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Augmenting the Gaze, Extending the Museum: Digital Hermeneutics within Reach

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AUGMENTED REALITY AS SEEN THROUGH A PROJECT

In the professional sphere, ‘augmented’ reality refers to the combination – in real time, achieved through a computerised device – of objects inherent to the inhabited space, i.e. perceived in vivo, and objects of a virtual nature, relating to a relevant encyclopaedic horizon or an immersive recreational-creative space. This technology certainly offers an enhancement of our gaze, yet its application as a mere informational prosthesis runs the risk of greatly underplaying its scope, favouring a mere overlap between visible access to phenomenal reality and consultation of sources accessible on a local or remote server.

In this short contribution of ours, we would like to offer constructive criticism and suggestions for the deployment of augmented reality in museums, especially when it is involved in the preservation of an onsite aesthetic relationship with artworks. On one hand, we would like to point out from the start that forms of ‘augmentation’ of the artwork have always existed, not only thanks to paratexts, but also and above all to the inscription of the art object to within a space that extols its values. On the other hand, the real stakes of any digital ‘augmentation’ of the work should concern an effective critical interpretation of the images, acknowledging both the patchy nature of information concerning the past and the need for the work itself to put its own socio-cultural context into perspective, without forcing it to adhere to generalisations made on the altar of

the ‘spirit of the times’.

In a nutshell, these are the positions underpinning the Augmented Artwork Analysis project,¹ and ones which we intend to illustrate and problematise here. Indeed, this project aims to provide a tool for the assisted interpretation of art images. In the form of a prototype adapted to three museum contexts, the device will make it possible to study the various levels of organisation of an artwork by articulating its fruition in situ, with its inclusion in corpora of images accessible locally (limited corpus of analysis) and remotely (broad “framing corpus”), in order to clarify genealogies and intertextual dialogues. In this sense, while the project deals with large quantities of images in order to identify significant symbolic forms or diagrams across heterogeneous corpora of artworks, it also aims to preserve the role of the museum and the kind of aesthetic experience it has always defended and promoted. It is worth pointing out that this defence of a tradition is in no way meant to

1 The AAA project (2021–25) is funded by the Agence Nationale de la Recherche in France and the Fonds National de la recherche in Luxemburg, but it also integrates several research centres in Belgium. For the three countries involved, it was planned to combine a local research team in semiotics and art history with a computer lab specialising in digital image processing and ergonomics of museum devices. In addition to Lyon (under my coordination) and the city of Luxembourg (directed by Gian Maria Tore), the six research centres involved are also located in Liège and Leuven. The project’s museum partners are the Musée des Beaux-Arts in Lyon, the Palais des Beaux-Arts in Lille and the Musée National d’Histoire et d’Art in Luxembourg. Among the participants in the project, we might mention art historians Ralph Dekoninck (Leuven) and Sophie Raux (Lyon) and semioticians Maria Giulia Dondero (Liège) and Marion Colas-Blaise (Luxemburg), as well as Serge Miguet (Lyon) for coordinating the IT part of the project.

sidestep the issue of the necessary assembly of a kind of ‘complementary museum’, where relevant images or texts (intertext) and various spaces of fruition (original context) may be integrated. The complementary museum, achieved through a 360-degree rendering of the real exhibition space, gives the feeling of not leaving the room visited while virtually visualising works that dialogue with the painting as it is observed live. In the virtual space of the complementary museum, genres, motifs and stylistic traits may be investigated through an assisted corpus of studies and critical frameworks; at the same time, it allows us to go behind the scenes of expert research and present knowledge – at least in the field of art history and visual studies – not as a crystallised encyclopaedic framework but as a mobilisation of interpretative connections that sometimes rest on certain evidence, while in other cases open up more questions than certainties.

The key idea is to provide visitors with a tablet equipped with an interface that allows them to construct their own path of interpretation of the artwork before them. The AAA project envisaged two general paths: one of an encyclopaedic nature, the other of a circumstantial one, trying firstly to accommodate different cognitive styles and then to offer various levels of complexity, depending on the skills already possessed by the user.

Beyond the paths and levels, there are principles that endow the device with cohesion and coherence. Firstly, the privilege given to the dialogue between images, without necessarily passing through written texts; in this sense,

we assume that an image is always a response to other images, in turn engendering new ones. Secondly, the AAA prototype we are constructing aims to start off from the idea that every interpretation is linked to a corpus and working platform that makes possible gestures that are both practical and cognitive, such as moving, assembling or digitally processing images.

The fact we chose a tablet screen instead of a smartphone screen is thus justified by the need to augment the work by viewing it alongside other images. Furthermore, a tablet with a dedicated interface allows us to set up diversified and complementary analysis platforms: (i) a space for guided interpretation that traces the mainstays of expert analysis, according to progressive levels of complexity and pre-constituted corpuses; (ii) a space for customised analysis that develops through corpus constitutions and interpretative experiments; (iii) finally, a space entrusted to artificial intelligence to constitute corpora in which the calculation of distance by similarities (in shape, colour, character positions, etc.) is entrusted to the machine, albeit with the benefit of training supervised by experts.

The passage between these three platforms affords a range of means of familiarisation with and the progressive appropriation of the interface; for example, in the space dedicated to deep learning, an art neophyte may find a way in that is both playful and immediately heuristic, while users who consider themselves experts in the field may immediately move on to forms of appropriation, with a

personalised path of interaction. As for habitual museum visitors, we might imagine they may more find themselves more at ease in a space accompanying them towards insights already implemented in the device, finding within it a form of guided tour suited to their interests. In any case, one of the objectives of the project is also to fill the gaps in school education, where the curricula is somewhat lacking with regard to visual culture. Paradoxically, image didactics and learning through images remain largely peripheral issues in our education, even at a time when visual communication appears to be a key element of the socialisation of values.

To satisfy this pedagogical demand, the AAA project went through phases of audio-visual documentation of guided tours routinely conducted in member museums. Thanks to cameras capable of filming the museum space 360 degrees, we were able to study in detail the work of the guides and their relationship with visitors, including relevant 'peripheral' practices, albeit ones relatively disconnected from the topical centre of the presentation before the painting (punctual observations of other paintings not focused on by the guide, use of smartphones to search for information, etc.). However innovative a device may be, it can only be deployed by adapting to what practices already exist within specific museum contexts, and which sometimes already make use of digital media. In the corpus of the visits that have been studied, we have noted that guides already use a tablet to show works to be found in other museums, or in the case of the Palais des Beaux-Arts

in Lille, visitors are accompanied first to view a work and then to view an ultra-detailed digital reproduction of it (in gigapixels), so observations of the most minute details may be shared with them.

The interest aroused by these local ‘augmentations’ prompts a project like AAA to bring them together within the same device, placing them along fruition paths where users are the protagonists of interpretative gestures that lead them to grasp the tensions created between what we see and what we know.

AN ECOLOGY OF UNKNOWING

The AAA project may be useful precisely to exalt a different vocation from that normally attributed to augmented imagery. In fact, the aim should not be to inundate visitors with information that is potentially already available on their mobile phones, even via AI chatbots; it would be preferable instead to aim to create critical spaces in which images can question us and make us understand dialogical echoes that often escape us, despite the paratexts we have at hand. The augmented work and the complementary museum should not convey the idea of a definitive appropriation of what we need to know about a work; instead, they should suggest how much remains to be seen and discovered in the layers of image composition, or at least what distance – fruitful for dialogue – separates us from the historical lifeform of the works.

If we ask technology for help, its contribution can benefit an approach to complexity that we would otherwise not know how to handle. Managing complexity means first and foremost securing a cognitive and affective environment in which the boundary zones of our knowledge prompt us to probe and ultimately chart new paths. This is why, at this point, we take up the sociologist Niklas Luhmann's notion of an 'ecology of unknowing',² for instead of ease of viewing, which is often limited to pigeonholing works within categories dictated by a popular view of art history, we can dare to offer interpretations that embrace the grey areas, those distances that cannot be immediately bridged and the 'tacit' dialogue between different images. Ultimately, just as the augmented image has its own 'archaeology', not depending on recent technological inventions, this ecology of unknowing is but a reworking of a mindful approach of listening, of a gaze that lets itself be questioned.

Not wishing to restrict ourselves to mere suggestion, let us here specify a model of this semiotic ecology in more technical terms. To illustrate it, let us take up the concept of 'symbolic form' as proposed by Cassirer and which today may be traced back to the notion of the 'institution of meaning'.³ It was Panofsky who took the notion from Cassirer that the Renaissance perspective was in fact a

2 N. Luhmann, 'Ökologie des Nichtwissens' (1992), in N. Luhmann, *Beobachtungen der Moderne*, Westdeutscher Verlag, Oplanden, pp. 149-220.

3 Jean Lassègue, *Cassirer. Du transcendantal au sémiotique*, Vrin, Paris, 2016.

symbolic form;⁴ indeed, on the one hand it ushered in a new gaze, and on the other its institutionalisation was catalysed by precise historical conditions. To generalise, every symbolic form is both an *instituting* and an *instituted* institution, or in other words, which we believe to be clearer, it is a *model for* the exercise of certain functions within a cultural space and at the same time a new *model of* that same environment from which it emerged. In short, if the work is a symbolic form, it performs certain functions within the socio-cultural spaces that express and patrimonialise it (*model for*); at the same time, it is also a critical putting-into-perspective of such ecosystems (*model of*), offering a distinctive – if not dissident – image of them.

Augmenting the work thus means tracing its potential as a symbolic form through its historical life form, subtended at the same time by a principle of belonging (genealogy) and by an emancipatory bearing (distinctive emergence). Correlatively, an augmented reality project should instil in visitors a two-layered notion: one in a more or less fragmentary cultural legacy (heritage) and one in a translation with uncertain outcomes (otherness of the work). Every cultural relationship thus opens up what we might call ‘double implicative formativity’ (being heirs/regenerators of meaning), which allows us to grasp patrimony both as a *model of* thinking about art and as a *model for* embracing a renewed aesthetic ecology that points towards an evolution

4 Erwin Panofsky, *Perspektive als “symbolische Form”*, Teubner, Leipzig/Berlin, 1927.

of the lifeform of the work. This allows us to subtract from the museification process any temptation to crystallise and absolutise the values of art and block the evolution of the lifeform of the works preserved.

As for the notion of *symbolic form* that fuels this reflection, it stands in opposition to any kind of contemplative formalism and invites us to undertake a continuous critical overturning of models, emancipating it as much from a functionalism (*models for*) as from a symbolism (*models of*), only to ultimately promote a praxeology in which values always pass through a transaction/translation stage. Digital hermeneutics can take over this praxeology and embrace unfinished projects such as that promoted almost a hundred years ago by art historian Henri Focillon, that of a 'history of forms'.⁵ Focillon conceived of forms as both (i) the seeds of a structural dynamic within an artwork and (ii) the origins of a family of transformations that run through it. To account for this dialectic between singularity and formal genealogy, between emancipation and belonging, the use of digital media and artificial intelligence appears highly promising, once subtracted from the mere allure of the access to and visualisation of 'big data'.

THE RESILIENCE OF A HERMENEUTIC PARADIGM

Promoting projects that oppose the notion of ‘cultural consumption’ in favour of the maintenance of an interpretative paradigm necessarily means fighting against the paradox that the mere re-acknowledgement of the work as belonging to a heritage catalogue (guaranteeing the legitimacy of its citizenship) is the worst way to truly ‘recognise’ its otherness, i.e. its being an unassimilable cultural singularity. Acknowledgement passes through the modesty of the gaze, and to inscribe this in a project of ‘augmented’ reality means first of all subtracting from the latter any claim to dominion over the work. What is augmented are the cognitive gaps in the meshes of codified knowledge, in favour of a *re-mediation*, admittedly also a technological one, but first and foremost experiential.

The ‘pixels’ left by our categorisations deserve new ‘resolutions’, new approaches, new mediations, and at the same time, the images of the work are never the work. In this sense, the latter deserves to be ‘exfoliated’ in order to grasp the compositional layers on which the images it catalyses in its relationship with the viewer depend.

The complexity of augmented reality devices, once emancipated from a paradigm that aims to reduce artistic communication to mere content transmission, consists in articulation – always subject to interpretative tensions – between the viewer’s non-innocent gaze (i.e. conditioned by a system of categorical and value prejudices) and an ‘internal’ theory of the work. The latter is precisely

subtended by the reflexive dimension of the organisation underpinning the work, a reflexivity that emerges – even to the surprise the artist him or herself – throughout its production and public implementation. Once we reject a retrogressive demiurgic conception of artistic production and recognise the dialectic between creation and the discovery of forms inherent in matter and opened up by the contingencies of production, we must likewise accept that interpretation is never unilateral and that the work itself thinks and modulates our gaze in advance.

Moreover, in the interweaving of relations between artistic gestures and the formal proposals/reactions of matter, we may see one of the most interesting features of the digital rectification of the work. It is a matter of valorising the role of supports, as well as the participation of textures in the signification of the work, or even the stratification of endogenous and exogenous events, inscribed over time in the artistic object.

In this respect, in our project we have seen how ‘augmentation’ may complement the expertise of restorers, often overlooked by art historians. They offer valuable clues to the transformation of images due to their adaptation to the times and space of their reception, as well as to artists’ reasoning in their dialogue with materials. After all, the knowledge of those who literally put their hands on the works contrasts with the aseptic calculations of artificial intelligence, leading us to overturn certain clichés. Let us clarify this point.

FOR AN ASSISTED ARTIFICIAL INTELLIGENCE

Indeed, when we rely on information technology to conduct corpus studies in the humanities, we speak of ‘computer-assisted analysis’. In this sense, a series of tasks are delegated to the machine, such as calculating similarities of colours, shapes or the arrangement of figures, and the results obtained are considered scientific data on which to base new interpretations. In actual fact, the computer tools used ‘construct’ the data, to such an extent that we should call them *capta* rather than *data*, as they are the fruit of processes of parametrisation and modelling;⁶ processes that – among other things – do not distinguish between what is of the order of expression and what is of the order of content, generating a homologation of prelinguistic traits. Although programmed beforehand, these processes go through information processing that is not very explicable, resulting in a ‘black box’ effect that ultimately leads to artificial intelligence being used as an oracular resource.

Here, then, the experience of piloting an augmented reality project, shared with many computer science colleagues, may prompt a radical table-turning of perspective, in which the complexity of machines finally deserves ‘human’ accompaniment precisely where they seem to perform tasks blindly. Thus, a few years ago, when publicly presenting the AAA project, we went so far as to use

6 See Johanna Drucker, *Visualization and Interpretation Humanistic Approaches to Display*, MIT Press, Cambridge (Mass.), 2020.

the formula ‘assisted artificial intelligence’, where human skills come to the aid of constitutions and data processing that could lead in a thousand different directions, at best finding anchorage in common sense, i.e. in the user’s system of expectations.

In order for the performance of AI to really surprise us, we must direct its use towards the borderline areas of our knowledge, so as to ‘de-banalise’ the results, as Von Foerster would say.⁷ By questioning a chatbot, we run the risk of obtaining a ‘mirror effect’, such that the answers we receive are progressively an adaptation of the formulations given to what we are looking for. In the coupling between machine and interpreter, the de-banalisation and poignancy of the results can only be pursued through critical accompaniment focused on the grey areas of our knowledge. Likewise, we may paraphrase the issue by saying it is a matter of assisting the machine by providing it with questions that displace the interrogation of a pre-canonised encyclopaedia, which immediately shows us how the user’s gestures cannot be limited to the request for information.

A canonical example of a good question is the relationship between figures (study corpus, expertly or experimentally selected) and background (‘framing corpus’, fed through big data). In this sense, we tested the device on problematic cases, such as a nocturne painting in the Palais

7 Heinz von Foerster, *Observing Systems*, Intersystems Publications, Seaside (Calif.), 1984.

des Beaux-Arts in Lille,⁸ which despite its excellent artistry, remains without any attribution of either authorship or subject to this day. A painting by an anonymous painter exhibited with a generic title such as *Scene of Suicide* may represent an excellent test of how to articulate ‘close reading’ and ‘distant reading’, asking artificial intelligence both to dwell on minimal details of the image, to try to interpret objects almost swallowed up by the darkness, and to open up wide-ranging investigations in order to put together a relevant corpus capable of restoring a thematic legibility of the scene depicted. This articulation of readings does not benefit a pre-constituted intelligence, be it that of the interpreter or that of the machine, but an intelligence emerging from the ‘user-device augmentation’ coupling. In fact, two relevant maieutic perspectives emerge: (i) critically questioning the reasons why certain results are obtained by AI and not others (*reconstructive path*);⁹ (ii) asking how these fit into objectives that are still being defined (*abductive path*). In both cases, we may note that an augmented reality device equipped with AI cannot classically function as a *prosthesis*, given that in the relationship with the machine, the aims of

8 <https://pba.lille.fr/Collections/Chefs-d-OEuvre/Peintures-XVI-sup-e-sup-XXI-sup-e-sup-siecles/Scene-de-suicide>

9 More technically we should say ‘retroductive’, taking up the theories of Charles Sanders Peirce, to whom we owe the problematisation of the forms and outcomes of logical-interpretive processes applied to data sets not yet organised in corpora (processes called abductive, as opposed to deductive and inductive ones). See C. S. Peirce, *Selected Writings*, (G. Maddalena, ed.), UTET, Turin, 2013, where there is ample material to reconstruct the problematic genesis of the concept of ‘retroduction’.

the investigation, no matter if still playful or highly skilled, are still being constituted. Here then, we can conceive of the analysis platforms of an augmented reality device as ‘incubation chambers’ of possible research, or if you will, more simply, questions. We have thus come full circle by correlating the three points we set out to deal with here very briefly:¹⁰ *augmentation*, the *ecology of unknowing* and *assisted AI*. Before closing, we might point out that what we expect from artificial intelligence inevitably has repercussions on what we expect from the exercise of our own faculties, giving rise to bilateral forms of learning and reorganisation. However, if we wish to continue to critically develop this man-machine relationship, remembering to move from the paradigm of information to that of interpretation, we must afford ourselves margins of error, appropriately coupling the processes of machine learning with a promising ‘learning by supervising’; i.e. supervision with a two-fold implication, both reconstructive and prospective, well founded philologically yet at the same time experimental.

10 For a more comprehensive exploration, see P. Basso Fossali *et alii* (eds.), ‘Pour une nouvelle herméneutique des formes symboliques. Sémiotique, histoire de l’art et humanités numériques’, *Signata*, no. 14, Liège, PULG, 2023.

ARChiPub
On Cultural
and Digital Matters

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FOCUS RESEARCH 02

Relationships, Autonomies
and Connections

VOL. 002

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Museum: Digital Hermeneutics within
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ARCHiVe
Analysis and Recording
of Cultural Heritage in Venice

is a project by
Fondazione Giorgio Cini
Factum Foundation
EPFL - Digital Humanities Laboratory

Supporting funder
The Helen Hamlyn Trust

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Publisher
Fondazione Giorgio Cini Onlus
Island of San Giorgio Maggiore, Venice

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ARCHiVe
Analysis and Recording
of Cultural Heritage in Venice

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