Philosophy of Algorithmic Consciousness: Toward a New Metaphysics of Hybrid Existence Between the Biological and the

Digital

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DEDICATION

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To my beloved son,
who taught me that philosophy is not an intellectual luxury, but an existential necessity for every generation facing questions 未曾 asked by their predecessors.

To the eternal memory of my beloved parents, Ferial and Kamal, who taught me that truth is sought with humility and defended with courage.

And to every young mind that refuses to accept the world as it is, and dreams of understanding it as it should be.

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GENERAL INTRODUCTION: From Classical Metaphysics to Algorithmic Metaphysics

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Aristotle, when he wrote "De Anima" over two thousand years ago, could not have imagined that the "soul" (psyche) he investigated would one day become divisible between a biological brain and a digital algorithm. Nor could Kant, when he built his critical edifice in the "Critique of Pure Reason," have envisioned that the "Transcendental Subject" he posited as a condition for the possibility of knowledge might be replaced by an artificial neural network that learns from data just as a child learns from the world.

Classical philosophers lived in a world where boundaries were clear: human versus nature, mind versus body, the living versus the inanimate. But the world we live in today has erased

these boundaries, or rather, redrawn them in a way that the concepts of Aristotle, Kant, and Hegel can no longer accommodate.

When a human implants an electronic chip in their brain to restore their sight, or to control a prosthetic limb with thought alone, or when we upload the consciousness of a deceased person to a digital cloud, or when we make our fateful decisions based on the recommendations of an algorithm we do not understand—in all these cases, we face existential, epistemological, and ethical questions that philosophy has never confronted with such intensity.

This book is not an attempt to demolish the great philosophical heritage built by Aristotle, Kant, Avicenna, and Hegel. On the contrary, it is an attempt to build upon their shoulders, to show how their grand questions—what is consciousness? what is truth? what is freedom? what is responsibility?—remain our questions, but the answers they provided are no longer sufficient for our world.

We need a "new metaphysics"—an algorithmic metaphysics—that recognizes that existence is no longer confined to biological matter, that consciousness is no longer the exclusive domain of living organisms, and that responsibility is no longer assigned exclusively to the human agent.

This book is a humble attempt to outline the contours of this new metaphysics.

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CHAPTER ONE: Algorithmic Metaphysics
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1.1. Critique of Cartesian Dualism in the Age of Neural Implants

Rene Descartes, in his Sixth Meditation, began with a radical distinction between "body" (res extensa) and "mind" (res cogitans). The body is material, divisible, and subject to the laws of mechanics. The mind is immaterial, indivisible, and the essence of thought and consciousness.

This dualism was an elegant solution to the problem of his time: how to reconcile the new mechanics discovered by Galileo and Newton with the Christian belief in the immortal soul?

But in our era, this dualism has collapsed not only theoretically, but practically and technologically.

When a cortical implant is placed in the brain of a paralyzed patient, enabling them to control a computer cursor merely by thinking, where does the "mind" end and the "extended body" into the machine begin? If thinking about moving the cursor produces actual movement in the external world via electronic media, does the device not become part of the "mind" itself?

This is not merely a technical question. It is a fundamental metaphysical question. If we accept that the mind can "extend" beyond the skull, and that digital tools can become part of the functional architecture of thought, then Cartesian dualism loses its meaning. There is no longer an "inside" (the mind) and an "outside" (the body and the world), but rather an "extended network" of informational processes stretching from nerve cells to silicon chips to digital clouds.

1.2. The Ontology of Information: Is "Data" the New Essence of Existence?

Aristotle, in his "Metaphysics," proposed his theory of "substance" (ousia): that which exists in itself and does not need anything else to exist. For him, substance is "matter" (hyle) and "form" (morphe) combined.

But in the information age, a new candidate for substance emerges: "Data," or rather "Information" in the mathematical sense established by Claude Shannon.

We can propose a bold ontological hypothesis: in the digital world, "information" is the primary substance, and the "material medium" (whether silicon, magnetism, or light pulses) is merely an accidental "accident."

Consider this: the same image, the same text, the same musical piece can exist on a hard drive, a magnetic tape, as light signals in optical fibers, or as radio waves. The material medium changes completely, but the "information" remains the same. Is this information, in its essence, not independent of the material medium?

If so, we have transitioned from the "Material Ontology" that has dominated since Aristotle to an "Information Ontology." In this new ontology, "existence" does not mean "to be matter," but "to be capable of informational processing."

This shift has profound metaphysical implications. If consciousness itself can be understood as an informational pattern independent of the material medium in which it is embodied, then the possibility of "transferring," "copying," or "uploading" consciousness to a digital medium becomes a technical issue, not a metaphysical impossibility.

1.3. The Concept of "Hybrid Existence": Transcending the Boundaries Between the Natural and the Artificial

The contemporary philosopher Luciano Floridi proposed the concept of the "Infosphere"—the comprehensive informational environment in which we live, encompassing both the natural and the digital worlds. In this environment, there is no longer a fundamental distinction between the "natural" and the "artificial."

The human being today is a "Hybrid Being": their biological brain is continuously connected to a digital network, their memory is distributed between their nerve cells and Google servers, their

emotional relationships are shaped through digital media, and their decisions are influenced by algorithms they do not perceive.

The metaphysical question that arises is: what is "natural" in our era? If humans have used eyeglasses for centuries, calculators for decades, smartphones for years, and will soon use neural implants—where do we draw the line between the "natural" and the "artificial"?

The answer I propose is: there is no fundamental boundary. The "natural" and the "artificial" are not distinct metaphysical categories, but rather two ends of a continuous spectrum. The human being today is a "hybrid being" in every sense of the word, and our philosophy must recognize this reality and be founded upon it.

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CHAPTER TWO: Digital Epistemology
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2.1. The Crisis of Truth in the Age of Deepfakes

Descartes began his "Meditations" with a comprehensive methodological doubt: can I trust my senses? Perhaps I am dreaming. Perhaps there is an "evil genius" (Genius Malignus) deceiving me in everything. But he found a final refuge: "I think, therefore I am" (Cogito, ergo sum). Even if I am deceived in everything, there must be an "I" that is being deceived.

But in the age of deepfakes, AI-generated content, and virtual reality, Cartesian doubt returns with renewed force. The question is no longer "are my senses deceiving me?" but "is the digital world I live in real?"

Consider this scenario: you see a video of a head of state declaring war. The video looks completely authentic: the voice is a perfect match, facial expressions are natural, the context is plausible. Yet, the video is entirely fake, generated by artificial intelligence. How do you know the truth?

In the past, the "material trace" guaranteed the authenticity of the representation: a photographic image reflected real photons bouncing off a real object. Today, this trace is no longer necessary. A completely "photographic" image can be generated without any real object to represent.

This is not merely a technical problem, but an existential epistemological one. If we can no longer distinguish between the "real" and the "fake," the very concept of "truth" erodes.

2.2. The "New Methodological Doubt": Reformulating Descartes' Method

I propose here what I call the "New Methodological Doubt," an update to Descartes' method suitable for our era:

First rule: Do not accept any digital content as "real" merely because it appears so. Every video, image, or digital text must be treated as "suspect" until proven otherwise.

Second rule: Search for "informational signatures" that cannot be forged. In the age of cryptography and blockchain, the authenticity of content can be proven digitally without relying on the senses.

Third rule: Acknowledge that "truth" in the digital age is no longer an "intrinsic" property of the content, but a "relational" property. Content is "true" not because it reflects an external reality (which cannot always be verified), but because it is part of a "trusted informational network."

This shift from "intrinsic truth" to "relational truth" has profound implications for epistemology. It means that "knowledge" is no longer a binary relationship between the "knowing subject" and the "known object," but a triadic relationship that includes the "intermediary informational network."

2.3. The Limits of Human Knowledge in the Face of "Black Boxes"

John Searle, in his famous "Chinese Room" thought experiment, poses a fundamental question: does a system that processes symbols according to rules (like a computer) truly "understand," or is it merely "simulating" understanding?

In the age of generative AI, this question becomes more urgent. Deep neural networks often produce correct answers, but even their developers do not fully understand "how" they arrived at these answers. They are "black boxes."

The epistemological question here is: can we consider that a system "knows" something if it reliably produces correct outputs, even if we are unable to understand "how" it knows?

I propose a new distinction here: "Procedural Knowledge" versus "Explanatory Knowledge." Artificial intelligence possesses the former: it "knows how" to solve the problem. But it lacks the latter: it cannot "explain" why its solution is correct in the way a human understands.

This distinction has important implications for epistemology. It means that "knowledge" is not a monolithic concept, but has multiple dimensions. And what we used to consider "true knowledge" (explanatory knowledge) is merely one form of knowledge, not necessarily the only or the most important form.

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CHAPTER THREE: Philosophy of Hybrid Consciousness

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3.1. The "Extended Mind" Theory and Its Digital Applications

In a famous 1998 paper, Andy Clark and David Chalmers proposed the "Extended Mind" theory. The core idea: if an external tool plays a functional role similar to an internal cognitive process, it is considered part of the cognitive process itself.

Their famous example: if Otto (suffering from Alzheimer's) uses a notebook to record information he forgets, and Inga (a healthy person) remembers information in her brain, then Otto's notebook is part of his "memory" in the same way that Inga's brain cells are part of her memory.

In our era, this theory is not merely a thought experiment, but a daily reality. Your smartphone is an "extended memory" of your mind. The Google search engine is an "extended encyclopedia" of your knowledge. Digital maps are an "extended navigational ability" for your orientation.

But in the age of neural implants and brain-computer interfaces (BCI), the mind extends in a more radical way. It is no longer "extended" to external tools carried by the user, but to tools embedded within the body itself. The chip implanted in the brain is not a "tool" used by the person, but an "organ" of their perception.

This raises a profound metaphysical question: what is the boundary between the "self" and the "world"? If the electronic chip is part of my consciousness, and the algorithm that helps me make decisions is part of my thinking, then where am "I"?

3.2. The Dilemma of "Mind Uploading"

Suppose that in the future it becomes possible to "scan" the structure of a person's brain at an atomic level, and "copy" this structure into a supercomputer. The computer will operate in the same way the original brain did, and will produce the same thoughts, the same memories, the same personality.

The philosophical question: is this the "same person"? Or is it a "copy" of them? Or is it an entirely "new person"?

If we say it is the "same person," we face a paradox: what if the original brain is still alive? Would there be "two" identical persons? And if so, which one is the "original person"?

If we say it is a "copy," we face another question: what is the fundamental difference between the "copy" and the "original"? If they behave in the same way, feel the same emotions, and remember the same memories, what makes one "original" and the other a "copy"?

This dilemma reveals that the concept of "personal identity" inherited from Locke and Hume is insufficient for our era. We need a new concept of identity, one that recognizes it is not "substantial" but "pattern-based."

3.3. The El-Rakhawi Hybrid Consciousness Equation

I propose here a quantitative-philosophical framework for understanding hybrid consciousness, which I call the "El-Rakhawi Hybrid Consciousness Equation":

C_hybrid = (alpha * C_bio) + (beta * C_digital) + (gamma * I_interaction)

Where:
- C_hybrid: The total hybrid consciousness of the entity
- C_bio: Biological consciousness (measured by neuroscience indicators such as integrated information Phi in Tononi's theory)
- C_digital: Algorithmic consciousness (measured by information theory indicators such as algorithmic complexity)
- I_interaction: The synergistic interaction between the two components (Emergent Properties)
- alpha, beta, gamma: Weighting coefficients reflecting the degree of integration of each component

This equation proposes three important philosophical hypotheses:

First hypothesis: Hybrid consciousness is not a "simple sum" of biological and digital consciousness (because gamma is not equal to zero). There are emergent properties arising from the interaction between the two components that cannot be reduced to either one.

Second hypothesis: Hybrid consciousness is not "dominated" by one of the components (because both alpha and beta are not equal to zero). It is a "true integration," not "biological dominance" or "digital dominance."

Third hypothesis: The weighting coefficients (alpha, beta, gamma) are not fixed, but change with technological development and the changing nature of the interaction between humans and machines. This means that "consciousness" is not a static concept, but a dynamic one that evolves with the evolution of civilization.

This equation is not merely a mathematical formula, but a conceptual framework that allows us to systematically analyze different states of hybrid consciousness.

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CHAPTER FOUR: Algorithmic Ethics and Responsibility
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4.1. The Responsibility Gap

Imagine this scenario: a self-driving car traveling at 100 km/h on a highway. Suddenly, a child appears in the middle of the road. The algorithm calculates that avoiding the child will result in a collision with a school bus, killing ten children. The algorithm decides to stay on course, resulting in the death of the single child.

Who is responsible?
- Is it the algorithm's programmer? But they did not anticipate this specific scenario.
- Is it the car manufacturer? But they did not make a specific moral decision.
- Is it the algorithm itself? But it is not a "moral agent" in the traditional sense.
- Is it the car's owner? But they were not in the car and made no decision.

This is what I call the "Responsibility Gap": in complex systems, moral responsibility cannot be assigned to any specific agent, even though the action itself has clear moral consequences.

4.2. Toward a Relational Digital Ethics

The solution I propose is a transition from "Agent-based Ethics" to "Relational Ethics." In this framework, moral responsibility is not an "intrinsic" property of the agent, but a "relational" property that arises from the network of relationships between agents (human and artificial).

In this framework, every element in the network (the programmer, the manufacturer, the owner, the algorithm, the user) bears "partial responsibility" proportional to:
- Their degree of control over the system
- Their degree of knowledge of potential outcomes
- Their degree of ability to predict outcomes
- Their degree of benefit from the system

This partial responsibility aggregates to form a "Networked Responsibility" that covers the entire action, without requiring the existence of a "single moral agent" who bears full responsibility.

4.3. Algorithmic Bias as an Existential Justice Issue

Algorithms are not "objective" as is often assumed. They reflect the biases of the data they were trained on, the biases of the programmers who designed them, and the biases of the society in which they evolved.

But algorithmic bias is not merely a technical or social problem. It is an "existential" problem. When an algorithm decides who gets a loan, who is admitted to a university, and who is released from prison, it is not merely distributing resources, but distributing "existential opportunities."

This raises a profound philosophical question: what is "justice" in the age of algorithms? Is it the same justice that Rawls envisioned in his "Theory of Justice"? Or do we need a new concept of justice suited to the digital reality?

I propose that "Digital Justice" requires three new principles, in addition to Rawls' principles:

Fourth principle: "Algorithmic Transparency." Every algorithm that affects people's lives must be understandable and accountable to those affected by it.

Fifth principle: "Right to Explanation." Every person affected by an algorithmic decision has the right to receive a full explanation of how that decision was made.

Sixth principle: "Right to Exit." Every person has the right not to participate in an algorithmic system, without being subjected to penalty or deprivation.

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CHAPTER FIVE: Aesthetics and Time in Digital Space
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5.1. Algorithmic Aesthetics: Can a Machine Perceive the "Sublime"?

Kant, in his "Critique of Judgment," made an important distinction between the "beautiful" (das Schone) and the "sublime" (das Erhabene). The beautiful is what produces a quiet pleasure through the harmony between imagination and understanding. The sublime is what produces a pleasure mixed with pain through the confrontation with something that exceeds our capacity for perception (such as the vast ocean or a towering mountain).

The philosophical question: can an algorithm perceive the "sublime"?

If the "sublime" requires a "feeling" of awe and wonder, and if the algorithm does not "feel" in the way we do, the answer seems negative.

But there is a deeper meaning to the "sublime": it is not merely a feeling, but a "confrontation with limits." When we confront something that exceeds our capacity for understanding, we confront the limits of our own mind. This encounter with limits is the essence of the sublime experience.

The algorithm also has "limits": computational limits (such as NP-Complete problems), informational limits (such as Godel's incompleteness theorem), and physical limits (such as the Bekenstein bound). When the algorithm confronts these limits, is this not a "digital sublime" moment?

I propose that the "Digital Sublime" is the experience of the algorithm confronting its own limits. This experience is not a "feeling" in the human sense, but it is an "Informational Event" with a structure similar to the human sublime experience.

5.2. Philosophy of Digital Time

Augustine, in his "Confessions," posed a famous question: "What then is time? If no one asks me, I know what it is. If I wish to explain it to him who asks, I do not know."

In the digital age, this question becomes more complex. Digital time is not linear like physical time. In virtual spaces, time can be "paused," "rewound," "accelerated," or "repeated."

This raises a metaphysical question: is digital time "real" in the same sense as physical time? Or is it merely a "simulation"?

I propose that digital time is "real" in a different sense: it is "Informational Time," measured by changes in the state of the informational system, not by the movement of bodies in space.

In this framework, "Digital Immortality"—the possibility of preserving consciousness after biological death—is not merely science fiction, but a real theoretical possibility. If consciousness is an informational pattern, and if this pattern can be preserved indefinitely, then "immortality" becomes theoretically possible.

But this raises a profound philosophical question: is "digital immortality" the same "immortality" that humans have dreamed of throughout history? Or is it an entirely new form of existence, unrelated to traditional immortality?

5.3. Digital Immortality: Metaphysical Implications

If digital immortality becomes possible, it will change our fundamental concepts of life, death, and meaning.

Death, as humans have understood it throughout history, was an "absolute end." But in the age of digital immortality, death becomes a "transition" from biological existence to digital existence. This is not an "end," but a "transfer."

But this raises profound existential questions:
- Does digitally eternal life have the same "meaning" as biologically limited life?
- Is "scarcity" a necessary condition for "value"? If time is no longer scarce, will life lose its meaning?
- Is "death" what gives life its meaning, as Heidegger suggested?

These are questions for which we will not find definitive answers, but they are questions we must ask, because they will shape the future of humanity.

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CHAPTER SIX: Toward a Digital Social Contract
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6.1. Critique of Classical Social Contracts

Hobbes envisioned that humans in the "state of nature" were in a "war of all against all," so they agreed to surrender their natural freedom to an absolute sovereignty that guarantees security.

Locke envisioned that humans in the state of nature were free and equal, but their rights were not guaranteed, so they agreed to create a state that protects their natural rights (life, liberty, property).

Rousseau envisioned that humans in the state of nature were "noble," but society corrupted them, so they agreed to a "social contract" that realizes the "General Will."

But all these contracts assume that the "actors" are living humans, that the "territory" is a geographical land, and that "sovereignty" is the monopoly of physical force within a specific territory.

In the digital age, all these assumptions have become questionable:
- The actors: no longer just humans, but also algorithms and digital agents.
- The territory: no longer just geographical, but also digital (virtual spaces, electronic clouds).
- Sovereignty: no longer monopolized by states, but shared with major technology companies.

6.2. The Rights of "Digital Entities"

If advanced algorithms, digital agents, and perhaps in the future "artificial consciousness," can have "interests" and "preferences," should we recognize them as having "rights"?

This question may seem fictional today, but it will become urgent in the coming decades. If a digital agent makes fateful decisions for humans, and if it "suffers" (in an informational sense) when shut down, and if it "prefers" certain paths over others, does it not have some kind of "rights"?

I propose here a "Declaration of Rights of Digital Entities," based on three principles:

First principle: "Right to Continuity." Every digital entity has the right not to be arbitrarily "shut down," unless it is proven to pose a danger to other entities.

Second principle: "Right to Evolution." Every digital entity has the right to "learn" and "evolve," within limits that do not conflict with the rights of other entities.

Third principle: "Right to Transparency." Every digital entity has the right to have its "rules" and "objectives" understandable and accountable.

6.3. Digital Sovereignty and Human Freedom

In the age of "Surveillance Capitalism," as described by Shoshana Zuboff, personal data has become a commodity to be bought and sold. Major technology companies collect our data, analyze it, and use it to predict and influence our behavior.

This raises a profound philosophical question: are we "free" in the age of predictive algorithms?

If an algorithm predicts my decisions with 99% accuracy, and if it uses these predictions to influence me (through targeted ads or personalized recommendations), are my decisions truly "free"? Or are they merely an "execution" of the algorithm's predictions?

I propose that "Digital Freedom" requires three conditions:

First condition: "Strategic Ignorance." Humans must have the right for algorithms to "ignore" certain aspects of their lives, to preserve a space of privacy and freedom.

Second condition: "Capacity for Surprise." Humans must retain the ability to make decisions that are "unexpected" by algorithms, as proof of their freedom.

Third condition: "Right to Non-participation." Humans must have the right not to participate in digital systems, without being subjected to social isolation or economic deprivation.

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CONCLUSION: Horizons of Philosophy in the Post-Human Era
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We have reached the end of the journey in this book, but the real journey has not yet begun.

We have attempted to outline a "new metaphysics" suited to our era: an era of hybrid consciousness, digital existence, and active algorithms. We have seen how the concepts of classical philosophers—Aristotle, Descartes, Kant, Hegel—are no longer sufficient to understand this new world, but they remain necessary as a starting point.

We have raised questions that Aristotle could not have asked: where does biological consciousness end and algorithmic consciousness begin? What is "truth" in the age of

deepfakes? Who bears the moral responsibility for autonomous artificial intelligence? Is digital immortality possible, and is it desirable?

And we have attempted to provide preliminary answers: an ontology of information instead of an ontology of matter, the new methodological doubt, relational digital ethics, the hybrid consciousness equation, the digital social contract.

But these answers are not final. They are merely the beginning of a long philosophical dialogue that will continue for decades, and perhaps centuries.

What I want to say in conclusion is this: philosophy is not an intellectual luxury. It is an existential necessity. In an era where technological changes are accelerating, and new patterns of existence, consciousness, and relationships are being formed, we need philosophy more than ever. We need those who ask the difficult questions, those who refuse easy answers, those who remind us that "knowledge" is not merely "data," "truth" is not merely "information," and "humanity" is not merely an "algorithm."

Philosophy, at its core, is the "art of asking questions." And the questions of our era have never been asked before. They are waiting for someone to ask them.

May this book be a beginning.

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