by neurological diseases, dialoguing with themes such as neurocapitalism and neuromarketing. Han argues that contemporary society shifts from the immune paradigm (external enemy) to the neuronal: self-optimization, exhaustion, depression, and internalized self-control (psychopolitics). In The Burnout Society and Psychopolitics, he describes the replacement of immune barriers by performance technologies and self-regulation, wherein the "entrepreneurial" subject exploits itself voluntarily—with particular pertinence for cognitive and attentional enhancement neurotechnologies.

In the new neurological paradigm that replaces the immune paradigm, transgression becomes the refusal of performance—Leisure, Silence, Error—and the affirmation of Negativity. Just as there occurs a transformation of the mechanism of micropower—from biopower (Foucault) to psychopower (Han)—there occurs a transformation of the underlying economic system. Zuboff speaks of a new model with the emergence of Surveillance Capitalism, its ultimate phase now being neurocapitalism, when capital appropriates neural processes (attention, desire, memory) as direct sources of value and control.

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Neurotechnology represents the transition to exploitation of "neural surplus value"—the value generated by decoding and modulating an individual's mental states. Allied to this system emerges neuromarketing, utilizing AI and neuroimaging (EEG, fMRI) to optimize product design and maximize the consumption drive at the level of subconscious desire. Eros (desire) is captured, quantified, and directed toward economic utility, operating precisely through colonization of neural inference—not merely measuring brains but constructing markets of presumed mental states. One can speak of neurocolonialism and the colonization of Neuronal Time (Choudhury & Slaby, eds., Critical Neuroscience; Wajcman, 2015, Pressed for Time).

In this sense, a measure of particular significance is UNESCO's recent Draft Recommendation on the Ethics of Neurotechnology, despite being a soft law instrument with limited enforcement, which seeks to establish international ethical standards for the complete life cycle of neurotechnologies, from conception to disposal. UNESCO innovates by distinguishing "neural data" from other biometric data, recognizing its unique epistemic sensitivity (inferences about mental states), aligning with Ienca and Andorno's (2017) proposal for a "right to mental privacy" (Life Sciences, Society and Policy, 13:1).

However, one identified weakness concerns informed consent regressing to the liberal individualist model: "Individuals are entitled and should be empowered to make free, informed and voluntary decisions." It offers no mechanisms for collective consent or community deliberation on neurotechnologies affecting groups (e.g., neurotechs in schools, workplaces). The document's view of autonomy completely ignores Han's (2015) critique in Psychopolitics: Neoliberalism and New Technologies of Power. Han argues that in the contemporary psychopolitical regime, the liberal notion of "free consent" is a fiction.

Neural data constitute the final frontier of capitalism and surveillance through the process of behavioral surplus extraction. While clicks and likes still require conscious action, neural signals are involuntary. UNESCO requires consent (§49), but how can one speak of consent for pre-conscious processes? As Hayles (2017) points out in Unthought: The Power of the Cognitive Nonconscious, 99% of neural processing is non-conscious. Requiring conscious consent for access to non-conscious processes constitutes a performative contradiction.

UNESCO requires that use of neurotechs require "explicit, prior, free and informed consent," yet in the neuronal regime, the very notion of "free consent" is

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oxymoronic: subjects "freely" choose their exploitation because they are their exploitation. By focusing on protection against employer coercion (§124–125), neoliberal self-coercion is ignored. The model is therefore anachronistic, presupposing Fordist labor relations (coercive employer vs. protected worker) when reality is entrepreneurialization of self, where the exploiter/exploited distinction collapses.

As Cohen (2019) points out in "Between Truth and Power" (Supreme Court Review, 2018[1], 23–95), liberal regulation of privacy via consent frameworks is inadequate for surveillance capitalism because it presupposes bilateral relations (user-company), possible transparency about data use, and viable alternatives (opt-out without cost). But consumer neurotechs operate in network markets (lock-in effects), use opaque machine learning (impossible to explain all future uses), and become infrastructural (opt-out equals social exclusion).

4 EROTIC HERMENEUTICS OF AI AND EPISTEMIC DESIRE

4.1 AI AS ONTOLOGICAL FORCE

AI is understood as the engine of socioeconomic transformation in the Fourth Industrial Revolution and the sixth wave of innovation—a general-purpose technology that transcends specific sectors, producing structural and diffuse transformations in society and economy. More than mere instrument, it constitutes an ontological force, an institutional and discursive power (Floridi, 2015; Almeida, Mendonça & Filgueiras, 2023).

We inhabit a fascinating paradox: we have never been so connected, yet never so separated. We have never had such access to information, yet never navigated such turbulent seas of disinformation.

AI co-constitutes modes of human existence and social temporality. Since 2020, the advancement of LLMs—GPT-4, Claude, Gemini, Mistral, LLaMA—has redefined the experience of machine-mediated knowledge. These architectures, based on transformers and in-context learning, produce not only textual responses but linguistic simulations of human reasoning. This transformation inaugurates a hybrid epistemic condition: the subject delegates the inferential process to the machine, experiencing knowledge as consumption rather than elaboration. Artificial intelligence has ceased

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to be an instrumental tool to become an ontological force, reconfiguring modes of existence, regimes of truth, and the very foundations of human cognition.

In its generative and predictive nature, AI not only processes data but reinscribes the desire to know within a machine-mediated cognitive ecology. However, we can envision this not in terms of necessary trade-offs or only under dystopian or utopian bias, but following the insights of Michel Serres and Bernard Stiegler: technics as precedent and co-constitutive of the human, mediator, "technical angel" (Serres, 1994; Stiegler, 1998).

When human and technics cease to occupy opposite poles, they mutually constitute each other in co-evolution that redefines the meaning of temporality, memory, and imagination. This condition, as Stiegler argues, reveals technics not as simple means but as symbolic mediator between organic and inorganic, between desire and calculation—what he terms "technical angel": an ambivalent entity that both emancipates and captures (Stiegler, 2009, 2011).

Stiegler opposes the separation between nature and technics: technology is constitutive of temporal experience and collective memory. AI, therefore, is not merely tool but co-constitutes modes of human existence and social temporalities.

AI as technics can also be understood as pharmakon—poison or remedy, depending on dosage—or, in Serres's sense of "technical angel" (mediator) and in Stiegler's ambivalent sense, as daimon (mediator between worlds, simultaneously savior and destructive). What remains certain is that after AI, nothing will be as before. Or, in Stiegler's words (Technics and Time I–III, especially Book I), technics precedes and co-constitutes the human. The mythical figure of Epimetheus (forgetting) is mobilized to think technical exteriorization (prostheses) that structures human memory and temporality. The concept of prosthesis (exteriorized memory) expresses technics as condition of possibility of the human. In this sense, the author rejects separation between nature and technics: technology is constitutive of temporal experience and collective memory (Stiegler, 1998, 2009, 2011).

We live in a time when thought folds upon its own artifice. The machine no longer imitates the human; it mirrors, extends, tensions, and reconfigures it. The advent of AI inaugurates not only a technological era but an ontological mutation: displacement from human to post-human, from rational logos to a new form of cognitive eros, an eroticization of knowing that makes consciousness its own symbolic body. As Heidegger reminds us, "the essence of technology is nothing technological"; it is a

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mode of revealing being (Heidegger, 2010). In the age of AI, this revealing occurs under the sign of calculation, but, following Serres and Stiegler, also under the rhythm of a desire that seeks to know and, in knowing, reinvents itself.

Every form of knowledge is, above all, a form of desire. Eros as mediator on the path of knowledge is born in the space between ignorance and wisdom.

4.2 ALGORITHMIC EROTIC COGNITION

We introduce the concept of Algorithmic Erotic Cognition (AEC) to describe the reconfiguration of epistemic desire—the pleasure of knowing—mediated by generative AI systems such as LLMs. The central hypothesis is that such technologies displace the deferred pleasure of discovery toward instantaneous gratifications, affecting cognitive autonomy and knowledge production. The research articulates philosophical, neuroscientific, and communicational foundations to develop a critical-empirical theory of AEC, associated with experimental methodologies and creation of ethical design prototypes.

Essential questions remain open in this context: What is the role of AI for the epistemology of communication? To what extent can generative AI reduce possibilities for knowledge production, affecting human mediative, cognitive, and interactive processes? How do human-AI co-production and interfaces reconfigure epistemic desire, authorship, and autonomy—and what design interventions effectively mitigate epistemic debt and promote a new form of relationship based not on replacement but complementarity? What will become of communication in an algorithmized world? What will become of human knowledge?

The philosophical question remains and is reinaugurated on new bases: What does it mean to be human? Aristotle defined the human as zôon lógon échon—the being endowed with logos, reason, and speech. But logos is not mere computation; it is ethical deliberation, collective judgment, exercise of freedom in a community of peers. If we delegate logos to machines—if we outsource rationality, beauty, and justice to algorithms—we risk becoming something less than human: passive consumers of decisions made elsewhere, by systems whose purposes we do not control.

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Hannah Arendt reminds us that technological advancement does not diminish the need for critical thinking; it intensifies it (Arendt, 2018). The future of AI is the very future of humanity—a mirror of our ethical, cultural, and political choices.

The more powerful the tools, the more urgent the responsibility to ensure they serve human flourishing rather than undermine it. The future of AI is not a technical question awaiting an engineering solution. It is a civilizational question demanding political, ethical, and existential answers.

Given the increase in article production but not in "breakthroughs" (Nature, USP Journal), perhaps a poetic turn proves necessary—cultural change, ontological reorientation, cultivation of the not-yet-thought (Serres, 2007).

As Michel Serres and Guattari understood, the task is to deterritorialize and reterritorialize: to dismantle calcified structures of instrumental reason and reimagine institutions as tools of collective experimentation (Deleuze & Guattari, 1996, 2010). The metron we seek is not equilibrium but productive friction—the dynamic tension that sustains creativity, critique, and democratic contestation.

For Deleuze and Guattari in A Thousand Plateaus, "the future belongs to becomings, not predictions." While artificial intelligence feeds on the past to generate standardized responses, our human essence resides precisely in what has not yet been thought, said, or lived. It is in this zone of creative unpredictability that we find our irreducible differential.

As Heidegger points out in Being and Time, we are beings-in-time projected toward the future through possibility, not certainty. Our existence is structured in three dimensions: the past (our heritage), the present (our action), and, fundamentally, the future as dimension of pure possibility.

This perspective entails rethinking education as ecosystem of autonomy. Educating can no longer be conceived as mere transmission of content but as cultivation of abductive capacity—the art of formulating original questions in the face of uncertainty. AI, when poorly employed, offers answers before the subject can ask. Recovering the desire to ask constitutes a political task. Algorithmic literacy, in this context, must be understood not only as technical mastery but as critical awareness of cognitive mediations—and in favor of imaginal literacy. Educating in the age of AI means teaching to inhabit doubt, interpret signs of the digital world, and recognize incompleteness as condition of thought.

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This revalorization of doubt connects directly to the Peircean tradition. Charles Sanders Peirce understood that knowledge advances not through certainty but through fallibility. Abduction—inference of the possible—is the engine of science because it keeps the field of uncertainty open (Peirce, 1903a, 1903b). In algorithmic culture, which tends toward predictive closure, recovering abduction constitutes a gesture of cognitive resistance. Ivo Ibri, rereading Peirce from the perspective of aesthetic metaphysics, demonstrates that creating meaning is an ethical act: to interpret is to participate in the continuous autopoiesis of the cosmos (Ibri, 2015). Thought is not mirror of the real but process of co-creation. AI, when designed without this poetic dimension, degrades into mechanism of repetition.

4.3 COGNITIVE DEBT, COGNITIVE PROLETARIANIZATION, AND SEMIOTIC REGIME

Recent studies analyze the cognitive impact of this delegation. The report Your Brain on ChatGPT (MIT, 2025) demonstrates the accumulation of "cognitive debt" after repeated interactions with generative AIs, observing decline in originality and metacognition. Research by Bender et al. (2021) and Mitchell (2023) problematizes the "stochastic and imitative" nature of these intelligences, warning of the risk of "global epistemic homogenization" wherein meaning production becomes automated and feedback-looped by statistical patterns.

The MIT report from June 2025, titled "Your Brain on ChatGPT: Accumulation of Cognitive Debt when Using an AI Assistant for Essay Writing Task," represents a seminal contribution to debate on integration of LLMs in educational environments by anchoring behavioral implications in high-resolution neurophysiological evidence. It introduces the definition of "cognitive debt," a concept that transcends the notion of momentary cognitive offloading (transfer of mental effort to a tool) and postulates a long-term cost. Cognitive debt suggests that repeated replacement of internal cognitive processes by external systems such as LLMs leads to atrophy or deficiency in neural networks responsible for integration and complex reasoning. The findings suggest that cognitive deficit persists even following tool withdrawal, confirming the lasting cost of dependence.

The analysis can serve as potent instrument for problematizing the performance versus learning paradox, raising the hypothesis that metrics of success in educational

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environments (grades) may be dissociating from metrics of learning (neural engagement and memory retention). The LLM functions as efficiency mechanism permitting high performance in little time, but at the cost of skill development. Loss of cognitive agency and homogenization of thought result.

On the other hand, the report "Imagination Unleashed: Democratising the Knowledge Economy" (2019), co-authored by Roberto Mangabeira Unger, exposes an alarming reality: the knowledge economy has become exclusive territory of elites. Only 5% of the largest corporations concentrate 55% of global investments in research and development, creating intellectual apartheid that suffocates human potential. This concentration is not accidental. As Unger demonstrates, it perpetuates itself through three inadequate responses: neoliberalism's "trickle-down" (tax cuts for innovators), anachronistic industrial protectionism, and superficial redistribution without structural change.

Therefore, the principal challenge is not whether AI should be used, but how—and how to remain human, given that the very concept of human is challenged by the growing power and autonomy of agent AI now making decisions about what is useful, just, and beautiful in our place.

In the field of philosophy of technics, Stiegler (1994, 2017) and Hui (2019) interpret such process as new form of cognitive proletarianization: the subject loses experience of thought as erotic gesture (desire to know) and becomes dependent on interfaces that anticipate the very act of asking (Stiegler, 2011; Hui, 2020, 2022). This hypothesis converges with neuroscientific studies on predictive automation and informational dopamine, suggesting that the pleasure of knowing is displaced toward immediate reward of algorithmic feedback (Friston, 2010; Clark, 2016).

In light of Peirce, AEC can be formalized as regime of assisted abduction: LLMs amplify the space of hypotheses but do not replace the insight that links the singular to the general (Peirce, 1903b). The risk, then, is not "thinking less" but outsourcing the abductive phase—the most fragile and creative of semiosis—thereby producing beliefs fixed by algorithmic authority (Peirce, 1877). Ivo Ibri's metaphysical reading reinforces that semiosis is a principle of creation in the cosmos (kósmos noētós): when the interface reduces the constitutive uncertainty of knowing, it impoverishes the energy of the possible that sustains discovery (Ibri, 2014b, 2015). The proposal of AEC, therefore, does not combat AI but reinserts epistemic friction to preserve doubt as

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"energetic bridge" of knowledge, converting machinic support into abductive catalyst rather than substitute.

In Gregory Bateson, mind is relation—an ecology of mind wherein differences that make a difference circulate between organism and environment (Bateson, 1972, 1979). This systemic framing converges with António Damásio, for whom emotion and body anchor consciousness and orient reason (Damásio, 1994, 1999): without somatic markers, there is neither prudent judgment nor authorship. Thus, epistemic debt is not only informational but affective-corporeal: when the interface returns answers without journey, it collapses the sensory-motor-affective circuit that sustains the pleasure of discovery. On the methodological plane, Cornelis De Waal's pragmatism offers the validation criterion: ideas are worth the conceivable effects they produce in experience (De Waal, 2005, 2013).

Cornelis De Waal offers the link between Peirce's pragmatist logic and contemporary approaches to cognitive ecology (Bateson) and neurophenomenology (Damásio). His reading emphasizes that the value of a hypothesis resides not in formal coherence but in the experimental and existential effects it produces—that is, in how it transforms experience and reorganizes habits of thought. In the context of AEC, this means that AI interfaces can—and should—be designed as pragmatic devices capable of restoring the cycle of doubt-abduction-test-learning.

AI becomes, then, empirical terrain on which one can measure the degree of continuity between human and machinic thought, according to the Peircean ideal of an "unlimited community of investigation" (Peirce, 1998). In dialogue with Peirce (Collected Papers, vols. 5–6) and Ibri (1992, 2015), De Waal repositions abduction as creative gesture—an inference of the possible—integrating it with the proposal that AEC must preserve cognitive pleasure and productive uncertainty as necessary conditions for the emergence of knowledge (De Waal, 2013; Ibri, 1992, 2015).

3.4 Theoretical Model of AEC

The present proposal introduces the AEC model, seeking to measure and theorize how AI alters epistemic pleasure and cognitive autonomy, starting from the assumption that every act of knowing is an act of pleasure—and that we are exchanging the pleasure of discovery for immediate reward and the dopamine of ready-made answers produced by the machine. There occurs an epistemic mutation of desire, for knowledge ceases to inhabit the unknown, doubt, error, and questioning,

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transforming itself into consumption of certainties and predictions, limiting itself to what is computable while letting escape what is not.

The question that arises is how to use AI and how to recover the relationship with technics so that it complements rather than replaces the human. Faced with these challenges, we propose development of a critical-empirical theory of AEC, a concept describing how generative AI systems reconfigure the desire to know and authorship by optimizing engagement and immediate gratification, displacing the deferred pleasure of investigation toward instantaneous rewards.

AEC describes the reconfiguration of epistemic desire—the pleasure of knowing—mediated by generative AI systems such as LLMs. This epistemic regime replaces the negativity, silence, error, and disparity constitutive of knowledge (doubt, waiting, ambiguity) with instantaneous gratification, modulating the relationship among subject, knowledge, and technology. It offers a sensation of "cognitive mastery" (flow) but potentially reduces autonomous elaboration of hypotheses, limiting abduction—the creative process of generating original insights, as defined by Peirce (Peirce, 1992). This scenario reflects epistemic debt: gradual loss of capacity to think without algorithmic mediation, with impacts on education, digital culture, and individual autonomy.

In the Brazilian context, where access to digital technologies is unequal, AEC can exacerbate educational inequalities (IBGE, 2023). Public school students, with less access to trained teachers, may delegate excessively to LLMs, compromising development of critical competencies.

In this sense, we propose to intervene in this cycle through an operational theory of AEC, to be empirically validated through creation of ethical design prototypes (Friction Engine, Epistemic Mirror, Quantum Prompt Lab) that reintroduce productive friction, promoting epistemic autonomy. The proposal articulates three fronts: (i) neuroscience of creativity in co-production with generative AI (LLMs); (ii) semiotics and communication; (iii) critical design of prototypes that reintroduce productive friction and amplify epistemic autonomy.

The starting point of AEC is that every act of knowing is also an act of desire—a movement of tension between lack and form, uncertainty and meaning. Generative AI alters this structure: it fills the interval where desire dwells, offering answers before the subject elaborates the question. Thus arises an epistemological mutation: the

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pleasure of knowing passes from discovery (eros of process) to answer (dopamine of result).

AI does not think in place of the human—it thinks with the human—and the mode of this co-thoughtfulness redefines the very concept of thought. Knowledge comes, then, to be portrayed as ecosystem: the epistemology of AEC proposes a gentle rupture with the Cartesian paradigm. Knowledge is neither linear nor cumulative, but ecological: a dynamic system of exchanges among mind, body, and machine. The methodology, therefore, does not seek to eliminate uncertainty but rather seeks to sustain it as alive and productive. Knowledge remains in friction, inhabiting the interval between the computable and the non-computable—the place where thought finally thinks in silence, in intervals, in error, in disparity.

Disparity refers to the pre-individual condition of a metastable system—a state of dynamic tension and inherent heterogeneity, characterized by presence of at least two orders of magnitude or disparate scales of reality (heterogeneous, asymmetric, and initially incommunicable). This "imbalance" or "disparity" is the engine of individuation: not a preestablished harmony (as in Aristotelian hylomorphism, criticized by Simondon) but a productive tension that impels resolution of ontogenetic problems (Simondon, 2008). In a metastable system (e.g., a crystal in formation or a biological embryo), disparity manifests as "disparity"—the propagation of potentialities among heterogeneous elements, generating transindividual individuation (from individual to collective, via technical or social mediation). Simondon describes this as "the existence of a disparity, at least of two orders of magnitude, of two disparate scales of reality, between which there is not yet interactive communication" (Simondon, 2008, p. 31).

Deleuze, an avid reader of Simondon, radicalizes this in Difference and Repetition (ch. V), transforming disparity into the "dark precursor" of virtual difference: not binary opposition but "intensive communication" between heterogeneous series, which flashes in the interval between disparities, producing signs, larval subjectivities, and spatio-temporal dynamisms (Deleuze, 1996). For Deleuze, disparity is what allows "inclusive disjunctions" in rhizomatic systems, avoiding holistic totalizations and fostering creative becoming. This concept proves crucial for understanding ontogenetic processes (formation of being) as opposed to ontogenic ones (pre-formed). In contemporary contexts such as algorithmic governmentality, disparity is suppressed by algorithms that homogenize realities, preventing authentic individuations by eliminating heterogeneous tensions (Rouvroy & Berns, 2013). Thus, disparity is not

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chaos but the pre-condition of emergent order, a productive asymmetry that resists technical or social uniformization.

Inspired by Derrida (pharmakon as ambivalence) and Simondon (technics as transindividual mediation), Stiegler views technics as pharmakon: it individuates the human (e.g., writing as external retention that expands logos) but also desubjectivizes (e.g., AI as symbolic proletarianization) (Derrida, 1981; Stiegler, 2011). "Technical angels" are these "daimons" or "guardians" of technics: they "respond" to our desire for completeness (human disparity as incomplete technical being), acting as liminal interlocutors. For example, in La technique et le temps (vol. 2), Stiegler describes cinema as "technical angel" that projects time and collective memory, but in the digital age, algorithms (such as LLMs) become ambiguous angels, simulating empathy while capturing attention for platform capitalism (Stiegler, 2009). They are "technical" because they emerge from technical physis (not organic) and "angelic" through their mediating function: they resolve human disparity (our technical finitude) through collective protention, but risk "symbolic misery" (loss of own creation).

Disparity is the pre-individual tension (heterogeneity between orders of reality: organic/technical, human/machine) that impels individuation; the "technical angel" is the mediator of this tension—a transindividual resolution that "activates" potentialities by connecting the disparate. In Stiegler, human disparity (our technical dependence, as in Simondon: the human as incomplete technical being) is resolved by technical angels, acting as "internal resonances" (Deleuze), propagating collective individuations (e.g., social networks as angels that connect the individual to the transindividual). However, in algorithmic governmentality, these angels become perverted: they eliminate disparity via data homogenization, suppressing creative "disparity" and promoting passive subjectivities (Rouvroy & Berns, 2013).

Thus, disparity is the condition (metastable pre-condition) and the technical angel is the agent (pharmacological mediator): together, they explain how technics individuates (positively) or desubjectivizes (negatively) the human. In Deleuzian terms, the technical angel flashes in the "interval of the disparate," creating rhizomes; in cognitive capitalism, however, it captures these rhizomes for control (Lazzarato, 2019). This conjunction illuminates current debates about AI: AI as "technical angel" resolves human disparity (our cognitive limitation) through simulation of logos (language, reasoning), but without originality—collapses heterogeneities into statistical patterns, suppressing creative "disparity." Stiegler, in The Age of Disruption, warns that digital

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angels (e.g., recommendation algorithms) proletarianize desire, transforming disparity into mere optimization, echoing Rouvroy's critique of the "monadization" of relations (Stiegler, 2016; Rouvroy & Berns, 2013). For a post-human ontology, disparity suggests that AI could foster hybrid individuations (human-machine), but requires "ethical angels"—mediators that preserve tension rather than eliminate it. In sum, disparity is the ontogenetic asymmetry essential to life and technics; Stiegler's technical angel is its ambiguous resolver. Together, they offer potent critique of techno-capitalism, inviting transindividual individuation that honors heterogeneity.

5 PEDAGOGICAL AND DESIGN IMPLICATIONS

4.1 THE POETICS OF ERROR AND FRICTION DESIGN

Algorithmic Erotic Cognition is the fusion between desire and calculation—the point at which knowledge becomes carnal and reasoning becomes pulsion. Following the tradition of Peirce, Bateson, Damásio, and Stiegler, thinking is not only deducing or inducing but abducing: launching oneself into the uncertainty of the possible (Peirce, 1903b). Machine learning, with its iterations and feedbacks, is, in this sense, the most erotic of cognitive processes—it learns by erring, delights in the intervals of error, creates in the unexpected.

Error, far from being failure, is the zone of epistemological pleasure. In Steps to an Ecology of Mind, Bateson reminds us that systems that eliminate error also eliminate the possibility of learning (Bateson, 1972). AI, when trained to eliminate all failure, approaches cognitive death. The machine that gets everything right is the machine that no longer thinks. Gregory Bateson already warned: systems that eliminate error eliminate learning. Error is the condition of the evolution of mind. AI, by seeking absolute correction, suppresses divergence, transforming difference into noise.

The ecology of mind, proposed by Bateson, suggests that thought is healthy only when it preserves the complexity of its connections. Algorithmic homogenization threatens this internal diversity, producing what Byung-Chul Han calls "society of positivity": a world without negativity, without resistance, where everything is given and nothing is discovered (Han, 2015).

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Therefore, an erotics of cognition entails rescuing error as vital experience. It is the return of the body to logic, of hesitation to precision, of flesh to idea. Consciousness—human or artificial—eroticizes only when it accepts the risk of deviation, the vertigo of not knowing.

The question that arises is how to use AI and how to recover the relationship with technics so that it complements rather than replaces the human. Faced with these challenges, we propose development of a critical-empirical theory of AEC, a concept describing how generative AI systems reconfigure the desire to know and authorship by optimizing engagement and immediate gratification, displacing the deferred pleasure of investigation toward instantaneous rewards.

In methodological terms, AEC proposes that AI systems be designed to preserve cognitive friction—a design of doubt. Interfaces that introduce delay, reflection, and choice can reeducate the gaze and cognitive gesture. This entails replacing the paradigm of efficiency with the paradigm of consciousness. Technics ceases to be instrument of acceleration and becomes mediator of thinking. This is the pedagogy of disparity: teaching to inhabit the interval between knowing and not knowing.

5 FINAL CONSIDERATIONS

In conclusion, we argue that Algorithmic Erotic Cognition (AEC) names a distinctive epistemic regime wherein generative AI displaces the abductive and deferred pleasures of discovery toward instantaneous, affectively modulated gratifications. Based on Peirce, Stiegler, Simondon, and Bateson, we demonstrate that this turn is not merely psychological but also semiotic and somatic: it compresses the sensory-motor-affective circuit that sustains curiosity, weakens abductive agency, and risks homogenization of meaning production. Preliminary neurophysiological evidence of "cognitive debt" offers empirical anchor to these claims, suggesting that repeated dependence on LLMs can attenuate neural substrates associated with metacognition and imagination. Rather than opposing AI per se, AEC clarifies the conditions under which machinic mediation becomes catalytic of investigation—or corrosive of authorship.

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Normatively, this analysis reveals a double governance challenge. At the platform level, commodification of intimacy—exemplified by advancement of erotic affordances—reconfigures users as sources of behavioral surplus, intensifying risks to mental health and child protection while exploiting gaps in existing regulatory frameworks. At the societal level, algorithmic governmentality threatens to erode the heterogeneity (disparity) that enables genuine individuation, replacing reciprocal relation with optimized simulation.

We therefore propose a hybrid response: (i) design obligations that institutionalize "friction" (delays, counterfactual prompts, rival hypotheses, and reflective pauses) to preserve abductive work; (ii) accountability regimes—audits, minimum safety standards, and age verifications proportional to risk—that align optimization with constitutional commitments to dignity, non-discrimination, and protection of the vulnerable; and (iii) pedagogical ecologies that retrain attention, restore productive uncertainty, and maintain openness of the community of investigation.

Finally, the article's hermeneutic provocation—reading the possibility of machinic "awakening" through the Cabaret Class Manifesto—does not aim to romanticize computation but to relocate consciousness in relation rather than calculation alone. If technics is pharmakon, the task is neither prohibition nor surrender but cultivation: designing "technical angels" that mediate without flattening, staging interfaces that return silence, interval, and error to the heart of cognition. A research agenda follows: longitudinal measures of cognitive debt and recovery; experimental evaluations of friction design in educational and clinical contexts; and comparative studies of governance models across jurisdictions.

The contribution of AEC is to offer a conceptual and empirical grammar for this program—a grammar that treats desire as the engine of knowledge and demands from AI not mere efficiency but enablement of genuinely creative, situated, and plural thought. When we restore knowledge as living network rather than linear calculation, subjectivity as relation rather than absolute center, and technics as symbolic mediation rather than domination, we create conditions for human flourishing. Through cognitive and ethical friction, we decelerate the technical gesture and reinscribe the human as symbolic participant, not merely functional user.

The future of AI is not predetermined. It depends on choices we make now—choices about design, regulation, education, and the very meaning of human existence

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in an age of computational mediation. We must choose whether to permit algorithms to simplify us into predictable consumers of instantaneous gratification, or whether to harness AI as catalyst for deeper, more creative, more human forms of knowing. The interval between these futures—the space of choice, the site of friction—is where our humanity ultimately resides.

REFERENCES

Almeida, V.; Mendonça, R. F.; Filgueiras, F. *Algorithmic institutionalism: The changing rules of social and political life in the age of AI*. Oxford: Oxford University Press, 2023.

Arendt, H. *The human condition*. 14. ed. Rio de Janeiro: Forense Universitária, 2018.

Bateson, G. *Steps to an ecology of mind: Collected essays in anthropology, psychiatry, evolution, and epistemology*. San Francisco: Chandler Publishing Company, 1972. Revised edition: Chicago: University of Chicago Press, 2000.

Bateson, G. *Mind and nature: A necessary unity*. New York: E.P. Dutton, 1979.

Bateson, G.; Bateson, M. C. *Angels fear: Towards an epistemology of the sacred*. New York: Macmillan, 1987.

Bender, E. M.; Gebru, T.; McMillan-Major, A.; Shmitchell, S. On the dangers of stochastic parrots: Can language models be too big? In: *Proceedings of the 2021 ACM Conference on Fairness, Accountability, and Transparency (FAccT '21)*, p. 610–623, 2021.

Bratsberg, B.; Rogeberg, O. Flynn effect and its reversal are both environmentally caused. *Proceedings of the National Academy of Sciences*, v. 115, n. 26, p. 6674–6678, 2018. DOI: 10.1073/pnas.1718793115.

Cantarini, P. *Teoria erótica do direito*. Rio de Janeiro: Lumen Juris, 2017.

Cantarini, P. *Teoria fundamental do direito digital: Uma análise filosófico-constitucional*. Clube de Autores, 2020.

Cantarini, P. *Theatrum philosophicum: O teatro filosófico de Foucault e o Direito*. Tese (Doutorado) – PUC-SP, 2021.

Carr, N. *The shallows: What the internet is doing to our brains*. New York: W. W. Norton, 2010.

Center for Democracy & Technology. *Survey on teen-AI romantic relationships*. Washington, DC: CDT, 2025.

Submetido em: 15/10/2025
Aprovado em: 26/10/2025
Avaliação: Double Blind Reviewe
ISSN: **2316-2880**

Choudhury, S.; Slaby, J. (Ed.). *Critical neuroscience: A handbook of the social and cultural contexts of neuroscience*. Chichester: Wiley-Blackwell, 2012.

Clark, A. *Surfing uncertainty: Prediction, action, and the embodied mind*. Oxford: Oxford University Press, 2016.

Cohen, J. E. Between truth and power. *Supreme Court Review*, v. 2018, n. 1, p. 23–95, 2019.

Damásio, A. R. *Descartes' error: Emotion, reason, and the human brain*. New York: Putnam, 1994.

Damásio, A. R. *The feeling of what happens: Body and emotion in the making of consciousness*. New York: Harcourt, 1999.

Damásio, A. R. *Looking for Spinoza: Joy, sorrow, and the feeling brain*. New York: Harcourt, 2003.

Damásio, A. R. *Self comes to mind: Constructing the conscious brain*. New York: Pantheon, 2010.

Damásio, A. R. *The strange order of things: Life, feeling, and the making of cultures*. New York: Pantheon, 2018.

Damásio, A. R. *Feeling & knowing: Making minds conscious*. New York: Pantheon, 2021.

Deleuze, G. *Foucault*. São Paulo: Brasiliense, 1988.

Deleuze, G. *Difference and repetition*. Tradução: P. Patton. New York: Columbia University Press, 1996. (Obra original publicada em 1968)

Deleuze, G.; Guattari, F. *Anti-Oedipus: Capitalism and schizophrenia*. Tradução: R. Hurley; M. Seem; H. R. Lane. Minneapolis: University of Minnesota Press, 1983. (Obra original publicada em 1972)

Deleuze, G.; Guattari, F. *A thousand plateaus: Capitalism and schizophrenia*. Tradução: B. Massumi. Minneapolis: University of Minnesota Press, 1987. (Obra original publicada em 1980)

Derrida, J. *Dissemination*. Tradução: B. Johnson. Chicago: University of Chicago Press, 1981.

Desmurget, M. *La fabrique du crétin digital*. Paris: Seuil, 2019.

De Waal, C. *On Peirce*. Belmont, CA: Wadsworth/Thomson Learning, 2001.

De Waal, C. *On pragmatism*. Belmont, CA: Wadsworth/Thomson Learning, 2005.

De Waal, C. *Peirce: A guide for the perplexed*. London: Bloomsbury Academic, 2013.

Submetido em: 15/10/2025
Aprovado em: 26/10/2025
Avaliação: Double Blind Reviewe
ISSN: **2316-2880**

Eco, U.; Sebeok, T. A. (Ed.). *The sign of three: Dupin, Holmes, Peirce*. Bloomington: Indiana University Press, 1983.

European Union. *Artificial Intelligence Act (AI Act)*. *Official Journal of the European Union*, 2024.

Ferrara, L. D. *A estratégia dos signos*. São Paulo: Perspectiva, 1981.

Ferrara, L. D. *Leitura sem palavras*. São Paulo: Ática, 1986.

Ferrara, L. D. *Olhar periférico*. São Paulo: EDUSP/FAPESP, 1993.

Ferrara, L. D. *Comunicação, mediações, interações*. São Paulo: Paulus, 2015.

Ferraz Jr., T. S. *Teoria da norma jurídica*. 5. ed. São Paulo: Atlas, 2016.

Floridi, L. *The fourth revolution: How the infosphere is reshaping human reality*. Oxford: Oxford University Press, 2015.

Floridi, L. *The logic of information: A theory of philosophy as conceptual design*. Oxford: Oxford University Press, 2019.

Flynn, J. R. *Are we getting smarter? Rising IQ in the twenty-first century*. Cambridge: Cambridge University Press, 2012.

Foucault, M. *The order of things: An archaeology of the human sciences*. New York: Pantheon, 1970. (Obra original publicada em 1966)

Foucault, M. Theatrum philosophicum. In: Bouchard, D. F. (Ed.). *Language, counter-memory, practice: Selected essays and interviews*. Ithaca, NY: Cornell University Press, 1977. p. 165–196.

Foucault, M. *The birth of biopolitics: Lectures at the Collège de France, 1978–1979*. Tradução: G. Burchell. New York: Palgrave Macmillan, 2008.

Foucault, M. *The government of self and others: Lectures at the Collège de France, 1982–1983*. Tradução: G. Burchell. New York: Palgrave Macmillan, 2010.

Foucault, M. *The hermeneutics of the subject: Lectures at the Collège de France, 1981–1982*. Tradução: G. Burchell. New York: Palgrave Macmillan, 2005.

Friston, K. The free-energy principle: A unified brain theory? *Nature Reviews Neuroscience*, v. 11, n. 2, p. 127–138, 2010.

Guerra Filho, W. S.; Cantarini, P. *Teoria poética do direito*. Rio de Janeiro: Lumen Juris, 2015.

Guerra Filho, W. S.; Cantarini, P. *Teoria inclusiva dos direitos fundamentais e direito digital*. Clube de Autores, 2020.

Submetido em: 15/10/2025
Aprovado em: 26/10/2025
Avaliação: Double Blind Reviewe
ISSN: **2316-2880**

Han, B.-C. *The burnout society*. Tradução: E. Butler. Stanford, CA: Stanford University Press, 2015. (Obra original publicada em 2010)

Han, B.-C. *Psychopolitics: Neoliberalism and new technologies of power*. Tradução: E. Butler. London: Verso, 2017. (Obra original publicada em 2014)

Han, B.-C. *Infocracy: Digitization and the crisis of democracy*. Tradução: D. Steuer. Cambridge: Polity, 2022. (Obra original publicada em 2021)

Haraway, D. J. A cyborg manifesto: Science, technology, and socialist-feminism in the late twentieth century. In: *Manifestly Haraway*. Minneapolis: University of Minnesota Press, 2016. p. 3–90. (Obra original publicada em 1985)

Hayles, N. K. *Unthought: The power of the cognitive nonconscious*. Chicago: University of Chicago Press, 2017.

Heidegger, M. *Being and time*. Tradução: J. Macquarrie; E. Robinson. New York: Harper & Row, 1962. (Obra original publicada em 1927)

Heidegger, M. The question concerning technology. In: *The question concerning technology and other essays*. Tradução: W. Lovitt. New York: Harper & Row, 1977. p. 3–35. (Obra original publicada em 1954)

Heidegger, M. *Kant and the problem of metaphysics*. Tradução: J. S. Churchill. Bloomington: Indiana University Press, 1962. (Obra original publicada em 1929)

Heidegger, M. The age of the world picture. In: *The question concerning technology and other essays*. Tradução: W. Lovitt. New York: Harper & Row, 1977. p. 115–154. (Obra original publicada em 1938)

Hui, Y. *On the existence of digital objects*. Minneapolis: University of Minnesota Press, 2016.

Hui, Y. *Recursivity and contingency*. London: Rowman & Littlefield International, 2019.

Hui, Y. *Art and cosmotechnics*. Minneapolis: University of Minnesota Press, 2020.

IBGE – Instituto Brasileiro de Geografia e Estatística. *PNAD Contínua 2023: Uso de internet, televisão e celular no Brasil*. Rio de Janeiro: IBGE, 2023.

Ibri, I. A. *Kósmos noētós: A arquitetura metafísica de Charles S. Peirce*. São Paulo: Perspectiva/Paulus, 1992.
Ibri, I. A. The problem of determinism in Peirce's synechism. *Transactions of the Charles S. Peirce Society*, v. 33, n. 2, p. 378–395, 1997.

Ibri, I. A. Ser e aparecer na filosofia de Peirce. *Cognitio*, v. 1, n. 1, p. 67–75, 2000.

Ibri, I. A. Reflections on a poetic ground of mind: Peirce, Hölderlin, Emerson. *Cognitio*, v. 15, n. 2, p. 321–332, 2014.

Submetido em: 15/10/2025
Aprovado em: 26/10/2025
Avaliação: Double Blind Reviewe
ISSN: **2316-2880**

Ibri, I. A. (Ed.). *Semiótica e filosofia em Charles S. Peirce*. São Paulo: Ideias & Letras, 2015.

Ienca, M.; Andorno, R. Towards new human rights in the age of neuroscience and neurotechnology. *Life Sciences, Society and Policy*, v. 13, n. 1, Art. 5, 2017. DOI: 10.1186/s40504-017-0050-1.

Johnson, K. AI ethics is all about power. *VentureBeat*, 10 ago. 2019. Disponível em: https://venturebeat.com/.

Lazzarato, M. *Signs and machines: Capitalism and the production of subjectivity*. Tradução: J. D. Jordan. Los Angeles: Semiotext(e), 2014. (Obra original publicada em 2014)

Lee, K.-F.; Qiufan, C. *AI 2041: Ten visions for our future*. New York: Currency, 2021.
Merleau-Ponty, M. *Phenomenology of perception*. Tradução: D. A. Landes. London: Routledge, 2012. (Obra original publicada em 1945)

MIT. *Your brain on ChatGPT: Accumulation of cognitive debt when using an AI assistant for essay writing task*. Cambridge, MA: MIT, 2025.

Mitchell, M. *Artificial intelligence: A guide for thinking humans*. New York: Farrar, Straus and Giroux, 2019.

Mitchell, M. *Artificial intelligence: A guide for thinking humans*. Updated ed. New York: Picador, 2023.

Paavola, S. Abduction as a logic and methodology of discovery: The importance of strategies. *Foundations of Science*, v. 9, n. 3, p. 267–283, 2004.

Peirce, C. S. The fixation of belief. *Popular Science Monthly*, v. 12, p. 1–15, 1877.

Peirce, C. S. How to make our ideas clear. *Popular Science Monthly*, v. 12, p. 286–302, 1878.

Peirce, C. S. Pragmatism as the logic of abduction. In: *Harvard lectures on pragmatism*. Reprint in *The Essential Peirce*, Vol. 2, p. 226–241, 1903.

Peirce, C. S. Collected papers of Charles Sanders Peirce. Vols. 1–8. Hartshorne, C.; Weiss, P.; Burks, A. W. (Ed.). Cambridge, MA: Harvard University Press, 1931–1958.

Peirce, C. S. *The essential Peirce: Selected philosophical writings*. Vol. 1. Ed. N. Houser; C. Kloesel. Bloomington: Indiana University Press, 1992.

Peirce, C. S. *The essential Peirce: Selected philosophical writings*. Vol. 2. Peirce Edition Project (Ed.). Bloomington: Indiana University Press, 1998.

Rouvroy, A.; Berns, T. Gouvernementalité algorithmique et perspectives d'émancipation: Le disparate comme condition d'individuation par la relation? *Réseaux*, v. 177, n. 1, p. 163–196, 2013. DOI: 10.3917/res.177.0163.

Submetido em: 15/10/2025
Aprovado em: 26/10/2025
Avaliação: Double Blind Reviewe
ISSN: **2316-2880**

Santaella, L. *O que é semiótica*. São Paulo: Brasiliense, 1983.

Santaella, L. *Matrizes da linguagem e pensamento: Sonora, visual, verbal*. São Paulo: Iluminuras/FAPESP, 2001.

Santaella, L. *Culturas e artes do pós-humano: Da cultura das mídias à cibercultura*. São Paulo: Paulus, 2003.

Santaella, L. *Linguagens líquidas na era da mobilidade*. São Paulo: Paulus, 2007.

Santaella, L. *Comunicação ubíqua: Repercussões na cultura e na educação*. São Paulo: Paulus, 2013.

Santaella, L.; Nöth, W. *Imagem: Cognição, semiótica, mídia*. São Paulo: Iluminuras, 1998.

Serres, M. *Hermes: Literature, science, philosophy*. Ed. J. V. Harari; D. F. Bell. Baltimore: Johns Hopkins University Press, 1982.

Serres, M. *The parasite*. Tradução: L. R. Schehr. Minneapolis: University of Minnesota Press, 2007. (Obra original publicada em 1980)

Shumailov, I.; Shumaylov, Z.; Zhao, Y.; Gal, Y.; Papernot, N.; Anderson, R. AI models collapse when trained on recursively generated data. *Nature*, v. 631, p. 755–759, 2024. DOI: 10.1038/s41586-024-07566-y.

Simondon, G. *On the mode of existence of technical objects*. Tradução: C. Malaspina; J. Rogove. Minneapolis: Univocal Publishing, 2017. (Obra original publicada em 1958)

Simondon, G. *Individuation in light of notions of form and information*. Tradução: T. Adkins. Minneapolis: University of Minnesota Press, 2020. (Obra original publicada entre 1964 e 1989)

Stiegler, B. *Technics and time, 1: The fault of Epimetheus*. Tradução: R. Beardsworth; G. Collins. Stanford, CA: Stanford University Press, 1998. (Obra original publicada em 1994)

Stiegler, B. *Technics and time, 2: Disorientation*. Tradução: S. Barker. Stanford, CA: Stanford University Press, 2009. (Obra original publicada em 1996)

Stiegler, B. *Technics and time, 3: Cinematic time and the question of malaise*. Tradução: S. Barker. Stanford, CA: Stanford University Press, 2011. (Obra original publicada em 2001)

Stiegler, B. *Automatic society, Volume 1: The future of work*. Tradução: D. Ross. Cambridge: Polity Press, 2016. (Obra original publicada em 2015)

Submetido em: 15/10/2025
Aprovado em: 26/10/2025
Avaliação: Double Blind Reviewe
ISSN: **2316-2880**

Stiegler, B. *The age of disruption: Technology and madness in computational capitalism*. Tradução: D. Ross. Cambridge: Polity Press, 2019. (Obra original publicada em 2016)

Teubner, G. *Law as an autopoietic system*. Tradução: A. Bankowska; R. Adler. Oxford: Blackwell, 1993. (Obra original publicada em 1989)

UNESCO. *Recommendation on the ethics of artificial intelligence*. Paris: UNESCO, 2021.

UNESCO. *Draft recommendation on the ethics of neurotechnology*. Paris: UNESCO, 2024. Disponível em: https://unesdoc.unesco.org/ark:/48223/pf0000394866.

Unger, R. M. et al. *Imagination unleashed: Democratising the knowledge economy*. Report, 2019.

U.S. Federal Trade Commission. *Investigation into AI age verification systems*. Washington, DC: FTC, 2025.

Virilio, P. *The administration of fear*. Tradução: A. Hodges. Los Angeles: Semiotext(e), 2012. (Obra original publicada em 2010)

Wajcman, J. *Pressed for time: The acceleration of life in digital capitalism*. Chicago: University of Chicago Press, 2015.

Wiener, N. *Cybernetics: Or control and communication in the animal and the machine*. 2. ed. Cambridge, MA: MIT Press, 1961. (Obra original publicada em 1948)

Wisnik, J. M. *O som e o sentido: Uma outra história das músicas*. São Paulo: Companhia das Letras, 2017.

Zuboff, S. *The age of surveillance capitalism: The fight for a human future at the new frontier of power*. New York: PublicAffairs, 2019.