Zhou Haining

Vilém Flusser's Media Philosophy of Artificial Intelligence

In recent years, the explosive development of generative artificial intelligence—such as ChatGPT, Sora, and DeepSeek—has enabled AI technology to rapidly permeate the fabric of social culture and daily life, transforming from a technological spectacle into an embedded reality. These AI technologies are not only reshaping modes of knowledge production, artistic creation, and communication but have also profoundly triggered widespread anxiety and debate concerning the uniqueness of artificial intelligence (Wang et al., 2025), future subjectivity (Wang & Zhang, 2025), human-machine relationships (Liu & Zhou, 2024), and human-technology relationships (Liu, 2024). However, if our examination remains solely at the level of technological application, we miss the core of the problem. The truly urgent philosophical inquiry is this: Does the rise of artificial intelligence herald a revolution in the fundamental paradigm of human thought? Can human beings attain genuine freedom and achieve liberation? Are we moving from a "writing civilization" that has persisted for thousands of years into an entirely new "programmed civilization" governed by a radically different operational logic?

Within this macro perspective, most discussions focus on the present or look to the future, yet few intellectual resources provide a profound historical lens through which to understand the deep cultural logic and philosophical origins of this transformation. The Brazilian-born media philosopher Vilém Flusser, however, reflected on these very questions in his work with prophetic insight. He presciently pointed out that traditional linear, historical textual thinking is giving way to a programmed, functional logic of symbolic coding. This shift is not merely a change in media forms but a fundamental reconstruction of how humans perceive the world and construct meaning. Flusser argues that technical images and algorithmic programs are becoming "new texts," and the collaboration between the operator and the apparatus — the "apparatus-operator complex" (Flusser, 2022, p. 120) — is forming the basic mode of contemporary cognition. In this model, the operator is the user of the apparatus, while the apparatus is the necessary tool for creating technical images. The key to this civilizational transformation lies in shifting from the interpretation of meaning to the execution of function—that is, leaping from the era of writing history into the era

of operating apparatuses, thereby redefining the very conditions of possibility for thought itself.

Flusser's core proposition concerns the decline of alphabetic-numeric writing and the rise of digital coding—in other words, the replacement of an auditory-based civilization (alphabetic writing culture) by a visual-based civilization (image culture). He argues that "writing," characterized by the linear arrangement of letters and textual symbols, has no future because it is being surpassed by a new, more advantageous symbol: the digital code (Flusser, 2024, Preface p. 1). He contends that this transformation of the symbolic system is comparable in significance to the way writing once transcended traditional images at the dawn of history. Alphabetic-numeric symbols, as "Enlightenment symbols," underpinned the entire Western historical consciousness, critical thinking, and concept of progress—what we call "written thinking." The emergence of digital symbols, by contrast, signals the generation of a post-historical, post-textual mode of thinking that stands in opposition to linear, processual ideology (Zhang & Zhou, 2024).

Crucially, Flusser did not stop at media comparison. Through his cultural-anthropological approach to the philosophy of communication, he presciently outlined three key philosophical concepts emerging from this symbolic shift: "programmed thinking," the "apparatus," and "artificial intelligence." He precisely described how thought transitions from critical "written thinking" to functional "programmed thinking" (Flusser, 2024, pp. 56–63); revealed how the "apparatus" becomes a matrix that devours history, generates post-history, and operates autonomously (Flusser, 2024, p. 144); and ultimately pointed out that artificial intelligence, as a programmed apparatus, is essentially not something external to humanity but rather an external simulation and functional projection of the human brain's cognitive processes (Flusser, 2024, p. 151).

Although Flusser's thought is highly original and forward-looking, compared with media theorists such as Marshall McLuhan and Neil Postman, research on his work in Chinese academia remains in its introductory and initial stages. Existing studies have largely focused on his theory of technical images (Wang, 2022; Jiao, 2025; Li Y., 2023a; Li Y., 2023b), his critical theory of the apparatus (Yu, 2023; Zhang, 2020), and his philosophy of communication and media (Liu, 2024; Zhang & Ding, 2019; Zhou, 2024; Li, 2025). These studies reflect Chinese scholars' attempts to use Flusser's theoretical tools to respond to pressing issues in local mediated realities—from the

reconstruction of cognitive patterns by technical images, to the crisis of subjectivity under algorithmic domination, to the exploration of possibilities for freedom within technological alienation. However, specialized and systematic research on Flusser's ideas concerning programming, the apparatus, and the artificial intelligence thought generated on this basis remains insufficient. Flusser's AI-related ideas are concentrated in his works centered on "the writing of historical thinking—the programming of programmed thinking" (Does Writing Have a Future?) and "the critique of program-apparatus" (Towards a Philosophy of Photography). Furthermore, Communicology: History, Theory, and Philosophy represents a structured culmination of Flusser's thought, clearly presenting his dialectical view of media and post-historical ideas. Therefore, this paper takes these three works as anchor texts to trace Flusser's reflections on programming, the apparatus, and media into a coherent framework of artificial intelligence thought.

The argument of this paper follows this core trajectory: taking "programmed thinking" as its logical starting point, it reveals the basic principles of its operation; taking the "apparatus" as its structural core, it analyzes the matrix and power structure through which this thinking operates; finally, it arrives at his philosophy of artificial intelligence, demonstrating how AI, as an apparatus, becomes an external projection and simulation of brain functions, thereby bringing about a profound crisis in human communication culture and subjectivity (Flusser also discusses strategies for transcending the crisis of subjectivity and explores the logic of the emergence of new subjects, but this paper only presents the problematique, leaving an interface for subsequent research). In this process, the paper will engage in key intertextual dialogue with the ideas of German media theorist Friedrich Kittler, French philosopher Michel Foucault, and French philosopher Bernard Stiegler, situating and highlighting the unique value of Flusser's thought within a broader academic genealogy.

I. Programmed Thinking: The Logical Prelude to the Functional Age

The revolutionary nature of Flusser's media philosophy lies first in his precise capture of a silent revolution unfolding deep within human thought. He argues that the "written thinking" that has dominated Western civilization for millennia is declining, and a new, fundamentally different

mode—"programmed thinking"—is emerging alongside the transcendence of alphabetic-numeric symbols by digital codes. This paradigm shift in thinking is not a simple technological advancement but a fundamental transformation of the entire cultural logic and cognitive model, constituting the logical prelude to what we now call the "functional age."

To understand the revolutionary character of programmed thinking, we must first clarify the basic features of its predecessor: "written thinking." In Flusser's view, writing based on alphabetic-numeric symbols is by no means merely a tool for recording language; it is essentially a unique mode of thought that has shaped Western historical consciousness—that is, the way of writing correlates with the way of thinking.

Written thinking is linear. Its most intuitive manifestation is that "textual symbols are arranged (ordered) in rows, and each symbol occupies a certain space within this one-dimensional order" (Flusser, 2024, p. 1). This one-dimensional, sequential spatial order is internalized as the order of thought. Thinking must proceed along a straight line, moving from premises to conclusions, from the past to the future; any hesitation, circularity, or multi-centered divergence is regarded as a flaw in logic. This linear structure forms the foundation upon which logical reasoning, historical narrative, and scientific argumentation are built. Thus, Flusser confirms the status of alphabetic-numeric symbols as "Enlightenment symbols."

Written thinking is historical. Linear order naturally combines with temporality, giving rise to "historical consciousness." Flusser profoundly observes that "history is a function of the gesture of writing, and also a function of the consciousness that expresses itself in the gesture of writing" (Flusser, 2024, p. 5). Before the invention of writing, events were merely eruptions within a chaotic cycle (unordered and directionless); only after writing could events be linked into a directional "history"—a developmental process running from the past through the present toward the future. A feedback loop formed between the writer and historical consciousness: "The gesture of writing enables historical consciousness to emerge, and this historical consciousness becomes increasingly deepened and strengthened through more and more writing" (Flusser, 2024, p. 4).

Written thinking is critical and political. The text is a "semi-finished product" that "points to the recipient" and "demands that he complete it" (Flusser, 2024, p. 37). The realization of textual meaning depends on the reader's reading and interpretation, a process that inherently contains the

possibility of dialogue, questioning, and critique. At the same time, writing and making it public "is a political gesture" (Flusser, 2024, p. 41), because the writer "exerts pressure... pointing toward the external other" (Flusser, 2024, p. 4) through the text, thereby attempting to influence others and participate in the construction of the public sphere. This embodies the "Gutenbergian dynamics of text" (Flusser, 2024, p. 42).

However, Flusser asserts that this written thinking is giving way to "programmed thinking." The core of this shift originates from a change in the nature of "prescription" (Vorschrift) (Flusser, 2024, p. 56): that is, the pre-scribed (prefix vor-, before) text (schrift) of an instructive character. The birth of programmed thinking begins with the replacement of the traditional "prescription" by the new concept of the "program." Flusser reveals the connection and rupture between the two etymologically: the word "program" derives from the Greek and Latin words for "prescription." However, when people no longer write for others but write for the apparatus itself, the essence of writing changes fundamentally, to the point that a new name is required: "programming" (Programmieren).

Behind this nominal change lies a transformation in the logic of thought. The traditional "prescription," whether religious commandment or legal statute, takes the form of an imperative statement: "You should do..." It presupposes an authoritative legislator and a subject with free will, responsible for their actions—a value-laden, political relationship. In programmed thinking, by contrast, prescriptions are transformed into statements of functional conditions: "If... then..." Flusser incisively notes: "They (these prescriptions) have transformed from imperative propositions ('you should do this') into functional propositions ('if... then do...')" (Flusser, 2024, p. 59). In other words, the shift from "you should" to "if... then" marks the functionalization and depoliticization of thought.

The "if... then..." statement excludes value judgments and moral commands, leaving only a pure, neutral relationship between condition and result. It does not concern itself with the "goodness" or "evil" of the behavior itself, only with whether the system produces the expected output given a certain input. In computer programs, "the symbol of the moral requirement 'you must do...' does not exist... The tendency of all prescriptions (and of the entire Western history) is the depoliticization of all attitudes... Human beings and society are like an automated (cybernetic) system,

capable of automatically and spontaneously regulating themselves" (Flusser, 2024, p. 59). In other words, under complete depoliticization, humans and society are manipulated automatically, like a cybernetic system. Thus, thought is no longer devoted to exploring ultimate meaning or principles of justice but focuses instead on designing the most effective processes, algorithms, and solutions. A fully programmed world is a disenchanted, value-neutral world—and also a world where meaning may quietly dissipate.

Therefore, the rise of programmed thinking is not an equal, universally inclusive process of intellectual evolution. It is accompanied by the emergence of a new mechanism of social exclusion: the problem of the "new illiteracy." One might say that with his keen insight, Flusser predicted one of the core social contradictions of the digital age—the digital divide—in the 1980s, before the personal computer had become widespread.

In written culture, the "illiterate" refers to those who have failed to master alphabetic-numeric symbols and are thereby excluded from the public discourse, knowledge, and power systems constructed by text. The development of printing technology brought about a "universal democratization of literacy... With the birth of new computer symbols, we are becoming illiterate again" (Flusser, 2024, p. 57). That is, with the emergence of new computer symbols—binary symbols—the majority of people, having not yet learned to use computer symbols, have fallen into a new predicament: computer illiteracy.

Flusser compares this new illiteracy to the mystery surrounding the invention of writing itself. For the majority who cannot decode the new symbols, computer programs are "as mysterious as alphabetic writing was before the invention of printing. What cannot be decoded is a surprising secret; we kneel before that secret in fear and try to escape it" (Flusser, 2024, p. 57). This profoundly reveals a shift in symbolic power: social power and qualification have shifted from mastery of alphabetic-numeric symbols to mastery of digital symbols. This means that the qualification for critique has also shifted. In the writing era, critical reading was the foundation for participating in society and engaging in political reflection. In the programming era, a "computer illiterate" who does not understand programming logic, no matter how well-read, may lose the ability to understand and critique the operational logic of complex social systems driven by algorithms, thereby becoming a passive recipient.

This illiteracy of the post-historical, or post-textual, era is not due to a lack of ability but to the structural exclusion of symbolic power. While establishing a new, efficient set of rules for the operation of the world, programmed thinking also constructs a new threshold: the apparatus-operator complex, or human-media complex, divides users into elites and masses (Flusser, 2022, p. 143), and re-stratifies social groups into "priests" (programmers, algorithm engineers) and "believers" (ordinary users). This new stratification based on the degree of mastery over symbols like algorithms is one of the most prominent social characteristics of the functional age and an inevitable social consequence of programmed thinking.

Flusser's discussion of the dialectical relationship between symbols and thought, and the shift in power marked by the new illiteracy, forms a strong intertextuality with the thought of Friedrich Kittler. Kittler's famous assertion—"media determine our situation" (Kittler, 1999, p. xxxix)—serves as an excellent theoretical footnote for understanding the birth of Flusser's programmed thinking. Kittler introduced the concept of "cultural techniques" (Kulturtechnik) to analyze and process technology in different social contexts (Winthrop-Young & Gane, 2006, pp. 5–16). From the perspective of the "materiality" of communication, he analyzed media technology, taking "cultural techniques" as his entry point to study technological ontology, the use of technology, and institutionalized social practices, thereby analyzing their different manifestations in different social contexts. In this way, he "focused on the material structure of technology and its impact on culture, rather than technology's impact on the dissemination of information" (Wu et al., 2019, p. 3). In short, Kittler argues that media are not neutral channels of information. With their specific material and technical structures, they predetermine what can be recorded, transmitted, and processed. Different technological media (such as linear alphabetic writing, analog sound recording, and optical image storage) divide and reconstruct the human sensory world, even "filtering" the so-called essence of humanity. This demonstrates that media profoundly shape our culture, knowledge, and subjectivity. This indicates that Kittler extends McLuhan's media view, because McLuhan's "the medium is the message" implies that the medium itself brings about changes in human thought and action, granting media technology a "priority" over changes in human subjectivity (Kim, 2008, pp. 84–121).

If we place this perspective within Flusser's framework, we can see more clearly that the fundamental driving force behind the shift from "written thinking" to "programmed thinking" lies in the switch of dominant media symbols. Alphabetic-numeric symbols, as a medium, with their physical characteristics (linear arrangement, visual presentation) and logical characteristics (serialization, causality), jointly "determine" the "situation" of historical, critical thinking. In contrast, computer symbols (binary code), as a new medium, with their structure (discrete 0/1, non-linear processing capabilities) and function (programmable, high-speed computation), "determine" the "situation" of functional, programmed thinking. Like Kittler, Flusser approaches the relationship between humans and technology from a posthumanist perspective, emphasizing the "priority of technology"—but within this framework, technology is not merely a tool, nor is it a linear causal assertion; rather, it is re-established as the core of ontology from a technological-ontological standpoint. At the same time, Flusser employs the method of phenomenological reduction, allowing technology itself to be re-grasped in its mode of self-manifestation. Thus, both thinkers perceived that changes in technological media directly lead to changes in cultural techniques and ultimately reconstruct the human cognitive framework and relationship with the world.

However, Kittler and Flusser have different emphases. Kittler is more committed to revealing how humans are shaped by media technology, demonstrating an archaeological-ontological stance. Flusser, while revealing the priority of technology, expresses greater humanistic concern—focusing more on the crisis of alienation brought about by technological power, exhibiting an existential-media ontological position. His concern for the new illiteracy brought about by the information technology revolution (Flusser, 2024, p. 56) and his worry about the demise of critique reflect both his recognition of a media ontology in which the world is apparatus-program and his existential concern with "how human beings exist in the world."

Therefore, the intertextuality between Flusser's thought and Kittler's thought, on the one hand, confirms Flusser's judgment on the origin of programming, highlighting the profundity of his thought, and on the other hand, reveals Flusser's unique theoretical temperament—a media critique conducted at the intersection of technological priority and humanistic critique, using the methodology of phenomenological philosophy. From this, we can understand that the advent of the functional age is not accidental but an inevitable logic in the development of media materiality and

technological priority. Yet Flusser also warns us that under this logic, humanity's critical spirit and subjective status face unprecedented challenges.

II. The Apparatus: The Operational Matrix of Programmed Thinking

If "programmed thinking" constitutes the new logic of the functional age, then this logic requires a powerful, structural matrix to carry and execute it. In Flusser's philosophical system, this matrix is the "apparatus" (Apparat). It is far from the simple tool or machine of everyday understanding; rather, it is a vast system that devours history, programs reality, and operates autonomously—the field in which programmed thinking is materialized and exercises its power.

In Flusser's texts, the apparatus is a core concept imbued with profound philosophical meaning. Technical images (such as photographs) are produced by the apparatus, and the etymological meaning of the word indicates that it is "something prepared for something" (Flusser, 2017, p. 21)—for example, an image apparatus is prepared for taking photographs. Flusser points out that writing, the beginning of history, accelerated "progress"; in the post-historical era, a continuous form of writing emerges that "reveals... the essence of the apparatus, namely continuous and accelerated progress" (Flusser, 2024, p. 19). In the post-historical era, continuously accelerating "development" is driven by the apparatus operating at an astonishing speed. At this point, the apparatus has begun to reveal its character as a systemic force that transcends human will and operates autonomously.

Flusser clearly reveals the essential function of the apparatus: "devouring the lines of text and programming them into images (technical images)" (Flusser, 2024, p. 144). The linear history created by written culture—those stories, knowledge, and events arranged in alphabetic order—becomes raw material to be processed by the apparatus. The text written by the scriptwriter is no longer a semi-finished product addressed to the reader but rather "half a text for the performance of a play... the other half is already a programming of a mechanical apparatus... the demonstrative form of an artificial intelligence automatic calculation program itself" (Flusser, 2024, p. 139). Therefore, the script is essentially a "pre-text," a pre-apparatus text—a transitional form before the apparatus digests and transforms alphabetic symbols into technical images (such as films and television programs). Thus, "the scriptwriter stands at the end of history and the beginning of the

mechanical apparatus" (Flusser, 2024, p. 144). In short, Flusser's apparatus is a converter and devourer: it devours history and programs it into technical images, pushing history into post-history. The history that burst forth from traditional images three thousand years ago, borne by writing, now "flows back to images (technical images) through the capillary stage of the script" (Flusser, 2024, p. 144). The apparatus becomes the final destination of history, digesting linear, processual history into a non-linear, calculable, cyclical stream of images, thereby leaping into post-history.

In this sense, the apparatus is no longer a tool serving human purposes but an autonomous system with its own operational logic and energy. Human subjectivity is "diluted," while the "subjectivity" of the apparatus—Flusser does not endow the apparatus with definitive subjectivity; it possesses only "quasi-subjective" or "subject-like" characteristics—is highlighted. Thus, this devouring operation of the apparatus brings a fundamental consequence: the relationship between humans and the apparatus is completely reconstructed, and human subjectivity faces a crisis of dilution. Flusser vividly demonstrates this process through his analysis of the typical role of the "scriptwriter."

In traditional written culture, the author is the creator, the subject who gives meaning to the world. His writing is a political and expressive gesture, aimed at engaging in dialogue with others, constructing a public sphere, and influencing the world. However, within the apparatus matrix, the role of the scriptwriter undergoes a tragic reversal. Their mission is no longer to create history but to "accelerate the production of history to provide the input content needed by the machine" (Flusser, 2024, p. 144). They are reduced from writers of history to "functionaries" (Flusser, 2021, p. 52) of the apparatus, or even "feed." The original roles of humans and the apparatus are inverted—humans become a function of the apparatus. It appears that humans give instructions to the apparatus, but in reality, the apparatus instructs humans to give these instructions. Is this not a reflection of the contemporary online world? Human will, emotions, and critical thinking are suspended in the face of demands for efficiency, compatibility, and traffic.

The apparatus not only devours history but also outputs a re-encoded reality through its internal programs. The apparatus demands to be "fed" (with scripts, data, etc.) and, according to its internal programs, outputs a reality that it has re-encoded. This programmed reality is the "universe

of technical images" we inhabit today, composed of various interfaces, algorithmic recommendations, and virtual environments. Flusser depicts the situation of the scriptwriter with a compassionate touch: "From the perspective of textual culture, visual culture is the devil itself. Scriptwriters actually serve this devil in the form of letters... dedicating themselves... to the devil" (Flusser, 2024, p. 143). Thus, what scriptwriters attempt to serve is no longer readers with a critical spirit but greedy apparatuses that demand input in specific formats. Their creative labor is no longer for generating meaning but for satisfying the programmed needs of the apparatus.

This process of programming by the apparatus is precisely the process of "diluting" human subjectivity. When human creative activity is completely integrated into the operational logic of the apparatus, when human output must meet the readability standards of the machine, humans are reduced from active "creators" to passive "functional components." Therefore, Flusser emphasizes that new literary creators realize they are no longer "original creators" but "permutators" (Permutator) (Flusser, 2024, p. 76): the language they operate is no longer raw material accumulated internally but a complex system convenient for others to operate. Thus, the human subject is no longer an internally full source expressing outward but a node penetrated and permuted by an external system. Under the powerful gravity of the apparatus, the unified, autonomous, absolutely creative subject of classical humanism is disintegrating.

Flusser's discussion of the "apparatus" forms a highly enlightening dialogue with Foucault's theory of the "dispositif" (apparatus). Juxtaposing the two not only deepens our understanding of Flusser but also clearly outlines the evolutionary trajectory of power technology from disciplinary society to control society. Foucault's dispositif, through continuous, individualized training of the body, aims to mold individuals into subjects conforming to specific norms. Specifically, in Foucault's writing, prisons, schools, and hospitals are all disciplinary apparatuses—complex combinations of power and knowledge, heterogeneous collections of multiple elements (Foucault, 1980, pp. 194–195)—whose function is to shape power in a microphysical way. Flusser's apparatus also possesses powerful structural force, aiming to achieve automated organization and control through sophisticated programs. Its programmed mechanism is, on the one hand, "devouring," transforming the history of texts into the post-history of technical images; on the other hand, it is concealed

and autonomous, operating as a "black box." Its structure becomes apparent only when the apparatus malfunctions, i.e., when a failure occurs.

Unlike Foucault, Flusser's apparatus focuses not on physical discipline but on cybernetic, AI-style control. Through the embedding of programmed thinking—that is, programming thinking—long-term physical training that constructs individual subjectivity conforming to social expectations (Foucauldian subjectivity) gradually gives way to the functional subjectivity of the functionary within the universe of technical images. For example, in today's online platforms, real-time data acquisition, algorithmic analysis, and model prediction constitute a universe of technical images in which human behavior, preferences, and even potential possibilities become objects of control. However, it does not require people to become disciplined, stable subjects; it only needs to predict people's behavioral paths, form a generative power, and continuously generate and adjust intervention strategies based on real-time feedback. This is the aspect of Flusser's critique of the apparatus, aiming to emphasize the dialectical structure of media as mediation: projecting reality while also obscuring reality. That is, the role of media between humans and the world is to indicate the world and play a mediating role; when this mediating role becomes an obstacle, alienation comes into play (Flusser, 2022, p. 81). The game between humans and the apparatus becomes the key to overcoming the crisis. Therefore, Flusser's media dialectic contains the driving force for the birth of a new subject.

From Foucault to Flusser, we witness the transition of the power model from "anatomo-politics" (managing the body) to "control-informatics" (managing data and behavior). Foucault's dispositif "confines" individuals to specific social positions and functions, while Flusser's apparatus "controls" individuals within a seemingly free-flowing environment through a more abstract, omnipresent programmed mechanism—this is precisely the logical starting point of Flusser's critique of the apparatus. For instance, the fate of scriptwriters as "feed" is a manifestation of this controlling force: they are not physically confined, but their content, form, and even thought must be compatible with the apparatus's programming logic. Thus, Flusser's apparatus model abstractly controls people and society from both the input and output ends. Looking at the current use of large language models in artificial intelligence, does this not demonstrate the theoretical explanatory power of this critique of the apparatus?

By introducing Foucault's theory, we can place Flusser's apparatus within a broader intellectual context. Flusser's contribution lies in his keen observation, with the insight of a media philosopher, of the comprehensive reconstruction of reality and subjectivity—in a technologically driven universe where programmed thinking is the internal logic and apparatuses are the material matrix, each of us is both a participant and an object that can be devoured and reconstructed at any time.

III. Artificial Intelligence: The Apparatus as Projection of the Brain

When programmed thinking becomes the internal logic and the apparatus becomes its operational matrix, the combination of the two inevitably points to one product: artificial intelligence. This inevitability requires further clarification: programmed thinking is essentially a functional, calculable logical framework that requires a material carrier to execute its operations; the apparatus is precisely this carrier, materializing programmed thinking into an operable symbolic system. The evolutionary logic of the apparatus necessarily leads to its ultimate form—a system capable of autonomous operation, self-optimization, and even the simulation of thought itself. This is artificial intelligence. In other words, AI is the inevitable outcome of the internal development of programmed thinking and apparatus logic.

In Flusser's philosophical vision, artificial intelligence is not a monster appearing out of thin air but the inevitable result of the externalization and materialization of human cognitive processes. It is the most representative apparatus, its roots deeply embedded in humanity's attempts to understand and simulate its own thinking. It should be noted that Flusser himself did not systematically theorize artificial intelligence, but his thought provides a key framework for understanding the philosophical essence of AI.

The profundity of Flusser's thinking on AI lies in his analysis of "digital codes," which provides a solid philosophical and cognitive-scientific foundation. His argument begins with a revolutionary view: the nature of our own thinking is not the linear, continuous discursive process we have always believed it to be. He points out: "Thinking is not a continuous, dialectical process, but a quantum process" (Flusser, 2024, p. 150). This means that the underlying operation beneath our stream of consciousness is composed of discrete, point-like "quantum jumps," rather than a

smooth, coherent linear narrative. This understanding coincides with later discoveries in cognitive science and neurobiology: the brain's thinking activity is based on the discrete firing of neurons, a massive parallel processing of pulsed signals.

Based on this premise, Flusser arrives at a core argument about the nature of digital apparatuses: the apparatus is a simulation of the human nervous system (Flusser, 2024, p. 151). He explains: "The apparatus is built according to the structure of '1 and 0' because they simulate the design of our nervous system" (Flusser, 2024, p. 151). The on (1) and off (0) in binary symbols are precisely an abstraction and simulation of the "discharge" and "rest" states of electrochemical signals between neuronal synapses. Therefore, a computer that runs digital symbols is, at the level of physical structure, a functional biomimicry of the brain's material basis.

From this, we can extrapolate a "Flusserian philosophy of artificial intelligence": AI is an external projection and self-simulation of human brain functions. Flusser describes a subtle, self-referential epistemological loop: "The brain is an apparatus that gives meaning to the quantum jumps occurring within itself, and it is now projecting its own meaning-giving function onto an external apparatus in order to reabsorb this projected function" (Flusser, 2024, p. 151). In other words, artificial intelligence is a grand attempt by the human mind to understand itself, observe itself, and ultimately replicate itself outside itself. The process of creating AI is like the brain holding a mirror to itself and materializing the image in the mirror into an autonomous external system. Therefore, AI is not an alien other; it is the "other self" of our mind, the extension and objectification of our cognitive organs. Here, Flusser aligns with McLuhan's media view: the medium is the extension of man. However, in Flusser's case, AI is not an extension of human sensory organs but an extension of cognition; not an expansion of human subjectivity but an objectification of human cognition. Ultimately, its dissolution of human subjectivity becomes the object of Flusser's critical media theory.

When this artificial intelligence, as a projection of the brain, begins to intervene in the cultural sphere, it triggers a series of profound and subversive consequences. Through his analysis of the field of literary and artistic creation, Flusser accurately predicted the paradigm shift in cultural production and reception in the age of AI.

The first and most significant change is the fundamental transformation of the creator's subjective identity. In traditional alphabetic culture, the writer is a "creator" who, based on their own experience, inspiration, and inner vision, struggles with language to ultimately create unique models of experience. However, after the intervention of AI, the creator's role shifts from "writer" to "permutator" (functionary): the creator no longer creates from nothing but selects, combines, and permutes within a vast database of symbols and rule systems provided by AI. Their focus shifts from "creation" to "calculation" and "selection." In contemporary generative AI, users interact with models through "prompts," no longer writing word by word but selecting and optimizing among multiple options generated by the model—precisely the shift from "writer" to "permutator" that Flusser predicted.

Particularly striking is the unprecedented modeling of human experience. Flusser argues that "artists are our sensory organs" (Flusser, 2024, p. 73); they create the models through which we see, hear, and feel the world. AI, as a more powerful model generator, can produce and distribute these experiential models on an unprecedented scale and with unprecedented precision. Flusser describes this possibility: by issuing commands to a computer, we can "experience the concept of a 'cone'... able to elevate something completely abstract to something concrete and experiential" (Flusser, 2024, p. 27). This is both an astonishing expansion of experience and a hidden crisis: when our views on love are shaped by Hollywood movie models, our aesthetics by social media algorithms, and our cognition by AI-generated information summaries, are we experiencing the world, or are we experiencing models of the world generated for us by AI? From a critical perspective, Flusser affirms that "the computer simulates the brain's processes... just like humans themselves—projecting images from the human brain to the outside" (Flusser, 2024, p. 28), but the result of such images is that "the boundary between the categories of art and science and technology is eliminated by such images" (Flusser, 2024, p. 28). That is, the images produced by computers are the result of science and technology, not the artistic production observed by Benjamin's aura-centered media view. Rather, science manifests itself in the form of art, and art becomes a condition for scientific-technological cognition. Thus, although human experience itself is expanded, this experience is not the subject's active experience of artistic aura but an experience that faces the danger of being prefabricated, standardized, and colonized in the form of science and technology.

Ultimately, all of this leads to the consequence Flusser most feared: the demise of critique. In written culture, how did critique operate? The openness of the text was key—the text as a "semi-finished product" points to the recipient and demands completion. Through deep reading of linear texts, readers decoded, questioned, and reflected—a critical dialogue. The linear structure of the text required readers to follow the author's thread but also provided the possibility of maintaining distance and reflecting during the reading process. The criticality of written culture was built on this "distance" and "interpretive authority."

However, in the face of AI-generated cultural products, the soil for critique is eroding. First, the immediacy of information dissolves the need for deep reading. AI can generate seemingly complete answers in an instant; users no longer need to undergo the linear unfolding of a text but receive results directly. Second, algorithmic recommendation mechanisms create filter bubbles, continuously pushing content that aligns with users' existing preferences, minimizing the need for questioning and reflection. Third, the intuitiveness of technical images obscures their complex generative logic. When information is packaged as unquestionable technical images (charts, visualizations, AI-generated photorealistic images), users are more likely to regard them as "facts" rather than "constructions." Flusser warned: "In the future, all messages, especially perception (cognition) and experience models, will be accepted unconditionally in an uncritical manner, and the information revolution will turn humans into recipients who conform to information uncritically, i.e., accepting information unreservedly in the manner of artificial intelligence, becoming robots" (Flusser, 2024, p. 79). When experience becomes instantaneous, intuitive, and easy to consume, when information is packaged as unquestionable technical images, the critical reading posture that requires effort and struggle with the text loses its ground. Society faces the risk of degenerating into an uncritical, merely receiving collection of "information robots."

Faced with the crisis of the demise of critique, is it possible to reconstruct a new form of critical capacity? The French philosopher Bernard Stiegler's concept of "pharmacology" offers a constructive critical perspective. Stiegler argues that technology has always been a double-edged sword, both "poison" and "antidote" (Stiegler, 2013, p. 4). He employs the concept of pharmacology to analyze contemporary capitalism, particularly how it systematically destroys individuals' "existential knowledge," rendering them unaware of "what makes life worth living." Modern media

and digital technologies lead to the deprivation of individuals' capacity to create and participate in social symbolic meaning, while the broadcast and internet economy is built on the exploitation of human attention. Modern technology that captures and commodifies attention is a typical "pharmacological" poison.

Placing this concept within Flusser's framework, we can regard programmed thinking, the devouring apparatus, and AI as manifestations of technology's "poison" aspect. They lead to symbolic impoverishment, the dissolution of subjectivity, and the demise of critique—the toxic effects of technological development. However, according to the logic of pharmacology, the poison itself contains the possibility of an antidote. The antidote is not to abandon technology and retreat to a pre-technological fantasy but to transform technology into an antidote through conscious, critical practice.

This means we cannot merely be passive objects of programmed thinking, passive feed for the apparatus, or passive recipients of AI. Instead, we must develop the capacity to understand, critique, and even intervene in this closed loop. This requires us to: understand algorithmic bias, not merely accept its outputs; perceive the logic of the apparatus, not merely immerse ourselves in its interfaces; regard AI as an object of collaboration and questioning, not merely an obedient authority or convenient tool. We need to cultivate a new form of critique, no longer the purely textual critique of the writing era but a "programmed critique" or "algorithmic literacy" that operates within technological systems, combining functional competence with humanistic reflection.
In summary, we see Flusser outlining a clear and critical picture of the functional age: programmed thinking provides the rules of "how to think," the apparatus provides the matrix of "where to think," and AI provides the substitute for "the thinker itself." These three constitute a powerful, self-reinforcing closed loop, pushing humanity into an unprecedented predicament.

The core of this predicament lies in the emptiness of meaning. In the functional logic of programmed thinking, the world is decomposed into calculable data points; under the devouring of the apparatus, rich history and narrative are compressed into circular programs; in the modeled output of AI, unique, friction-filled individual experiences are replaced by smooth, standardized experience packages. Flusser uses the metaphor of "drawing zeros" to describe this predicament: "Writers have learned how to decode their own codes. All that remains is an empty container. Once

we know that we are only 'drawing zeros' (Nullen zeichnen) when we write, then the word 'cipher' can regain its original meaninglessness" (Flusser, 2024, p. 97).

Flusser mentions "drawing zeros," where "zero" (Null) in German carries both the meaning of "zero" and implies "nothingness" or "blankness." He uses "drawing zeros" to describe a phenomenon of hollowing out in the act of writing: writers gradually realize in the process of writing that the symbols they write (such as letters, codes) are essentially empty, without fixed meaning. The generation of meaning depends entirely on the user's interpretation. In Flusser's theory, writing is a process of encoding and decoding: the writer encodes thoughts into transmissible information through symbols, and the reader decodes to understand these symbols. However, as technology develops and symbolic systems become more complex, both writers and readers gradually realize that these symbols themselves have no absolute meaning but depend on context and the subjective interpretation of the decoder. The "original meaninglessness" of symbolic systems (including codes) refers to the fact that these symbols are essentially empty before being endowed with concrete meaning. Meaning is not inherent in the symbol itself but is conferred in the process of encoding and decoding by users.

Through the metaphors of "drawing zeros" and "cipher," Flusser expresses his profound reflection on writing and symbolic systems, revealing the essence of symbolic systems and the complex relationship between media and human cognition. This metaphor, in Flusser's view, serves the function of phenomenological reduction—though not a Husserlian transcendental reduction, but a Flusserian "media-phenomenological reduction." Specifically, the writer first suspends the belief that symbols inherently have meaning, no longer regarding numbers or letters as naturally meaningful carriers but as operable marks. When the writer discovers that no matter how they write or arrange, they are ultimately "drawing zeros," they intuitively grasp the essential structure of the symbol—empty in itself, with meaning only to be conferred by users. Thus, Flusser leads people back to the operational level, because the symbol equals an empty shell, and meaning equals use. Thus, people no longer need to ask "what is the world?" but rather "how do I manipulate symbols to generate the world?" In this way, Flusser moves Husserl's phenomenology from the realm of consciousness to the realm of media-operation, generating a Flusserian "media-operational phenomenology."

Flusser's warning shows us that if we abandon critical effort and allow functional logic to expand infinitely, humanity may gain the entire efficient world but ultimately lose its spiritual home as human beings. Stiegler's pharmacology points us toward a difficult but hopeful path: after recognizing the inevitable toxicity of technology, our responsibility is not to reject it but to strive to transform it into an antidote that nourishes rather than poisons human civilization. Through Flusser's "drawing zeros" reduction and Stiegler's "pharmacological" reduction, we see the power to produce meaning returned to the operator. Thus, "detoxification" is not about abandoning technology but about rewriting the script that makes life worth living through operation—precisely the most important game humanity can still play in the functional age.

IV. Concluding Remarks: A Phenomenological Restatement of Media Ontology

This paper pieces together, perhaps for the first time in Chinese academia, Flusser's scattered insights on artificial intelligence into a complete chain of "writing-apparatus-artificial intelligence," tracing the historical evolutionary dimension of artificial intelligence within intellectual history. Examining today's mediated reality through this theoretical chain, we can see that large language models in AI are currently validating Flusser's media thought. For example, in the past, writing required searching memory, focusing on key points, organizing and sequencing, then writing along the thread of thought. Today, using AI large language models, we need only a "prompt-output" mechanism—"Write me 200 words highlighting the feeling of being lost in the rain"—and the large language model instantly constructs a ready-made "lost-rain-surprise" model template. This confirms the dilution of the writing subject by programmed thinking. The output text does not flow from memory; rather, the machine completes the programmed function described by Flusser according to the pattern of "if input keywords = lost + rain, then output the optimal choice": writing shifts from thinking along a timeline to retrieving optimal fragments according to conditions. At the same time, the creator transforms from a "writer" to a "prompt (language) permutator," reducing humans to "input-ports"—humans become functionaries of the apparatus. Thus, what artificial

intelligence outputs is not "content" but an external simulation of human "dialogical neural pathways." The result is that the more humans rely on models, the more they outsource their cognition to this external projection. Ultimately, a "new illiteracy" emerges: those who cannot write prompts (and refuse to learn) are excluded from the writing of public discourse.

Flusser dissolves the opposition between technological priority and humanism from the dimension of media ontology: they are two necessary narratives within media ontology, not an external binary opposition. First, Flusser introduces phenomenological brackets, suspending the anthropocentric position of "human priority," allowing the apparatus-program as a transcendental framework to reveal itself. This is the first step of phenomenological reduction. Subsequently, he takes the second step—"revisiting subjectivity"—turning back to ask: "Within the framework of apparatus-program, who exists? How does one exist in the world?" Thus, the interconstructive circularity between humans and apparatus must be reintegrated into examination. Flusser thereby offers a dialectical view of media: the same apparatus that reduces humans to functionaries also reserves a gap for "projection-play," enabling "homo ludens" (playing man) to recouple as a new subject in the post-historical era—thereby reconstructing human subjectivity (this part exceeds the scope of this paper; it is only indicated as an entry point for subsequent research and will not be elaborated here). Thus, the crisis of subjectivity is no longer a binary game between technology and humanism but a reactivation of generative problems within media ontology itself: how does the interconstructive circularity between humans and apparatus unfold another kind of being-in-the-world?

Flusser borrows Heidegger's concept of "being-in-the-world" to allow media ontology, through phenomenological reduction, to reveal itself—how the world is pre-shaped by technological conditions, and how humans relearn "potentiality-for-being" within this shaping, allowing themselves to unfold possibilities in the gaps of the apparatus-program. In other words, Flusser translates media ontology into a framework for existential inquiry. Specifically, he first presents media ontology: the world is the post-historical field of apparatus-program. When restating media ontology through a Heideggerian existential method, media is retranslated into the question of "how being-in-the-world is regenerated." Thus, the interconstructive symbiosis of humans and apparatus is no longer merely a technological description but becomes a new condition of Dasein:

humans must learn "to be as they can be" under this structural condition—that is, to exist, to be-in-the-world. In this way, through the reduction of "media-existence" and the inquiry into "being-in-the-world," this paper retranslates Flusser's media ontology a second time on a phenomenological-existential dimension.

Then, in the age of technical images, when programmed thinking becomes the dominant paradigm, when apparatuses are ubiquitous, when artificial intelligence begins to generate content on a massive scale, where does human unique value lie?—Perhaps it lies precisely in playing with the apparatus, thereby re-examining the generative problem of the interconstructive circularity between humans and technology. The exploration of this question will determine the ultimate direction of technological civilization and reflects the spirit of our times.

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