

Hertziana Studies
in Art History



BIBLIOTHECA HERTZIANA
MAX PLANCK INSTITUTE
FOR ART HISTORY

From Hype to Reality

Artificial Intelligence in the Study of Art and Culture

Edited by Eva Cetinić & Darío Negueruela del Castillo



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Anne-Laure Oberson

Making Sense of AI Generated Images in the Process of Imagination

Abstract

Anne-Laure Oberson

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Process of Imagination

Keywords | Knowledge, Imagination, Abstraction,
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Digital technologies affect our imagination, motivation to discover, and knowledge creation. AI-generated images highlight the need for deeper understanding at the intersection of visualization, information, and aesthetics. This essay examines if these images foster new imagination, referencing Vilém Flusser's analysis. It stresses bridging knowledge gaps in art history, engineering, philosophy, and science, critiquing images with the latest technological insights. It questions traditional representation and ontology, exploring images' evolution from traditional to synthetic, emphasizing their transformative nature.

The text discusses imagination's role in knowledge creation and technical images' impact, challenging traditional logic dichotomies with calculus logic. It scrutinizes AI images' reliance on statistical logic versus imagination in meaning generation, introducing reification to describe AI images as statistical abstractions. This draws parallels to human capacities, cautioning against equating AI with dynamic, living processes.

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Introduction

In the fields of the humanities, AI has deployed its powerful and radical efficiency in revolutionizing older practices to the extent that new departments have had to be created. Indeed, for any task on which a principle of the grid¹ can be uniformly applied, its tremendous computational power has so attractive as to become indispensable. Yet, at the intersection of specific fields concerned with image analysis, production, and studies, when turning images into concepts, those concepts into discrete data, and this data back into images of another essence, the process must raise some questions. To choose only one—“How do these images make any sense?”—seems to be an important question because images are central to our cognitive processes. And given the greater permeability of various fields of studies and the cross-over from humanities to computer science, new digital departments require both broader and finer knowledge of key elements, amongst which is a critique of image that is up-to-date with the advancements in technology.

In the process of general digitization, the heterogeneity of images has been levelled to the extent that what is under study has become mostly, if not exclusively, dematerialized information (digital data sets). Indeed, Gottfried Boehm had promised to consider the image in its “immense variety” and “diffuse omnipresence” and to forgo the attachment to objects, works of art, and their reproductions, which too often interfered with getting to the root of the ontological question of the image.² Almost thirty years later, this consideration is more often overlooked than taken for granted.

Hence, we have the current necessity to look at images when they do not show or cannot be seen, such as non-predicative, non-discursive images that before showing anything make us see: Transformative images, operational images, generated images. Images that stand beyond the visual as other images have before them: Mental images, archetypal images, neuronal images. Before we exchange, borrow, or adopt terms from different fields, we should ensure to address cross-domain knowledge gaps so that art historians, engineers, philosophers, and scientists have a sufficiently well-informed understanding of their meaning and complexity, share the knowledge of what they are speaking of and dealing with, avoid naïve realism, and stay updated on critical insights “to stretch the notion of image towards some non-image.”³

Indeed, we all call it by the same name—image—yet, we have a very different conception and understanding of what a multifarious thing images truly are.

What Images are

The different meanings we confer to the term image in different situations don’t exclude each other; they add layers of complexity and richness to vital interconnections. According to the media theoretician Vilém Flusser, an image is a message, i.e., it carries meaning (it works), but this meaning has changed with the course of technical and technological evolutions.⁴ It went from signifying a revelation in a pre-historic sacralized space (cavern paintings) to signifying the passage from private to public in the making of history (museum tableaux) to programming behaviors in post-historical,

¹ Whether it is used to achieve proportional accuracy, define modernity in art, control energy consumption, or align pixels in a matrix, the

grid is the ordering structure par excellence; an organizing principle that has become a consistent pattern in digital image analysis.

² Boehm 1995 (Author’s translation).

³ Parikka 2023, p. 87.

⁴ Flusser (1989) 2002.

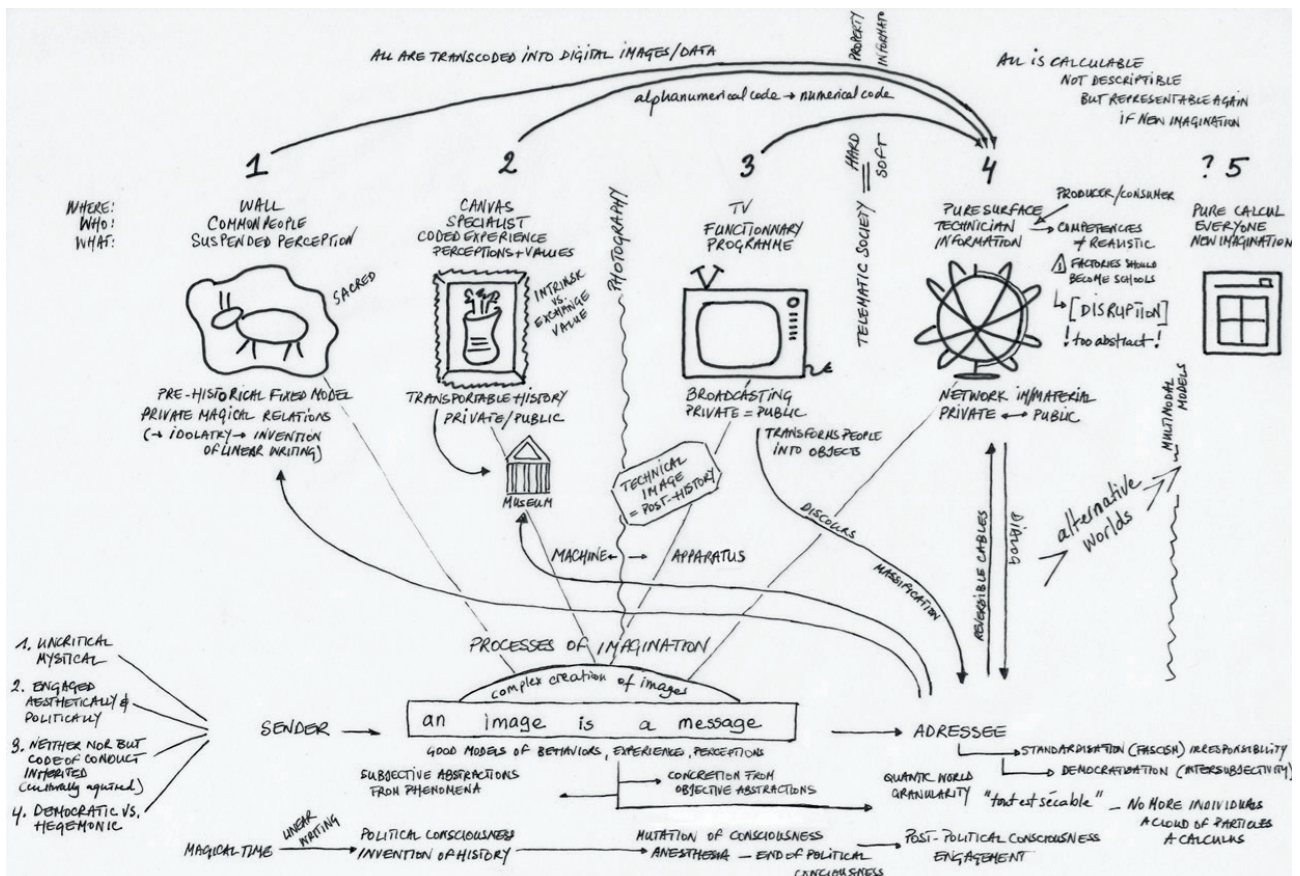


Figure 1. Diagram of Vilém Flusser's four types of images, 2018.

The information comes from his text *Images in the New Media* (1989) 2002, as well as from the French translation by Claude Maillart published in *La Civilisation des médias* 2006. A fifth type of image has been introduced on the right-hand side to start mapping the differences and similarities between AI generated images and original synthetic images, the computer renderings of the 1990s.

post-industrial societies (bedroom televisions), reaching the promise of a fourth message carried by a disembodied surface onto which “many different participants would cooperate to project different meanings on its surface.”⁵ If Flusser had the utopian vision that this new media could “transform people into designers of meaning in a participatory process” and “make it possible to take the political, economic, and social ‘powers’ out of commission,” we must unfortunately acknowledge that our current situation has been taken hostage by all-powerful platforms that have somewhat stolen this dream and enforced an altogether different model. This is demonstrated by Eryk Salvaggio’s proposal of a “Many-to-one to one-to-one” model of transmission, even though he did not acknowledge Flusser’s early fundamental contribution to these mechanisms.⁶

Additionally, besides this shift from traditional to technical to synthetic images, there are some fundamental characteristics of the image—lack of its own essence, its intermediary reality, its quantum-like ubiquity—that must be discussed before moving along.⁷ I will attempt to quickly present these key elements to further understand the role of AI generated images in the process of imagination. Indeed, the exponential increase of algorithmic processes in visual studies, both in terms of their extraordinary capacities to analyze and understand images and in terms of generating these images, requires us to question the ontological nature of these images.

To start, there has been a tremendous amount of critical work done towards getting the image beyond its status as representation and as having an ontology that has been accomplished

5 For a detailed analysis, the reader can refer to my contribution “The fourth meaning of the image: Flusser’s invitation to envision the

world” published in *Flusser Studies*, issue 29, 2020 (Oberson 2020).

6 Salvaggio 2023.

7 I have dedicated a large part of my doctoral thesis *Image as articulation of thought* to explain these characteristics in detail.

by great thinkers such as Georges Didi-Huberman, Vilém Flusser, Emanuele Coccia, Siegfried Zielinski, and Serge Tisseron, among others. For conciseness, I will only quote here from Didi-Huberman:

The great flaw of contemporary image criticism consists in wanting to emit its opinion on an ontology of the image. I would dare to say that, by definition—because the image is first and foremost the image of something else—there can be no ontology of the image. We cannot say: The image, it is this or it is that. We can only say: This image works like this or like that, transforms this or that, transforms itself like this or that.⁸

Whether traditional pictures signify ‘what is’ or ‘what must be,’ being either representations or models, their ontology was always dubious, as “technical images program us as models, and they can do it precisely by what they imagine.”⁹ Non-visual data-based images (also called operational or transactional images) are even further from an ontological essence, as Jussi Parikka suggests when he poetically formulates the repetitive question “What is an image if it is not just an image but also...” in a chapter appropriately titled “What Is Not an Image.”¹⁰ This alternative, ambivalent quality of the image is central. The image has no essence in its own; and even if/when it stands for something else, it does not inherit its ontology as the image is always of something else other “than what it shows.”¹¹ Furthermore, synthetic images (also referred to as computer images) stand beyond simply ‘being,’ as they are “computation of clear and distinct concepts becoming surface” or a bi-dimensional materialization of an abstraction. Hence, as we will see, AI generated images are on a further level of abstraction: They are abstractions of concretized abstraction. If unimaginable thoughts are to be imaginable, a traditional ontology is surely at a loss.¹²

Then, the image always resides in-between. Emanuele Coccia offers one of the simplest and most effective definitions of image: “The image (the sensitive) is nothing but the existence of a thing outside of its proper place. All form and all things capable of existing outside of its proper place become image.”¹³ This characteristic that Coccia traces back to the Middle Ages and names the *metaxu* (a space in the middle) has been identified by many other scholars in various fields of study. The neurologist Antonio Damasio reintroduced the importance of the ‘internal milieu’¹⁴ alongside the visceral and musculoskeletal frames in ensuring the stability that is vital to the proto-self where neuronal images are formed;¹⁵ Gilbert Simondon presented the image as *réalité intermédiaire* (an intermediary reality) to describe images that could be both concrete and abstract, objective and subjective, purely mental or object-like;¹⁶ Carl Gustav Jung and Wolfgang Pauli agreed on the existence of a ‘collective unconscious’ belonging to the *unus mundus* underlying both mind and body, not unrelated to Henry Corbin’s concept of *mundus imaginalis* that includes dimensions going beyond the unconscious into the superconscious.¹⁷

Last but not least, these characteristics resonate precisely with a quantum reality brought forth in Vilém Flusser’s seminal book *Towards a philosophy of photography*, in which he demonstrates the quantum quality of the first technical image.¹⁸ Photography

is neither a fixed medium, nor a medium that fixes anything; rather, it is transient, fluid, undetermined, floating. It does not respond to the Barthian logic of ‘ça a été’ (it has been) but to a constantly renewed ‘c’est’ (it is), which is always in becoming.¹⁹

The quantic quality of a particle is not to be nowhere but in two places simultaneously or

8 Georges Didi-Huberman has explored the resistance of images to an ontology in many extensive publications, from which the complexity and depth of his analysis cannot be summarized. His conversation edited for a series by the French National Audiovisual Institute provides his own synthetic statement: Didi-Huberman 2011 (Author’s translation).

9 Flusser 1984.

10 Parikka 2023, pp. 57–94.

11 Flusser 1984, Tisseron 2010.

12 Salvaggio’s effort to come up with an ontology of AI generated image provides the start of a reflection that should be pursued.

13 Coccia 2010, p. 101 (Author’s translation).

14 A term coined by the French physiologist Claude Bernard in 1865.

15 Damasio 1999.

16 Simondon 2022, p. 13.

17 Corbin (1969) 2016.

18 Flusser (1983) 2000.

19 Oberson 2013.

anywhere in between, just like Coccia's image. Just like archetypes, Carl Jung's "instinctual images" form the collective unconscious and their persistence consists in an alternance of appearing and disappearing. This is interesting because it is also where we find the *a priori* forms of intuition: Forms without content representing the possibilities of a type of perception and action, a *facultas praeformandi*—the capacity to give form.²⁰ And to which echoes Walter Benjamin's dialectical image with its flickering capacity, the very characteristic that allows it to persist, disappearing where challenged and reappearing again somewhere else but not going away.

Technical, synthetic, and generated images have these characteristics: They are transformative, intermittent, and ubiquitous. This clears away any misleading assumptions about the image so that we can look at the role of visual logic in imagination and how it relates to the question of making sense.

How images impact the process of imagination

Already in the late 1980s, Flusser²¹ identified that the linear rules of writing could no longer apply to image criticism when the numeric code had freed itself from the alphabetical and switched to the digital. Counting on fingers at the speed of supercomputers requires a new form of imagination that has been rendered possible by the emergence of synthetic images. His thinking in terms of a logic of calculus²² will help us grasp the possibilities offered by AI generated images.

The long-standing split between reasoning and perceiving in processes of knowledge has been artificially maintained for the necessity of power, when in fact the capacity to imagine via

intuition—*Einbildungskraft*²³—has always relied on a combination of both, from antiquity, to the 18th century and the beginning of the 20th. In an exemplary and seminal analysis, Arthur I. Miller demonstrated the efficacy of visual thinking "as a criterion for selection between alternatives that resists reduction to logic" by exposing and discussing the debates that went on in physics between 1913 and 1927, and drawing the conclusion that

the importance for creative thinking of the domain where art and science merge has been emphasized by great philosopher-scientists of the twentieth century—Bohr, Einstein, Heisenberg and Poincaré [...] for in their research the boundaries between disciplines are often dissolved and they proceed neither deductively through logic nor inductively through the exclusive use of empirical data, but by visual thinking and aesthetics.²⁴

Hence, the old antagonism between the circular logic of images and the linearity of texts is no longer valid and must be set aside once and for all as we are called to endorse a more encompassing view. Accordingly, there is no longer a dialectic of what is inside or outside, of what is or is not, but instead a logic of one extended space that belongs and contributes to our collective memory and impacts how we perceive we think. As Flusser puts it, with the advent of the technical image (camera) and its subsequent synthetic image (computer), we now have an image that is beyond linear text, fully coded, and closer to our neurological mental processes than any other image before. At this point, we have entered the logic of calculus. With the advent of the AI generated image (algorithm) we must consider whether this same logic applies and how this new type of image impacts our thinking processes. If another logic must reside between linearity and circularity, many believe that the statistical probabilistic logic of

²⁰ Jung (1960) 2023, p. 3587.

²¹ Flusser's seminal texts on the topic—"Images in the New Media" (1989) 2002 and "A New Imagination" (1990) 2002—were written in German in 1989 and 1990 respectively and translated in English in the volume *Writings* 2002. I have accessed several unpublished variants from the Flusser

Archiv, Berlin, in order to create the diagrams.

²² Where calculus is the zero-dimensional point or the elementary unit of computerization allowing the logic "whereby humans transform themselves into players who calculate and compute concepts." See Flusser 2015, pp. 95–96. Available online at [https://wiki.flusser.club/doku.](https://wiki.flusser.club/doku.php?id=calculus)

[https://wiki.flusser.club/doku.](https://wiki.flusser.club/doku.php?id=calculus)

²³ Here is a permanent link to a repository page where an ongoing mapping of *Einbildungskraft* is taking place: <https://www.thinkingseeing.com/imagination>.

²⁴ Miller 1978, pp. 77–102.

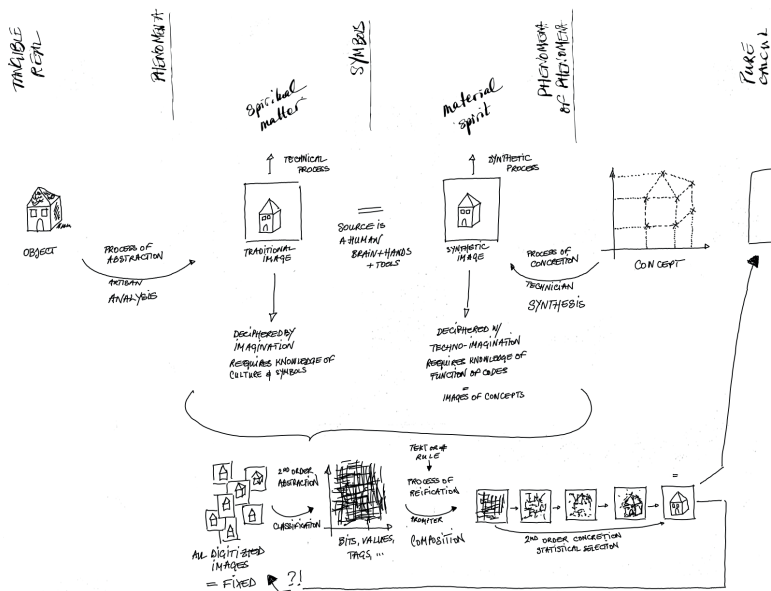


Figure 2. Diagram of Vilém Flusser's process of imagination, 2023.

Vilém Flusser wrote several texts in German and English around the question of imagination, new and second-order imagination. One of them was translated by Erik Eisel as "A New Imagination" in Flusser (1990) 2002, while most remain unpublished and understudied as they are only available in his archive in Berlin. Because his analysis, though specifically addressing earlier synthetic images (Flusser died in 1991), provides an innate and anticipatory contribution to the epistemological questions we are facing today, their study, translation, and comparison will contribute to establishing a finer understanding of AI generated images and their role in imagination processes.

the algorithm may prove to be satisfactory. But is it sufficiently reliant on the role of imagination, and is it contributing to the emergence of a new imagination?

For the mathematician Giuseppe Longo, "Lambda Calculus [...] is a means of great mathematical expressivity, at the heart of Mathematical Logic and of many of the programming styles that created modern computer science." Nevertheless, the madness of the "everything is computational" has created the myth "of the Universe as a Turing Machine," which is being applied "to every possible phenomenon, flattening it onto a universe that is without meaning and made only of formal calculations." He establishes the extremely important distinction between the precision of discrete databases and the great challenge of physical measurement that should not be forgotten.²⁵

Despite the many definitions and applications of the term imagination, let us clearly affirm here that imagination is more than the faculty to conjure up what is absent, even regardless of its veracity. It is a positive faculty, a creative power in the sense given by Castoriadis²⁶ and upon which Vilém Flusser further distinguished between first-order imagination—"the faculty to make and decipher images," the ability to step out of the objective world into our

subjectivity by a symbolic gesture of abstraction—and second-order imagination—"the ability to step backward from imagination into the unsurpassable abstraction," the ability to project our models onto the world by a gesture of concretization, of gathering together points-like dots, rendered possible with the switch from numeric to digital code.

This new imagination, enabled by new technologies and their devices, was supposed to allow us to experiment with images in new ways and deepen our understanding of how they work, independently of any textual context. By extension, it should also allow us to understand the functioning of the mind and its thought processes. From the perspective of the 1990s, Flusser believed that "only when one produces images of calculations instead of facts (it does not matter how 'abstract' the facts) can 'pure aesthetics' (the joy of playing with 'pure forms') find their true expression; only then can *Homo ludens* replace *Homo faber*."²⁷ With hindsight and paraphrasing Flusser, algorithmic processes then are suitably instructed to compute point-like concepts into image-like surfaces, "sufficiently intelligent to compute these concepts, and sufficiently stupid not to try and conceive what they are doing."²⁸

Thus, if traditional images abstract objects and synthetic images concretize concepts, then

²⁵ Longo 2019, pp. 73–94.

²⁶ Castoriadis 1987.

²⁷ Flusser (1990) 2002.

²⁸ Flusser n.d.

AI generated images are both further analyzing traditional and synthetic images one level up into discrete information and re-synthesizing digital data or recombining the values into a surface-like abstract-concretion. In this course, the ‘imaginative’ meanings that were initially given to concepts concretized as images have now been fully emptied. These potentially ‘third-order’ imaginations have become totally meaningless in the process of pure calculation. Indeed, Flusser was envisioning synthetic images that had their source in human conceptual thinking, but the source of AI generated images is statistical and mechanical. They are digital values that are triggered by a text prompt acting merely as a more-or-less sophisticated tool. I would like to propose to describe this process of AI image generation as one of reification, when an abstraction is treated as something concrete and real.

Conclusion

According to Simondon, in the process of invention, intuition, perception, and memory—corresponding to an *a priori*, *a praesenti*, *a posteriori* image—engage reciprocally in a cycle that works because of the spontaneous endogenous movement of anticipation and the heterogeneous plurality of the perceived. These three phases—anticipation, experience, and systematization—constitute a fourth one—invention—in a single process of genesis. AI generated images stand at the threshold of visualization and information, aesthetic and mathematic, and from there they demand that we look at the deeper issues, beyond the purely visible, at how or if they could partake in a process of imagination even though they are not implicated either in endogenous or heterogeneous experiences.

Therefore, I do not believe that AI could work as an exosomatic²⁹ psychic system to draw a parallel with many interpretations of artificial

intelligence as an external extension of human capacities. But could large AI models be considered as an encapsulation of the collective unconscious as it has been suggested metaphorically?³⁰ Several contemporary authors, including Andreas Ervik³¹ and Eryk Salvaggio,³² relate AI’s productions to the collective imaginary, which is a constitutive part that forms what Carl Jung calls the collective unconscious. The temptation to explain the latent space as a form of unconscious is appealing and perhaps even pertinent if we consider its intrinsic potentiality to give form. Further studies will tell.³³ But before drawing inconclusive parallels, it is wise to note the absence of the major structural component that is a being, an organic entity always in movement, in becoming, in transformation: A biological human whose brain doesn’t function as “an *input-output* machine” and whose body gestures contribute to signification.³⁴ Whereas in the latent space, so far, there is only a fixed and finite, if ever large, amount of data. That is not to say that the analogy is not without interest to understand the mechanisms at play in both workings, starting for example with our memory, which is paradoxically based on our capacity to forget—something that is being introduced to models to curb their excellent but problematic capacity to memorize everything and regurgitate it. In the parallels we draw, we should not forego biological materiality and physical multidimensionality for the discrete immateriality and formality of mathematical models of information.

While homogeneous constraints can usefully describe swarm intelligence or crowd behavior, they reduce dynamics to automatisms by excluding any imaginative or creative aspects.³⁵

²⁹ Technological objects have often been compared to exosomatic tools as they are external extensions of the body. See, for example, the camera and the eye, or the book or hard-drive and memory. Alfred Lotka first introduced the idea of “exosomatic evolution”

and Bernard Stiegler drew from it to discuss the impact of technology on the human psyche, society, and economy. For further information, see Stiegler 2021.

³⁰ Cetinić 2022.

³¹ Ervik 2023.

³² Salvaggio 2022.

³³ On the topic, see Hayles 2017.

³⁴ Longo 2023.

³⁵ Sarti / Citti 202

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