

Portraits of non-existent people: AI art and (human) imagination

Alice Barale*

ABSTRACT

The essay will address a series of portraits in which the portrayed person is non-existent. Such is the case of a number of works made through artificial intelligence (AI). In this type of art, the machine becomes capable of elaborating on the given data in its own way, with a degree of autonomy that exceeds the human artist's control. In the case of portraits, the AI is trained on a series of pre-existing pictures (belonging, for example, to the history of art) and becomes capable, therefore, of generating a series of new pictures, which are similar to, but also different from, the original ones: portraits of non-existent people.

This case will be compared to another group of portraits Bence Nanay calls "Portraits of People not Present". In a paper that bears the latter title, Nanay analyzes a series of modernist portraits, in which the portrayed person is absent from the picture. This seems a contradiction because a portrait should include a representation of the person who is actually standing in front of the artist. The viewer can, however, recognize these pictures as real portraits, because mental imagery intervenes – so says Nanay – and fills the gap between what is present and what is absent.

It is this idea of mental imagery that will help us demonstrate that AI art can stimulate human imagination in a new and interesting way (this will be the paper's *first objective*). In fact, one of Nanay's most important ideas seems to be that imagination plays a relevant role not only in the context of fiction but also in our everyday perception of the world. The first hypothesis of the paper will be that AI art, through the errors and deformations of the machine, exposes our own errors and deformations in the perception of the world. AI art, therefore, brings to light the role played by imagination in our own perception of reality: the fact that we always transform what we see and we can always see it in other ways.

The *second objective* of the paper will be to address, in greater detail, Nanay's idea of mental imagery. In fact, Nanay distinguishes between imagination and mental imagery. Mental imagery is different from propositional imagination because it can be voluntary but also involuntary and it is usually pre-verbal. But is verbal language really excluded from mental imagery? Or are there aspects of language that can enter this dimension? In this last case, it could be that the relationship between propositional imagination and mental imagery is not so much that of a separation, but rather a continuum between the two. This last problem will be explored through the consideration of another work of art made using AI, Klingemann's *Appropriate response*. In the world of AI, as Klingemann explains, pictures and words are not two heterogeneous entities, because they are both made of pixels. What about human imagination?

KEYWORDS

AI art, imagination, Mental imagery, Perception, Language

*1 Università degli Studi di Milano Statale, alice.barale@unimi.it

This paper will compare two types of “unconventional” portraits, i.e. portraits that in some way contradict the very concept of portraiture. The aim will be twofold.

First, this paper explores how art made through artificial intelligence (the so-called “AI art”) can stimulate human imagination in a new and interesting way. This is the case for the portraits of non-existent people shown in the AI artwork *Memories of Passersby*, by Mario Klingemann. The effect that AI art can have on imagination is explained through the idea of mental imagery formulated by Bence Nanay in his essay “Portraits of people not present”.

The portraits referenced in the title are a series of modernist portraits (one of the most famous of these depicts Mondrian’s pipe and glasses, in place of the artist himself), in which the portrayed person is absent from the scene. It is in response to that absence that mental imagery intervenes, according to Nanay. This means that mental imagery is essential not only in the domain of fiction but also in human perception of reality itself.

It is in relation to this point that AI art reveals its significance. In fact, this type of art can effectively highlight the part that imagination plays in what we perceive and the fact that we can always see reality in other ways.

Secondly, Nanay’s idea of mental imagery will be addressed in its critical points. To this aim, another example of AI artwork will be considered, which brings forth considerations regarding the relationship between mental imagery and verbal language.

1. *Portraits of non-existent people: Memories of Passersby*

In *Memories of Passersby*, by artist Mario Klingemann (fig. 1), the spectator is set in front of a screen on which an infinite series of portraits is displayed, one after the other (see Klingemann 2020). All these faces appear and pass by quite quickly, there is no way to pause them (therefore the title: *Memories of passersby*). Moreover, they look familiar but also quite strange. There is something about them that is not quite right.

In fact, these are not real portraits, in the classical sense of the term, because they are generated by artificial intelligence. A machine has been trained on real portraits (from the 17th and 19th Centuries) and has therefore gained the ability to generate new portraits on its own. These new portraits are similar to the original ones, but also different from them: they are portraits of non-ex-



Fig. 1

istent people.² Moreover, AI makes some mistakes as it does this. That is why these faces look so strange: familiar and different at the same time, as noted above. Combined with how the faces appear and disappear so quickly, this has a very uncanny effect.

These mistakes or deformations are typical of this kind of art: they are called “artifacts”. They occur because of the way the machine elaborates on the data it was trained on. What is necessary in order to create art through AI is the fact that artificial intelligence can interact with and elaborate on the data in a way that is at least partially autonomous. It is necessary to briefly define the idea of “autonomy” used here. In this context, “Autonomous” does not mean completely free (see Moruzzi 2020). Rather, the “autonomy” of the AI (or at least of certain types of AI) indicates its ability to overcome the starting data. Once the AI has been trained on a particular dataset, it becomes capable of producing new data that differ from the initial ones. Later, it will be necessary to explain precisely how this happens. For the moment, it is enough to remark that if someone is drawing with an iPad, they are not doing AI art.³

² Such was the case also of the *Count of Belamy*, the first AI artwork that entered the art market and was sold at Christie’s in 2018 for an incredible amount of money. On this event and the discussion that it raised see Barale 2020, pp. 7-18.

³ In other words, AI art is not “computer assisted” but rather “computer generated”. On this distinction see Boden 2012. On AI art see Miller 2019, Gouveia 2020, Du Sautoy 2019, Zylinska 2020, Arielli, Manovich 2022, Pedrazzi 2021; on artificial intelligence and aesthetics see Marfia, Matteucci 2018.

In AI art, the artists give the machine some data and then they have to wait in order to see what the machine will do with these data.

This gives this type of art a character of surprise, which is also evident in another installation by Mario Klingemann, *Uncanny Mirror* (fig. 2). Here the viewers place themselves in front of a screen and the AI takes a portrait of them. The result is a series of strange selfies which can be quite therapeutic, I think, for anyone who does not feel very comfortable when they need to be portrayed or photographed. In any case, these pictures are not really photographs: rather, they are something in between photography and painting.



Fig. 2

In order to understand the particular quality of these pictures, it is necessary to explain very briefly how artificial intelligence can produce them. The type of artificial intelligence used in these works is called generative adversarial networks, or GANs. GANs were created in 2014 by a young computer scientist, Ian Goodfellow. They consist of two deep neural networks or DNNs. DNNs are a type of AI that mimics the human brain in some ways. In fact, they are comprised of different layers of artificial neurons (therefore they are called “deep”). Each layer elaborates on the

information that is passed on to it in an increasingly complex way. For example, in the case of pictures, the first layer could learn to react to points and lines, the second layer could learn to recognize the profile of a nose or a mouth, the third layer a face and so on. In the end, the AI calculates the probable identity of what exactly the starting data are. For example, if it was trained on animals and we show it a cat, it could say 80% cat, 10% dog, 7% rabbit and 3% cow. DNNs were already invented in the nineties, but it is only more recently that it began producing some very interesting results since about 2010.⁴

An interesting aspect of DNN is that they are very useful, but they also present a problem, because with this type of AI it is possible to choose the starting data and to see the results, but it is not possible to see what is going on in the individual layers. For this reason, they have been compared to a black box. However, it is exactly this characteristic of not being completely controllable, predictable, and understandable which is considered quite interesting to some artists.

In GANs, as noted above, there are two DNN that play against one another in a particular way (see Goodfellow 2014). Ian Goodfellow compares them to a policeman and a forger. One of them, called the discriminator, is trained on a data set and it has to decide if the new data that are offered to it correspond to the original ones on which it was trained. The second DNN, called the generator, doesn't know anything about the dataset the discriminator was trained on. It is trained on random data, and its task is to generate new data as similar as possible to the ones the discriminator was trained on so that the discriminator will confuse them with the original ones.

What is interesting here is that these two neural networks are capable of training each other. Therefore, GANs can become increasingly autonomous both from human intervention and from the starting data (see Moruzzi 2020). In the case of pictures, this means that they are able to generate new images (some portraits of non-existent people, in the case of *Memories of Passersby*), which are similar to the original ones (the real portraits), but also new.

This capability of GANs has often been used to create an effect of estrangement, by producing pictures that seem real but are not. This is the case of the website "This person does not exist"

⁴ For a history of DNNs see Eugeni 2021, chap. 5; on how they work see Goodfellow et al. 2017.

(<https://thispersondoesnotexist.com/>), which is able to generate faces of non-existent people that are indistinguishable from real ones. The technology used for this purpose, StyleGAN, creates fake identities that have a lot of commercial applications, from advertising brochures to fake profiles on dating sites (see Eugeni 2021, chap. 5).

What Klingemann does in *Memories of Passersby* is breaking the hyper-realism of these pictures. Through their deformations and their errors, his faces show that they are at the intersection of existent and non-existent; reality and imagination.

2. Portraits of people not present: *Nanay's idea of mental imagery*

Why do the strange portraits of *Memories of passersby* have such a strong impact on the viewer? Certainly, their deformations and missing details call for integration on the part of the spectators. The viewer has to identify what is represented by the AI, by filling in the missing parts and correcting what is not quite right. This challenge raised by these pictures is certainly one of the reasons for their charm. Yet there is definitely something more, something that should explain the strong emotional reaction felt by the public in the face of these works. My idea is that human viewers identify with the deformations and the mistakes of the AI, recognizing their own mistakes and deformations in the perception of the world. They recognize, in other words, the role that imagination plays in the construction of reality and the interaction between imagination and perception, which must take place time and again.

This hypothesis will be sustained through Bence Nanay's analysis of another type of portrait, which belongs to the period of so-called "modernism". Not all of Nanay's concept of imagination (or more precisely, "mental imagery") is accepted here: some aspects will be criticized at the end of the paper. It is worthwhile, however, to begin with, some elements of his thought which will be essential for our analysis of AI art.

In "Portraits of people not present", Nanay analyzes a series of portraits that he calls "modernist portraits". They are modernist in the sense that they belong to the period from roughly 1860 to 1960. But they are also modernist in the sense that they have a particular character that belongs to modernism. The idea of a modernist portrait could seem contradictory because, as Nanay states, modernism has to do with "negativity and self-negation", and on

the other hand “portraiture is [...] not negation. It is the depiction of the sitter” (Nanay 2019, § 2). Nevertheless – the author argues – there is something that characterizes modernist portraitures as such and this is the fact that the subject, in these portraits, is not present. One of the clearest examples is Andre Kertesz’s photograph of Mondrian’s studio, in which it is possible to see the artist’s hat, but Mondrian is not there. In yet another photograph of the same series, the viewer sees Mondrian’s pipe and glasses, but again, not him. Another modernist portrait is Robert Doisneau’s depiction of the artist Jean Tinguely: here it is possible to see the body of the artist, but his head is obscured by a cloud of smoke. Another example is Doisneau’s portrait of Fernand Leger, in which the artist is replaced by a sign that says “Attendez, je reviens de suite (Wait: I will be back soon)”; Kertesz’ self-portrait, which is a shadow, and of course Moholy-Nagy’s self-portrait, in which his face is obstructed by his hand that seems to be trying to stop the photograph (Ivi, §3).

What is relevant in this context is that, by describing these pictures, Nanay wants to show the importance of what he calls “mental imagery”. The viewers are able to recognize these portraits as portraits because, even if they can’t see the portrayed person, they can imagine it. To be more precise, they have mental imagery of it. Mistakes and missing details in pictures are an important trigger for mental imagery, because it is through mental imagery that the viewer can generate what is missing, or correct what is wrong. Later, it will be necessary to return in greater detail to Nanay’s distinction between imagination and mental imagery. For the moment, it is enough to keep to the definition of mental imagery given by Nanay: “Mental imagery is a perceptual process that is not triggered by corresponding sensory stimulation” (Ivi, §6). It can arise in different ways, from thoughts (if I think of a red apple and then imagine it), from memories (as will become clear later) or from other sensory inputs (if I see or touch or smell something else which then causes me to imagine what I am actually imagining).

What is most important in this context is that mental imagery, according to Nanay, plays an important role not only in the fruition of artistic pictures, but in the perception of the world in general (Nanay 2018): «Everyday perception is a mixture between sensory stimulation-driven perception and mental imagery» (Ivi, §4). Everything we perceive and identify is always only a small part of what we have yet to discover. And moreover, what we already know is always a mixture of what is already there and what we imagine

and transform. As Nanay shows, art can bring to light the partially imaginative nature of perception. Nanay draws on the example of Degas, who sometimes places parts of the portrayed characters outside the picture (Ivi, §5)⁵. In the case of Degas' dancers, their moving body partially exits the perimeter of the frame.

3. *AI and human imagination (a first hypothesis)*

Not all kinds of art do this, showing the mixture between perception and imagination. Some of them just build a fictitious world that seems to be completely separate from the real one. Moreover, the types of art that do this don't do it all in the same way. My idea is that AI art accomplishes this –reminding the viewer of the role of imagination *within* perception itself – by confronting humans with that new “thing” that AI is.

Pictures like the ones of *Memories of Passersby* are “similar” in some way to the ones analyzed by Nanay, because they have some incongruencies and missing details with which mental imagery must contend. However, what is important to the viewers, when they see these AI pictures, are not only the mistakes that the machine makes but also the origins of these mistakes. Our perception of these works is not neutral: we know that they were made by an AI. Therefore, we perceive it as showing, in a certain measure, the way the AI “sees” the world (or sees us, in the case of self-portraits in fig. 2).

Of course, the AI does not “see” in the sense in which humans see. We must be careful not to erase that distinction when we use this term, as Fabio Fossa has written in a very interesting article (Fossa 2021). However, this language game (when we say that the AI “sees” the world) also reveals something else: the fact that the elaboration process of the AI appears to be *similar* to our own in some way. This is important because when we look at these pictures and see the mistakes that the AI has made, we see our own mistakes. And when we see the missing parts, we see the missing parts that characterize our own experience of the world. We see, in other words, something that Nanay has shown very well, that imagination (or mental imagery; it is necessary to go back to this difference) is not beyond the perceived reality. Rather, it is within the perceived reality itself (Nanay 2017, §5). Perception itself consists, in part, of mental imagery. By recalling this fact to the viewer, these pictures

⁵ Here Nanay refers in particular to Degas' picture *Dancers climbing the Stairs (Danseuses montant un escalier, 1886–1890, Musée D'Orsay)*.

are a great trigger for human imagination. They remind the viewer that there is an interaction between perception and imagination that must take place time and again from the start.

This is the first hypothesis of this paper: by mirroring (the “uncanny mirror” is a frequent metaphor for AI) our own transformation of the world as we perceive it, AI art stimulates human imagination *in a new and interesting way*. New and interesting: it is worthwhile to explain both adjectives in detail. *New*: because of what the AI does. It not only deforms things (as it happened quite often already in the art of the Nineteenth Century), but it also makes mistakes in identifying them. By doing this, it brings to light new similarities between different elements of the world. The artist Anna Ridler remarks that, through the mistakes of her GAN, she started to notice the similarity between the eyebrows and the eyes of her dataset figures. Noticing new similarities among things also means thinking of new connections and relationships between them: learning to configure the world in new ways. *Interesting*: as soon as the viewers perceive these mistakes, they think of the AI, investigating what it is and how it works.

In fact, the imaginative work that arises when the viewer is faced with GANs art implies a meditation on (or at least a confrontation with) the very idea of artificial intelligence itself. What is AI for the artist, and what is it in general? The two questions are inevitably connected.

Nowadays the position in relation to AI art is basically twofold. On the one hand, there are those who consider AI to be merely one more tool, like the paintbrush for the painter or the piano for the pianist (Klingemann 2020, p. 74). On the other hand, there are the more enthusiastic individuals, those, who think that the AI is the real creator of these works, that it is the real artist (Miller 2019, p. 122). The investigation of imagination done here (with the help of Nanay’s theory of mental imagery) can help one to understand that both positions are wrong. At present, AI is not capable of making art on its own: the dream of artificial general intelligence (AGI) is still far off. On the other hand, as noted above, the AI acts as partially autonomous during the creation of a work. This is why its results can surprise us and stimulate our imagination. Therefore, AI is not just a tool, it is becoming something else that still needs to be investigated.

Actually, AI’s capacity to stimulate the perceptive or sensory side of imagination (i.e. the capacity of searching for new viewpoints and perspectives within perception itself) could be one of the criteria to decide whether or not an AI work is art. In order

to clear this point, it is necessary to briefly explain what sensory imagination is.

There is a difference between “imagining that” (for example, “that there is a monster in the cupboard”) and imagining something in its sensitive appearance (for example, imagining what the monster looks like, giving him a face). The first act is usually called “propositional imagination”, while the second one is the “sensory imagination” (Kind 2017, *Introduction*, §1). The sensory imagination is often more difficult to exercise than the propositional one because it must overcome the stereotypes and schemes according to which we usually perceive things (see Nanay 2021). In the case of AI art, from my point of view, it is exactly this difference between the two types of imagination which could help to decide whether or not an AI artwork really has an “artistic” quality.

In fact, there is currently an intense debate underway regarding certain products made with AI. These products pretend to be art but they seem “too easy to make” in order to deserve this status. Until now, I have considered works of art made using GANs, but GANs are not the only type of artificial intelligence that is used for art at present.

For example, in recent months, a lot of attention has been devoted to a number of systems that convert texts into pictures. This is the case of Midjourney, DALL-E and most recently, Stable Diffusion. In all these cases, the user can type a word or a phrase and the system will transform them into a very well-defined image. Results can be so original and enjoyable that, according to some people, there seems to be no place left for designers and creatives. However, if we go back to the criterium we suggested above, i.e. an artwork’s ability to stimulate sensory imagination, not many of these pictures prove to be very effective. For example, the DALL-E website shows an astronaut who is riding a horse in space. Although the idea is quite original (astronauts don’t usually ride horses), the way in which both the astronaut and the horse are represented is quite conventional. There is no uncertainty within the pictures themselves. They don’t call into question the way we usually perceive the world (as the pictures of *Memories of Passersby* do).

Investigating the possibility of making art with DALL-E, Mario Klingemann writes on Twitter that language is too strong a cage to produce something new through these systems. For this reason, he tries to give the AI phrases that are not understandable, to see if this allows the system to overcome stereotypes and clichés.

On the other hand, the creators of DALL-E do not try to overcome social and cultural biases, instead choosing to simply ac-

knowledge the presence of such biases within the system⁶. They write it clearly on the DALL-E site, as a gentle warning.

Is it really impossible to avoid stereotypes and clichés with such systems, though? If we look at the artwork made with Midjourney which won the Colorado State Fair this year, (<https://www.theverge.com/2022/9/1/23332684/ai-generated-artwork-wins-state-fair-competition-colorado>) we find, like in *Memories of Passersby*, a number of intriguing details, missing parts and uncertain presences. The piece, *Théâtre d'Opéra Spatial* by Jason Allen, intensely stimulates not only our thought but our sensory imagination, too.

4. *Mental imagery VRS propositional imagination? (a second hypothesis)*

This notion of “sensory imagination” seems to coincide with what Bence Nanay calls “mental imagery”. Nanay distinguishes between mental imagery, which can also be involuntary and is generally non-verbal (preverbal, perhaps) and propositional imagination (Nanay 2017, §2). In this context, however, a problem arises concerning the relationships between the two types of imagination. In fact, Nanay doesn’t deny that the two types of imagination can interact (Ivi, note 1), but verbal language seems to be completely excluded from mental imagery. Is this right, or are there elements of verbal language that can enter the (merely) sensory sphere? And if it were so, maybe the relationship between the two types of imagination could be thought of more as a continuum, with various intermediate degrees along it, rather than conceiving of it as a completely binary separation. In order to test this hypothesis, it can be useful to examine another work of art made using AI, also by Mario Klingemann, the title of which is *Appropriate response*.

In the first part of this paper, Nanay’s ideas of imagination and mental imagery were used to investigate the role of imagination in AI art. Now we will follow the opposite path and use an example of AI art to call into question some aspects of Nanay’s theory of imagination.

As noted above, language has recently become an important field for experimentation in AI art, also for visual artists. What is intriguing for many of them is the possibility of creating a connection between words and pictures. Before Midjourney and DALL-E, another system called CLIP was developed, which permitted the

⁶ <https://github.com/openai/dalle-2-preview/blob/main/system-card.md> I owe the discovery of this warning to Luca Malavasi, the discussion with whom has been very productive.

conversion of pictures into words and vice versa. Moreover, the generation of texts has progressed with a type of AI called GPT2 and GPT3. These systems allow for the creation of even very complex texts, which are nearly indistinguishable from those produced by humans (see Weinberg 2020). However, just like GANs, GPT2 and GPT3 can be used to produce very realistic and meaningful texts (like with Style Gan for pictures), together with more uncanny texts and sentences. In this last case, the mistakes of the AI become evident, just like in the pictures of *Memories of Passersby*. This results in some strange texts, in which the artist plays with non-senses, recalling in some aspects the experiments of Nineteenth Century Surrealism.

The reference to the domain of dream⁷ is not new in the field of AI art. As noted above, the reason is that these works explicitly bring to light their position on the border between the existent and the non-existent, reality and imagination. I think that this reference to the dream can help us to also investigate the relationship between mental imagery and propositional imagination which is the aim of this last paragraph.

In fact, in thinking of mental imagery, we naturally think of the experience that we have when we are between sleeping and waking. In these moments, we usually see images – sometimes we love these images and we could stay in bed until midday – but sometimes we also hear words or see phrases. This means that there is a sensory dimension of verbal language which precedes meaning. As Walter Benjamin has shown, this still-dreaming characteristic of language has to do with the *possibility* of meaning rather than with meaning itself. In order for it to acquire meaning, we have to transfer it into waking language (see Benjamin 2002, K I, 3).

In the '80s, there was an extensive discussion of whether the content of mental imagery is images or words: the so-called “Imagery Debate”. In considering it, Nanay concludes that the debate is over now, and «it seems clear that mental imagery has iconic format» (Nanay 2021b, § 1.5). However, if one reads the summary of this debate presented by M. Tye (Tye 1991), this discussion always considered verbal language in its accomplished, propositional form. The sensory and “dreaming” aspect of language to which I above referred is not present in this discussion.

Probably, Nanay would not accept my objection, because he explicitly states that inner analysis is not a reliable method by which to define mental imagery (Nanay 2021b, §1). One cannot look at

⁷ First of all in that could be considered the first form of AI art, i.e. Deep Dream.

their own dreams in order to determine what mental imagery is because my dreams and someone else's dreams can be very different. Therefore, in order to overcome this possible critique, my strategy will be to draw on the example of an AI artwork, in order to investigate this sensory side of language.

In *Appropriate Response* (fig.3) the artist connected the GpT-2 to a split-flap display, like the ones with rolling letters and numbers that were used as transport timetables in railway stations and airports, and a kneeler, like the ones that are used in church. When the viewers take their place on the kneeler in front of the display, the letters start to roll and the machine produces a special sentence for each visitor. The AI has been trained on famous aphorisms, so these sentences look like famous sentences which could have been said by some very wise person, but they are always a little bit strange, because of the mistakes and misinterpretations that the machine makes.



Fig. 3

This creates an atmosphere of waiting and expectation, which is half ironic and half serious. It is ironic because it makes fun of the fact that humans often consider artificial intelligence to be a kind of oracle: something that knows everything, even the future. Yet it is also serious because the visitor really must kneel on the kneeler and wait for something that the AI is making just for him. During this waiting, the sensory elements of the work hold great importance. This is why Klingemann chose a split-flap display because the noise that it makes when it rolls creates a sense of expectation. This is also why he chose the kneeler because when the spectator physically kneels, he acknowledges that he is there to listen, to receive what the AI has to say. Also, the words that appear on the split-flap display – this is my hypothesis – have a mostly sensory character at first⁸. They are like signs (and sounds, when we read them) that have yet to acquire meaning. They do not yet have a definite meaning, but from them, a new meaning can arise.

One of these phrases sounds particularly appropriate to conclude this discussion about dreams, imagery and imagination. The AI writes: “The best thing that I can do is to get out of bed once a year”.

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⁸ Klingemann intentionally chose to work with words rather than with pictures this time, because, as he states in an interview, “the truly fascinating part about the way neural networks work is that underneath everything is numbers [...] In that sense, words behave like pixels and sentences like pictures” (Klingemann 2020b).

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