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PHOTOGRAPHY IN THE LIGHT OF **AI-GENERATED IMAGES**

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Abstract: Generative Adversarial Networks are raising various concerns among photographers and cinematographers regarding the value of their own artwork. With the latest versions of products like *Midjourney* (i.e., v6) or OpenAI's *Sora*, generated images are getting closer to what some may call technical perfection. But is perfection to be sought in photography? Walter Benjamin's essay – *The Work of Art in the Age of Mechanical Reproduction* (1935) – seems to astutely approach even today's debate on artificial intelligence versus photography. While Benjamin's essay focuses more on photography as a reproduction of painting, it still leads us to a question we raise in this article: will the emergence of AI-generated images shine some new light on the document value of photography? If so, what are the stylistic features of photography that may recall the immediacy of a specific moment? Looking back at the work of some famous photographers (e.g. Bresson, Davidson) and comparing it with AI-generated results, we can further understand that the real value of photography relies on its unrepeatable character. This is being reflected through minor imperfections, either technical or compositional. Can this kind of imperfections become part of a movement that reevaluates form in photography?

Keywords: generated image, photography, documentary photography, image ontology, realism.

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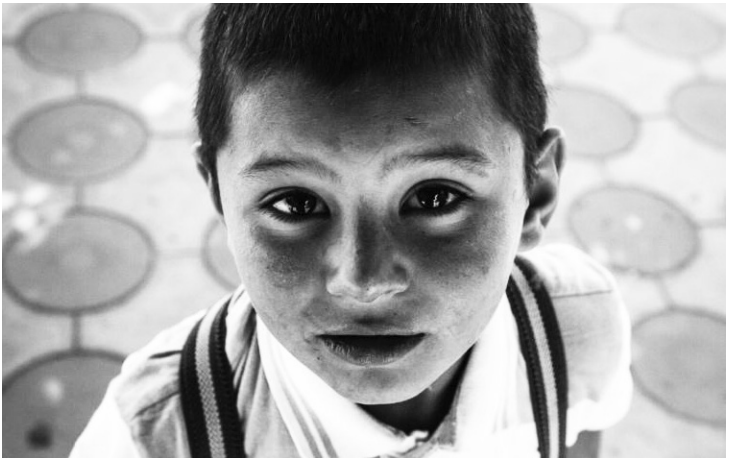
Even though it has been more than fifty years since the release of the very first digital photo camera, digital photography has gained mass popularity only at the beginning of the 1990s. Since then, technology behind digital sensors has constantly evolved. Today, image sensors can be found in a tremendous number of products, from vehicles and smartphones to home appliances. But it is more than clear that the most used device out of all these is our smartphone.

As the internet and social media became almost indispensable, the ease of access to digital photography changed the way the medium was perceived by the general public. We do not only consume photography with every step we take (e.g., city billboards, book covers, magazines or websites), but we also photograph a lot of things and share them on the worldwide web. The type of photos we take vary from portraits of our loved ones, landscapes or funny moments to images serving strictly utilitarian purposes (e.g., the spot where we have parked our car). Thereby we can ask ourselves what is the real value of each picture we take in our daily life. While some of them are taken to brag about our holiday on Instagram, others might become valuable memories.

Below you can find the last picture I took of my grandfather. I couldn't know it was going to be the last one, so I was just playing around with some filmstock simulations on my Fujifilm digital camera. Now, more than a year apart from the moment of exposure, the picture has gained a totally different value for me. It portrays the last visual trace of my grandfather.

Andrei Petrea, *Portrait of my grandfather,* 2022.
© Andrei Petrea (personal archive)

There are also moments when we accidentally take pictures that prove to be valuable in a way or another. While it does not look like it, the next photograph is one such example.



Andrei Petrea, *Little boy,* 2016.
© Andrei Petrea (personal archive)

As I was walking down the streets of my grandparents' hometown, this little boy waved his hand from the other side of the road. Seconds after, he was in front of my eyes begging me to take a picture of him. I had my camera attached to a neck strap so I quickly put my eye in the viewfinder and pushed the button without even

checking any of the technical parameters (i.e., shutter speed, aperture, ISO). An interesting fact is that the boy did not even want to see the picture; the simple act of being photographed excited him. I then went on with my day. It was only after I got home and transferred the photos to my computer that I saw the boy's portrait. It obviously did not look the way it is presented here, as it was heavily underexposed. My immediate instinct was to delete it. Until this day I don't know the exact reason I didn't, and instead tried to recover it using an editing software. Once I pushed the shadows, the look in the boy's eyes shined. Even without its amusing backstory, the photograph tells a story on its own through little things such as the texture of the child's skin, his apparel, but mostly through the look in his eyes.

People are becoming aware of this value of photography, especially in the light of AI-generated imagery. The rising number of images shared online builds up the so-called GAN networks (i.e., Generative Adversarial Network). Even though *Midjourney* has been available to the wide public for some time, I only gave it a try in December 2023, when version 6 was released. The leap between V5 and V6 not only consists in the software's capacity to understand given prompts, but also to deliver truthful results. Playing around with Midjourney for just a couple of hours resulted in images like those shown below. And a growing number of people train intensively in order to master the software's algorithm and obtain really impressive images.

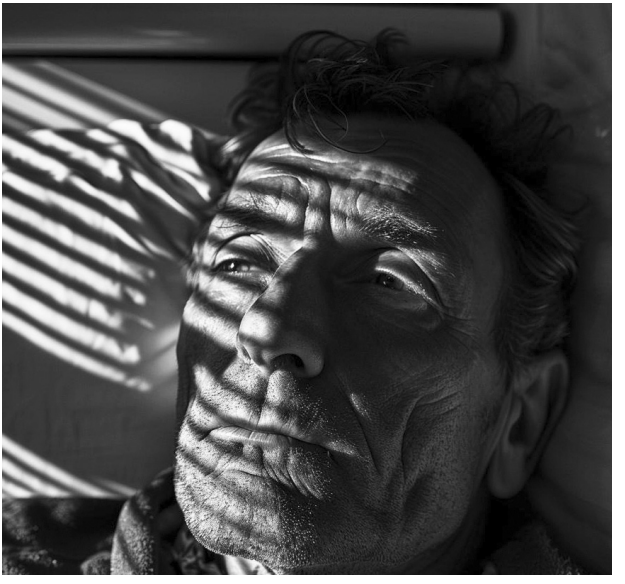


Image generated by Andrei Petrea using *Midjourney v6*
© Andrei Petrea (personal archive) &
https://www.midjourney.com/jobs/7bdbd4c0-6b0c-414b-b424-4e2e67b8e0fd?index=0

As insignificant as it might seem, I really think this whole new process (i.e. generating images using artificial intelligence) should make a clearer distinction between images and photographs. Etymologically speaking, the results shown above are not photographs since they are not obtained through light impression. In his book *Ways of Seeing*, John Berger discusses how people perceive new forms of visual representation. After the invention of photography, the real value of a painting did not depend on its content anymore, but on its existence as an art object (Berger, 1972, pp. 19-20).

> Even the most perfect reproduction of a work of art is lacking in one element: its presence in time and space, its unique existence at the place where it happens to be. (Benjamin, 1935, p. 21)

Almost fifty years after the publication of Walter Benjamin's essay, Roland Barthes defines photography's *noeme* in a similar manner. Most of the articles discussing the emergence of AI-generated imagery frequently refer to Barthes' *Camera Lucida*, which is able to set the philosophical definition of photography even for today's generations.

> The name of Photography's noeme will therefore be: „That-has-been," or again: the Intractable. In Latin (a pedantry necessary because it illuminates certain nuances), this would doubtless be said: interfuit: what I see has been here, in this place which extends between infinity and the subject (*operator* or *spectator*); it has been here and yet immediately separated; it has been absolutely, irrefutably present, and yet already deferred. (Barthes, 1980, p. 77)

Digital photography has created a constant aspiration for perfection. The strengths of the digital format include ultra-high resolution, but also impressive dynamic range and color depths. While these might seem highly appreciated advantages, they come with an invisible drawback. Image sensors will not miss any imperfection. Every technical parameter can be controlled and adjusted even after exposure. Thus, photographers, editors and retouchers have been following the illusion of the so-called perfect image. Today, technical perfection is no longer related to skill and can be orchestrated through various products powered by artificial intelligence. In this sense, some of the photographic genres we know might be in danger. Below is a comparison between an image generated by Midjourney user *alivishal* and a Sony World Photography awarded photograph by Martina Ceravolo.

Comparison between Martina Ceravolo's awarded photograph (left) and an image generated by user *alivishal* using *Midjourney* v6 (right)

© Martina Ceravolo, Italy, Shortlist, Open Competition, Object, 2024 Sony World Photography Awards
https://www.worldphoto.org/sony-world-photography-awards/winners-galleries/2024/open/winners/object#&gid=1&pid=2
© *alivishal*, 2024
https://cdn.midjourney.com/435c3108-c502-4e3b-ba5f-6b74a031eb53/0_1.webp

Digital perfection stands at the base of the GANs used in the process of artificially generating images. Today, there are millions of published photographs that have been digitally manipulated through software like Adobe's Photoshop and that haven't been signaled as such, creating a specific horizon of expectations for photographers and audiences alike. In all these perfect images, the "That-has-been" character that Barthes discusses is not to be found.

As the spectrum of images we come across begins to broaden, it gets more difficult to distinguish between photographs, photo-collages and images generated using artificial intelligence. While current technology does not allow artificial intelligence to overcome the *uncanny valley* effect[1], the truth is that it

1 Theorized relation between the human likeness of an object and a viewer's affinity toward it. The hypothesis originated in a 1970 essay by Japanese roboticist Masahiro Mori, in which he proposed that as human likeness increases in an object's design, so does one's affinity for the object—but only to a certain point. When the likeness nears total accuracy, affinity drops dramatically and is replaced by a feeling of eeriness or uncanniness." Kendall E. (2024) https://www.britannica.com/topic/uncanny-valley (Accessed: 5 September 2024)

probably needs just a little more time to become on par with real photographs. Of course, manufacturers with a tradition in producing cameras are trying to come up with various solutions such as including extra information in the photographs' metadata in the form of a certificate of authenticity. This would not only inform people regarding when, where and how the photo was taken, but could also keep track of any digital manipulation that the picture might have suffered. This seems like a solution for press outlets or photography contests, whose organizers might be able to conduct serious verifications on submitted files. When it comes to the general public, the effect of the images we see every day on websites or social media is similar to an adrenaline rush. The satisfaction sparked by a false sense of perfection often leads us to overlook the reality behind an image. Instagram started to automatically recognize generated images through its own algorithm and marks them as such. The irony consists of the fact that excessively retouched photographs are also getting flagged as being generated using artificial intelligence, regardless of their light-impressioned ontology. This makes us wonder if there is any difference between *perfect* images generated using artificial intelligence and *perfect* photographs that have been heavily retouched using photo-editing softwares.

You might ask yourselves why I have considered only digital photography. It is more than clear that the negative-positive process is still the most relevant when it comes to proof of authenticity. Positive prints also carry a lot of indexical signs, as Pierce theorized them. There is a certain tactility when it comes to a physical photograph. But it gets harder and harder to perceive these types of signs when it comes to digital photography. In his commentary on Barthes' *Camera Lucida*, James Elkins argues against photography becoming only *information in the pure state* just for being in a digital format.

> I also can't agree with writers who speak of the weightlessness of ones and zeros, when digital photographs are always overlays of pixels, hardware routines that manage them for display, and screen sub-pixels of entirely different shapes and sizes. (Elkins, 2011, p. 26)

While I agree that digital photography is not just information, I find Elkins' digital tactility metaphor being overcome by today's technical standards. High quality LED and OLED displays are part of most of our day-to-day devices and technology companies promise to make pixels unnoticeable. Of course, Elkin's book *What Photography is* was published thirteen years ago; since then, technology has drastically progressed. But even if we could pixel-peep all these images, what are the differences between the pixels of a digital photograph and those

of an artificially generated image? The analog process of photography involves interacting with various photo-sensitive materials that invite us to experience a certain tactility. This makes each printed photograph we encounter feel different. Digital photography tends to be consumed almost exclusively on our devices' screens, putting tactile senses aside. This is one of the reasons why digital photography seems to have lost a part of the indexical signs found in analog photography.

The example of Instagram tagging *perfect* photographs as being generated using artificial intelligence brings into discussion the question I have raised in the abstract of the present paper: what are the stylistic features of photography that may recall the immediacy of a specific moment? Considering the intermedia character of the images we consume every day, it is clear that only a stylistic shift might differentiate photography from the everyday visual clutter. If we look at timeless photographs such as those taken by Henri Cartier Bresson, Bruce Davidson or Sebastião Salgado, they present the candid character of certain moments. Compared to the present interest in perfection, this candid character seems to be sustained through some imperfections. Whether they stem from mistakes in exposure or composition, or they suggest a seemingly missed shot, these imperfections can become a statement of a true moment in time.

Bruce Davidson, *Lola in Central Park with birds and snow*. New York. USA. 1992.
© Bruce Davidson | Magnum Photos
https://www.magnumphotos.com/newsroom/environment/bruce-davidson-central-park/

There seems to be a certain escape from the trap of artificial perfection and it is being heavily adopted by the younger generations (i.e., Gen-Z, Alpha). Started in late 2020 and having peaked around 2023, a famous online movement known as *the digicam trend* has been producing a shift in the way photography is perceived online and beyond. As its name suggests, the trend involves using 2000s amateur/enthusiast compact digital cameras to document daily life. Switching back to obsolete technologies for the sake of melancholy is no premiere. The iPod has also seen a recent comeback, but its effect could be perceived only in the process of listening and not in the music's form. While using an old digital compact camera in 2024 seems a particularly impractical process to capture daily life (compared to a smartphone camera), it also has a visible aesthetic effect. As the technology behind their sensors is limited, these cameras produce images with various flaws such as low resolution and dynamic range which lead to accidental motion-blur, digital noise or the excessive use of front flash. While sometimes these flaws might be perceived as effects, it is important to note the difference between accident and intention. I am not stating that every photograph taken with such digital cameras has default artistic intentions. It is obvious that, in wrong or inexperienced hands, these *digicams* produce images that some will consider awful. Conversely, these days, artificial intelligence is also part of computational photography, a technology available in all our smartphones. It goes even further than High Dynamic Range in the sense that it even balances the overall lighting ratio of the scene. This is one of the key selling points of modern smartphones today: no matter how skillful we are, regardless of the lighting conditions, with a simple push of a button the photographs taken using them (i.e., smartphones) will look stunning.

But let us compare these two situations (i.e., the amateur-looking candid moments and the perfect pictures obtained with the help of computational photography): philosophically speaking, they both "mask and denature a profound reality" (Baudrillard, 1995, p. 7). All the imperfections of the photographs produced using consumer grade digital cameras have the ability to suggest that we are looking at something more real than reality (a simulated reality), while the photographs taken using our smartphones sometimes create an idyllic reality. But in contrast to completely generated images, both situations produce photographs, not images. As I have previously said, the emergence of artificial intelligence in the field of visual arts will require us to redefine photography once again. When it comes to technical matters, photography has been defined as a means of optically capturing reality through the use of a light-sensitive material and a mechanical device. After the changes made in the type of light-sensitive materials (i.e., from analog to digital), the entire workflow of photography has suffered changes.

Phenomenologically, this shift led to discussions that place photography between *mimesis* and *aesthesis* (Sulkowska, 2004). In its beginnings, photography was seen as a mimetic process that satisfied the need to faithfully represent the world around us. Through technical advancement, photography could express itself beyond reality, gaining the artistic valencies we still attribute to it at the moment. Today, photographers are under pressure to create photos that shock the observer, that are out of the ordinary. People have started to lose sight of the *mimetic* role of photography. When I use the term *mimetic*, I do not only refer to the strictly visual representation. There is also an ontological level of *mimesis* that constitutes its document value. This value is found in the relation between *detection* and *depiction*. Patrick Maynard treats this relation by classifying multiple types of photographic processes, including those prior to photography as we know it today.

> For as the recent microchip revolution should remind us, photographic processes, upon which they essentially depend, serve several important technological functions. Two of these, of which Talbot was an inventor, grew up with depiction and continue to develop, rivaling it in importance. These are *detection* by photochemical effects and *reproduction* by photomechanical processes. […] Yet a century and a half later "photographs" are generally assumed to be pictures, pictures are vaguely associated with depictions, and photographic depictions of things are not commonly distinguished from photographs of them. (Maynard, 1989, p. 263)

While it may seem that it uses a lot of confusing terms, the above-mentioned article sketches a comparison which can prove useful when translated to our given topic, namely the role of photography in the artificial intelligence era. By observing the affiliation between the subject, the medium and the receiver, Manyard gets to discover the authentic value of each new photographic process from heliography to newer photographic film stock in terms of their ability to depict or to detect.

But what do we mean through *depiction* and *detection* and why is this relevant to our discussion? As circular as the definition might seem, Laura Perini manages to describe the differences and connections between these two terms:

> Pure depiction occurs when what is depicted is not detected, such as when a man in a red suit is photographically depicted as Santa Claus. Pure detection occurs when the image supports detection, but not depiction: given the conditions in which the image is used, it does not

> prescribe imagined seeing. [...] However, in many cases, a photo will support both functions. Maynard presents Backyard (1932) by Walker Evans as an example. This photo depicts a child as having freckles and also allows for detection of her freckles. The physical state of the marked surface carries information, and in this case, that information is made accessible through treating the image as a depiction. (Perini, 2012)

Taking into consideration today's advances in photography, photographs depict through various ways. First, we should consider the medium's ontological lean towards simulation. With the vast amount of technical and aesthetic choices (i.e., different focal lengths, resolving power, shutter speed etc.) involved, any given reality might seem manipulated through a photograph. But the same photographs that appear to manipulate our perception of reality also manage to imply detection: there is at least a represented element that looks identical to its corresponding object in reality. So, in photography there is no such thing as pure depiction or pure detection. As Maynard argues, a photograph simultaneously supports both depiction and detection. Of course, some photos such as family portraits might detect more than they depict (e.g., my personal photographs attached in the beginning of the paper). But there is also Victor Skrebneski's well known portrait of Orson Welles which, for a portrait, depicts more that it detects.

Victor Skrebneski, *Portrait of Orson Welles,* 1970.
Image famously used for the 1978 Chicago Film Fest poster. Gelatin silver print.
Museum of Contemporary Photography/
https://collections.mocp.org/detail.php?type=related&kv=5561&t=objects

A second means through which depiction occurs in 21st century photography is software-based photo-manipulation. Just as I have stated in the very first pages of the paper, digital photography brought the possibility to control and correct every aspect of a captured scene. In the entire advertising industry, the commercial advantage of depiction in photography turned digital manipulation into an essential tool. But in the last two decades or so, we have been accustomed to the idea that the food in a restaurant's menu will not look the same in real life or that the product we order online will not be as shiny as it seemed in the pictures. So we have become accustomed to the companies' hoaxful adverts that are obtained through photography's power to deceive.

But does the same thing happen with images generated using artificial intelligence? A few weeks ago, while I was using my e-book reader, I stumbled upon some books that had AI-generated images as covers. As I started to look up more examples of this kind, I came across the fact that many other companies have started to include images generated using artificial intelligence in their advertising campaigns. While for the new-entry companies this process represents a cost-cutting revolution in technology, the world-acclaimed advertising agencies seem to embrace artificial intelligence's *uncanny valley effect* as part of the medium so that they can create surreal sceneries. Taking into consideration the previously discussed philosophical concepts (i.e., *mimesis-aesthesis*, *depiction-detection*) and comparing the artificially generated results with the heavily post-processed photographs that have been used for years in advertising, we can come to some conclusions regarding the state of photography today. The shock effect caused to the receiver is accomplished in each of the cases, so both support depiction and fulfill the *aesthesis* role. But the software manipulated photograph is still, ontologically speaking, a photograph of something, of someone or some place, so it supports both depiction and detection. While many details of the photograph have been modified (altered or enhanced), its subject can still be identified in the real world. Generating an image using an artificial intelligence model is an imaginative process. Its result comes from our own written fantasies. Most of the time, the subject of a generated image does not have a real life correspondent. And this is, in my opinion, AI-generated images' biggest advantage, as opposed to their capability to create deceitful *realistic* looking images (e.g., deep fakes of word-popular personalities etc.). Generating images using *Midjourney* or *Dall-E* can be a good exercise of imagination, while photographing different bits of the surrounding world is about reacting to reality and taking an entire set of decisions: whether that reality is worth being photographically captured or not, when is the convenient moment to capture it and how to technically capture it (i.e, composition, exposure, shutter speed choices etc.).

Combined with 3D rendering techniques, artificially generated images can provide the *perfection* some industries look for. This way, as I have stated in the very first pages of the present paper, it is possible that some photography genres (e.g., product photography, food photography, real estate photography, landscape photography to some extent etc.) will be heavily affected by these new practices. This does not mean that we have to worry about photography's extinction. Maybe the balance between depiction and detection or *aesthesis* and *mimesis* will begin to shift towards appraising the documentary value of photography.

To conclude, photography is and will still be considered an art. As history has proved us, changes in technological means have always unbalanced the way some forms of art were perceived. But this has not led to the disappearance of any of the well-known ones. This is happening once again today. Images generated through the power of artificial intelligence should not be considered a replacement for or an attack on photographs. This whole fear should make us aware of the real use of each image-making tool we have at our disposal. The democratization of visual creation through artificial intelligence is impressive. It is more than clear that some of the images created using AI models could not be photographically captured. But we should also be aware of the fact that the value of a photograph cannot be evaluated through the prism of the *perfection* promoted by AI-generated images. The reception of a photograph depends on the relation between multiple elements: the time and place it was taken (or its historical/sociological context), the person behind the camera, the subject and the receiver. While a certain photograph might not be of interest to you today, the detection process of photography will allow one to evaluate the same photograph differently some other time in the future. This is why its documentary value will not let photography disappear in the shadows of the newer technologies.

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