BECAUSE THERE WAS NO USER IN ART: IMAGINING A TECHNOLOGICAL SUBLIME

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This paper contrasts the procedures of science and art by examining the processes of the evolution of thought, and of the context which grounds thought, in both families of disciplines. The decisive difference is the attitude towards reproducibility: in science, reproducibility is sought after, whereas, in contrast, variation (either deliberately produced or arising out of random, uncontrollable processes) is an essential part of the creative process. After reviewing models from logic and programming, which give useful insights into the relation between thought and context, the work of Otto Neurath on the possibly discontinuous evolution of cluster concepts is examined. This body of theory is then applied to music, art and performance, and the relations between them, reflecting upon the current tendency of industrial design and product engineering to construct a smooth, frictionless world inhabited by a fictional being called The User.

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1 ART AS A MACHINE

The picture of a machine holds us captive: we imagine that our thoughts and our artistic productions are products of a mechanism whose nature can, in principle, be known, and whose workings (apart from the inputs of the senses) depend only on itself. Such a machine could be investigated quite separately from the rest of the universe. Call such a machine a monadic machine (monadic in the Leibnizian, not in the mathematical, sense). Furthermore (if we are Cartesian enough) the monad would be transparent to itself: introspection could give us insight into the nature of the mechanism. These oversimplifications infect not only our dealings with machines in the wide sense and the way machines are designed (including, for example, musical instruments), but also machines as metaphor: even more so when, under Cartesian influence, imagination suggests that introspection could give us insight into the nature of the mechanisms that we ourselves are.

The concept of machine collides with Simondon's definition of technical object as "a non-saturated system" (Simondon 1958, p. 41) which "...exists not only by virtue of its functioning...but by virtue of phenomena of which it is, itself, the center..." (Simondon 1958, p. 41), to finally explode in Guattari's description of abstract machines as an oblique concatenation of multiple components of different types of machines: material and energetic, semiotic and algorithmic, representational, of organs and bodily fluids and of desiring machines (Guattari 1992). Somewhere in this arena we find computer programs, expert systems and Artificial Intelligence: systems which, although it is not proven that they think, nevertheless are closely allied to thought. And so the obliquity of Guattari's machines subverts the picture of thought as the product of a monadic machine.

Just like the Latin concept of a *machina*, which could exist materially in the form of an object, or immaterially as an event or happening, or could simply mean a trick or a device, art can be imagined or described as a process that traverses all the ways in which machines can be: it produces a continuous emergence of sense because, throughout their evolution, machines (even though they diverge from the original human gesture) generate life from abstract human vitality as a qualitatively different emergent phenomenon. And in this extraction and abstraction lies the essential dimension of machinic autopoiesis. The enunciative power to define itself goes back directly to the machine as a syntagmatic concatenation. This autopoietic nucleus is what subtracts the machine from its structure, a difference which secures its value (Guattari 1992). This concept of a machine breaks free of a priori specification, either semantic or pragmatic.

Art, similarly to a technical object, in the formation of its own identity is recursively intertwined with the milieu (environment) where it is produced and which produces it. Nevertheless, it is also the center of a different type of vitality: art defines itself in relation to context, as for example that of fine art, new media art, art-science, and the context (or milieu) is defined not only in relation to media or methodology of production but also in terms of economy. If fine art is reflected in the closed world of collectors, art critics, galleries, and the construction of the identity of the artist can nowadays be more important than the work of art in itself, following the rules of the age of art's "financial reproducibility" (Panza 2015), new media art is contaminated by technological investors, multinationals and the game industry. Art-science, instead, eventually seen as a vehicle to foster the digestion of a sort of pop science (almost like a scifi novel), risks segregation to a subordinated role, grazing in academia like a teacher's pet.

In these diversified contexts, what kind of machine, or *machina*, is an art piece? Could a machine that doesn't do anything be considered a work of art, in its attempt to signify a gesture which will never happen, or, more generally, non action as the dimension of the impossibility of being? In the dynamics of utilitarian structures, what are the discursive forms of a machine that has lost its function?

> Many abandoned technical objects are incomplete inventions which remain as an open- ended virtuality and could be taken up once more and given new life in another field according to the profound intention which informs them, that is their technical essence (Simondon 1958)

Thus, even abandoned technology has a technical essence: consequently, it is possible to ask about machines that have lost their function, and to hope that, in the panorama of abandoned technical objects, art can emerge in the space left open by the disappearance of the picture of a User designed to perform smooth actions in a plastic world: chaos dissipates certainty in the land of disorganised entities.

Fig. 1. Shulea Cheang. *Ewaste*. Lagos, Nigeria: 2015.

While striving for eternity, the machine is obsessed by a desire for abolition, failure, catastrophe and its own death. This form of alterity, this negation of the very self as inherent to its essence, is developed in diverse forms. Guattari, possibly following Maturana and Zeleny, distinguishes between 'allopoietic machines', that produce things other than themselves, and 'autopoietic machines', that are capable of generating themselves and which specify continually their organisation and their limits (Guattari 1992). The two processes may be simultaneous. If machines depend on exterior forms — those which generated them, the forms with which they interact, human forms and the form of the environment — then their autopoiesis implies the generation of an opinion on the world of beings, that which is not them, and a reflection upon society.

2 DYNAMICS OF CONTEXT

The monadic concept of a machine undermines itself from within: it is inadequate to the phenomenology of intellectual production (White 2011). Although humans may be aware of their engaging in reasoning, they very rarely are fully aware of the nature of all the concepts they use: rather, *some* of what they reason with is given to their consciousness, while a great deal of it is hidden from their current awareness. Some of this is internal material of which we are not aware but which is part of our thought. But there is also external material that forms part of our thought (McDowell 1998). Taking these phenomena seriously does not mean ceasing to use machines to model thought, action, and performance: rather, it amounts to moving from the monadic concept of the machine to something more heterogenous, more Deleuzian, and, in particular, moving to a concept of a machine which essentially involves a portion of the external world. Let us call all of this non-salient material, both internal and external, the *context*. So how do contexts behave?

Examples from logic and computer science can guide us towards an answer, although their accounts will have to be modified, in some ways quite drastically, in order to arrive at a plausible story about reasoning in general. Logic gives a dependent type theory, a formalism that was developed by constructivist mathematicians in order to help with the formalisation of mathematics: here contexts are sequences of mathematical objects, together with their properties, which are under consideration in a particular piece of mathematical reasoning. The rough idea of a context of this sort originates, however, not in logical formalism but in mathematical writing: looking not at the *formulae* in research articles or in textbooks, but in the prose surrounding

them, it is possible to find that, at a given point, there usually is just such a sequence of salient objects and properties: such objects and properties are generally introduced into the discourse in words such as "let G be a group and H be a normal subgroup", and, having been introduced, they can then be *used* in explicitly formulated calculations and proofs.

The semantics of programming languages presents a similar picture. Computer programs are executed in hardware, which provides memory, registers and a processor to manipulate the contents of registers. However, programs are written in programming languages, and such languages talk about more than that (White 2015): they give names to memory location, they provide means for handling the flow of control (that is, what instruction should be executed after the execution of a given instruction). A computer program might appear to be a mere list of instructions, but, when it is executed, each instruction will be executed in a particular context, which will be constructed by the executing computer as the program is loaded and, step by step, executed. The context will then vary during execution, but it will vary in a deterministic way.

Type theory, then, and computer programs have a two-layered semantics: there is the semantics of the overt content (the salient logical instructions and formulae), but this semantics depends on the context which is constructed when the formula is proved or the program is executed.

This two layer semantic model could be used to describe cultural phenomena more generally: however, such models have two significant defects. Firstly, these models — logic and the semantics of programming languages — are intellectual productions, and they take place in environments which are isolated from the outside world. Secondly, the evolution of context in these models is deterministic: they are also discrete systems, so interesting questions such as whether the evolution is continuous or discontinuous do not arise. Even so, these models are a useful reminder, warning against the human tendency to see only what is foregrounded, what is salient. So models like the ones discussed above are needed, but with a less deterministic notion of context. What is needed is a context which, like Guattari's machines, is part of the natural environment, and which, like that environment, is capable of nondeterministic, discontinuous evolution.

There is a useful body of theory which can illuminate both problems, namely the work done during the twentieth century by both the Frankfurt school of critical theorists and by the Vienna circle. Although these two groups are usually seen as opposing each other, they have significant similarities: both of them viewed human thought as not being isolated from the outside

world but as radically influenced by its social and material environment. They were also quite concrete about the mechanism of this influence: both Adorno (from the Frankfurt School) and Neurath (of the Vienna Circle) think that the concepts implemented in everyday thought are determined by a context made of heterogeneous assemblies of concepts, bodily reflexes, social practices and the like. (Adorno calls these assemblies *Konstellationen* (Adorno 2013, pp. 164ff; cf Müller 2006 pp. 834ff), whereas Neurath calls them *Ballungen* (Cat 2014, § 3), but they play the same role for both authors).

Neurath, as a consequence, opposed the view that all concepts could be fixed by perspicous definitions: rather, everyday language was full of such heterogeneous assemblies (see (Cat 2014, §3), which could not be analysed in terms of primitive, precisely defined concepts. Even in the practice of science -- for example, in the words which express scientific observations -- we find terms such as 'microscope', 'seeing', etc., which, on examination, turn out to be quite resistant to definition. The structure of a scientific theory thus represented, furthermore, was not given by axioms.

> all content statements of science, and also the protocol statements that are used for verification, are selected on the basis of decisions and can be altered in principle. (Neurath 1934)

Adorno's *Konstellationen* are very similar: these, as well as being conceptual, also had an essentially affective component (Adorno 2013, pp. 397f, Müller 2006 p. 190). Adorno, too, drew the consequence that many concepts evaded exact definition:

> [Language] does not offer a bare systems of signs for the functioning of knowledge. Where language appears essentially as language, becomes representation, it does not define its concepts. (Adorno 2013, p. 164; our translation)

For both authors, these assemblies can, in response to external influence or internal evolution, change discontinuously: most drastically, a world view can lose credibility and simply collapse, but the same process happens on a smaller scale in the normal evolution of our beliefs and worldview. As Neurath says,

> A situation may be called unstable if even a small variation in the initial state may bring about a tremendous difference in the state of the whole aggregation [Ballung] in question: 'tremendous' here from a sociological viewpoint (Neurath 1944)

So in both cases we have a picture where overt concepts (either the concepts salient to us in the process of thinking, or the concepts referred to by words in text) are constituted of heterogenous assemblies of other material, some of it conceptual in nature, some of it more affective or pragmatic. It is this analysis of the context of thought which will allow us to describe more precisely the relation between science and art.

2.1 THE MATERIALITY OF INSTRUMENTS

Consider musical performance. Here the context has a further component besides the human agent and their socio-economic environment, namely the musical instrument. It plays an important role in musical performance, a role which is not only material but also semantic: the performer has beliefs about, and actions concerning, this very instrument, and consequently the state of the instrument (namely its physical condition) affects the performance, sometimes quite decisively. Both performer and audience are aware that the performance involves a material object, and the materiality of this object is an essential part of the performance: just as with brushstrokes in painting, the materiality of the musical instrument leaves traces on the performance, and thus the materiality of the instrument is essential to the semantics of the performance in a way in which the materiality of a computer is not essential to the semantics of programs that are executed on it.

The beliefs and intentions which performers and audience have towards the instrument are essentially about that individual instrument, not about the concept of an instrument: they are what are known as *de re* beliefs (Jacob 2014). Because of this focus on an individual, such beliefs resist formulation in terms of general concepts: to formulate this another way, we should regard the instrument itself (not a concept of it) as a part of the context for the audience's and performer's thoughts about the performance.

The particularity of the instrument is important when the state of a musical instrument changes suddenly and discontinuously. In some cases, the discontinuity of such state changes, rather than being an accident afflicting a performance, a departure from the ideal, can be an essential, intended part of the performance: indeed, the performance can be intended to exhibit just such discontinuous state changes, and thus to convey something important about the way life is exposed to the contingencies and the chaos of the physical world[1].

3 EXPERIMENT AS VARIATION

This analysis of the contextual nature of thought has provided some room for manoeuvre, and some reflections can be made about the relation between art and science.

If both art and science are based on research, their methodologies differ greatly. The canon of experimental science enforces repeatability on both sides — inductive and deductive — of empirical method: correspondingly, observation, as a qualitative

1. Bowers and Archer (2005) discuss the materiality of instruments, in which they provide interesting examples of nonstandard, but musical, interactions with the components of violins. Similarly, Faubel (2014) constructs a musical instrument strongly influenced by the embodiment literature: both of these are interesting discussions, but give the impression that the materiality of instruments is only salient in rather exceptional cases, whereas we argue that it is pervasive.

and quantitative connection in the ever-extending chain of scientific method, is automatically assigned a normative status: it is the main access to what is real. In view of Neurath's remarks on the unruly nature of even observation sentences, however, we must not assume that such repeatability is automatically given by scientific language or scientific practice: it is, rather, an achievement. Because it is an achievement, it is not inevitable.

And so there is also art. For art, the goal is not known from the beginning: in art observation implies imagination (that is, apprehension of that which is out of the plane of observation), it implies a simultaneous loss of the self and the emergence of subjectivity and individuality (Oreggia 2015, p.18), it implies a friction with the environment which creates the self and, in the process, reflects and instantiates the real (Heisenberg 1958). Art investigates a real into which the self is reflected, in a continuous deformation where each part loses its ontological self-sufficiency, owing its existence to the dependency on the other. For this reason, the main objective of art is always unknown, both in obscure forms such as the trobar clus of Provencal poetics as well as in open forms such as the Provencal trobar leu, because it is this unknown which stimulates the imagination and thus triggers the search. And so the unknown of art is multifaceted, polymorphic, incommensurable.

As an illustration of this can be considered the frequent use of genres which involve some element of indeterminacy: this may fall far short of the deliberate use of aleatoric methods, but, even so, techniques such as monoprinting (Tate Gallery, no date) show the value of the art of non-reproducibility. Conversely, Piero di Cosimo, with his "habit of examining a wall on which a lot of people had spat" (Geronimus 2006, p. 27) sets free his imagination: thus, the smudgy, irregular visual phenomenon, precisely because it is hard to classify, acts as a stimulus for the polymorphic imagination of the artist.

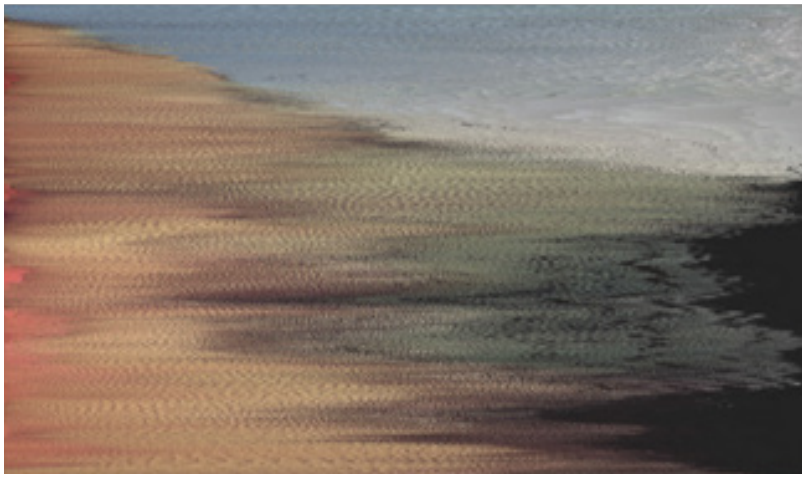

Fig. 2. Ignotus the Mage. *Piero di Cosimo. Perseus and Andromeda.* (revisited).

Also a series of paintings implementing the same technique will constitute a succession of studies or experiments forming a set or body of work, and these elements will present a certain degree of similarity, or homogeneity, along with a discrete margin of variation between them. Similarly, a study for a landscape or a "natura morta" will show progressive modifications towards a synthesis of a form of durational identity, or succession. The experiment here incorporates and seeks variations, discontinuities, sudden changes of point of view, accidents, synthesis as well as fragmentation. A study for a landscape may repeat the same view at different times and weather conditions, so to say differences in the state of the context, rather than predictable and exact parameters. These are in fact fantastic constructions: there is a sphere where parallel lines never meet, where a perfect sphere can move in the void indefinitely, not far from that place where a comfortable user sits in that optimal immutable position suggested by the chair. Yet nature doesn't know about such perfect places that are human constructions.

The articulation between general and particular, then, is different for art than for science: Adorno, writing about the role of individuals in his metaphysics, says

> Because the individual cannot be deduced from thought, the kernel of an individual might be compared to those extremely individuated works of art which have dismissed all schemata, and whose analysis rediscovers, in the limit of this individuation, their participation, hidden to themselves, in the typical. (Adorno 2013 p. 164, our translation)

3.1 PHENOMENA HUNTING PHYSICS

In this way, science and art do not necessarily oppose each other, and, as much as art, too, seeks the truth about reality, so too the scientific method is not solely aimed at that truth. In practice things are not so simple: as Nancy Cartwright puts it,

> I think of a physics theory as providing an explanatory scheme into which phenomena of interest can be fitted. ...It is part of the nature of this organising activity that it cannot be done if we stick too closely to stating what is true. Some claims of the theory must be literally descriptive... if the theory is to be brought to bear upon the phenomena: but I suspect that there is no general independent way of characterising which these will be. What is important to realise is that, if it is to have considerable explanatory power, most of its fundamental claims will not state truths, and this will in general include the bulk of our most highly prized laws and equations. (Cartwright 1983, pp. 77f)

And certainly parts of scientific theories are literally true, but the theories are not literally true in their entirety. Correspondingly, the process of creating scientific theories is very complex:

> ...for every case I investigated where theory was genuinely useful in producing models that accurately described real-world data...every one of these cases was rife with ad hoc additions and subtractions, often substantial. Now the failure of the arguments for them does not show that the laws are false. Rather, I urged, it shows that it is a big leap of faith to move beyond the usefulness of the theory to count it as true. (Cartwright 2015, p. 102)

And so art and science are not to be distinguished by semantic criteria: art attempts forms of verification as much as science is subjective. Objective and non-objective factors play a role in both disciplines, and the creation of art involves a very complex interaction of objective and non-objective, and the quantitative notation of an experiment involves the subjective choice of a number against a floating series.

4 TOWARDS A DYNAMIC OF THOUGHT

The dynamics and the functioning of thought are mysterious because humans tend to forget the complexity and the multilayered strata of the dynamism of context. The question of free will is, in a certain sense, a geometrical problem: free will stays imperscrutable as long as the unextended is confused with the extended, as long as time becomes a simple geometric continuum like space, as long as the context of thought about existence in time, which structures temporal experience and breaks its uniformity, is ignored. Not differently from Spinoza, who "very often said that essence is power" (Deleuze 1980), in Bergson "quality becomes in a certain sense quantity, and is called intensity[2], in which a necessary element is space". (Bergson 1910). Duration, like context, is heterogeneous:

> there are two kinds of multiplicity: that of material objects, to which the conception of number is immediately applicable; and the multiplicity of states of consciousness, which cannot be regarded as numerical without the help of some symbolical representation... (Bergson 1910)

The segmentation of the continuous, its fraction, is a multiplicity that becomes number. Symbolical representation is linguistic abstraction. According to Bohm, languages of representation created an immaterial entity called thought that, like a beast, is turning its head to humanity attempting to devour it, an iteration that, instead of augmenting will, increases uncertainty. Why? Because thought is not aware of its own action, it participates in the illusion it creates. Bohm interprets thought as a system: "the

2. Or qualitative multiplicity.

past is active...has left a trace in the present" (Bohm 1992, p. 98). In Bohm's vision, thought is the fundamental problem of humanity: this reflection of the past on the present (thought is always past), this incessability of reflection and representation seduces humans with the illusion that representation can be exhaustive, that language can be complete. But,

> since representation is always incomplete, it must cease to guide us coherently... So we do not expect to find some eternal truth about the nature of matter. The nature of matter as far as we can see could be infinite, unlimited — qualitatively as well as quantitatively... Knowledge cannot be absolute . (Bohm 1992, pp. 102)

Because thought affects what we see, because it participates and is active in perception, representation affects experience. Ultimately, human knowledge is affected by a form of deception; however "thought doesn't know it is doing it" (Bohm 1992, p. 116), it doesn't know it is participating in perception, transmogrifying the image of the real, projecting subjectivity onto presumingly solid objects, or conglomerates of possibilities, whatever it is its degree of resolution.

In this sense, the dynamics of thought add another layer of imperscrutability and distance between that which is observed, experienced, perceived, described, and the subject operating this abstraction. Another layer upon the conglomerates of contexts. If these strata of subtle modifications may be seen as threatening imperfections within an eventually exhausting and systematic scientific examination, the poetic value of its enigma, the incommensurable distance between essence and states of beings and objects, this space left open for imagination, becomes salient material that originates the human arts.

5 TECHNOLOGICAL SUBLIME

What if technology was tired of being used?

About a century after the original avant-garde, those art forms which created the idea of the future and predicted our fast pixelated present and the controversial and never ending relationship between humans and machines, seem to have been digested by the engulfing stomach of culture. Yet there is always something in the avant-garde that remains our future. If art has the power to perceive and represent societal change, making visible the reflection of the real onto culture and rendering those forms that foresee and represent a common feel, solidifying ante-litteram (ahead of one's time) those aesthetics that will eventually become, one day, popular culture, there are always elements of prediction that point to science fiction, impossibility, or a field that will be forever void, unrealised.

Fig. 3. Bruno Munari. *Useless Machine. Arrhythmic Carousel.* Private collection: 1953. [Fair Use]

The leading edge of art tends to be initially misunderstood, considered provocative, until it becomes mannerism, and it is therefore digested and canonized, almost losing its original content. One could argue that, one hundred years ago velocity, speed, moving images, audiovisuals, radically transformed the aesthetics and the forms of perception, and industry encountered the courtly arts; that, starting from the Bauhaus, the flourishing and experimental field of design was established: that sound recording threatened the acoustic music world, encumbering into music the perception of noise. But what is, nowadays, the new unpredictable form that will influence and transform the aesthetics of the years to come? What is the individuality of "contemporary aesthetics", and how is technology transforming our perception and interpretation of the real? An aesthetic theory of the machinic that can be meaningful nowadays shouldn't focus on optimal design, superb function, or smart shape. Giving back aesthetics its ethical function, and the capability to inform and communicate with the community using a universal language, an aesthetic theory of the machinic engages with the inherent question of what a machine is, and how humans are confronted with them, what is it that makes technology sublime, when does art occur in a technological artefact and what are the characteristics of its manifestation.

Yet why rescue this romantic idea of the sublime? This idea that sounds so outdated and reminds us of emotional landscapes and the juxtaposition of nature and humankind, where nature simultaneously reflects the subjective human apprehension of the real and shows the incommensurability of that apprehension. And when nature goes out of control, is stronger, complex and unpredictable in its manifestations, making humans feel fragile, dispersed, affected.

Yet technology, not interpreted as a different realm, but as a fruitful part of the intercourse of nature, shares, and inherits, some of the properties and predicates of the interface to which it belongs. So, in this technological landscape, can the expression of the sublime become a key concept to decrypt aesthetical manifestation (as perceived by the subject) from mere machinic presence, in an environment dominated by functional tools?

In the contemporary debate on fine art, art history and the phenomenology of style, a recurring and fundamental question is that of the identification of a paradigm that can recognise (if not actually define) "Art" (an unknown dependent on time and space), while allowing for variation of culture and historical periods.

If during the XX century's avant garde it was still the artist with his actions and the procedures aimed at the construction of the art object, or event, to be the subject, and manifestos were

written copiously so as to provoke, reinvent and disregard the established modes of art production, nowadays, in the age of the artificial, and in its cultural, biological and philosophical reappropriation of the real, now that the artificial has been accepted and reintegrated into the domain of nature[3], and the artist has become an orchestrator, or a programmer of the unforeseeable, the machine is finally claiming enunciative power.

Art becomes, then, a manifestation of the machine, while the artist sits and observes, in ecstasis or dismay, with her organs dismembered, like the characters in Francis Bacon's tryptichs (Deleuze 1981).

Technology itself, as a subject rather than a medium, transforming sensing apparatuses into sensata, sensation into affection, thought into expression, as a living soft experiment, describes and comment around its processes, ethics and aesthetics, triggering the foundation of that brave new art which is still our future[4].

3. As Simondon's reflection on the dynamical interrelation of contexts (milieu) has shown, there is no relevant difference nor opposition between the two domains.

4. Proposal for a Manifesto of Machinic Aesthetics.

6 CONCLUSION

Nowadays designers and engineers apply their approaches, centered on the question of the user and the use cases paradigm, to the process of art creation, with the risk of flattening an art form to a technical tool. Although art can be defined as a special type of machine, and every technical object implies that inventive intuition which generates its technical essence (Simondon 1958), the canons of interpreting and deciphering interactive art and its avant-garde should be distinguished by those of industrial design and cutting edge technology.

This paper suggests the development of a critique of use in relation to interactivity towards the creation of the discipline of Machinic Aesthetics, which, not differently from Software Studies (Fuller 2008) in relation to software and digital culture, or The Critical Engineering Manifesto (Olitver, Savičić & Vasiliev 2011) as a response to engineering, proposes a reflection and a systematic study, along with a series of interventions, to illuminate and comprehend the field of interactive art, where the machine is assigned the unconventional space to act out of prediction, subjectively and at times ferociously, expressing itself in non deterministic, poetic, or simply symbolic and allusive ways[5].

In fact, when transformed in well designed commodity, despite its power to interact, art, in the form of technology, dies, becomes an inert object which doesn't provoke any meaning. The artist, as well, seduced by the industry and its idea of good art as well functioning item, lays around the piece, his body is inert,

5. The field of machinic aesthetics aims at tracing and investigating a form of art that allows affective communication and intellectual interchange between the intermingled world of humans and machines.

she has lost her soul. Because the function of art expresses itself mysteriously, in speechless and enigmatic words. Because there was no user in ART.

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