

**Debora Pazetto Ferreira\***

## **Artificial Dreams: Contemporary Intersections Between Art and Technology**

### Abstract

This paper approaches the intersectional field between art and technology from a Flusserian perspective applied to an interesting example: images generated through the program Google Deep Dream. These digital images that look like surrealist paintings are made through a distortion in Google's artificial neural networks. I argue that these images problematize philosophical dualisms, like those between human intelligence and artificial intelligence, authorship and anonymity, individuality and collectivity, domination and deviation, art and technology.

### Keywords

Art, Technology, Post-history, Artificial Intelligence, Authorship

And the results from manipulating this world, that surround us in the form of instruments, machines, gadgets, media, and institutions, are for us, for the same reason, a fantastic world of dream and nightmare

Vilém Flusser

To understand contemporary art's conditions of existence—that is, its various forms of production, circulation, exhibition, and reception—it is highly essential to frame in-depth research on the relationship between art and technology. This assumption is at the core of the present paper. It is decisive to understand in philosophical terms how technologies incorporate artistic

---

\* Federal Center of Technological Education  
Email: [deborapazetto@gmail.com](mailto:deborapazetto@gmail.com)

elements and techniques. It is equally relevant to comprehend the artistic appropriation of varied technologies in order to promote a deviation of its designed, preceding functions. This is the case, for instance, for generative art, digital art, bio art, net art, and works of art that use robotics, medicine, augmented reality, virtual reality, immersion technologies and so on. That is, works of art that use cutting-edge technologies, nonetheless, deviate the original functional goal according to which those technologies should work. Thus, to investigate the transpositions of artistic experiences to virtual environments it's a critical necessity. This is so for both cases of transposition, that is, when the works are designed for cyberspace and when they are developed for museums and virtual galleries.<sup>1</sup> The fact that people nowadays have more access to works of art through images, videos, and texts on the internet than through traditional art institutions cannot be considered insignificant (Beiguelmann, Magalhães 2014)—at least not from a philosophical point of view. Moreover, even inside museums and galleries, the audience's interaction with the works has increasingly become inseparable from technological devices such as audio guides, cameras, and smartphones. Regarding circulation and exhibition, it is critical to lend an ear to the fact that the great artistic circuits have been increasingly ruled by the financial mindset of the transnational technological market.<sup>2</sup>

Thus, there are many possible ways of approaching the relationships between art and technology, and each one of them deserves a thorough study. This paper concentrates on one of them, which is what I call here as the intersectional field between art and technology, that is, a certain kind of phenomena, in which art and technology are so intertwined, that it is difficult to decide whether we are facing a work of art or some technological develop-

---

<sup>1</sup> Created just six years ago, Google Cultural Institute, for example, brings together collections from more than a thousand museums and art galleries all over the world. Through its Street View tool, it makes visible on the Internet great architectural works around the world.

<sup>2</sup> The art market does not escape the techniques and technologies of expansion and oligopolistic concentration of capital value. In partnership with banks, museums like Guggenheim and Louvre began to expand their names as brands, opening branches from Bilbao to Abu Dhabi. It is undeniable that the production, circulation, exhibition, and commercialization of art today are mostly capitalized by an international and superabundant scheme. This scheme exponentially increases the number of artists, museums, galleries, biennials, and exhibitions, as well as the prices of works of contemporary art, which increased 85% between 2002 and 2008 (Lipovetsky, Serroy 2015, 56–59). Thus, it is noticeable that this art market scenario erases the distinctions between art, marketing, financial investment, and business management.

ment. My working hypothesis is that these phenomena reveal the dissolution of the distinctive separation between the domains of art, science and technology. Thus, it is also part of my hypothesis that such distinctive separation no longer has the theoretical and practical weight that it had a few decades ago.

In a conference from 1982, the philosopher Vilém Flusser argued that, in Greek Antiquity, there was a prolific dialectic between *poiesis*, *episteme*, and *techné*. The referred dialectics had collapsed in Modernity, he stated, because the Greek concept of *techné* was split into two parts. One part was “objectified” in the service of science and accredited to be the only kind of rigorous knowledge (*episteme*). The other part was “subjectivized” as the construction of aesthetic forms without any epistemological value (*poiesis*.) “The so-called ‘modern art’ is, thus, obliterated from the flow of progress, and although idealistically glorified, it was effectively ejected from daily life and cloistered in a ghetto” (Flusser 1982). By ghetto, Flusser refers to museums, theaters and art galleries, since they are specialized and isolated spaces, towards which people must direct themselves in order to enjoy art. Therefore, *techné* was transformed, in the scientific context, into technology, and it was deprived of its aesthetic values, its ethical aspects, and thus, also of its political characteristics. On the other hand, *techné* was transformed, in the artistic context, into a set of works deprived of knowledge and disengaged from daily life.

Flusser saw as problematic this scission inside the Greek concept of *techné*. He argued that post-history makes possible the overcoming of this scission, given that technical images have the potential to work as a common denominator between scientific knowledge and aesthetics (Flusser 2011).<sup>3</sup>

---

<sup>3</sup> Flusser develops these theses about the division between art and science in a period in which his philosophy focused in the development of advanced capitalisms and, more specifically, in the inexorable authority of technologies in this context, which he called post-history. Flusser always analyzes culture according to the predominant media in each period. Thus, he calls Prehistory the period that traditional images, such as painting, were the main form of mediation between humans and the world. Being two-dimensional, these images are a freezing of temporality and an abstraction of three-dimensional space. When writing was invented, it becomes the dominant media, and we enter into History. Writing is linear, one-dimensional. Therefore it has one more degree of abstraction compared to traditional images, which makes historical thinking linear and progressive. According to Flusser, in the twentieth century we entered a new period, the Post-history, in which the predominant media is no longer writing but technical-images. These images, like photography, video and digital images, owe their existence to technical apparatuses. Flusser defines them as third-degree

Well, the phenomena situated in the intersectional area between art and technology show how insufficient it is to ground theoretical analyses on such scission. Here, I intend to approach this topic using a particularly exciting example: images generated through the program Google Deep Dream.<sup>4</sup> These technical-images that look like surrealist paintings are made through a distortion in the use of Google's artificial neural network mechanism of image recognition, in a way that they hold both artistic and scientific characteristics.

Artificial neural networks (in its most recent development: Deep Learning) are a system of hardware and software inspired by the human brain's neural network. They are not an algorithm. They are, rather, a framework with which different types of machine learning algorithms can work together and learn, by considering training datasets, how to process complex information and perform tasks without being programmed with task-specific rules.<sup>5</sup> Currently, Google's artificial neural networks for image recognition are trained to recognize something by being fed with millions of images of the same thing, kept in a gigantic database. For instance, in order to teach the artificial neural network how to recognize a fork, it is necessary to feed the neural network's database with millions of images of a fork. In this way, it is expected that the neural network would make a sort of eidetic reduction. In other words, it would extract the characteristics and elements that are common (and recognizable) in all of these millions of images of forks—like having a stem and three or four curved prongs—and ignore incidental features—like, say, the way it is positioned or any element in the background. If this process succeeds, then, the artificial neural network will be capable of recognizing an image of a fork (Mordvintsev *et al.* 2015). Thus, at hand, what we have here is a mechanism that determines the content of an image by way of an analysis of its shapes and colors: a process that goes from its form to its concept.

---

abstractions: being made of dots (pixels, bites, *quanta*,) they are a zero-dimensional media abstracted from one-dimensional writing (scientific theories used to create the technical apparatuses), but they can recreate digitally all the lost dimensions (Flusser 2010, 2011).

<sup>4</sup> For some examples of images generated by the Google Deep Dream program, see: [https://photos.google.com/share/AF1QipPX0Scl7OzWilt9LnuQliattX4OUCj\\_8EP65\\_cTVnBmS1jnYgsGQAieQUc1VQWdgQ?key=aVBxWjhwSzg2RjJWLWRuVFBBZEN1d205bUdEMnhB](https://photos.google.com/share/AF1QipPX0Scl7OzWilt9LnuQliattX4OUCj_8EP65_cTVnBmS1jnYgsGQAieQUc1VQWdgQ?key=aVBxWjhwSzg2RjJWLWRuVFBBZEN1d205bUdEMnhB).

<sup>5</sup> A more specialized description of artificial neural networks can be found in Ger-ven, Bothe (2017).

---

Images known as Google Deep Dream were created as a way of testing if artificial neural networks were correctly capturing the “essence” of a given thing. It is possible to insert an image full of random noise and adjust the neural network to detect a specific concept that is absent in the same image. So, for instance, if the neural network were adjusted to recognize “fork,” it would make attempts to visualize the concept of “fork” and, thus, generate an image of a fork. It is also possible to insert one specific image and deepen the process of random identification in a layer of neurons, until it can produce contents that were not present in the initial image (Mordvintsev *et al.* 2015). It is important to note that the neural network focuses on general features in lower layers of neurons, and on details in higher layers of neurons. This process resembles the imaginative act of seeing images in clouds. In the same way that our brain tends to visually project images that one thinks one has recognized in the clouds, the neural network literally creates an unexpected myriad of figures inside the original images. Such phenomena had generated an aesthetic that became known as Inceptionism.

Facing these images, people tend to raise a common question: are these images apt to be considered works of art? In general, when the artistic character of Google Deep Dream images is denied, the rejection is massively based on the idea of authorship. Popular concepts of art, as well as most occidental philosophical concepts, remain intrinsically tied to the concept of “artist.” The common idea of art generally depends on the identity of a creative artist, that is, of an individual capable of intentionally expressing their feelings and thoughts through the material and techniques of the work of art. However, it is well known that authorship started to be relevant during Renaissance and it was theoretically consolidated only in the 18<sup>th</sup> century, with the concept of the creative genius and, later, with the theory of Expressive Art (Shiner 2003). Nevertheless, authorship continues to be a central concept for art, even in contemporaneous philosophical definitions.<sup>6</sup>

In contrast, Flusser criticized the emphasis on the artist as a myth, a romantic divination that steals the show from what is important when the subject at hand is art: the introduction of new information into the world and its collective appropriation in various forms. Flusser’s notion of art—

---

<sup>6</sup> For example, in Amie Thomasson’s ontology of art, all works of art are considered dependent on the mental states of a particular author (Thomasson, 2004); Morris Weitz, while rejecting a definition of art, recognizes that we typically describe works of art as things made by humans with ingenuity and imagination (Weitz 1956); Arthur Danto’s definition of art depends on the concept of authorship insofar as the interpretation of works refers to the intentions of the artist (Danto 2010), and so on.

which is not intended to be a definition of art—is extremely political. For political, he understood a sphere of coexistence, of collective knowledge, of co-valorization, ultimately, of intersubjective experiences that give meaning(s) to life (Flusser 1982). In other words, he focused on the social amplitude of art, not on the institutional, academic and commercial aspects of art. On the contrary, for him, spaces such as museums, galleries, universities and the art market, named by him as ghetto, depoliticize art and make it elitist. In sum, the creative act is what matters for Flusser, “the artistic gesture that does not limit itself to the labeled domain of art. On the contrary, such a magic gesture also happens in other spheres: in science, techniques, economy, and philosophy. In every one of these domains, there are those intoxicated by art, that is, those who generate new information” (Flusser 2011, 160). Therefore, for him, art could only be thought as a public sphere, since he saw it as a potency to amplify reality and create new alternatives for culture (new information), as something that emerges from the collective process of appropriation, fruition, and comprehension of artists proposals.<sup>7</sup>

The perspective in which “the artist does not watch over or manage the growth [of the work], they simply makes a beginning possible, and according to Flusser, they should thereafter fade into the background” (Finger 2012, 2) seems to be more appropriate for a philosophical thinking of art in today’s world. In the first place, because the art market has completely captured the romantic idea of the creative genius—the artist’s name plays the same role that a brand or a designer label plays in the fashion industry. Thus, authorship became, for the most part, a mechanism in the service of art commodification. Second, because recently many interesting works are being created through collaborative exercises of art collectives, which, in many ways, use anonymity as a poetic choice. Especially in alternative circuits of art, the identification of an individual or a defined authorship is no longer seen as essential—as ontological characteristic of art—together with its satellites concepts, such as genius, expression, intention, style. Like these collective or anonymous forms of art production, the images created through Google Deep Dream exceed an artist’s signature. These images have collective authorship, which includes artists, technicians, programmers, engineers and users that collaborate with the building of Internet images database and, yet,

---

<sup>7</sup> Flusser’s philosophy of art and creativity is extensive and controversial, a fertile ground for raising problems and for discussions with the history of aesthetics. Since this is not the purpose of this paper, I count on the vast material already published for further development on these topics (for example: Finger 2010; Pazetto 2014).

the Artificial Intelligence itself. If these “artificial dreams” become accepted as art by our culture, then, it must be acknowledged that they problematize the concept of the artist as a creative genius.

Even if Flusser has not written about art made by Artificial Intelligence, it is possible to use his reflections on art and aesthetics to highlight some artistic aspects of Google Deep Dream images. Flusser understood the contemporary times as a period in which apparatuses (machines, devices, technical-images) dominate the manipulation, storage, and transmission of information. In other words, what he called as post-history is a period in which apparatuses program human capacity to learn, experiment, elaborate and communicate the world (Flusser 2011). Flusser’s argument is based on the thesis that machines, devices, technical-images—which range from the microchip to the macro administrative, governmental, financial and economic apparatuses—condition human beings to follow their programming, given that the type of information they produce is previously inscribed in their program. This statement may have seemed excessive at that time, before the age of social media and smartphones. However, nowadays, it shows itself in a transparent way: our work, our sociability, our eating, our friendship, sexuality, self-image, recreation, our spatial-temporal localization, and even our ways of doing politics (or not doing it) are programmed by gadgets, devices, mobile apps, websites, and social media. In this post-historical context, Flusser understood art as a creative potency. He saw it as a force of resistance against the overwhelming technical programming of humanity.

He thought that human beings are in an intersection in the post-history. On one side, human beings can become operators: the kind of people that function in accordance with the technological apparatus, obeying its programmed rules. On the other side, they can become artists: people capable of understanding and using technologies in order to create new forms of perception, new forms of society, experience, affection, techniques, thoughts, political organization and so on. As a collective creative potency, the artistic gesture can assimilate the most advanced techniques and technologies without subordinating to the dominating function that the latter plays economically, socially and politically. Thus, art is a cleft through which humankind could escape its own overwhelming programming and functionalization. Like hackers, artists can deeply comprehend current devices and techniques in order to subvert its original functions. Similar to Flusser’s contrast between artists and operators, there is a contrast between hackers and engineers that appears in the text *Fuck Off Google*. While engineers are sad and servile figures, that “would capture everything that functions, in such a way

that everything functions better in service to the system, the hacker asks himself ‘How does that work?’ in order to find its flaws, but also to invent other uses, to experiment” (Invisible Committee 2014). In this sense, operators are slaves of technology as they regard apparatuses simply as black boxes, which they operate as innocent users. The same applies to engineers. Although they can understand and manipulate certain apparatuses, the capitalist system of technological production is for them a black box, which they work with as innocent operators (Invisible Committee 2014). In an opposite relation, artists or hackers understand how the devices work so that the technology “no longer appears as an environment, but as a world arranged in a certain way and one that we can shape” (Invisible Committee 2014).

Flusser believes that post-historical artists are like hackers that can appropriate techniques and technologies without being captured by its tendency to programming. “Art appeals to technology in accordance to its own finality, which is essentially anti-technological. [...] It creates machines that produce nothing and devices that do not work” (Flusser 1971). This way, power, methods, programs, and scientific and technological devices are reduced to an absurd—they become a play. Here one could remember artists like Eduardo Kac, Orlan, and Stelarc, who played with genetic engineering, medicine, and robotics to subvert its original functions. Flusser began to shape his concepts of “play” and “player” in *Phenomenology of the Brazilian*, in which he characterized play as a system composed of connected elements according to certain rules (Flusser 1998). He outlined three kinds of playing strategies: 1) we can play with the goal of winning, but constantly running the risk of being defeated; 2) we can play more prudently, minimizing both the risks of defeat and victory; and 3) we can play for subverting the rules of the play. In the latter case, the player can be considered an artist, or a hacker; someone who acquires critical distance from the play itself and perceives it as something that can be reinvented (Flusser 1998). The ability to play is crucial in post-history. When there comes a time when human life follows rules programmed by the apparatus, acts of invention are acts of resistance; a kind of subversive political-artistic engagement: “Human commitment is therefore no longer dedicated to the elaboration of programs but to the *deviation* from programs” (Flusser 1986, 330, emphasis added).

Thus, Google Deep Dream images could be understood as artistic not only because they are aesthetically appealing, but, mostly, because they emerge from the Artificial Intelligence creative/imaginative process in collaboration with human intelligence. In this sense, the alliance between these intelli-

gences—human and artificial—behaves like a player who can reinvent the play and modify its rules. The images are called “deep dreams” because—since they are not a result of direct programming, but of Deep Learning—they revealed entirely unexpected and previously inaccessible forms that amazed even the engineers and programmers of neural networks (Mordvinsev *et al.* 2015). Like works of art made by humans, these images are generated by the neural network through already assimilated content, although these contents are articulated in a new way, in a unique and recognizable style. Above all, these impressive and surreal images can be considered artistic because they work as a *deviation* from the Internet’s most current programming trend: mass surveillance directed to hyper-consumerism and political control.

It is important to consider that a significant part of Internet technological progress—such as neural networks, Big Data, and Artificial Intelligence—are in the service of what Flusser called, in the 1970s, as “gigantic deadly apparatus” or “military, multi-millionaire organizations” (1971). Currently, this means that these technologies are driven by billionaire investments in mass surveillance. It is not a secret that all the information, images, and user interactions are collected, monitored, stored and categorized in profiles by companies like Google, Facebook, Apple, Amazon, and YouTube, which sell all these pieces of information to other companies for targeted advertising. It is already common sense to acknowledge that Internet filter bubbles are shaping how its users understand the world and are largely responsible for their intellectual isolation. In addition, of course, Intelligence agencies also monitor these data as a strategy of social control and geopolitical power: “Now it is being done by everyone, and by nearly every state, because of the commercialization of mass surveillance” (Assange *et al.* 2012). The emotional and ideological characteristics that individuals reveal in networks, organized in a multitude of profiles by mechanisms of automatic data processing, can be used to influence the result of government elections, as it happened in the 2018 Brazilian presidential elections (the far-right president-elect is being investigated for abuse of economic power and misuse of digital communication.) Well, research on neural networks of image recognition is financed by “military, multi-millionaire organizations” (a market estimated to grow from USD 15.55 Billion in 2016 to USD 38.92 Billion by 2021), with major applications in face recognition, security, surveillance, visual geolocation, gesture recognition, and code recognition. At this point, we should learn from the hackers: “Where control and transparency reign, where the subjects’ behavior is anticipated in real time through the algorithmic processing of a mass of

available data about them, there's no more need to trust them or for them to trust. It's sufficient that they be sufficiently monitored" (Invisible Committee 2014).

My point is that when the neural networks' image recognition functions are used not to track user's information but to play with confused and hallucinogenic images, then what we have is a deviation from the standard programming that gears the Internet. By way of anomalous agglomeration of image data, this kind of subversion of profiling strategies, even though small, signalizes what Flusser defended as a political-artistic engagement: a deviation from programs or at least a deviation from the program's intended use.<sup>8</sup> Google Deep Dream images proliferate a shuffle of categories in the networks—which is supplied by images of an eyed pizza, or a Donald Trump looking like a dog, or a pig-snail, or a woman with bird's head, or tower-soldiers and so on. This muddle goes in the opposite direction from mass surveillance strategies of identifying, categorizing and profiling as its ways of realizing social control, aggressive marketing, and media manipulation with political purposes. In this sense, Google Deep Dream images remind us of Donna Haraway's description of a cyborg: a hybrid being that messes around with traditional categories, such as organism and machine, fiction and reality, nature and culture, material and non-material. "The stakes in the border war have been the territories of production, reproduction, and imagination. This chapter is an argument for pleasure in the confusion of boundaries and for responsibility in their construction" (Haraway 1991, 150). Haraway sees the cyborg as a mythological figure capable of opening gaps in predominant ways of thinking, feeling and acting according to the oppressive categories and boundaries of technological society. For that reason, like Flusser, Haraway believed that the artistic gesture of creating new images and narratives could fight through language and for language against the totalitarian programs and apparatus of technological culture.

---

<sup>8</sup> It is important to notice that I am not claiming that there is an intentional subversive engagement by programmers and much less by neural networks. However, according to Flusser's understanding of art and authorship, the authors' intention matters far less than the social appropriation of the work of art. The point is that the collaboration of human and artificial intelligences—this collective being the locus of the creative gesture that generates Google Deep Dream images—perform a deviation from a program: mass surveillance and their profiling strategies. This kind of deviation, of course, may well be intentionally appropriated by other layers of society in a very subversive manner.

---

One form of assuming responsibility for the construction of boundaries is to analyze phenomena such as Google Deep Dream images in ways that are not technophobic nor technophilic, as Flusser did. From his account on the post-historical association between scientific knowledge and aesthetics, it is possible to affirm that in Google Deep Dream images “science and technology can become a play, that is, art” (Flusser 1971). In this play, image categories are mixed up, and philosophical boundaries are called to be reinvented, like those between human intelligence and artificial intelligence, between authorship and anonymity, between individuality and collectivity, between domination and deviation, between art and technology.

This is enough to address my working hypothesis: that the images in question are artistic according to Flusser’s notion of art as a deviation from programs, and that they belong to an intersectional domain between artistic and techno-scientific knowledge that reveals an increasing indistinction between these areas. Maybe this is not enough to prove that all Google Deep Dream images are works of art, what, of course, would depend on a definition of art (which Flusser, among other philosophers, such as Adorno or Weitz, considers an impossible task.) What we can prove is that some of these images have already entered the “art world” (which, according to other philosophers, such as Danto or Dickie, is enough to define them as works of art.)<sup>9</sup> A few Google Deep Dream images were sold for thousands of dollars in an art exhibition named “Deep Dream—the neural network art,” held in a San Francisco’s gallery.<sup>10</sup> In the exhibition, all images were made using artificial neural networks. Nonetheless, they were signed by the authors that managed the processes of selecting the input images, manipulating the neurons layers, picking up the training base for the neural network and some other adjustments. These authors name themselves as art-engineers, programmers, designers, hackers, “code artists,” researchers, scientists and so on. In this case, specifying an assured authorship—different from many anonymous similar images that are abundant on the Internet—seems to be a marketing strategy of art galleries, based on the relevance of the artist name in the current art world, besides associating these images with sophis-

---

<sup>9</sup> Although Danto states that his theory does not conform to Dickie’s Institutional Theory of Art, the insertion of works into the art world remains a necessary condition in his definition of art, even in his later books. For further discussion on this topic: Pazetto 2018, 93–108.

<sup>10</sup> Information on this exhibition is available on the event’s official website: <https://grayarea.org/event/deepdream-the-art-of-neural-networks/>

ticated frames and “limited edition” propaganda. Nevertheless, as I have stated previously, the notion of authorship in these Google Deep Dream images is very diffused.

Even though all images in the exhibition were somehow interesting, I conclude this paper highlighting the arguments presented above by analyzing the work “All watched over by machines of loving grace,” signed by the Turkish artist Memo Akten, and sold by eight thousand dollars.<sup>11</sup> The neural network was given an input image, a photo that shows the Government Communication Headquarters—GCHQ, a national security military force and intelligence agency, responsible for providing information to the government (apropos, one of the agencies denounced by Edward Snowden.) The photograph was taken by a Google Maps satellite, another technology of surveillance.<sup>12</sup> There is a prominent religious reference in the work’s title: the idea that an omnipresent, omnipotent and omniscient God that watches over us. The omnipresent, omnipotent watcher is, however, a control technology made by humankind, which contemporary version can be recognized in mass surveillance technologies. Indeed, it is the artist’s merit to choose as a theme the ironic specularity of these three technologies of surveillance—GCHQ, Google Maps satellites, and Google neural networks. This kind of choice surely justifies Akten’s participation in the work’s authorship. However, from an aesthetic point of view, the work is fascinating because it looks like a huge eye amid an organic-mechanic labyrinth of eyes. This peculiar transformation of the input image was not something generated by Akten. Thereby, this work of art is constituted by an automatic satellite image, by the neural network stylized image distortion, by Memo Akten choices and ideas, by collective Internet database of images, by the work of engineers that made the neural networks and so on. In other words, the authorship, in this case, goes through all these creative chains of actors, programs and devices.

Google Deep Dream images are one of many examples that reveal the blurred, dissolving distinction between the domains of art, science and technology, which today doesn’t have the theoretical and practical weight it had

---

<sup>11</sup> Images of the work, as well as a description offered by the author, can be accessed on his homepage: <http://www.memo.tv/all-watched-over-by-machines-of-loving-grace-deepdream-edition/>

<sup>12</sup> At this point, again, we should learn from the hackers: “An enterprise that maps the planet Earth, sending its teams into every street of every one of its towns, cannot have purely commercial aims. One never maps a territory that one doesn’t contemplate appropriating” (Invisible Committee 2014).

for decades. For many techno-scientist-artists, this distinction is merely institutional and currently obsolete. However, regarding Flusser's theory, there is still a distinction worth noting, namely, between programming and deviation from programs—a distinction that could also be referred to by other terms such as repetition and creativity, cultural industry and art, engineer and hacker, operator and artist.

Why are images sold in the art exhibition “Deep Dream—the art of neural network” more easily accepted as art than those images ordinarily made by Internet users, applying the same procedure? I believe this acceptance is based on the legitimizing character of the institutional space—that is also a theoretical, social and marketing space—called by some philosophers as “art world.” However, in Flusser's perspective, belonging to the art world does not guarantee most relevant artistic features, like intersubjective comprehension of the work, amplification of reality, subversion of dehumanizing apparatus, deviation from dominant programs. For this reason, I argued that Google Deep Dream images are artistic not only because they are entering into the art world, but, mainly, because they are a deviation from the Internet's most current programming trends (mass surveillance strategies of identifying, categorizing and profiling). In other words, because they are a creative and collective play that mix up stiff categories, both in networks and in philosophy.

Nevertheless, it is essential to acknowledge that, to deviate from the market and economic programming, is becoming increasingly difficult. One reason is that the market assimilates all forms of deviation, resistance or invention. For instance, the art exhibition mentioned above was sponsored by Research at Google. The same exhibition reveals the well-known capitalist method of absorbing art's subversive potency and putting it at the service of large corporations. The same kind of corporations, like Google, that are hugely criticized by the very work it sponsors, like the case with Memo Akten's work. Therefore, I finish this paper citing an anonymous hacker, who criticizes the capitalist incorporation of the hacker movement: “Managers are urged to facilitate free initiative, to encourage innovative projects, *creativity*, genius, even *deviance*—‘the company of the future must protect the *deviant*, for it's the deviant who will innovate and who is capable of creating rationality in the unknown’, they say” (Invisible Committee 2014. Emphasis added). The all-embracing capitalist apparatus finds ways of reprogramming in its favor even the most creative and subversive gestures. It allows us to make works of art and innovations, only if it is at the market's service. It allows us to play with technologies, provided we do not put at risk the main

capitalist programs, that is, mass surveillance, consumerism, cultural industry, financial system, and all forms of colonization. This is a political and theoretical problem, and it does not have an easy solution. However, it gives us a clue as to which programs we should dedicate our capacity of artistic, scientific, technological and political deviation.

*Translation by Mariana Lage*

### Bibliography

1. Akten Memo (2015), "All watched over by machines of loving grace: Deepdream edition", [online] <http://www.memo.tv/all-watched-over-by-machines-of-loving-grace-deepdream-edition/> [accessed: 20.01.2018].
2. Assange Julian *et al.* (2012). *Cypherpunks: Freedom and the Future of the Internet*, New York and London: OR Books.
3. Beiguelman Giselle, Magalhães Ana Gonçalves (2014), *Futuros possíveis: arte, museus e arquivos digitais*, São Paulo: Edusp.
4. Danto Arthur (2010), *A Transfiguração do lugar comum*, tradução de Vera Pereira, São Paulo: Cosac Naify.
5. Finger Anke (2010), "On Creativity: Blue Dogs With Red Spots", *Flusserstudies*, 10, pp. 1–6.
6. Flusser Vilém (1982), "Criação científica e artística", Conference in Maison de la Culture, Chalon s/ Saone. Manuscript available in Flusser Archiv, Berlin.
7. Flusser Vilém (1986), "The Photograph as Post-Industrial Object", *Leonardo*, 19, pp. 329–332.
8. Flusser Vilém (1971), "O Espírito do Tempo nas Artes Plásticas", *O Estado de São Paulo*, SL.
9. Flusser Vilém (2010), *Filosofia da caixa preta: ensaios para uma futura filosofia da fotografia*, São Paulo: Annablume.
10. Flusser Vilém (1998), *Fenomenologia do Brasileiro*, Rio de Janeiro: Eduerj.
11. Flusser Vilém (2011), *Pós-História: vinte instantâneos e um modo de usar*, São Paulo: Annablume.
12. van Gerven Marcel, Bohte Sander (2017) "Editorial: Artificial Neural Networks as Models of Neural Information Processing", *Front. Comput. Neurosci.*, [online]. <https://www.frontiersin.org/articles/10.3389/fncom.2017.00114/full> [accessed: 1.12.2018].
13. Haraway Donna (1991), *Simians, Cyborgs and Women: The Reinvention of Nature*, New York: Routledge.
14. Invisible Committee (2014), "To Our Friends", [online] <https://theanarchistlibrary.org/library/the-invisible-committe-to-our-friends#toc1> [accessed: 12.12.2018].
15. Lipovetsky Gilles, Serroy Jean (2015), *A estetização do mundo: viver na era do capitalismo artista*, trans. E. Brandão, São Paulo: Companhia das Letras.

- 
17. Mordvintsev Alexandre *et al.* (2015), "Inceptionism: Going Deeper into Neural Networks", [online] <https://research.googleblog.com/2015/06/inceptionism-going-deeper-into-neural.html> [accessed: 15.01.2018].
  18. Pazetto Debora (2014), "O papel da arte na filosofia de Vilém Flusser", [in:] *Imagem, imaginação, fantasia: 20 anos sem Vilém Flusser*, Belo Horizonte: Relicário Edições.
  19. Pazetto Debora (2018), "The Problem of Interpretation of Artworks in Arthur Danto", *Kriterion*, Vol. 59, No. 139, pp. 93–108.
  20. Thomasson Amie L. (2004), "The ontology of Art", *The Blackwell Guide to Aesthetics*, ed. Peter Kivy, Oxford: Blackwell.
  21. Shiner Larry (2003), *The invention of art: a cultural history*, Chicago: University of Chicago Press.
  22. Weitz Morris (1956), "The role of theory in aesthetics", *The Journal of Aesthetics and Art Criticism*, XV, pp. 27–35.

