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Going environmental

An-icons and the challenge of digital technologies[*]

1. An-icons, here and there

Recent developments in image production techniques have led to a tendency to radically blur the threshold between the image world and the real world. Digital environments have enabled the production of images that evoke an unprecedented sense of reality, creating a strong sense of "being there" for the perceiver, as is often the case, i.e. of being incorporated into a quasi-real world. In so doing, they conceal their material mediateness (by simulating *immediateness*), their separateness (by aiming at *unframedness*), and their referentiality (by underlining *presentness*), paradoxically calling into question their status as images, i.e. as icons: they are true "an-icons", i.e. images (icons) that negate (a- in function of alpha privative) themselves.

Though widely overused in contemporary philosophical terminology, the hyphen in "an-icon" is necessary to dispel any doubt that I intend to deny the iconic and representational nature of these entities and to welcome (or stigmatise) the definitive disappearance of the distinction between image and reality: they are, of course, images which, in their own way, are well-framed, representational and mediated. In other words, it is the effect on the viewer that they aim at (their *phenomenology*) that is "an-", but their nature (their *ontology*) remains "-icon."

The subjects who relate to an-icons are no longer visual observers of images isolated from the real world by a framing device (be it the pedestal of a statue, the frame of a painting or the screen of a cinema); they are experiencers living in a quasi-real time-space that offers multisensory and synesthetic stimuli and allows for possibilities of interaction, favouring an environmentalization of the image.

Such environmentalization, however, is accomplished through two antithetical approaches and two digital technologies which rely on different conditions of experiential possibility, which can be expressed through an aquatic metaphor, polarised in the immersion/emersion pair: *immersive* Virtual Reality (VR) and *emersive* Augmented Reality (AR). From a terminological and conceptual point of view, these are two forms that are often ambiguously referred to under the generic and vague notion of the "virtual." Their difference can be illustrated by making a simple point about the opposite way in which they articulate the relationship to the "here" and the "there." AR brings the digital object "here", in my actual environment; the digital object emerges and appears, becomes present in my peripersonal space. It is a kind of epiphany, integrating or augmenting my perceptual field. An intuitive instantiation of this augmentation is offered by the Ikea Place app (available since 2017: FIG. 1), which allows users to place digital 3D augmented reality images of furniture from the Swedish company's catalogue in their own interiors, in order to measure the effect they would have when placed in their home space.[1]

1. Fig. Ikea App

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[1] https://www.youtube.com/watch?v=UudV1VdFtuQ
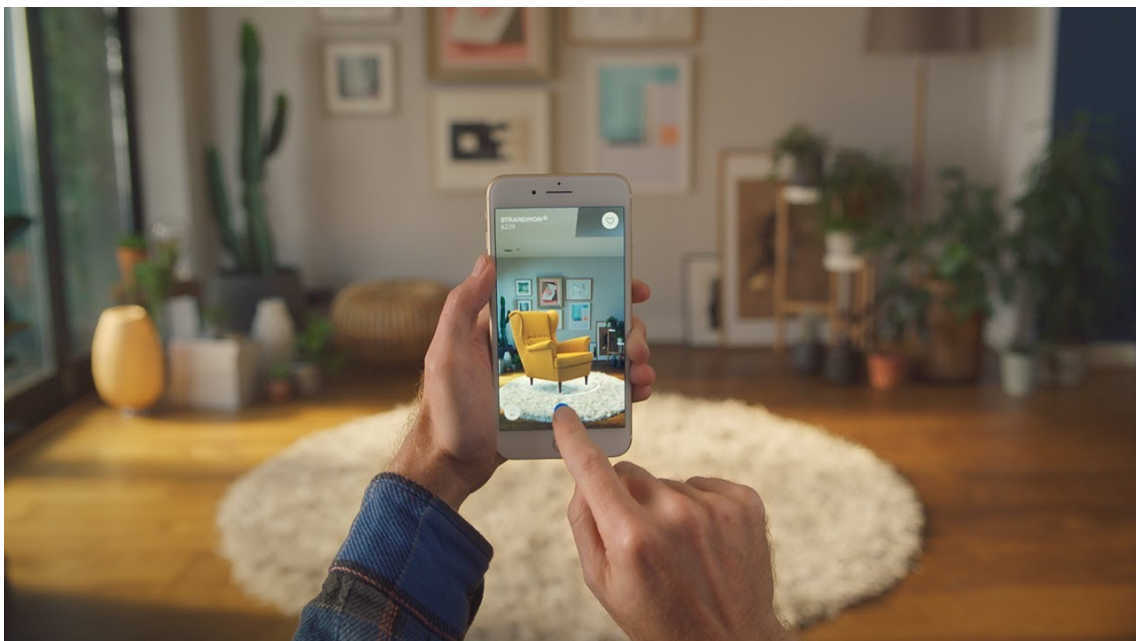
VR on the contrary takes me "there", in another place, plunging me in another environment, at least from an audio-visual point of view. I say "at least" audio-visually, because most of the VR experiences we can have wearing a headset are characterised by a conflict. Take, for example, the so-called "plank experience" (FIG. 2): your body is safely in a room and is invited to walk on a wooden plank placed on the floor. But what the headset transmits to your audio-visual system is a very different scene: a lift transports you to the top floor of a skyscraper, the doors open and you find the plank protruding out of the door at a dizzying height: you know and you haptically and proprioceptively feel that you are here, safely on the floor of a room, and yet you see and hear that you are over there, exposed out of a skyscraper.[2]

2. Fig. VR Walking the Plank

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[2] https://store.steampowered.com/app/517160/Richies_Plank_Experience/

The indicators "here" and "there", respectively characterising the AR and the VR experience, imply the reference to the subject and her own body as the condition of possibility of *deixis* ("reference", from the Greek *deiknunai*, "to show"). In the classic phenomenological account, the unavoidable centre and condition of possibility of deixis, the fundament of the peripersonal space is my own living body. In Husserl's words: "Whereas, with regard to all other things, I have the freedom to change at will my position in relation to them and thereby at the same time vary at will the manifolds of appearance in which they come to givenness for me, on the other hand I do not have the possibility of distancing myself from my Body [*Leib*], or my Body from me".[3]

VR precisely challenges this unavoidable being rooted of myself in my own body. And yet phenomenological reflection was able, well before the advent of virtual reality headsets, to conceptualise a corporeal virtuality capable of transcending the physical centre of one's own body. "My body is wherever there is something to be done", says Merleau-Ponty, remarking that what counts "is not my body as it in fact is, as a thing in objective space, but as a system of possible actions, a virtual body [*corps virtuel*] with its phenomenal 'place' defined by its task and situation."[4]

However, even with regard to what is "to be done" in virtual space, precise distinctions must be made. "Virtual" is actually a generic notion that needs to be broken down into more specific elements. In his book *Dawn of the New Everything: Encounters with Reality and Virtual Reality*, visionary VR pioneer Jaron Lanier offers a thought-provoking definition of VR: "VR is those big headsets that make people look ridiculous from the outside."[5] At first glance, this definition seems like a simple provocative joke: it seems to suggest a blunt identification of a complex perceptual, cognitive and spectatorial experience with the technological device that enables it. However, of the various definitions of VR that punctuate his book, this very first equation – VR is the headsets – deserves particular attention for its radicalness. It reminds us of the simple fact that the headset, through its materiality, as well as the possibilities afforded by the technological apparatus, fundamentally modulate the nature of our VR experience.

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[3] Edmund Husserl, *Ideas Pertaining to a Pure Phenomenology and to a Phenomenological Philosophy, II* (Dordrecht/Boston/London: Kluwer, 1989), § 41.b, p. 167.
[4] Maurice Merleau-Ponty, *Phenomenology of Perception* (London/New York: Routledge, 2002), p. 291.
[5] Jaron Lanier, *Dawn of the New Everything. Encounters with Reality and Virtual Reality* (New York: Henry Holt & Co., 2017), p. 13.

This modulation is intuitively understandable, if we go beyond what can be considered the macroscopic aspect, which is shared by all immersive VR environments (namely the fact that the 360° shot offers us a frameless iconic field). Rather, we should consider the different possibilities of movement (i.e. transition in space through a given time) and interaction enabled by different headsets in their different combination of first (or third) person view and diegetic strategies.

2. The virtual-real spectrum

It is not only necessary to clarify which types of VR devices are being referred to, but also to bear in mind that these devices as a whole are in contrast to AR technologies. If we compare Virtual Reality and Augmented Reality, we can establish a first fundamental difference: VR immerses the subjects in a digital environment, allowing them to feel intensely present in that space and with the synthetic objects they encounter; On the other hand, it encloses the subjects in a solipsistic bubble that is essentially audio-visual, separating them from the outside world and their own bodies (if one wears a headset, one cannot see one's real hands, at most one perceives and moves digitised hands that appear as such inside a virtual world, thanks to VR gloves that allow interactive processes). However, it should be noted that current research is moving towards a progressive integration of sensory stimulation as a whole: haptic suits, with various names (TeslaSuit, TactSuit, HoloSuit...), include sensors and actuators that follow the wearer's movements in real time and electrically stimulate their muscles. New prototypes of headsets (the most famous of which has been significantly named Feelreal)[6] are already appearing, integrating visual, auditory and tactile stimuli with olfactory stimuli, guaranteeing an extremely immersive experience and erasing the boundaries that still separate the physical body from its digital alter egos.

On the contrary, AR devices let the digital object emerge and pop up in the real environment, which continues to be perceptible with the user's body: it is enriched, "augmented" precisely by the synthetic entities, which can be produced, shared and manipulated in cooperation with several subjects, thus guaranteeing a public and intersubjective dimension to the process. At least in the current state of development of

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[6] https://feelreal.com

digital technologies, VR tends towards a complete evacuation of the external world and its total substitution by a simulated world, while AR aims at a superposition of the digital and the real.

The two main areas of AR applications are glasses and smartphones. In the first case, we can cite the Google Glass project (launched in 2013, abandoned and then resumed in 2019).[7] This technology, which is installed on a pair of glasses, makes it possible, thanks to geolocation and spatial framing via the webcam, to receive in the field of vision, in real time and superimposed on the perception of the AR, data relating to maps, information on means of transport or on commercial establishments or tourist attractions, messages, etc. Spectacles invite you to create a world of your own with a device that brings augmented reality to life.[8] Facebook's Ray-Ban "smart glasses", which currently allow you to take photos and videos, share your adventures, listen to music or take phone calls, are planning to offer augmented reality in the near future.[9] In the case of smartphones, we can mention AR integrations for Snapchat.[10] In its recreational variants, augmented reality can take many forms: perhaps one of the most successful was the AR and GPS-based game Pokémon GO (2016). In addition to practical uses for navigating our smart cities and for playful purposes, AR applications are frequently used for forms of 'soft' political and ideological re-appropriation of monuments and urban spaces, within the framework of so-called "artivism".[11] This is for example the case of the collective Kinfolk, which "uses augmented reality to make Black and Brown narratives accessible to everyone in the world"[12] by superimposing digital images of significant counter-historical characters onto American public spaces (FIG. 3).

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[7] https://www.google.com/glass/start/
[8] https://www.spectacles.com/
[9] https://tech.fb.com/ray-ban-and-facebook-introduce-ray-ban-stories-first-generation-smart-glasses/
[10] https://ar.snap.com/
[11] Mark Skwarek, "Augmented Reality Activism", in *Augmented Reality Art. From an Emerging Technology to a Novel Creative Medium*, ed. Vladimir Geroimenko (Cham: Springer, 2018), 3–40.
[12] https://www.kinfolktech.com.

3. Fig. Kinfolk (AR image of Haitian general Toussaint L'Ouverture, leader of the Haitian Revolution)

However, it would be wrong to overstate the polarisation between solipsistic VR and intersubjective AR: the advent of the Metaverse, announced by Mark Zuckerberg on the 28 October 2021, will allegedly combine AR and VR technologies.[13] Recent rumours suggest that major high-tech companies such as Samsung and Apple are planning to release a hybrid AR/VR headset.

Things become more complex if we turn to the notions of MR (Mixed or Merged Reality) and XR (Cross Reality), which allow different forms of interaction and overlap with RR (Real Reality). As an example of MR, a particularly effective device is the Microsoft Hololens: a HMD with integrated binaural audio, gesture and voice recognition systems, which uses holograms (FIG. 4). This allows the user not only to receive

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[13] https://www.youtube.com/watch?v=gElfIo6uw4g

additional information about the environment, but also to interactively manipulate digital objects (via eye and hand tracking, without the use of joysticks or controllers of any kind) as if they were actually existing objects in real space, and thus to digitally enhance surgical, mechanical or engineering operations, but also theatre sets and archaeological reconstructions, and even to enable hybrid education or urban or interior design. It is also worth mentioning the XR Varjo line of headsets, which produces high-level devices for professional use.

4. Fig. Hololens

The acronym XR has been around since at least the 1960s and has often been associated with certain Sony devices. However, the meaning still given to it today remains limited to a rather indeterminate semantic spectrum. In most cases, it is used as a generic term which, from time to time, may refer to VR, AR and MR in different combinations. In a more specific sense, XR refers to real spaces and objects that are mapped by 3D photogrammetry and marked by sensors, so that the user, operating in a virtual dimension, can also move and act in the corresponding real world: for example, the touch of a digital object in the virtual world corresponds to the haptic gesture in the real world and vice versa, so as to allow "crossing" both worlds. This is a technology that has also been

interestingly employed in terms of storytelling applied to artistic experiences[14] and of display strategies used in the re-enactment of art exhibitions. *Thresholds* realised in 2017 by Mat Collishaw, is a reconstruction of the original exhibition of William Henry Fox Talbot, who in 1839 presented prints to the public at King Edward's School in Birmingham: white and empty in real reality, the showcases are filled with the precious prints of Talbot in the virtual one, and also recontextualised in his time (FIG. 5.1 and 5.2).[15]

5.1_5.2. Fig. Collishaw

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[14] See Sofia Pirandello, "A Journey into Artworks: Storytelling in Augmented Reality and Mixed Reality," *Cinergie*. no. 19 (2021): pp. 135-145.

[15] https://matcollishaw.com/exhibitions/thresholds/ See Elisabetta Modena, *Nelle storie. Arte, cinema e media immersivi* (Carocci, Roma: 2002), p. 100.

These acronyms are often used in an ambiguous way, and the terminology is far from being definitively fixed, also because of the very rapid evolution of technologies. Among the various taxonomic proposals, the idea that these acronyms should not be conceived as rigidly separate concepts, but rather as moving points within a *spectrum* that extends from the real to the virtual, seems particularly convincing so far.[16] What seems to be the common denominator in this spectrum is precisely the experience of the environment. An experience that is first and foremost dictated by overcoming the traditional separation between the field of the image and the field of the non-image. In other words, the overcoming of the framing device in its various instantiations.

3. Beyond the frame and the screen

We witness here a hiatus between theory and practice, which is particularly evident within that particular class of images that are the artistic images. Viewed from the perspective of the present, the 20th century seems to have been the century of frame theory. From Georg Simmel's 1902 essay on the frame to Victor Stoichita's reflections, passing through numerous theorists such as Louis Marin and Jacques Derrida,[17] a powerful conceptualisation of a framing device was produced precisely while at the same time artistic practices were working on its systematic deconstruction (painting over the frame, breaking it up or eliminating it in all-over paintings, denying the pedestal to sculptures, etc.). It could be said, in a sense, that just as the frame was becoming, in a Hegelian way as it were, something of the past for art, on the other hand philosophy, always punctually lagging behind reality, was taking note of its fundamental role.

Today, we experience a similar gap between theory and practice in relation to screens, and an intense conceptualisation of their role that goes by the name of "screenology."[18] At the very moment when screens seem to be everywhere, and systematically pervade every moment of our lives, we are building VR and AR devices that, precisely by virtue of those effects of immediacy and transparency of the medium I mentioned at the

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[16] Paul Milgram, Fumio Kishino, "A Taxonomy of Mixed Reality Visual Displays," *IEICE Trans. Inf. Syst.* 77, no. 12 (1994): pp. 1321–1329.

[17] See the anthology: Daniela Ferrari and Andrea Pinotti, eds., *La cornice. Storie, teorie, testi* (Milano: Johan & Levi, 2018).

[18] Erkki Huhtamo, "Elements of Screenology: Toward an Archaeology of the Screen," *ICONICS: International Studies of the Modern Image* 7 (2004), pp. 31–82.

beginning, seem to want to deny us the very possibility of being aware of interacting with a screen.

Of course, far from being truly outdated, both the frame and the screen are remediated and metamorphosed by these technologies. Let us think trivially of the fact that a VR experience is temporally framed by an intentional act of putting on the headset (a heavy device that burdens my head) and an ending of the experience itself at the moment I take it off. Or to the fact that most AR experiences are made possible by devices such as a smartphone or tablet that by definition frame the visual field with the material edges of their screens.

And yet, if we consider the rapid pace of technological advancement and the enormous investment in scientific and financial terms – I am thinking here especially of bio- and nano-technologies –, we can easily imagine a not too distant future (in the end quite similar to the one presented to us by the episodes of Black Mirror) in which rather than dealing with wearable devices we will have them embodied in us and ever more deeply intertwined with ordinary perception. As regards AR interfaces, their implementation in contact lenses (which certainly have edges and a shielding surface, of which we are, however, hardly aware) is already a reality.[19] As regards VR, recent experiments in BCI (Brain-Computer Interface), such as in Elon Musk's Neuralink project,[20] have suggested that the very term "virtual reality" should already be substituted with "neuroreality."[21]

This tendency towards the environmentalisation of the image, to challenge the frame in order to see more and more beyond the edges of the image, as it were, is widely attested in the genealogy of immersive environments.[22] Think of the panorama, a genre whose first prototypes date back as far as the 1880s and which is still practised today (see the Pergamon-Panorama in Berlin: FIG. 6).

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[19] https://www.mojo.vision/mojo-lens
[20] https://neuralink.com/
[21] https://futurism.com/neuroreality-the-new-reality-is-coming-and-its-a-brain-computer-interface
[22] On this genealogy see Oliver Grau, *Virtual Art. From Illusion to Immersion* (Cambridge, Mass.: The MIT Press, 2003); Alison Griffiths, *Shivers Down Your Spine. Cinema, Museums, and the Immersive View* (New York/Chichester: Columbia University Press, 2008).

6. Fig. Pergamon-Panorama

Or think of panoramic photography, an ambition for the "all round" that has accompanied the history of this medium since its beginnings and which we find today as a mode implemented in any smartphone. The new artificial intelligence technologies are not exempt from this: give DALL-E the appropriate instructions and you will find out in which environment the girl with the pearl earring posed in front of Vermeer (FIG. 7), or who was crossing the pedestrian zebra crossing to the left and right of the Fabulous Four in the famous Abbey Road cover. It is the "outpainting" feature, which promises users to "extend their creativity by continuing an image beyond its original border."[23]

[23] https://openai.com/blog/dall-e-introducing-outpainting/

7. Fig. Dall-E

In his now classic study on the techniques of the observer, Jonathan Crary[24] reminded us that observing is always both watching a scene and obeying a rule. The scopic regime of linear perspective, which from the Renaissance extends all the way into videogame scenarios, is constructed according to a pyramid structure (FIG. 8) that simultaneously prescribes the spectator to take a position at a fixed point in front of the image and invites him or her to virtually penetrate into the iconic space: a "two-edged sword",[25] as Panofsky called it, emphasising this double movement.

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[24] Jonathan Crary, *Techniques of the Observer. On Vision and Modernity in the Nineteenth Century* (Cambridge, Mass.: The MIT Press, 1992).

[25] Erwin Panofsky, *Perspective as Symbolic Form* (New York: Zone Books 1991), p. 67.
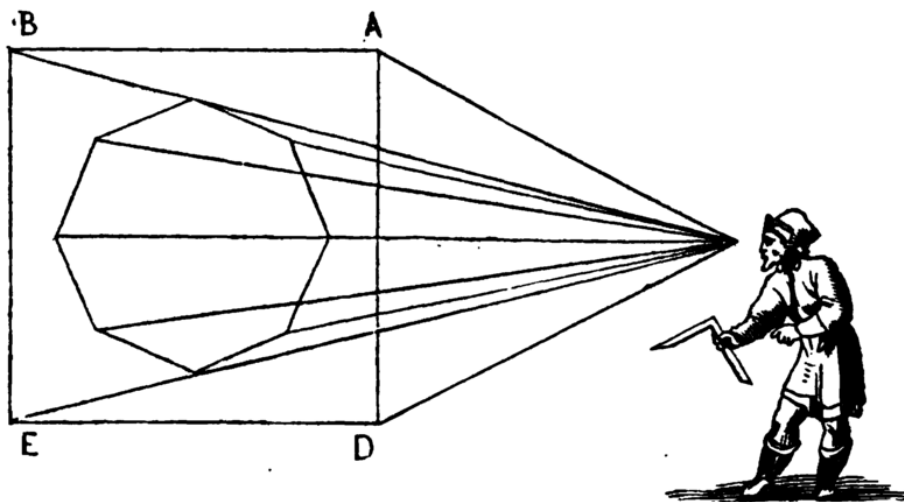
8. Fig. visual pyramid

The paradigm of the pyramid seems to compete with the sphere (FIG. 9) as a symbolic form of the 360° experience (at least starting with panoramas, but could one not perhaps trace this genealogical line all the way back to Palaeolithic caves?). Just as the discursive regimes and ideological implications of the Renaissance perspective have been investigated (I am thinking in particular of Martin Jay's work),[26] the same will have to be done with the 360° environmentalisation.

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[26] Martin Jay, "Scopic Regimes of Modernity", in *Vision and Visuality*, ed. Hal Foster (New York: The New Press, 1988), pp. 3–23.

9. Fig. 360° sphere

We know how quickly we have converted to the touch screen in just a few years. For the new "touch native" generations, the experience of the image is not only a visual fact, but always also a tactile one, manipulable and therefore digital in the strong, etymological sense of the Latin "digitus" (finger). If our ordinary relationship with images and the supports on which they appear were to be transformed from frontal to "environmental" in the sense that I have tried to outline in this paper, it would be necessary to develop a critical conscience capable of evaluating its possibilities and limits, within the framework of a conception that is capable of taking on the constitutive historicity of experience in its interweaving of corporeity and technology. The art space today seems to offer a particularly promising terrain for investigating this new horizon with a critical eye.[27]

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[27] See Elisabetta Modena, Andrea Pinotti, Sofia Pirandello, "Virtual Reality and Augmented Reality: New Tools for Art and Politics," *Paradigmi* 39, no. 1 (2021), pp. 87–106. See also by the same authors the edited issue devoted to "360°. L'immagine ambientale nelle arti visive tra realtà virtuale e aumentata", *piano b. Arti e culture visive* 6, no. 1 (2021), https://doi.org/10.6092/issn.2531-9876/14324