

What is Wrong with Machine Art? Autonomy, Spirituality, Consciousness, and Human Survival

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Abstract:

There is a well-documented Pre-Reflective Hostility against Machine Art (PRHMA), exemplified by the sentiments of fear and anxiety. How can it be explained? The present paper attempts to find the answer to this question by surveying a considerable amount of research on machine art. It is found that explanations of PRHMA based on the (alleged) fact that machine art lacks an element that is (allegedly) found in human art (for example, autonomy) do not work. Such explanations cannot account for the sentiments of fear and anxiety present in PRHMA, because the art receiver could simply turn to human art for finding the element she is looking for. By contrast, an explanation based on the idea that machine art is “symbolically” a threat to human survival can be successful, since the art receiver’s turning from machine art to human art does not eliminate the (alleged) “symbolic” threat machine art poses for human survival. If there is a pre-reflective belief or feeling that machine art *is* such a threat, then it is perfectly understandable why humans exhibit a pre-reflective *hostility* against machine art.

Keywords: robots, machines, art, fear, anxiety, survival, technology, autonomy, spirituality, consciousness

1. Introduction

Coeckelbergh has recently raised an issue which, despite its huge importance, remains marginalized in debates in philosophy of technology:

Why do we humans insist on being the only artists? *If* machines were artists, would this be a problem and why? [...] Why do we want to colonize and dominate the artistic domain? It is not clear what keeps us from opening it up to [...] machines [...], or what keeps us from recognizing that these are already “invading” the domain. (Coeckelbergh 2017, 296)

Coeckelbergh asks about the reason why humans display a pre-reflective hostility against machine art and thereby exclude it from art’s domain. The present paper attempts to answer this question, especially in relation to robotic art. While the literature on the relation between art

and technology increases exponentially each year, authors have hitherto paid minimal attention to that hostility's causes.

“Robot” originally signified a machine that is put to hard work or slavery (*robota* in Czech) and has no ability to escape this destiny; it had precisely this sense in Capek's 1920 play *Rossum's Universal Robots*, where the term was first used (Bar-Cohen et al. 2009, 7; Stephens and Heffernan 2016, 34). In our days the term has another meaning: it signifies a machine that has “the capacity for sensing and self-guided behaviour” (Penny 2016, 49). As Penny notes, “as its quality of self-guidance declines, so does its claim to the moniker ‘robot’” (Penny 2016, 49-50). Robots are now “quasi-intelligent machines whose control systems are partially under human control, and partially autonomous” (Penny 2016, 50), and there are signs that they will soon enjoy full autonomy (Bar-Cohen et al. 2009).

Machines are everywhere in human society and are already performing a myriad of tasks (Bar-Cohen et al. 2009, 9, 11, 13), but can they also create art, “one of the most cherished human endeavours” (Poltronieri et al. 2018, 5)? This question is raised more and more frequently in philosophy of technology (Coeckelbergh 2017; Still and d'Inverno 2019).

Since the eighteenth century there have been numerous instances of robots or automata to which the label “artist” has been attached. As noted by Stephens and Heffernan,

[t]hroughout the 1700s, a series of unsettlingly lifelike mechanical figures had held audiences spellbound by performing astonishing feats of skill and intelligence on the public stage. [...] These automata, like the other mechanical figures that so fascinated eighteenth-century publics, were not only the products of great art and technical skill: *they were themselves highly skilled producers of art*, participating in cultural activities widely understood to be definitively human. (Stephens and Heffernan 2016, 31, my emphasis)

An example of such a mechanical “artist” was Jaquet-Droz's “Musical Lady,” an automaton of the eighteenth century that has been described as “one of the world's first programmable robots” (Stephens and Heffernan 2016, 29). The “Musical Lady” is seated before a piano and “when animated, her articulated fingers press down on the individual keys, so that the figure actually plays the music the spectator then hears” (Stephens and Heffernan 2016, 29). Moreover, “her chest rise[s] and fall[s] as she played, making her appear not only alive, but emotional” (Stephens and Heffernan 2016, 30). Jaquet-Droz made also the “Draftsman,” an anthropomorphic machine programmed to draw various objects, including a portrait of Marie-Antoinette, and the “Writer,” a humanoid automaton programmed to write sentences, including “I think therefore I am” (Bar-Cohen et al. 2009, 9).

In the nineteenth century, even though the emphasis is put on machines contributing to mass production, there are reports of a large number of programmed machine artists. In the second quarter of the twentieth century a big change occurred, as in the 1940s Grey Walter created two robots that exhibited some autonomy. According to Penny, this marks robotic art's proper beginning (Penny 1989). After the Second World War more and more robots have started having

a non-human appearance and behaving in a more complex way qua artists than before (Stephens and Heffernan 2016, 35). In 1955 Tinguely presented his “Metamatics,” non-anthropomorphic machines that created abstract expressionist drawings (Satz and Wood 2009, 145). *Voyager*, constructed between 1986 and 1988, and *Shimon*, constructed in 2017, are robots improvising music (Lewis 1999; Weinberg et al. 2007; Hoffman and Weinberg 2011; Lösel 2018, 199-200). In the first decade of the 2000s Mura presented his “ant-robots,” which created abstract art autonomously and even emotionally (Moura 2016). Recently, it has been reported that a machine with a complicated algorithm can transform photographs into paintings exhibiting the style of Van Gogh (Parkinson 2015) and that Patrick Tresset has constructed a robot that can autonomously draw excellent portraits of people sitting before it (Brown 2011).

It is apparent in the literature that human artists, computational researchers, and engineers involved in machine art take it upon themselves to prove that the pre-reflective view that there is something exclusively human about art is wrong, to wit, that machines can also create art. Yet, what I find fascinating is the fact that there is such a pre-reflective view in the first place and that, as it is well-documented, it is accompanied by fear and anxiety, or, if you like, a hostility, towards machine art. It is to this *Pre-Reflective Hostility against Machine Art* (hereafter “PRHMA”), exemplified most strongly by *fear* and *anxiety*, that I turn my attention in the current essay.

PRHMA ranges from milder to stronger expressions. Moura, for example, refers to the claim of “common sense” that “machines can only make something that looks like art because a human builds them, programs them and hits the button. Hence the art made in such a fashion is still essentially human [...]” (Moura 2016, 255). PRHMA takes a much stronger form in Nake’s report that the early exhibitions of computer art caused “nervous, hostile, furious” reactions by the public (Poltronieri et al. 2018, 5). Audiences left the exhibitions wondering “[i]f these pictures were done by use of a computer, how could they possibly be art. The idea was ridiculous!” (Poltronieri et al. 2018, 5). As Poltronieri et al. point out, “this tension between technology and art remains [...] even today” (Poltronieri et al. 2018, 9), a diagnosis shared by Shanken and Nunez among numerous others (Shanken 2016; Nunez 2016). That is to say, there is even today, at the pre-reflective level, fear and anxiety, a strong hostility, towards machine art. In an interview, Kidner notes that when he first started exploring computer art, “I took the view that the computer was an unwelcome competitor and I tried to imagine problems that would confound what I then regarded as an inhuman and unwieldy monster” (Kidner 2018, 85). Lovejoy reports that “the Depression of the 1930s brought fear and despair [towards technology], a mood which dominated the art of the Surrealists. For them, the machine represented an intrusion, a menace” (Lovejoy 2004, 48). She also observes that “cultural critics [...] so deeply distrust technology [...] that they often do not want to look at an art that uses it as a means of representation” (Lovejoy 2004, 273). She correctly points out that in cinema technology is often associated with decay, “the process of disintegration,” with disaster (Lovejoy 2004, 301). Bar-Cohen et al.

speak of a pre-reflective “fear and dislike” towards and a “strong rejection” of humanlike machines, including anthropomorphic machine *artists* (Bar-Cohen et al. 2009, 6). These are all instances of PRHMA. Rutsky writes that art “has generally been cast as the polar opposite of modern technology” (Rutsky 1999, 3) and that “the conception of technology has been explicitly posed [...] in contrast to art, to the aesthetic sphere” (Rutsky 1999, 4). Davis mentions that pre-reflectively one feels or believes that technology is a “threat” to art (Davis 2004, 3), and Stephens and Heffernan refer to the “cultural tendency to assume that automation (or robots) and affect (art) are opposed” (Stephens and Heffernan 2016, 32). Finally, to make a long list short, Penny writes that the popular view is that “computational technologies [are] undergirded by a worldview which [is] fundamentally in tension with the worldview of artmaking” (Penny 2016, 47).

It is extraordinary that, given all these reports of PRHMA, there is no discussion of its possible causes in philosophy of technology. The bulk of the literature on machine art is interested solely in (a) finding in machine artists properties we ascribe to human artists and (b) explaining how machines have been or can be constructed so as to exhibit such properties. A property that has received tremendous attention is *creativity* (Boden 1994; Boden 2004; Colton and Wiggins 2012; Paul and Kaufman 2014; Besold et al. 2015). Can drawing or dancing or playing music be really creative if undertaken by a robot? The assumption is that if the answer is “yes,” the claim for machine art is legitimized (for a challenge of this view see Coeckelbergh 2017, 297-300). Other alleged properties of human artists or artistic action (often subsumed under the label of “creativity”) that computational researchers and producers of machine artists have sought to transfer to robots or robotic action are *improvisation* (Lösel 2018; Lewis 2018), *intentionality* (Lewis 1999; Lösel 2018, 189-190; Stelarc 2018, 62), *anticipation* (Endo 2008), *autonomy* (Cohen 2018, 45), *intuition* (Cohen 2018, 48), *aesthetic effects* (Colton and Wiggins 2012), *surprise* (Penny 2016, 53; Moura 2016, 265), *reaction* (Penny 2016, 57), *empathy* (Penny 2016, 58), *novelty* (Moura 2016, 255, 265), and *self-organization* (Moura 2016, 262).

These discussions are informative not only about the theoretical framework of artificial intelligence and practical puzzles concerning the construction of creative, autonomous, improvising, and so on, robots, but also about the nature of art and humanity and their relation to technology. They can also be illuminating regarding the, often confused, meaning we apply to such concepts as creativity, improvisation, novelty, etc. Yet, the question concerning the cause of PRHMA, humanity’s “immediate” or “primitive” fear and anxiety towards machine art, is at least equally important, even though it has received barely any attention.

Additionally, I find the question concerning PRHMA, the question “why we fear machine art at all” (Coeckelbergh 2017, 296), much more interesting and philosophically valid than the question whether or not machine art is “really” art. The latter question is in fact unanswerable, for there are so many different and even opposing definitions of art (for an overview see Adajian 2012). Alternatively, according to the currently most influential theory of art, Dickie’s “institutional theory of art” (Dickie 1974), there should be no doubt that machine art can

“really” be art. For, as the theory tells us, whether or not a certain object is art is decided absolutely by “the artworld”: the artists, the critics, the gallery owners, the art public. If natural objects such as logs and “readymades” such as Duchamp’s *Fountain* can be accepted as art (Dickie 1969), then surely works generated by machines can also be art. All that is required in this case is the ascription of art status to them by the artworld. If, for example, a work created by a machine is included in a gallery exhibition, it is immediately given the title of an *artwork*. This is recognized by Coeckelbergh, who writes that

[i]f the only thing that counts is subjective decision or social agreement, then if these are in place, this is all the machine needs [in order to create art]. [...] For instance, if a neural network creates something we (humans) call art, then it is art – end of the matter [...]. (Coeckelbergh 2017, 293)

By contrast, the response to the question *why* humans at the pre-reflective level have fear and anxiety towards machine art and thereby exclude it from the domain of art *remains*, as Coeckelbergh puts it, “not clear” (Coeckelbergh 2017, 296). To take a small step towards the clarification of such a response is the present paper’s sole aim.

Some weighty reasons are found in the literature concerning why humanity must invest in machine art: the externalization of human artistic abilities in the machine artist and hence their becoming observable for science (Boden 2004, 185; Edmonds 2018, 54; Colton and Wiggins 2012, 23; Lovejoy 2004, 25; Stephens and Heffernan 2016, 37; Bar-Cohen et al. 2009, 12), the enhancement of human creativity through the realization of intricate projects that could not be realized without the involvement of computing and robotics (McCormack and d’Inverno 2012, 422; Coeckelbergh 2017, 297-298; Poltronieri et al. 2018, 6-8, 10-13; Edmonds 2018, 54; Kidner 2018; Lovejoy 2004, 69), the disclosure of new dimensions of reality and the subsequent expansion of humanity’s knowledge and appreciation of reality, especially given that our world has now acquired an undeniably “technological” character (Coeckelbergh 2017, 300; Poltronieri et al. 2018, 15-17; Willats 2011; Colton and Wiggins 2012, 24; Lovejoy 2004, 8, 271-276; Penny 2016, 63), and the humanization of science (Poltronieri et al. 2018, 7; Lovejoy 2004, 69, 280). Given the reality and importance of these gains, what could cause PRHMA? As noted, there is no reflection on this issue in the literature, only marginalized, sporadic remarks. My survey of the literature has disclosed the following as the most agreed upon reasons for PRHMA: (a) the lack of autonomy in machine art, (b) the lack of spirituality in machine art, (c) the lack of consciousness in machine art, and (d) the threat machine art poses for human survival. I will now discuss each of these in turn.

2. Autonomy

Coeckelbergh suggests that PRHMA is due to the assumption that machine artists are “merely programmed” (Coeckelbergh 2017, 286), and Nake reports that the public’s reaction to

early computer artworks was that “even randomness [in computer art] [...] was not really random but only *calculated* pseudo-randomness, the type of randomness possible on a digital computer. A fake, from start to end, christened as art!” (Poltronieri et al. 2018, 5, my emphasis). Stelarc also remarks that “there has always been a fear of the involuntary and the automated” (Stelarc 2018, 59). The suggestion is that PRHMA is caused by a sense of lack of autonomy in machine art: the machine artwork is simply the result of the pushing of a button by the machine’s autonomous human creator. The machine has not made any autonomous decisions during the process of artistic creation, precisely because it is unable to do so.

One can find hints of three responses to such a view in the literature. First, it is argued that even if machine art resulted solely from a programmed activity, it cannot be excluded from art’s domain. As noted, there is no universally accepted definition of “art” and, moreover, Dickie’s “institutional theory of art” would allow the incorporation of machine products into the domain of art, even if these resulted from a programmed activity (Coeckelbergh 2017, 286). In other words, it is not universally accepted that not-being-programmed or exhibiting autonomy is a necessary condition of art.

Second, it is argued that the view under discussion assumes that human art is free from programming, that humans, in general, and human artists, in particular, have free will. This, however, is a philosophical puzzle that has not yet been resolved to universal satisfaction. Yet, this does not prevent one from referring to human *art* and human *artists*. Humans have themselves been created, in one way or another, and their physiological, biological, chemical, and so on, structure has its own “fixed” characteristics, its own “programming” or “simple rules.” If there is no free will, art results from this fixed structure. In this case we would *not* say there is no art because the human artist has been created and has a fixed structure. Art seems independent of these considerations. In the same way, there does not seem to be any ground for claiming that machine art is not really art because the machine is programmed. If the programmed *human* structure does not prevent us from accepting *human* art, the programmed *machine* structure should not prevent us from accepting *machine* art. As Coeckelbergh notes, if we accept “the idea that human beings are created but then in turn themselves become creators,” we have to accept that although a machine’s algorithm or code is created by humans, that machine can be a creator (Coeckelbergh 2017, 286).

Third, it is argued that it is false to claim that machine artists are “merely programmed,” that they exhibit no autonomy. Robots equipped with sensors can collect information which they subsequently use in order to change their behaviour during the artistic process, showing thereby that the artwork does not result merely from the programming/code. Mura makes a strong case for such an argument. He writes that

we may [...] recognize a certain degree of autonomy in creative machines. They can do things that are not programmed and/or result from an internal information gathering device. (Moura 2016, 255)

The gathering of information enables the robot “to generate novelty,” escaping thereby any predetermined trajectory (Moura 2016, 255). There still are, of course, simple rules – as there are in all beings, including humans – but the combination of these with collected information and emergent behaviour enables robots to “create pictorial compositions that are not predetermined” (Moura 2016, 255).

Moura put this in practice in 2003 with ArtSBot (Art Swarm Robots), a group of robots able to interact with one another at a certain setting (the canvas) via their sensors, controller, and actuators. The sensors receive signals from the environment (the painted trails left behind by the robots), which are then processed by the microcontroller, commanding thereby the actuators. The robots avoid each other by means of the proximity sensors and establish communication only through the painted trail left on the canvas by a previous movement. They work through what Grassé called “stigmergy,” an agent’s behaviour resulting from the effects appearing in a setting due to the action of other agents (Grassé 1959). Based on preexisting trails and the collected information, the robots create – collectively – exquisite paintings of abstract art. The whole process is stopped by the viewer when she feels that “the painting is ‘just right’” (Moura 2016, 265).

In 2006 Moura created RAP (Robotic Action Painter), “an individual robot artist [...] able to determine, by its own means, the moment in which the painting is finished” (Moura 2016, 265). RAP decides to finish the painting when the chaos of its painted brushes gives place to a form that feels right to it. Before this, the algorithm determining RAP’s microcontroller leads (a) to a random behaviour that follows the encounter of white and (b) to a structured feedback behaviour when a colour other than white is met. The combination of these two behaviours leads to the emergence of a discrete pattern, recognized by the robot as a well-defined composition. Moura gives us his own evaluation of the project:

RAP creates artworks based on its own assessment of the world. At any given moment the robot ‘knows’ its situation and acts accordingly. It scans constantly the canvas for data retrieving. It uses its relative position in the space as a real random generator. It builds gradually a composition based on emergent properties. It decides what to do and when to do it. It finishes the process using its particular ‘sense of rightness’. Although the human contribution in building the machine and feeding it with some basic rules is still significant, the essential aspects of RAP’s creativity stems from the information that the robot gathers by its own means from the environment. In this sense RAP’s art must be seen as a unique creation independent of the human artist that was at the origin of the process. (Moura 2016, 267)

And he concludes, polemically, thus:

My painting robots were created to paint. Not my paintings but their own paintings. The essential of their creations stems from the machine’s own interpretation of the world and not from its human description. No previous plan, fitness, aesthetic taste or artistic model is induced. These robots are machines dedicated to their art. (Moura 2016, 267)

If there is robotic artistic action driven not only by simple rules but also by collection of information and emergent behaviour, it is, I think, impossible to argue that this action does not involve some autonomy.

Note, however, that the above three responses are objections pertaining to a thesis about the art status of machine art (“machine art is not really art”), while the thesis under discussion is a thesis pertaining to the *hostility against machine art* (“there is a pre-reflective fear of machine art”). That is to say, all objections, which dominate the literature regarding the issue of machine art’s autonomy, responded to the view that there is no autonomy in machine art in such a way as to undermine the claim that machine art is not really art. Yet, what we were expecting is an illumination of the suggestion that the absence of autonomy in machine art causes PRHMA. None of the three responses we discussed offers such an illumination because they focus on the art status of machine art instead of on PRHMA.

Could, then, the lack of autonomy in machine art, if it existed, function as the cause of PRHMA? In my view, it could not, because the absence of autonomy in machine art would not obstruct the art receiver’s obtaining or experiencing the desideratum of autonomy in art if she chose to abandon machine art and turn to human art instead. In simpler words, that there is lack of autonomy in machine art cannot cause fear in a human’s heart, for that human can experience autonomy in art by simply moving to human art. S fears X because of Y only if there is no obvious way for S to avoid Y. The appeal to lack of autonomy (Y) does not provide such a scenario: one can quite simply ignore machine art and pursue only human art, finding therein the autonomy one desires. Thus, PRHMA could not be caused or explained by the belief that there is no autonomy in machine art.

3. Spirituality

Another reason for PRHMA frequently mentioned in the literature is that machine art lacks spirituality. Spirituality is a sense of belonging to a whole, to eternity or divinity, to something more meaningful than everydayness’s hustle and bustle. Spirituality is often associated with mystery and “mysticism” or “magic” and the feeling of being in contact with the fundamental – often occult – forces permeating the cosmos. The idea here is that machine art has a character – caused by the “technological” element in it – that prevents or hinders its human receivers from acquiring or participating in spirituality and that this is the reason why there is PRHMA. Machine art is conceived of as an obstacle to a human being’s connecting with the eternal, divine, and holistic aspects of her environment.

There have been reactions to the idea that machine art or “the technological” in general is an obstacle to spirituality. It has been suggested that technology is, essentially, an expression mediated by numbers and geometrical forms, which, since antiquity, are considered by many as the most appropriate symbols of wholeness and eternity. The Pythagoreans and some schools of Platonism, for example, regarded numbers and geometrical forms as the ultimate components of reality and truth.

Since these elements are fundamentally involved in technology, the latter necessarily has a spiritual dimension.

Rutsky expresses this well:

[Contemporary] aesthetics attempts to reconcile the aesthetic with the technological. To this end, it often connects the spiritual and the technological, attempting to impart a sense of wholeness and the eternal to technological forms. Thus, mathematical and abstract geometric forms are figured as having spiritual attributes, as reflecting eternal forms and values. Often, as in Bruno Taut's *Glass Pavilion*, these aestheticized technological forms were explicitly designed as a kind of spiritual edifice, a symbol of unity for the fragmented modern city. Through this aestheticized technology, not only is the aura of the artwork maintained, but there is often an attempt to extend it to society in general, as a means of reinvesting modern society with a sense of spirituality and wholeness. (Rutsky 1999, 9)

Rutsky proceeds by noting that the emphasis given in contemporary aesthetics to the association of the technological with spirituality is a reaction to the basic tenet of artistic modernism, in particular, and modernity, in general, to assume an unbridgeable gap between spirituality, on the one hand, and reason, science, and technology, on the other hand. Modernity understood spirituality as "magical," "mythical," and "irrational," and placed it wholly in the pre-modern world. It conceived of itself as the force that "liberates" the world from "spirit" and establishes the kingdom of reason, exemplified by science and technology (Rutsky 1999, 10).

Rutsky links contemporary aesthetics' attempt to re-spiritualize technology with "high tech," which, as his detailed analyses show, is driven more by aesthetic rather than by functional concerns and features. The aestheticism of high tech is explicitly associated with primordial, magical, mythical, and spiritual structures by such movements and discourses as techno-paganism, "new-edge" science, cyber-shamanism, and rave culture. As Rutsky observes, "techno-pagans, for example, see the technocultural world as magical, as inhabited by unseen forces, spirits, gods" (Rutsky 1999, 18).

A similar approach can be found in Davis, who argues that the spirituality of old did not vanish with the advent of modern science and technology; it rather clandestinely infiltrated scientific-technological discourse, determining thereby the fundamental structures of science and technology. Here is a passage that encapsulates Davis's thesis:

[C]ommon sense tells us that mysticism has [nothing] in common with technology [...]. Historians and sociologists inform us that the West's mystical heritage of occult dreamings, spiritual transformations, and apocalyptic visions crashed on the scientific shores of the modern age. According to this narrative, technology has helped disenchant the world, forcing the ancestral symbolic networks of old to give way to the crisp, secular game plans of economic development, skeptical inquiry, and material progress. But the old phantasms and metaphysical longings did not exactly disappear. In many cases, they disguised themselves and went underground, worming their way into the cultural, psychological, and mythological motivations that form the foundations of the modern world. [...] [M]ystical impulses sometimes body-snatched the very technologies that supposedly helped yank them from the stage in the first place. (Davis 2004, 5)

Yet another similar position is Couliano's, who writes that

[h]istorians have been wrong in concluding that magic disappeared with the advent of "quantitative science." The latter has simply substituted itself for a part of magic while extending its dreams and its goals by means of technology. Electricity, rapid transport, radio and television, the airplane, and the computer have merely carried into effect the promises first formulated by magic, resulting from the supernatural processes of the magician: to produce light, to move instantaneously from one point in space to another, to communicate with faraway regions of space, to fly through the air, and to have an infallible memory at one's disposal. (Couliano 1987, 104)

I do not have the space here to describe in detail Rutsky's, Davis's, and Couliano's excellent analyses of how the spirituality of old has infiltrated and manifests itself in the fundamental structure of modern technology (for similar positions see Yates 1966, 224; Dery 1996; Penczak 2001; Kaldera and Schwartzstein 2002; Vedro 2007). What is significant for my purposes is only that there exists contemporary research undermining the idea that technology, and hence machine art, is devoid of spirituality. This means that PRHMA, *if* it is caused by that idea, can be challenged: there is nothing in principle obstructing an art receiver from finding spirituality in machine art, and, therefore, humans should not be hostile towards machine art.

Yet, this argument works only if PRHMA is indeed caused by the belief that there is lack of spirituality in machine art. The positions we discussed do not *argue* for or against *this* causal thesis. They rather accept it and attempt to show that it is unjustified, believing that if they are successful, the hostility against technology and machine art will disappear or be reduced. In this way, however, the very phenomenon of such hostility remains *unexplained*.

Thus, the question is whether or not PRHMA could be caused by the belief that machine art lacks spirituality. In my view, it could not. The argument for this assertion has the same form as the one provided against the view that PRHMA is caused by the belief that machine art lacks autonomy: if the receivers of machine art believed or felt that machine art lacks spirituality, they could easily turn to human art, where they could find the spirituality they were looking for. The easiness with which an art receiver could move from machine art to human art and thereby obtain spirituality excludes the possibility that machine art could generate fear and anxiety in the receiver because of lack of spirituality. The most one would encounter here is *indifference* towards machine art. The crucial point is that the desideratum, spirituality, is acquired by one's simply abandoning or ignoring machine art. One's realizing that one can fully satisfy one's desire for Y by easily moving from X to Z is a condition that excludes the possibility that one is strongly hostile towards X because of lack of Y in X.

4. Consciousness

Yet another reason for PRHMA mentioned in the literature is that machine artists are not conscious of their creations, that, in general, machines lack consciousness. Sometimes this lack of

consciousness is associated with lack of uniqueness, to wit, with the understanding of machines as facilitators of mass production (Lovejoy 2004, 2). This, however, is certainly a false assumption, for the machine artists of the twentieth century are producers of unique artworks. As Stephen and Heffernan put it, twentieth-century machine artworks

seemed highly civilized and benign, and far removed from the world of factories and mass production. They were made as exquisite and unique objects, increasingly at a remove from the mass-produced objects and industrial machines that came to define the nineteenth century. (Stephens and Heffernan 2016, 34)

At any case, there is no obvious necessary correlation between lack of consciousness and lack of uniqueness (mass production): a robot can be employed *only* for the creation of unique artworks.

Moura argues that the lack of consciousness in machine artists does not undermine machine art, because the presence of consciousness in the artist is not a necessary condition of the work being an *artwork*. There have been cases of great artistic movements where non-consciousness or unconsciousness was explicitly demanded, as, for example, in Surrealism or in certain strands of abstract art. Here is Moura:

It is true that consciousness is lacking to this [robotic] creativity. But if we look at the history of modern art, it is obvious that, for example, surrealism tried to produce artworks exactly in these same terms. The “pure psychic automatism,” the quintessential definition of the movement itself, appeared as a spontaneous, non-conscious and without any aesthetic or moral intention technique. In the first *Surrealist Manifesto* André Breton (1924) defined the concept in this way: “Pure psychic automatism by which it is intended to express, either verbally or in writing, the true function of thought. Thought dictated in the absence of all control exerted by reason, and outside all aesthetic or moral preoccupations.” In the field of the visual arts, Jackson Pollock was the artist that better fulfills this intention by splashing ink onto the canvas with the purpose of representing nothing but the action itself. This was coined Action Painting, as it is well-known. Perhaps, because of that, the first paintings from my robots are, aesthetically, so similar to the ones of Pollock or André Masson, another important automatism-based painter. In his surrealist period, this artist tried frequently to prompt a low conscious state by going hungry, not sleeping or taking drugs, so that he could release himself from any rational control and therefore letting emerge what at the time, in the path of Freud, was called the subconscious. The absence of conscience, external control or pre-determination, allow these painting robots to engender creativity in its pure state, without any representational, aesthetic or moral intention. (Moura 2016, 259)

Moura, then, argues that while lack of consciousness is a reality in machine art, the latter can still be art, for, like the surrealists or certain human painters of abstract art who promoted unconscious or non-conscious artistic action, machine artists can in principle create unique artworks that will be baptized as “art” by the artworld.

As before, though, we notice that this argument does not address the issue of PRHMA and hence it cannot function as its explanans. All it manages is to cast doubt on the thesis

that machine art is not really art. The crucial question, which Moura does not address, is whether or not the belief that machine art lacks consciousness causes PRHMA.

In my view, the machine artists' lack of consciousness cannot be the explanans of the pre-reflective fear or anxiety towards machine art. This is so because, reiterating the pattern of argument with which we concluded the two previous sections, the art receiver could very easily sidestep or ignore machine art and simply focus on human art if she thought consciousness is important for art and can be found only in human art. In other words, lack of consciousness in machine art does not seem threatening to the art receiver insofar as the latter has still the option of human art. In this way, a necessary condition for the possibility of fear or anxiety, that is, the feeling of *threat*, is missing and hence PRHMA remains unexplained.

There are some other reasons mentioned in the literature in apparent relation to the phenomenon of PRHMA, such as machine artists' lack of skill (Lovejoy 2004, 43), lack of effort (Colton 2008; Kidner 2018, 88; Colton and Wiggins 2012, 25), and lack of emotions (Coeckelbergh 2017, 290-291; Lovejoy 2004, 22-23; Stelarc 2018, 66; Colton and Wiggins 2012, 25; Moura 2016, 262-263). As with the reasons we have already examined, however, these other reasons exhibit the same two problems. First, in actuality the emphasis is put on developing a critique of these reasons from the perspective of the issue of whether or not machine art is “really” art. The initial suggestion that they can explain PRHMA is never developed in the ensuing debates. Second, and more importantly, a pattern has now emerged, which reveals that all reasons having the form “machine art lacks X” cannot explain PRHMA, since any art receiver could very easily turn her attention to human art instead and thereby find therein whatever she thinks is the desideratum missing from machine art. Humans would be *tolerant* to machine art insofar as human art remains as an alternative option and satisfies their desiderata or requirements. This *precludes* any suggestion that the belief that machine art lacks X is the explanans of PRHMA. Fear and anxiety towards machine art could be generated only in the case that machine art can be perceived as posing real *threat* to humanity. Such a perception surfaces occasionally in the literature, even though discussions of it remain superficial. Let us now turn our attention to this issue.

5. Human Survival

PRHMA is often associated with issues pertaining to human survival. These issues fall into two broad categories, namely, first, issues having to do specifically with the economic dimension of an individual's life and, second, issues having to do with an individual's safety in general. In both categories a threat is specified that relates to the notion of machines' “taking over.” Coeckelbergh, for example, very thoughtfully notes that PRHMA can be

part of a broader discourse and anxieties [...] concerning the question if machines will *take over*, if they will make humans obsolete in a lot, if not all, domains of previously exclusively human activities. (Coeckelbergh 2017, 287, my emphasis)

Coeckelbergh's point is that humans pre-reflectively have fear and anxiety towards machine art because they have a belief or a feeling that machines will "take over" human life and thereby make the human element, in some sense, obsolete. It is because of this fear and this anxiety that some people "see it as their mission to defend 'humanity' against 'the machines'" (Coeckelbergh 2017, 296). Fear towards machine *art* is mediated by fear towards *machines* in general. In other words, machine art is understood here as *part* of technology or the mechanization of life *in general*.

A first economic consequence of machines' "taking over" that is quite often discussed in the literature is *unemployment*, which is a phenomenon belonging to the wider problematic of human survival. Coeckelbergh is once more spot on when he writes the following:

[C]onsider for instance the discussion about robots in healthcare or the discussion about automation and employment: will robots replace nurses and perhaps replace all kinds of jobs previously done by humans? (Coeckelbergh 2017, 287)

That robots pose a real threat to human employment is confirmed by Bar-Cohen *et al.*, who write that

[a]s humanlike robots become more capable and useful, one can envision that years from now they may become our household appliances or even our peers, and we may use them to perform difficult and complex tasks *as well as possibly to replace unskilled human laborers*. (Bar-Cohen et al. 2009, 5-6, my emphasis)

In fact, in Japan humanoid robots are already populating shopping malls and are quite a commercial success, increasingly replacing more and more human labourers, especially in such professions as hospital and home healthcare workers, receptionists, security guards, and tourist guides (Bar-Cohen et al., 21).

Even if one could object that machines cannot really take over *all* human jobs, it is certainly a cause of concern that contemporary researchers in computational creativity have explicitly expressed the desire to promote machine art to such a degree and in such a way that an enormous amount of machine artworks will be distributed commercially through the Internet. This vision seems to have the consequence that a large portion of the artworks sold will be machine artworks. Consider, for example, the following telling thought by Colton and Wiggins:

Currently, having a bespoke painting, poem or piece of music created is the privilege of the few. However, one day, *the needs of the many will outweigh the needs of the few*, and we will expect the Internet to provide new ideas and new artefacts on demand, just like we expect it right now to provide old ideas and old artefacts. We will go online for: a new, relevant, joke for a speech; an exciting new recipe for a party; or a bespoke and beautiful new painting for a present. We cannot expect the world's creative people alone to supply artefacts for such a huge demand, so autonomously creative software will be necessary. The research in Computational Creativity projects – to help break the *final frontier* in AI research – will be pivotal in bringing about this technological and cultural revolution. (Colton and Wiggins 2012, 25)

If machine art became so widespread and easily accessible on the internet, it would not be an exaggeration to see it as causing increase of unemployment to human artists in the artworld.

A second economic consequence of machines' "taking over" that is also frequently mentioned in the literature is the capital's use of machines in order to establish lower wages and to make it even harder than before for the workers to protest against their employers (for fear of being replaced by a machine). Nake, for one, insists that machines are tools in the hands of "the rich and the ruling" with which they exert an even greater control over the workers. Nake, a pioneer in computer art, expressed this thought in a 1971 paper entitled "There Should be no Computer Art" (Nake 1971). This classic paper makes apparent in the most luminous manner the pre-reflective fear humans have of machine art, and that this fear stems from general concerns about machines' affecting the economic flourishing of individuals.

Rutsky explains that at its very inception modernity distinguished itself from the medieval "dark ages," from pre-modernity, via what he calls "the instrumental conception of technology" (Rutsky 1999, 2). This conception was that technology is the means or "the instrument" for the moderns "to know and control the world" (Rutsky 1999, 2). Gradually, however, and as the involvement of machines in human life became increasingly deeper, humans started developing a parallel sentiment, that of fear. Fear was fully justified as machines indeed increased unemployment and the gulf between rich and poor, and contributed to making the workers' life entirely miserable. The rich owned technology and used it to control the workers' wages and labour even more than before. Wood writes that throughout the nineteenth century "factory workers came to feel they had been reduced to the mechanical pieces they were in charge of producing, hour after hour, day after day" (Wood 2007). This situation led to Marx's and Engels's cry that humans have become a mere "appendage" of the machines that "enslaved" them (Marx and Engels 2008, 34). Rutsky remarks that "despite the pronouncements of various technological 'visionaries' and corporate chiefs detailing how 'high tech' will 'democratize' society, enabling universal access, participation, and control over one's life, high technology remains a 'tool' for distinguishing social classes" (Rutsky 1999, 3).

As noted, PRHMA is associated in the literature not only with issues having to do with the economic dimension of an individual's life, but also with issues having to do with an individual's overall safety. Such issues relate to scenarios envisioning that robots will one day gain the upper hand in their symbiosis with humans. In fact, as Bar-Cohen *et al.* convincingly show, there is real danger that, unless precautionary measures are taken, machines *will* pose a threat to human safety in the not so distant future. The following passage is long but greatly illuminating:

Humanlike robots are being developed to be smart, mobile, and autonomous machines. These capabilities would make them quite powerful. Under certain circumstance, they may also become dangerous to us. Although this technology may improve our lives, it can also cause complications or even terrible destruction if we are not very careful. Some of the concerns may include ethical questions and

potential dangers to humans resulting from unlawful acts. To prevent such dangers, we must address the potential concerns long before the possibility of their becoming superior to us is realized.

In order to get the most benefit from their advancing capabilities it is important to channel their development into positive directions and protect ourselves from the negative possibilities. If humanlike robots become more capable and equipped with simulated cognition there will be legitimate concern regarding their continued “loyalty” to us. One may wonder what would happen if they take on questionable roles such as acting as a specific person’s clone and then commit a crime, or have access to our assets and private or intimate information and possibly do something to hurt us using our information. Science fiction movies and books are creating public misconceptions of what humanlike robots can do and the danger that they may pose. Yet, as science-fiction ideas are rapidly becoming an engineering reality, it is increasingly becoming important to try to envision the potential issues of concern that may arise and find ways to stave off the possible negative outcomes. (Bar-Cohen et al. 2009, 17)

It is not only that an individual citizen’s life can be affected negatively by human criminals’ using robots for their illegal tasks. There is also the very realistic scenario that robots will one day “surpass human levels of intelligence” and “develop a will of their own,” which in circumstances of tension could lead them to form military robotic groups that will be unbeatable in the battlefield (Bar-Cohen 2009, 18). To make a long story short, Bar-Cohen *et al.* affirm a realistic possibility that humans one day may become slaves to robots or even be annihilated by them. This is not actually a “fantastical” or “unrealizable” projection: imagine only what could happen if highly intelligent, skillful and literally fearless robots learned to mechanically fix and even build other robots.

It is the combination of projections (but also actualities) of economic and physical dangers posed by robots that generate the pre-reflective sentiments of fear and anxiety, the general pre-reflective hostility, towards robotic technology. Since machine art involves such technology, it receives that hostility as well.

One may object that machine art does not have an obvious economic or military function, as robots – as we have just seen – certainly have, so it does not *itself* pose any threat to humanity. Machine art does not itself cause unemployment to workers in general, and even the idea that it can cause unemployment to artists is somewhat far-fetched, given the enormous amount of funding a project of machine art currently requires. Machine art does not seem to have much relevance to situations of military control and policing, or to situations of class struggle and social division. Why, then, should we accept that PRHMA is caused by the humans’ believing or feeling that their survival is threatened by machine art?

This objection overlooks a significant fact about human psychology, to wit, that it transfers sentiments from a general domain to its parts and/or extensions. Humans fear – pre-reflectively – robotic technology and transfer this fear to anything that involves such technology, including machine art. Humans see in machine art a “symbol” or a “sign” of the expansion of machines in their lives. Machine art is not *itself* a threat to humanity, but humans “see” it as or “feel” that it is

an extension of robotic technology in general, which they pre-reflectively consider, for the reasons we have specified, to be such a threat.

Crucially, note that this explanation does not succumb to the difficulty that the previously discussed explanations face. Here the art receiver cannot simply sidestep or ignore machine art and turn her attention to human art instead. This will not remove the threat to her survival. If the art receiver does not find skill in machine art and seeks skill in art, she can very easily turn to human art. By contrast, if the art receiver finds machine art threatening to her survival (in the “symbolic” fashion I explained above), this threat will remain even if she turns to human art. The difference between the explanation based on the threat to human survival and the explanations based on lack of such an element as autonomy or spirituality or consciousness or emotion or skill, and so on, is that in the former case the art receiver’s turn to human art does not resolve what the receiver conceives of as a problem. For example, in the case of an art receiver who looks for spirituality in art and does not find it in machine art, her turn to human art will satisfy her demand. By contrast, in the case of an art receiver who thinks that machine art is a threat to her survival (or the survival of the human species), her turn to human art will not make her life any less vulnerable to the (alleged) threat posed by machines.

Precisely because of this difference I suggest that the true explanans of PRHMA is humans’ “symbolic” belief that machine art is a threat to human survival. All other explanations fail to account for the very real existence of a pre-reflective feeling of fear or anxiety towards machine art. This, of course, does not mean that such a threat is real. All that matters here is that humans pre-reflectively *imagine* such a threat, either on the level of actuality or on the level of possibility.

6. Conclusion

There is a well-documented pre-reflective hostility against machine art (PRHMA). How can it be explained? Explanations based on the (alleged) fact that machine art lacks an element that is (allegedly) found in human art do not work. Such explanations cannot account for the sentiments of fear and anxiety present in PRHMA, because the art receiver could simply turn to human art for finding the element she is looking for. By contrast, an explanation based on the idea that machine art is “symbolically” a threat to human survival can be successful, since the art receiver’s turning from machine art to human art does not eliminate the (alleged) “symbolic” threat machine art poses for human survival. If there is a pre-reflective *belief* or *feeling* that machine art *is* such a threat, then it is perfectly understandable why humans exhibit a pre-reflective *hostility* against machine art.

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