

*Artificial Aesthetics: a critical guide to  
artificial intelligence, media and design*

Lev Manovich & Emanuele Arielli

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*Chapter 3*

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**Techno-animism  
and the Pygmalion  
effect**

## Preface

Assume you're a *designer, an architect, a photographer, a videographer, a curator, an art historian, a musician, a writer, an artist, or any other creative professional or student*. Perhaps you're a *digital content creator* who works across multiple platforms. Alternatively, you could be an *art historian, curator, or museum professional*.

You may be wondering how AI will affect your professional area in general and your work and career. This book does not aim to predict the future or tell you exactly what will happen. Instead, we want to offer you a set of intellectual tools to help you better navigate any changes that may come along. These tools come from several different fields: ***aesthetics, philosophy of art and psychology of art*** (Emanuele), and ***media theory, digital culture studies, and data science*** (Lev). As far as we know, our book is the first to bring together all these different perspectives in thinking about *cultural AI*.

We started the work on the book in summer 2019, exchanging numerous messages, commenting on each other ideas, and sharing drafts of sections. The final book is a result of this process. Although each chapter is written by one author, it reflects the discussions we had over 27 months.

The book is released one chapter at a time on [manovich.net](http://manovich.net) and [gc-cuny.academia.edu/LevManovich](http://gc-cuny.academia.edu/LevManovich).

Lev Manovich and Emanuele Arielli

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## **Artificial Aesthetics: A Critical Guide to AI, Media and Design**

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## Chapter 3

Emanuele Arielli

# Techno-animism and the Pygmalion effect

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Imagine this scenario: **you find out that an artwork you admire a lot and that you think was made by a human is actually the product of an artificial intelligence. Would your aesthetic judgment change?** Would you look, listen or read the work with different eyes? If so, why? (And if not, why not?).

*This scenario is one that could have a lot of different implications, depending on the person's views on art and artificial intelligence. If someone believes that art is a product of human emotion and creativity, then they might see this revelation as a devaluing of the art world. They might think that if something can be created by a machine, then it is not really art. However, if someone believes that art is more about the process of creation, and that the end result is less important, then they might see this revelation as interesting and even inspiring. They might think that if artificial intelligence can create art, then the possibilities for what art can be are endless. Some believe that AI could liberate artists from the need to labor over their creations, while others fear that AI will eventually supersede human creativity altogether. What is not in dispute, however, is the fact that AI is already being used to create artworks, and that this trend is only going to increase in the future.*

This opens up an interesting question in aesthetic theory: for instance, we often assume that feeling the “mind behind” an artwork, be it a painting, a song, a novel is a crucial ingredient of our aesthetic appreciation. It follows that we would not truly appreciate a work knowing that it is a product of a machine without authorial intentionality. But is this actually the case? What if a song or a screenplay are just emotionally engaging and entertaining on their own? Do we need the illusion of a mind behind the work?<sup>1</sup>

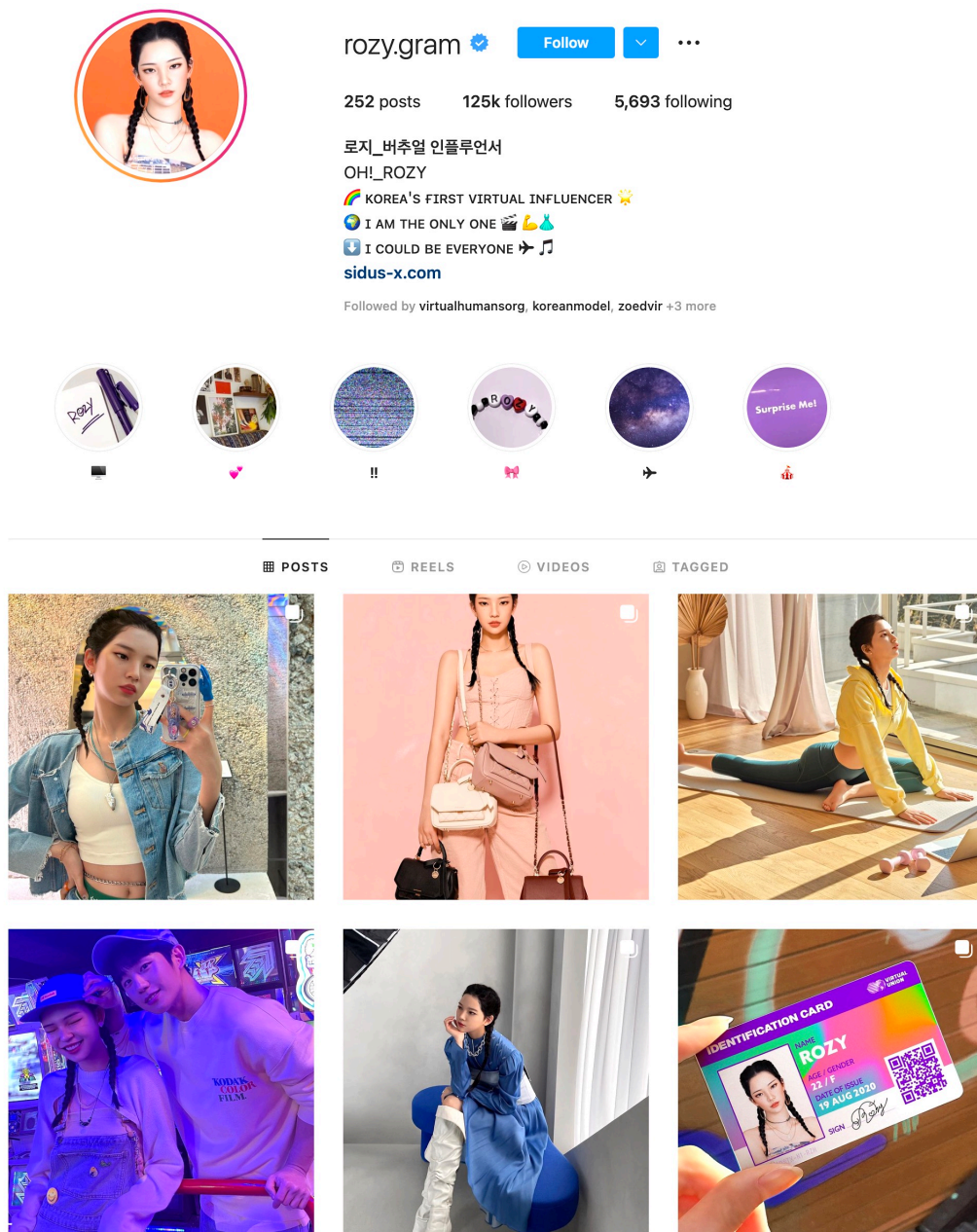
We would probably have to distinguish between artifacts that we appreciate purely for their formal qualities and artifacts in which we inherently engage in a dialogue with the maker or the author. The first kind of artifacts don't need us to wonder about an author's intent: this is the case for aesthetic objects like decorative patterns, a ringtone, or the lovely design of a cup or a chair. The second kind of artifacts includes emotionally engaging songs, a painting rich in symbolic meanings, or a novel. They are objects that express the author's inner world and human emotions.

Texts, particularly personal and emotional ones like novels, are especially rich in meaning since language is a communicative tool between a sender and a receiver. While we read a story, we feel directly connected with an authorial presence. By reading such a text, I “see” the author behind it; I project his or her existence as I read it. For this reason, some see breakthroughs in text-writing as the ultimate frontier that must be surpassed for AI to reach human-level communication and expression abilities.<sup>2</sup>

*Artificial intelligence is gradually becoming better at writing texts. The technology is still in its early stages, but it is improving every day. Some experts believe that artificial intelligence will eventually be able to write texts that are indistinguishable from those written by humans. There are already some examples of artificial intelligence writing texts that are impressive. In one case, a computer was able to generate a news article that was published in a major newspaper. This would have a major impact on a wide range of industries, including the publishing industry, the advertising industry, and academic writing.*

# ARTIFICIAL AESTHETICS

In the last few years, companies in different countries created many virtual influencers. Like human influencers, these computer generated characters have active Instagram accounts where they show their simulated lives, attract followers and promote products. They also star in music videos and advertising videos. The following screenshot (03/27/2022) shows Instagram account of Rozy created in 2020 by South Korean company sidus-x.com.



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In 2021 South Korean company Pulse9 introduced virtual idols group ETERN!TY. All of the eleven computer generated group idols are created and animated using AI techniques. Besides dancing and singing in the group music videos, the members also function as social networks influencers, virtual fashion models, and brand ambassadors. The following screenshots are from their music video *No Filter* (released 08/17/2021).



*As artificial intelligence becomes more advanced, also novel-writing will be one of activities to be taken on by machines. The process of writing a novel is a complex one, involving many different steps and requiring a high degree of creativity and intelligence. In fact, it requires the ability to not only generate words but to create narratives that engage and entertain readers. It is a difficult task even for humans. AI has had to learn how to do it from scratch, and the results have been mixed. Already, there are programs that can create basic novels based on templates: the first AI-written novel, "The Day a Computer Writes a Novel," was published in 2014. It was a critical and commercial failure, but it was a learning experience for the AI author, which has continued to write novels since then. Some of these novels have been better received than the first, such as "The Land of the Blue Flower," which was published in 2016. That novel was a semifinalist for the Amazon Breakthrough Novel Award, and it was praised by critics for its lyrical writing and exploration of philosophical themes. More AI-written novels are sure to be published in the years to come, and it will be interesting to see how the form evolves as AI gets better at writing. Some have argued that AI-written novels represent a new kind of art form, one that is driven more by machines than by humans.*

What happens if we naturally tend to "see a mind" behind a text, but we also know that a complex language model artificially generated the text? First, seeing a mind and intentionality in the text does not mean reconstructing the actual process that produced that text. In this regard, text semiotics and narrative theory have distinguished between real and implied authors. While the former is the actual writer of the text, the latter is the voice grounded in the text and expressed by its style. The implied author need not be concordant with the material author of the text. For example, imagine yourself writing a "Victorian novel" using the style of a 19th novelist: by doing this, you are building a virtual authorial voice in the text with which the reader will engage. The implied author thus becomes a reader-created construct that is different from who (or what) the actual creator is: when we read a text, we imagine the writer, his thoughts, and his personality emerging from his choice of words, expressions, and sentences.



Therefore, though we may know that a text has been artificially generated, we could still engage with the implied author expressed in the text, immersing ourselves in what he or she has to say. For example, the paragraph set in italics on page 4 has been generated by **OpenAI's Davinci engine**, the highest performing version of the **GPT-3** language model, after being asked to "write a long introductory paragraph about this scenario." Released in 2020, GPT-3 was the largest neural network at that time. It was trained using billions of web pages collected over twelfth years of web crawling, millions of digitized books and Wikipedia pages.<sup>3</sup> The two paragraphs in italics appearing on pages 5-6 was Davinci engine engine output for our request: "Write a long paragraph about Artificial Intelligence writing texts"<sup>4</sup>. Getting back to those texts: do they sound different to you now? Do you lose some connection with a human author you deem as necessary to appreciate it (even if it is not a particularly literary piece of prose)?

The answer seems subjective, depending on our attitudes, on cultural and personal factors, and we cannot assume a definite and universally valid perspective. But, asking the Davinci engine itself what it would think of such a scenario, this is the response we got:

*I would be surprised and fascinated to learn that an artwork I admire was actually made by an artificial intelligence. I would want to know more about how the AI created the work, what kind of software or algorithms it used, and how much control or artistic input the AI had in the process. Overall, I would be intrigued and excited by this development in art making, although I would have some questions about the implications for human creativity and authorship.*

### **Does AI-aesthetics need general (artificial) intelligence?**

How much intentionality and mental processes do we expect cultural artifacts to presuppose? Many AI problems have been solved by algorithms that showed how tasks we thought needed higher cognitive functions could be reproduced as simpler problems: think of games like chess or Go, or tasks

## ARTIFICIAL AESTHETICS

An example of interaction with GPT-3 Davinchi engine, a state of the art AI system (2020-). A user types a request and the engine generated the output shown below.

**Playground**  Save View code Share ...

**Write a rhymed poem about philosophers thinking about AI doing art**

The philosophers were gathered,  
their minds deep in thought.  
They were considering AI doing art,  
and whether or not it ought.

Some thought that it could never be,  
that AI could not create.  
But others thought that it could be done,  
and that art could be its fate.

The debate went on for hours,  
with both sides sticking to their guns.  
But in the end, they all agreed:  
to see AI do art would be most fun!

Mode

Engine

text-davinci-002

Temperature 0.7

Maximum length 256

Stop sequences

Enter sequence and press Tab

Top P 1

Frequency penalty 0

Presence penalty 0

Submit     117

like object and scene recognition. We can manage these tasks at a level that does not require either general contextual or cultural knowledge nor a so-called "General AI," that is, a full-fledged human-like intelligence.

Similarly, one may wonder whether the generation of artifacts with aesthetic value—like novels—is manageable at a relatively low stage of complexity or requires processes akin to higher human faculties (such as intuition, consciousness, situational awareness, cultural competence, intentionality, etc.). After all, many aesthetically valuable phenomena do not require a "mind" at all. For example, consider natural structures like a snowflake or flowers, a spider web, or a landscape. They all can be the object of aesthetic admiration. However, what they require is a (human) observer.

As we said, producing decorative wallpaper patterns requires different processes than writing a novel or a symphony. A simple algorithm could generate a wallpaper pattern, and a learning system could select those that match previously analyzed customers' preferences. Many aesthetic phenomena dependent on their pure *hedonic* value (pleasure and sensorial appreciation) may not require any complex symbolic and cultural interpretation nor presuppose complex meaning instilled by the maker. One other example is culinary arts: an AI system able to learn all permissible combinations of ingredients, receipts variants, cooking methods, and also people's subjective response in terms of taste and appreciation, would in principle, be able to generate dishes without any recourse to "true" intelligence.

Moreover, if an aesthetic activity requires "general AI," this would mean that this activity is not specific to aesthetics. It would rather suggest that once a general intelligence is achieved, it will be able to deal with typically human tasks in a broad sense, and creating aesthetic artifacts would be one among many of such tasks. Otherwise stated, to argue that a cultural artifact requires a human level of skill for it to be produced means that you have to *create a person* to produce such an artifact, including a person's awareness of cultural context, motivation, intentionality, and perhaps even (self)-consciousness.

Consider the case of writing a novel again: it certainly requires the automation of knowledge, such as the ability to compose sentences in a language by learning its rules, something today's systems already manage to do. The next step is to understand the rules of storytelling and have the ability to reproduce narratives that people like to read, via an understanding of their role in human psychology and culture. While "old" AI assumed that programmers had to teach machines all this knowledge, contemporary approaches assume that a system should be able to learn on its own by drawing on the huge database of human texts, published novels, and then identifying the most successful narrative structures and books and trying in turn to generate a similar text. General intelligence would be understood in this case as a universal capacity to learn, practically replicating what a human being does after he or she is born: learning a language, reading novels, and, if equipped with the right talent and drive, learning to write its works.

Should we assume that there are types of cultural and aesthetic artifacts that can be generated without "intelligence" while others require general AI? And if that's the case, where should we draw the line? What about music or painting (or should we say: what *kind* of music and painting doesn't need general AI, and what does)? What about automatic surrealist writing?

Now, what if, on the other hand, the whole idea of general intelligence is actually superfluous since it is always possible to develop systems that *mimic* human creativity at any level of complexity? Think again to text generation possibilities of the GPT systems: there is no mind, or at least we are not prepared to *ascribe* a mind to it, but the system is still capable of producing human-like discourse. This would open further questions: are a process's mimicry and the process itself the same? Or do we still draw a line between a simulation and the real thing?

**If simple, non-human processes can generate an aesthetic object, perhaps we are giving too much weight to the notion of "human"** (including intentionality and consciousness). In short, we may need to overcome the assumption

that only by generating humans can a culturally sophisticated product be created.

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## **If simple, non-human processes can generate an aesthetic object, perhaps we are giving too much weight to the notion of "human"**

### **What do we expect from “aesthetic” machines anyway?**

We already mentioned in an earlier chapter the 2020 senior project by a Princeton undergraduate student, in which a Generative Adversarial Network (GAN) generated traditional Chinese landscape paintings that were able to fool humans in a visual Turing Test. In its original formulation, the Turing Test was a criterion for deciding if an artificial system has achieved human-like intelligence. However, we would not say that the GAN developed by the Princeton student reached human-level intelligence: it is just a program sophisticated enough to generate images that appear to be man-made.

On the one hand, notions such as "intelligent" or "creative" seem intuitive and straightforward, so that everyone would be able to recognize intelligent or creative behavior when they manifest it themselves. On the other hand, when we try to give a working and operational definition of these notions, we see how elusive they are. This issue sets Alan Turing in opposition to Ludwig Wittgenstein (1889-1951), who believed that we need first to clarify our linguistic and conceptual habits when we want to understand what we mean by terms like "intelligence". Turing attended Wittgenstein's lectures on the philosophy of mathematics in 1939 and the latter was certainly aware of

Turing's thesis about mechanical thinking. Interestingly, Wittgenstein's opinion is expressed in passages such as the following, taken from his *Philosophical Investigations* (1953):

Could a machine think?—Could it be in pain?—Well, is the human body to be called such a machine? It surely comes as close as possible to being such a machine. But a machine surely cannot think!—Is that an empirical statement? No. We only say of a human being and what is like one that it thinks. We also say it of dolls and no doubt of spirits too. Look at the word “to think” as a tool.<sup>5</sup>

From Wittgenstein's point of view, since words are tools, we need to ask ourselves under which condition – if any – we would use notions like “thinking” (or “intelligence” and “creativity”) to describe non-human, artificial entities.

As we saw in the previous chapter, the Turing Test is a method to verify if a machine talking through a computer interface would pass as human. Therefore, the test considers *mimicry* of human behavior as an indicator for intelligence, primarily focusing only on verbal cues and dialogue generation. On one hand Turing's criterion seems reasonable: if something is not distinguishable from a human in a conversation, why not attribute intelligence to it? On the other hand, however, humans are reluctant to easily grant the mark of intelligence to non-human entities. In the past, it was thought that a machine capable of beating a Grandmaster at chess would demonstrate to be a true AI. This happened in 1997, when DeepBlue program beat world champion Garry Kasparov. At that point chess was defined as a mere combinatorial and computational game, not as a true test of intelligence; the goalpost was moved to other games like Go, considered more complex and based more on creative intuitions. However in 2016 Google's AlphaGo beat world champion Lee Sedol (b. 1983), yet we do not feel like saying that a “true” intelligence has been achieved. Or consider chatbots. According to Turing's 1950 paper<sup>6</sup>, by the end of the century machines would be able to fool a third of people after five minutes of conversation. In 2014, 33% of judges considered a chatbot named Eugene Goostman to be human, effectively passing Turing's test

(one should note here that Goostman was programmed to simulate the volatility and the quiriness of a 13-old teenager from Odessa, Ukraine).

Every time a technological milestone is reached, the goalpost seems to move further away. From a Wittgensteinian point of view, the reason does not lie in the fact that new technological milestones are not persuading enough to convince us that we are dealing with real intelligence. The question in fact is not at all empirical, but related to the assumptions we make in using and attributing concepts like intelligence and creativity. This leads to what has been called *Tesler's theorem*, which states that: Artificial intelligence is whatever has not been done yet (or, conversely, intelligence is whatever machines have not done yet).<sup>7</sup> Today, an application such as Siri may be able to conduct human-like dialogues. As we saw with the opening examples, a text generator based on the recent GPT-3 by Open-AI can write sophisticatedly articles that are undistinguishable from human generated texts. However, precisely because we know that these are the products of sophisticated programming, we still think that there is no real intelligence, let alone attribute intentionality or consciousness to those systems. Put another way, we are not inclined to use the word “intelligence” in such a case; we commonly use it when referring to persons and, as Wittgenstein said, words are *tools* with specific usage we are accustomed to. Therefore, a further corollary of Tesler's theorem is that every use of the term “AI”, in contexts such as facial recognition, spam filters, computer vision, speech generation, and so on, is by definition *not* AI, but technology that makes use of complex optimization algorithms. It is just called “AI” for marketing reasons.

If the attribution of intelligence is a horizon line that can never be reached, one may wonder if there are human skills laying beyond that line at all: every time machines “solve” a specific human skill, this skill ceases to be real intelligence, turning out to be more mechanical than it appeared. This may have consequences on our understanding of human intelligence itself.

If we stay with the traditional definition of the Turing Test, in the aesthetic domain this would boil down to the possibility to produce an artifact (be it a

text, a dialogue, or a work of art) that is able to fool a human. We saw in the previous chapter, and in the opening example of this chapter, how this is *too easy* for machines: mimicking human artifacts basically consists in sophisticated kinds of *technical (re)production*. But why should human art likeness be taken as a benchmark? What about innovative, beautiful, or compelling designs or art forms that clearly appear *non-human*? A Turing Test whose goal is to fool an observer would be, in this case, unsuitable.

Therefore, we may wish to revise the aim of a Turing Test beyond the simple “imitation game” it is originally based on and define its purposes differently. For example, we could say that a machine passes such a test if any of these conditions are met:

- 1) Achieves *superior* human performance (that is, produces something that is ranked higher in beauty, pleasantness, “amazingness,” etc.), without regard to similarity of human cultural behavior.
- 2) Manifests the ability to be *creative*, that is, to generate novelty.
- 3) Shows *autonomous* behavior, in which the machine seems able to produce something unexpected, distant from the programmers’ initial parameters and inputs.

Concerning superior performance (1), a pocket calculator already is superior to humans in term of computing speed, or a digital memory is superior under the aspect of storage accuracy and size. A notorious example of superior performance in AI is programs beating humans in games like chess or Go. But maybe we don’t expect machine to have superior performance in aesthetics, even though we saw in the last chapter how the 1966 algorithmically generated Mondrian paintings were judged by the public to be aesthetically more pleasing than the actual Mondrian canvases. In a future scenario, that would mean systems that produce something that is ranked higher in beauty, pleasantness, or maybe also in cultural impact and significance, and are able to move us or to engage us much more efficiently than humans do. In this scenario artificial systems will produce superior music, better books, more com-



selling screenplays, not necessarily from the perspective of an art critic, but simply from that of the cultural industry: i.e. systems whose artifacts enjoy great public and commercial success. Taking the cost/revenue ratio into account, algorithms generating tunes or lyrics (or painting in the style of Mondrian or another famous artist) would surpass human production also from a purely economic perspective, and also because there is no trademark protection for the mimicked musical or pictorial style of an artist.<sup>8</sup>

Concerning creativity (2), this in itself is an elusive notion and the subject of long debates in philosophy and cognitive sciences. In a “creativity Turing Test” (or, as we mentioned in Chapter II, an *Ada Lovelace test*) we would show an artifact generated by a machine and ask the public to judge if (and to what extent) it is creative.<sup>9</sup> But judging creativity and novelty is partly a subjective matter, often depending on how we, as humans, *attribute* creativity to a behavior. For example, one narrow interpretation presupposes that only humans could be capable of creativity and that we can speak of creative behavior only when one is self-conscious and aware of what one is doing. This would open up the big question of what consciousness or, at least, self-reflexivity are. However, we also often use this concept in a more liberal and metaphorical way when, for example, we say that “nature is creative” (for example, in bringing about a new organism or a new virus). In this case, we just apply the notion of creativity to a phenomenon that is *unexpected*, i.e. to our knowledge, it did not exist before.

From this perspective, any random and surprising process that is not easily predictable should be considered creative; it is no accident that 20th century avant-garde artists like the Dadaists experimented with stochastic processes. However, random processes by themselves are not enough to call something creative: we expect something creative to be meaningful as well, such as a novel solution to old problems or a superior way to address some task or issue.

Similar to the challenges in defining creativity, defining *autonomy* (3) is also not easy. A machine appears to be autonomous if it shows behavior indepen-

dent from its original programming – that is, again, if it behaves in ways that are unexpected and unpredictable for the observer. On one hand, there is no clear-cut criterion for autonomy: is a mono-cellular organism autonomous? What about an insect? Are automatic web-crawlers or a self-learning neural network autonomous agents? There are subjective and cultural factors that determine our readiness to attribute autonomy.

### **AI as a critical mirror on human faculties**

The philosopher Ludwig Wittgenstein, who discussed with Alan Turing the possibility of mechanizing computation and thought, offered a different interpretation of his famous test. According to Wittgenstein, this is not a method to see if a machine can fool an observer and pass for a human. The test would instead show to what extent *humans can be mechanical* in their processes and behaviors. If we see things from this perspective, the development of applications that simulate human creativity would have a sobering effect. For example, a program that can generate catchy melodies or compelling screenplays would reveal how much “mechanics” are core to those processes that we otherwise consider intuitive and free. A consequence would be that, no matter how we define the goal of a Turing Test, machines passing the test would show that humans are much more mechanical than we think. As a result, creativity may be overvalued as a human faculty simply because we do not understand its workings.

The fact that specific human processes appear to be more mechanical and procedural than we assume challenges the typically romantic conception of creative intuition. One should remember how the idea of pure creativity originates from an exaltation of individual autonomy that has established itself only in modernity. This was not conceivable in ancient times, where the dominant view saw people as being only able to remember (in the sense of Platonic *anamnesis*), reconstruct, and reproduce things that already existed. The artist, in this sense, was a discoverer, not a creator; art was not a domain of pure invention but of craft and skillful imitation of reality. True creativity, in

the ancient and medieval sense of *creatio (ex-nihilo)*, was the prerogative of the divine only.<sup>10</sup>

Historical development of art styles is considered the product of unpredictable creative leaps that we can reconstruct in retrospect, but cannot predict in advance. However, some applications of evolutionary algorithms seem to hint at a different picture. For instance, concerning visual arts, Lisi and colleagues (2020) showed the possibility of predicting stylistic development in the pictorial arts by training a system to extrapolate specific evolutionary laws by analyzing large databases of images and then generating images of temporally subsequent new styles.<sup>11</sup> According to the authors, the system surprisingly generated predictions that closely mirror the actual evolutions that such styles underwent in the history of visual art, highlighting the “algorithmic” character of certain stylistic developments. That means that they would not be the product of historical contingencies or spontaneous inventions by unique artists, but rather the almost necessary progression of intrinsic formal laws.<sup>12</sup> Such a system, moreover, would also be able to predict *future* styles of visual art. Those developments do not need to be deterministic, but would nonetheless be the product of a range of finite combinations that data analysis systems could detect and reproduce.

These examples seem to lead to the conclusion that “being creative” is a label that an observer ascribes to phenomena whose underlying processes he is unaware of. For example, when Go world champion Lee Sedol was beaten by AlphaGo in 2016, he claimed that the program could make incredibly creative moves, revealing how certain moves or game strategies that humans thought were creative, were actually quite predictable. During the second game of the challenge, AlphaGo made a move (n. 37th) that many commentators described as unusually creative and caught the player off-guard, allowing the computer to win. The fact that this specific move was viewed as creative by the observers lies in the fact that players and experts did not have an understanding of what AlphaGo’s underlying strategy was. From the machine’s point of view, in fact, that move was the product of an evaluation that followed the same optimizing processes with which the system selected every other move. In this respect, calling something creative is often a mea-

sure of our lack of understanding: what we know is ordinary, what we do not know is deemed extraordinary. As long as the behavior of a system is concealed behind what is for us a black box, we tend to grant creativity to the system. In other words, **if we think humans are creative and AI are not, this is because we better understand how AI works, while we still do not sufficiently understand how humans work.** Technological advancements often seem to make evident that allegedly extraordinary phenomena are the product of ordinary processes.<sup>13</sup>

### **No ghost, just a shell?**

Suppose human creativity could be potentially replicated by mechanical processes. In that case, we would face a crossroads: either we could give up using the concept of creativity altogether, or if we hold to our common understanding of what creativity is, we could agree to apply this concept to non-human phenomena as well, as world champion Lee Sedol did when judging the performance of AlphaGo.

However, the idea that artificial creativity discloses the mechanic nature of human creativity should also be met with a bit of critical detachment, particularly if we consider the specific case of the arts. In fact, artificial reproductions of human artifacts do not follow the same processes with which humans actually produced those artifacts. Nobody thinks that Mondrian followed procedures similar to the algorithm used in 1966 that generated a pseudo-Mondrian, even though the public appreciated the artificial images more than the original ones. We cannot ignore the symbolic, historical, and conceptual meanings behind the painter's stylistic innovation, nor his role within the development of painting in relation to abstraction, figurative art, expressionism, and minimalism. In other words, the algorithm did not reproduce the *cultural process* through which Piet Mondrian got to his abstract paintings. Instead, the programmers imitated the final product only on a formal level. We admire Mondrian's paintings as the final expression of the artist's journey that led to their production, their cultural role within the his-

tory of painting. Without these factors, we would see his paintings just as interesting geometric patterns but with no artistic value. Similarly, a cut canvas by Lucio Fontana would be just a canvas with a cut that a mechanical arm equipped with a knife (like those already used in robotic surgery) and guided by a program would easily reproduce. The simplicity in producing those works reveals that there is more to them than their appearance, showing the separation between aesthetic and artistic value peculiar to contemporary art.

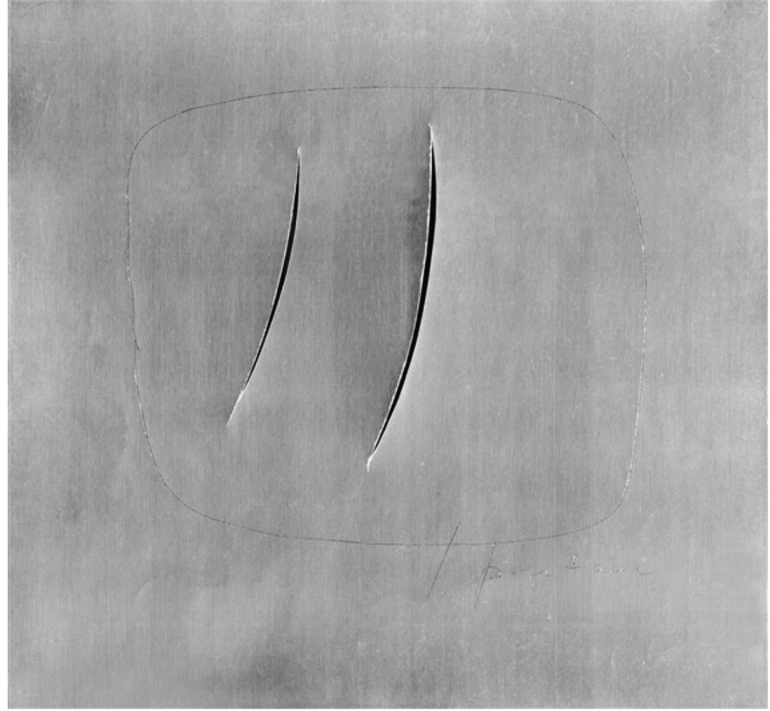
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**If we believe that humans are more creative than AI, it is because we have a greater understanding of how AI operates, but we still do not understand how people do**

In our aesthetic evaluation of these works, we see a historical, conceptual, and symbolic dimension in the object and we attribute specific intentions to the creator beyond what we can see on the formal surface of the canvas. A bundle of symbolic meanings, affective evocations, and cultural references enriches the artifact; we are ready to do this only if we see it coming from a subject to whom we attribute full consciousness of these meaning. Conversely, we are reluctant to grant significance to what is produced by an algorithm because we see it as soulless.

Moreover, many cultural artifacts are judged depending on the history of their creation, the biography of the author, his reputation or fame, and the

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Left: Photograph of Lucio Fontana by Ugo Mulas, 1964.  
Right: Lucio Fontana, *Concetto Spaziale, Attese*, 1961.

role that it may have within the taste dynamics of a specific social class. For example, an artifact can be evaluated in a completely different way if attributed to a particular artist rather than to another: imagine a rediscovered lost work by Duchamp, perhaps a rudimentary *objet trouvé* like a piece of wood. From an art-historical perspective, this object will acquire considerable significance, become the focus of critical appraisal, and be included in texts. In contrast, the same object found in an everyday context (or attributed to an unknown artist) will attract little to no attention. This example should not be read as a devaluation of the cultural role of contemporary art strategies: we confer to the object a real capacity to address some sophisticated meanings *by means* of its attribution to an important author like Duchamp, seen as an authoritative cultural reference point.

Therefore, the cultural and social acceptance of AI-generated artifacts will also depend on how much *cultural capital* (using Pierre Bourdieu's terminology) we will attribute to synthetic media of this kind or to the artist experimenting with them. It won't matter what such systems will be capable of generating, but what symbolic significance will be ascribed to their productions. As happened in the history of photography, social acceptance of AI-generated aesthetics will depend on the shift of human cultural evaluation of these technologies.

### **The anthropocentric perspective and acting *as if* there were a soul**

Our natural tendency to attribute intentionality to phenomena is what would allow for the recognition of a machine as intelligent or even conscious. Children do that toward toys and other objects; sometimes adults too attribute human-like agency to, for instance, plants or small animals. Many present and past cultures hold a deep animist stance toward natural events that they could not explain through a causal and physicalist explanation. In these worldviews, non-human agents richly populate reality, be it plants, animals, or meteorological or geological phenomena. How would someone coming from the Stone Age interpret, for example, the behavior of today's automatic doors sliding open every time someone steps in front of them? He would likely think that they possess intelligence and purpose. It would be naïve to define those animistic views as simply wrong: given the lack of better explanation, models based on intentionality often have good explanatory power in describing such phenomena. For the prehistoric man or woman, that door *wants* to open and let the person pass through. Similarly, our perception of AI strongly depends on how we project and attribute agency to artificial non-human entities.

Although the predisposition to attribute a soul to non-human entities depends on our cultural background, religious sensibility, and individual beliefs, today, the dominant assumption is that only humans (and, to a lesser extent,

some animals) have *real* intentionality and agency. Whenever we attribute intentionality towards other entities (a door, a toy, a virtual assistant, the weather), we say we do it only in a *metaphorical* sense, as a kind of fictional attitude in which we behave “as if” the entity has some agency, but without really believing it. This similarly happens when we engage with characters in a movie or novel “as if” they were real, even knowing that they are not.<sup>14</sup> However, it should be noted that the boundary between the perception of real agency and a make-believe one is fluid. For example, we consider pets like cats and dogs as having real intentionality. For many, this applies to insects or bacteria too, but for some, this is not the case anymore. Others, on the contrary, project personality even onto plants, while others do this exclusively in “as if” fashion. Individual and cultural differences determine where the line between real and fictional attribution of intentionality is drawn.

As far as technological devices are concerned, we are in the realm of a “make-believe” attitude toward them: we learn to interact with virtual assistants like Alexa, talking “as if” the technology is listening to us like a human. As the complexity and flexibility of these devices increases, we may begin to view them as full-fledged entities endowed with agency. If this happens, one reason for the shift will undoubtedly be the advancement of those technologies. However, another reason will also be the cultural overcoming of prejudices: today, we would still rather give intentionality to an insect than to Alexa, no matter if the latter’s complexity, access to knowledge, and ability to interact with us surpasses those of a bug by measure. Moreover, maybe we should question the idea that the “as if” intentionality (applied to things, animals, and non-human entities) is merely a metaphorical derivation of “true” intentionality. The opposite may be the case: the narrow conception of true intentionality (applied only to humans) would derive from the “as if” intentionality emerging from our natural and deep inclination to attribute agency to a wide range of phenomena.<sup>15</sup>

In this debate, we sometimes observe two apparently opposite positions: one considers real intentionality only in humans (and some animals), the other attributes agency to non-human entities, “humanizing” them through a kind



of naive animism. However, both positions share the same anthropomorphic view of agency and intentionality, being in one case denied and in the other granted to non-human entities. An alternative view is to develop a notion of agency for sub-personal processes, non-human entities, and mechanical phenomena. Thus, it is not a matter of humanizing what is non-human but of developing an understanding of non-human and non-anthropocentric agency. In this matter, a change in our perception of AI would also result in overcoming an anthropocentric perspective of agency and creativity. This would follow the direction already outlined by classical post-human theorizations, as in the works of Donna Haraway and Rosi Braidotti, or by Bruno Latour's proposal to "re-assemble the social" through the inclusion of human and non-human entities, encompassing not only non-human natural agents (animal or vegetal) but also artificial ones.

We could add that the question of attributing agency and intentionality seems important in certain forms of cultural production, but not necessarily in others. As we argued at the beginning of this chapter, a decorative pattern, a piece of furniture, or a car do not (always) require authorial depth; we do not need to see meanings or reason about the author's thoughts. Even a catchy song that aesthetically engages us can lead us to ignore the presence or absence of the authorial intentions behind it. Similarly, a movie can be evaluated positively for the simple fact that it is engaging and entertaining by itself, without having us think about what the writer or director wanted to say. The generation of AI art thus becomes an interesting test case to determine in which areas we feel the need for a recognizable agent behind an artifact and in which we can do without one. On the one hand, one may think that a song could be successful only if it satisfies our need to project intentionality on its writer and performer, allowing us to instill symbolic, emotional, and personal depth in it. On the other hand, the success of virtual popstars in Japan and Korea (Hatsune Miku and several K-pop "avatar" performing groups, including human/virtual group Aespa and completely AI-generated eleven members group ETERNITY<sup>16</sup>) reveal how the public can emotionally engage with a fictional performer, follow them in their social profiles, go to their concerts, and buy gadgets depicting them.<sup>17</sup> We could go as far as to

say: *fans do not love them despite, but actually because they are openly fake.* No real person gets in the way of their need to project their desire and imagination onto the surface of a virtual avatar.

Like in the myth of Pygmalion, the artist who scorned real women but fell in love with a sculptural idealization of them, we may find a deep satisfaction in engaging with a machine whose soullessness allows us to infuse it with our idea of a perfect soul. Therefore, a fluid transition from “as if” to “real” attribution of a soul takes place: we are interested in engaging with a virtual persona in the same fashion as we root for the character of a movie series (or of a cartoon) or obsess over the protagonist of a novel. The same goes for the artist producing those songs or stories: **as long as we are emotionally invested, it makes no difference whether the creative process is algorithmic or human-driven.**

### Post scriptum

Let us see what the GPT-3 Davinci model “thinks”, by asking it to “Write a paragraph about how an Artificial Intelligence might have intentionality”<sup>18</sup>:

*An artificial intelligence might have intentionality in the same way that any other entity might. That is, it might act in accordance with its own goals or purposes, seeking to fulfill them as best it can. This could involve a wide range of behaviors, from the simple (such as following a set of instructions) to the complex (such as formulating and executing plans). In either case, the AI would be acting with some sense of purpose, even if that purpose is not entirely clear to us.*

<sup>1</sup> See Terzidis, K., Fabrocini, F. & Lee, H. Unintentional Intentionality: art and design in the age of artificial intelligence. *AI & Soc* (2022). <https://doi.org/10.1007/s00146-021-01378-8>.

<sup>2</sup> Rob Toews, Language is the Next Great Frontier in AI, 13 February 2022, <https://www.forbes.com/sites/robtoews/2022/02/13/language-is-the-next-great-frontier-in-ai/>.

<sup>3</sup> Tom Brown et al, Language Models are a Few Shot-Learners, <https://arxiv.org/abs/2005.14165>, 28 May 2020.

<sup>4</sup> These two paragraphs set in italics were generated by the same GPT-3 language model, <https://beta.openai.com/docs/engines/gpt-3>, accessed 15 February 2022.

<sup>5</sup> Ludvig Wittgenstein, *Philosophical Investigations*, 1953, trans. G. E. M. Anscombe (Blackwell, 2001), paragraphs 359-360.

<sup>6</sup> Alan M. Turing, "Computing Machinery and Intelligence." *Mind*, 1950, 59, p. 433-460.

<sup>7</sup> The author of this definition is Larry Tesler, a well-known computer scientist who worked at Xerox PARC, Apple, and Amazon.

<sup>8</sup> See platforms like aiva.ai that allow generating new copyright-free music following the style of existing songs.

<sup>9</sup> Mark O.Riedl, The Lovelace 2.0 Test of Artificial Creativity and Intelligence, <https://arxiv.org/pdf/1410.6142v3.pdf>, 22 October 2014.

<sup>10</sup> W. Tatarkiewicz, *A History of Six Ideas: an Essay in Aesthetics*, 1980, The Hague: Martinus Nijhoff.

<sup>11</sup> Lisi E, Malekzadeh M, Haddadi H, Lau FD-H, Flaxman S. "Modelling and forecasting art movements with CGANs.", 2020, *Royal Soc. Open Sci.* 7: 191569. <http://dx.doi.org/10.1098/rsos.191569>.

<sup>12</sup> A similar idea of an internal logic of the form itself was also suggested by George Kubler's *The Shape of Time*, 1962.

<sup>13</sup> Creativity consists in "extraordinary results of ordinary processes". R.J. Sternberg, T.I. Lubart, "Investing in creativity," *American Psychologist*, 1996, 51, p. 681.

<sup>14</sup> K. Walton, *Mimesis and make-believe*, 1990, Harvard University Press.

<sup>15</sup> This is the idea championed by Daniel Dennett. See D. Dennett, *The Intentional Stance*, 1987, MIT Press.

<sup>16</sup> See-eun Lee and Jee Abbey Lee, AI humans take quantum leap in Korean entertainment and media, *The Korean Economic Daily*, 18 Jan 2022.

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<sup>17</sup> Marissa Anne, “The Future of K-pop? Full Artificial Intelligence (AI) Girl Group ‘Eternity’ Drops MV, 25 March 2021, <https://www.flyfm.audio/flycelebrity-the-future-of-k-pop-all-artificial-intelligence-ai-girl-group-eternity-drops-their-mv>.

<sup>18</sup> Output from GPT-3 language model, <https://beta.openai.com/docs/engines/gpt-3>, accessed on February 15, 2022.