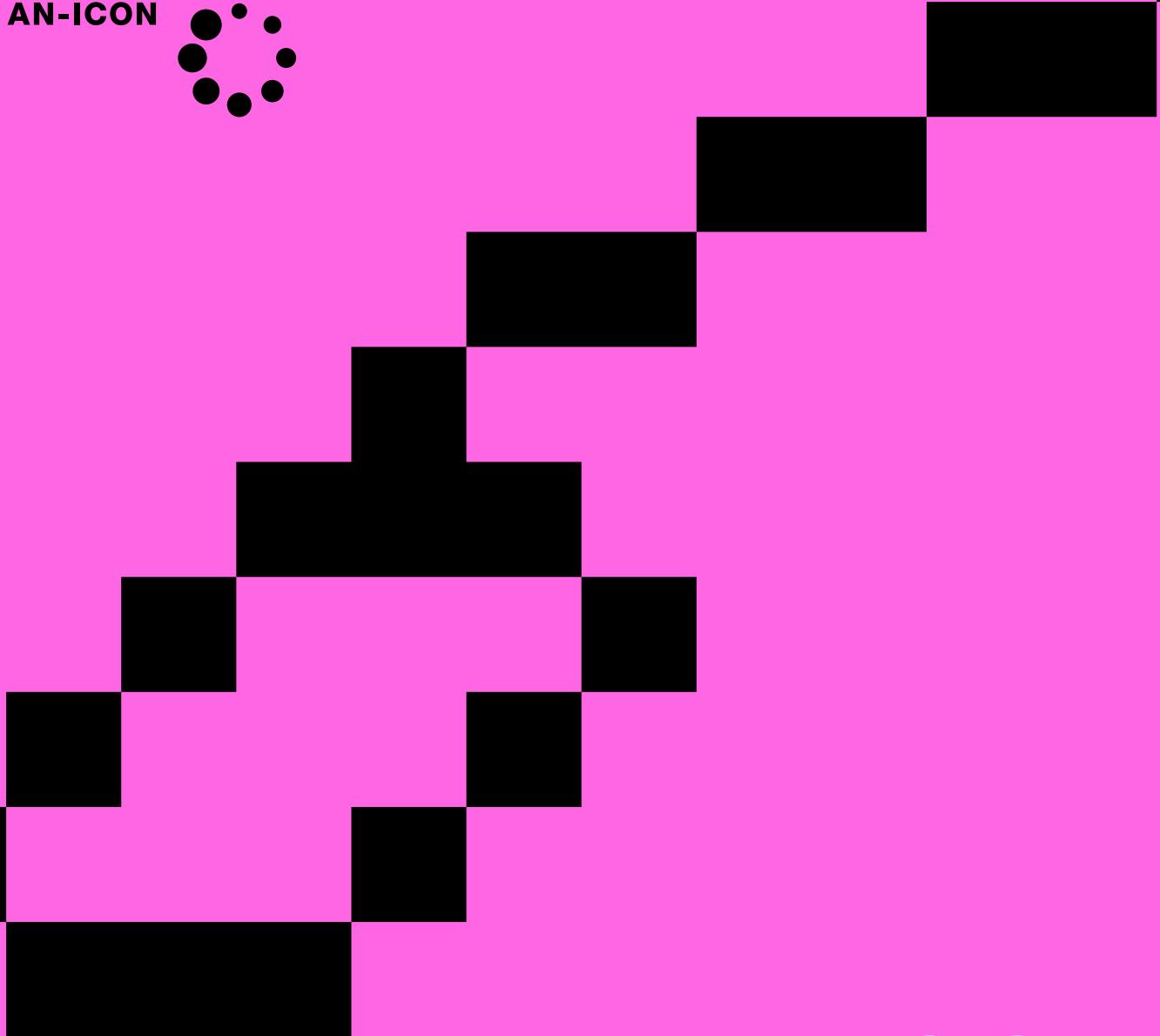
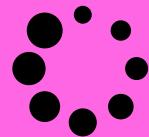


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→ Liberty on Parole? Challenges  
in Interactivity

Edited by Pietro Montani  
and Andrea Pinotti

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# Introduction

# Liberty on Parole? Challenges in Interactivity



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## Abstract

Interactivity permeates AI, virtual reality and augmented reality, affecting sensory-motor experiences and creative processes. However, this pervasiveness comes with constraints, as virtual interfaces simultaneously enhance and restrict user freedom. This leads to philosophical reflections on user emancipation and the interplay between freedom and structural constraints in interactive relationships with digital technologies. The dynamic landscape raises important questions about the development of freedom in a digitally mediated world.

## Keywords

Interactivity

Material Engagement

Artificial Intelligence

Imagination

Mixed Realities

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The concept of interactivity has entered ordinary language thanks to its generic use over the last two decades to indicate the increasing involvement of users in the activation of network resources and the production of its contents. Understood in a rigorous sense, however, the concept has a much broader extension and shows significant scope for application across numerous disciplinary fields: from evolutionary biology to palaeoanthropology, from semiotics to aesthetics, from neuroscience to media theory.

But what does it mean to speak of interactivity *in a rigorous sense*? It means moving from an assumption, binding but far from intuitive, in the absence of which the concept would be reduced to the simplified scheme of a joint action involving two agents, largely losing its ability to interpret the present. The assumption is that to speak of interactivity in a rigorous sense one must refer to a *relational condition that precedes the interacting entities, constitutes them and governs their interplay*. This is a relevant assumption from which, after recognising its *ontological status*, it is necessary to derive a set of theoretical models in the full sense, i.e. capable of explaining some particular phenomena in an empirically adequate manner and referring to determined disciplinary approaches. Let us try to take a few steps in this direction.

In the natural sciences, the first and most general of these approaches is to be recognised in “Niche Construction Theory” (NCT), which is put forward by contemporary biology to define the specific interactivity that is established between organisms and the environment in the course of evolution, in contrast to the “gene-centric” determinism of the post-Darwinian “Modern Synthesis.” According to NCT, alterations in individual ecosystems due to the effective action of organisms end up becoming part of those same ecosystems and behaving as one of the factors

that exert selective pressures on the living things which inhabit them. One thinks of the biochemical transformations produced by fungi and bacteria or, on a different level, of the hydrogeological reorganisation brought about by the dams built by beavers, or, finally, of the powerfully transformative technologies attributable to the specific agency of *Homo sapiens*. Environments and organic life forms co-determine and, above all, co-evolve: this confirms in a very concrete and intuitive way that an *original interactive game* is responsible for the emergence of phenomena that can even decide the life and evolution of species. From this point of view, an “ecological niche” is nothing more than a “set of affordances” (the notion, introduced in the 1960s by James J. Gibson,<sup>1</sup> integrates particularly well with NCT) which unfold an interactive relational field that cannot be reduced to the relationship established between a subject and an object insofar as, rather, it is the relationship itself that functions as a more original *medium* than both. Thus, a stick will interact with the hand that wields it now as a weapon now as a lever, now as a sensor now as a pole, each time reorganising the *medium* in which the interaction has taken place and endowing it with new affordances.

If we observe, then, the “interactive condition” from the perspective of the living human being, it will be inevitable to reckon with the inherently technical form it takes. In an influential book, the archaeologist Lambros Malafouris has presented a very accurate model of this interactivity – the *Material Engagement Theory* (MET) –, illustrating his argument with the example of artefacts obtained by modelling clay.<sup>2</sup> Observing this process from the perspective of MET means not only underlining that the

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<sup>1</sup> See J.J. Gibson, *The Senses Considered as Perceptual Systems* (London: Allen and Unwin, 1966): 285.

<sup>2</sup> L. Malafouris, *How Things Shape the Mind. A Theory of Material Engagement* (Cambridge MA: MIT Press, 2013).

*affordances* exhibited by wet clay – malleability, elasticity, relative permeability, resistance, etc. – contribute to the emergence of the artefact as *much* as the sensitivity of the potter’s hands and the movement of the potter’s wheel; it also means that the entire production operation is configured as a complex *cognitive event* in the course of which the embodied mind of the maker is *reshaped* and initialised to intentional competences that did not pre-exist the event itself. The design intentionality itself, in other words, must be understood as an emergence internal to the interactive process of *material engagement* and not as a project that has governed it in advance. Even the concept of a “mere interaction” seems too weak to Malafouris, who reformulates it with the radicality of the assumption from which we started, namely that “the relation between brains, bodies, and things [...] is not one of representation, not even one of mere interaction. Instead, it is a *transactional process of mutual constitution*. It is only by understanding the different forms and properties of this transactional co-constitution that we will ever be able to understand the remarkable plasticity of the human mind.”<sup>3</sup> As well as, it must be added, its necessary extension in the *medium of technologies* (the idea of an “extended mind” is explicit in Malafouris’ model).

The concept of *medium*, articulated in this broad ecological mode, puts us in the right position to address the question of interactivity in the context of technical objects and technological media. A good way into this specific interactive sphere can be found in the model proposed, in the middle of the last century, by an eminent philosopher of technology such as Gilbert Simondon, who spoke of the medium in which technical interaction takes place as an “associated milieu [*milieu associé*].” According to an

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<sup>3</sup> L. Malafouris, “Metaplasticity and the Primacy of Material Engagement,” *Time and Mind* 8, no. 15 (2015): 351-371, 354, <https://doi.org/10.1080/1751696X.2015.1111564>.

interpretation that anticipates the NCT paradigm, technical invention, Simondon noted, “realises a techno-geographic milieu” which becomes, in turn, “a condition of possibility of the technical object’s functioning.” The technical object, in this way, “*is thus its own condition, as a condition of existence of this mixed milieu.*”<sup>4</sup> The technical object thus generates a reorganisation of significant places and spaces by entering into a synergetic relationship with the geographical environment and modifying it. In doing so, moreover, its “mode of existence” integrates the design skills of human beings, providing them with orientation and real operational input. According to Simondon, therefore, it is not only necessary to speak of a specific “technical imagination,” but it is also necessary to add that this does not consist so much in devising an object, but in interacting in a full sense with the “mode of existence” that this object is able to unfold in the context of a “*milieu associé*:” a “mixed” (“techno-geographical”) space that is delineated at the very moment in which the object emerges and is transformed over time as long as the relationship remains active. Ultimately, the “coupling [couplage]” (as Simondon calls it) between human being and technical object cannot be reduced to a predominance of either party and must rather be thought of as an interactive relationship that exerts constituent effects on both terms of the pair, instructing their respective processes of individuation in a co-evolutionary sense. One point, here, must be strongly reiterated, namely that this process can only stay active on condition that the “*milieu associé*” in which it is articulated remains so, that is, a *mixed* environment which continues

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<sup>4</sup> G. Simondon, *On the Mode of Existence of Technical Objects* (1958), trans. C. Malaspina, J. Rogove (Minneapolis: Univocal Publishing, 2017): 58-59.

to provide matter for the interaction itself by exposing it to the beneficial effects of unpredictable contingencies.

The concepts of “niche construction,” “affordance,” “material engagement” and “*milieu associé*” inform us that our imagination (or our “extended mind”) constantly interacts with the world-environment in which we humans are immersed, and that this interaction presents itself as the institution of different orders of technical mediations that have made us human beings intimately technicised living beings, and precisely for this reason technically creative. Now, the fact that today these mediations have taken on the specific nature conferred on them by digital technologies poses new problems that must be recognised as such and understood in their precise historical context.

What are the main affordances with which the vast digital ecological niche enables interaction?

Let us try to observe a latest-generation digital native, for instance a very young child who finds herself holding a smartphone or a more manageable tablet. The first thing she will discover is undoubtedly the ability of digital images to respond to her fingertips. That child will then find herself in a media environment which makes the experience of screens sensitive to manual interaction available in the form of fun *tinkering*. It will take her some more time to realise that the interactions triggered by those sensitive screens largely disregard the datum of physical presence as her agency has already been placed in a “mixed” space (a “*milieu associé*”) in which it is possible to interact with a large number of things and people. Our child will undoubtedly make further progress in this practice, and will spontaneously interpret it as a beautiful game, but if she is not guided by someone who knows more than she does, she will not be able to advance much further. We know, however, that this provisional stalemate will soon be replaced by the inauguration of a learning process that may be random or

programmed, limited to the acquisition of a minimal skill or extended to the mastery of different ways of accessing and sharing the resources of the Web. In any case, it will be a learning in which the *procedural* aspect will remain essential and essentially hetero-directed for a long time. It is the web that tells us what we have to learn to do. If we wanted to do something more, in fact, we would need an instructor – for our child a schoolmate or an older sibling (or maybe even school itself?) – to teach us how to cope with certain difficulties or what are the simplest, or most ingenious, ways to achieve faster, or safer, or more rewarding results. It is remarkable that the web has very quickly institutionalised this didactic function by spontaneously producing the format of the “tutorial,” itself the origin of a huge number of variants covering a very wide range, from the extreme specialisation of the super-expert to its diametric opposite found in the figure of the influencer, i.e. the performance of someone who, by definition, before teaching us anything is required to legitimise him/herself as a model for our behaviour. The system of digital affordances, therefore, is articulated in a large number of internal devices that highlight the aspiration of these technologies to establish parallel worlds that tend to substitute the material one or, more often, parallel to the material one (this is the model that inspired *Second Life* in its time and which inspires many videogames, but also Virtual Reality, which not by chance can be associated in principle to videogames).

Alongside this trend, however, there emerges in a perhaps less evident and yet constant and, one might say, natural way, the need to renegotiate different forms of integration between the virtual and the material, i.e. to redefine the “mixed” character of media environments and thus – if Simondon is right – their capacity to evolve. This dialectic between *substitution* and *integration* seems particularly marked, but also very uncertain, in the current phase of

digital interactivity. It will be useful to observe an example referring, in particular, to artificial intelligence (AI).

According to a relevant interpretation, elaborated in particular by the philosopher Luciano Floridi, the most recent developments in AI have made it definitively clear that its most effective performance, mainly based on computing power and statistical and predictive procedures, should discourage us from continuing to conceive of it as something analogous to the performance of human beings (which is only partly computational) and induce us to treat it for what it is, that is, as a *particular form of action* that proves to be all the more efficient the more the environment in which it operates is appropriate to its functioning – when it is not even designed with this synergy in mind. Floridi speaks, in this regard, of a world-environment that *wraps* itself around the performance of AI, constituting itself as its “*envelope*,” so that “it is the world that is adapting to AI, not vice versa.” A circular robot hoover, to take up one of Floridi’s examples, would clearly benefit if it operated in a house with round walls. On a different scale, the same would happen for a driverless vehicle that could benefit from a road network built according to its performance. Now, according to Floridi, this mode of interaction between the technical object and the environment is imposing itself across the board in our way of conceiving the planning of environments as such, so that “when we speak of smart cities, we also mean that we are transforming social habitats into places where robots can operate successfully.”

Of course, Floridi is not unaware of the risk that in this perspective, which tends towards the “substitutive” polarity of the dialectic highlighted above, “humans may inadvertently become part of the mechanism,” and indeed his reflection is devoted precisely to constructing a theoretical apparatus adequate to the critical awareness that AI demands of its human users. What, in particular, should we

humans become sharply aware of? “First,” writes Floridi, “humans are becoming the new means of digital production” in that “sometimes AI needs to understand and interpret what is happening, so it needs semantic engines like us to do the job.”<sup>5</sup> The second thing we should be clear about is that the successes of AI are directly proportional to the *rule conformity* of the objects to which they apply. Thus, for instance, the *Alpha Zero* algorithm has proved invincible in the game of chess – or in that of Go, which is even more complex – precisely because these games are *integrally* traceable to a set of *constitutive rules*, so that once the algorithm has learnt them (in this case by playing against itself many millions of games) it will dominate any situation among all those which can be predicted from the exercise of those rules. The same thing could not happen, evidently, if we were to move onto a football pitch, where the game does, yes, contain rules, but only in a merely binding and not also constitutive sense.

The most relevant aspect of Floridi’s thesis thus concerns the fact that, unlike the “*milieux associés*” of which Simondon spoke, environments-envelopes aim to conform as closely as possible to a set of constitutive rules, as in the paradigmatic case of a chessboard. It will easily be observed, however, that the chessboard environment, i.e. any environment entirely administered by constitutive rules, *no longer allows for any authentic interactivity*, in the sense that it would not be able to envisage any situation that is not predictable. In such a case, the condition of the user would be comparable to that of a prisoner who has been granted *liberty on parole*: that is, the freedom to choose one or more options among those (ten, a hundred, a thousand, a million: it matters little) in any case predetermined by the system.

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<sup>5</sup> L. Floridi, *The Ethics of Artificial Intelligence. Principles, Challenges, and Opportunities* (Oxford: Oxford University Press, 2023): 24, 26, 28.

The death of interactivity, in this sense, would coincide with the construction of a “niche” capable of immunising itself from any unforeseeable contingency and absorbing within itself the human component in the modality of an eventual provision of (in this case semantic) services.

It is debatable, however, whether that indicated by Floridi is the main line of development in the evolution of digital technologies that make use of AI. And this is borne out, in the perspective of Niche Construction Theory, by the growing and spontaneous proliferation of *mixed forms* such as *Augmented Reality* and *Immersive Extended Reality*, which is associated with the emergence of new affordances and unprecedented modes of interactivity which go decisively in the direction of the integrative polarity of the dialectic mentioned above.

It is game on: this issue of *AN-ICON* intends to make a contribution to a more precise delimitation of their field, addressing the challenges posed by interactivity in various operational domains, both in artistic and non-artistic contexts.

In his article, Pier Cesare Rivoltella investigates the concept of “artificial conversation” and its implications for education and media literacy in the context of interactivity. He proposes to reframe Artificial Intelligence (AI) as “Artificial Communication,” emphasizing communication over intelligence using Luhmann’s theory, where communication is defined by comprehensibility, not intentionality. Using the Theory of Audiovisual Conversation (TAC), the article identifies unique elements of artificial dialogue, such as the centrality of questioning and the reversed enunciational roles of humans and machines. It stresses the importance of critical thinking, prompt engineering, and strategic communication to navigate biases and limitations

in AI responses, positioning these skills as essential components of modern media literacy.

Sofia Pirandello explores the field of “imagin-actions,” highly interactive augmented reality (AR) images that engage users more actively than traditional representations. Unlike static visuals, imagin-actions are dynamic, responsive, and embedded in physical environments, prompting user actions while simultaneously tracking and adapting to them. Drawing on theories of material engagement and agency, the study highlights how such images transform human cognition, blending imagination with operativity. Examples include holograms and medical AR tools, which assist in procedures by allowing gesture-based interaction. Imagin-actions are thus presented as operational entities capable of enhancing human thought, reconfiguring relationships with objects, and producing significant implications across fields such as medicine, art, and technology.

Andrea D’Ammando’s article explores the rise of participation and interactivity in contemporary art, focusing on their connections to performative spectatorship – a model based on immediateness, unframedness, and presentness. These practices aim to dissolve the traditional roles of artist, artwork, and audience, emphasizing active involvement and spontaneity. However, spontaneity, by definition, resists orchestration, creating tensions between control and freedom. The text critiques overly simplistic forms of interactivity which risk becoming mere entertainment rather than fostering critical reflection. It suggests that performative spectatorship should critically engage with interactive mechanisms, offering tools to reimagine how we relate to art, technology, and social systems.

In her contribution, Agnese Cebere explores the concept of virtual reality which goes beyond technological devices like VR headsets, using Faye Driscoll’s interactive installation *Come On In* (2020) as a case study. She argues

that virtual reality is a mode of embodied experience which blurs fact and fiction through “embodied simulation,” where the body itself becomes a site of performance and perception. Drawing from Vittorio Gallese, Jacques Rancière, and Brian Massumi, the paper highlights how art can liberate through immersive engagement, plasticity and vulnerability, interrupting automaticity. It concludes that the emancipatory potential of virtual reality lies not in technology but in its capacity to reflect visceral experiences.

In her paper Laura Marcolini explores the pioneering work of Studio Azzurro, a Milanese art collective, in merging technology, narrative, and interactivity to foster “socializing interactivity.” Since 1982, they have redefined the audience’s role, transforming passive spectators into active participants within immersive environments. By integrating cinematic, theatrical, and technological innovations, they emphasize relational spaces, intersubjectivity, and the ethical dimensions of interactivity. Their projects, from *Facce di festa* to sensitive environments, invite community engagement, challenge traditional authorship, and counteract technological alienation. Studio Azzurro’s legacy highlights the potential of art to cultivate connection, disrupt habitual perceptions, and embrace collective creativity in reshaping human experience and communication.

The concept of meta-interactivity through Generative Adversarial Networks (GANs) and Sougwen Chung’s human-robot collaborations is addressed by Martina Pace in her contribution. GANs demonstrate complex, unsupervised processes of image generation, rooted in feedback loops and guided by training datasets. Similarly, Chung’s work highlights creative reciprocity between human and machine, evolving through gestures, memory, and unpredictability. Her robotic collaborator D.O.U.G. (Drawing Operations Unit Generation) integrates past and real-time data, fostering a hybrid creative process that challenges

traditional authorship. The study underscores how these technologies enable layered interactions – between humans, machines, and environments – reshaping cognition and creativity. It advocates for art as a lens to examine these entangled systems and their cultural impact.

In the section “Archaeologies of Immersion” this issue also contains a contribution by Roberto Malaspina examining Oliver Wendell Holmes’ work on stereoscopy from the specific vantage point of media metaphorology. Holmes’s ergonomic improvements made stereoscopy more accessible, distancing it from earlier moral ambiguities. His writings framed the stereoscope as both a cultural innovation and a colonial tool, using metaphors such as hunting and skinning to describe image capture. The study links stereoscopy to 19th-century anxieties about mechanical reproduction and the erosion of reality, reflecting emerging imperialist and capitalist ideologies. Holmes’s metaphors anticipated later debates on simulation, perception, and the relationship between technology, immersion, and the natural world.

# Talking to Machines. Semiotic Analysis, Implications for Teaching and Media Literacy



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## Abstract

This article explores the implications of artificial conversation for teaching and Media Literacy. It does so by engaging with two theoretical frameworks: (1) Luhmann's communication theory, to conceptualize artificial communication in human-dialogical system interactions, and (2) the semiotic Theory of Audiovisual Conversation (TAC), to analyze its distinctive features.

From a Luhmannian perspective, Artificial Intelligence (AI) does not replicate human intelligence but rather human communication, prioritizing message comprehensibility over intentionality. TAC further clarifies artificial communication by outlining key elements such as knowledge transmission and enunciational attitudes, direct and indirect communication, the interplay of questions and answers,

and the distinction between attending and participating in a conversation.

These insights inform educational and media literacy practices, emphasizing the centrality of questioning, the role of prompt engineering, and the development of critical thinking, argumentation, and strategic communication skills as part of New Literacies.

Keywords

Artificial Communication  
Semiotics of AI  
Prompt Engineering

Large Language Models  
New Literacies

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# Artificial Communication

*Artificial Communication* is a book by Elena Esposito.<sup>1</sup> The title is a theoretical proposal: no longer to speak of Artificial Intelligence (AI) but, precisely, of Artificial Communication. The proposal is not insignificant. The idea of AI was at the basis of the so-called “Dartmouth Proposal,”<sup>2</sup> that is to design an artificial system capable of emulating the smarter behaviors of human intelligence, to build an AI in every way equal to the human one, if not more performing. We know how that went. Developments in AI research have made it possible to establish that so-called AI does not emulate human intelligence, but rather functions like the Chinese room in Searle’s famous mental experiment.<sup>3</sup> A man who knows English is locked in there. He has a handbook, written in English, containing rules for matching sets of Chinese ideograms with other sets of Chinese ideograms. From outside, a Chinese person introduces requests in Chinese ideograms into the room to which the English person, from inside the room, replies using the matching handbook. The impression might be that the person inside the room knows Chinese, whereas instead he merely applies rules without understanding a single word of Chinese. Beyond the debate that Searle’s article has raised,<sup>4</sup> it has the merit of establishing a point that marks the overcoming of the Dartmouth Proposal: it is possible to build an artificial system that can be efficient in its answers to our questions without understanding their

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1 E. Esposito, *Artificial Communication. How Algorithms produce Social Intelligence* (Cambridge MA: MIT Press, 2022).

2 The text of the Proposal, that usually is thought as the starting event of the research about AI, is: J. McCarthy, M.L. Minsky, N. Rochester, C.E. Shannon, “A Proposal for the Dartmouth Summer Research Pro,” August 31, 1955, <http://jmc.stanford.edu/articles/dartmouth/dartmouth.pdf>.

3 J. R. Searle, “Minds, brains, and programs,” *Behavioral and Brain Sciences* 3, no. 3 (1980): 417-457, <http://cogprints.org/7150/1/10.1.1.83.5248.pdf>.

4 P.M. Churchland, P.S. Churchland, “Could a machine think,” *Scientific American* 262, no. 1 (1990): 32-37; G. Longo, “Nella stanza cinese,” *Mondo digitale*, no. 43 (2012): 1-16, [https://mondodigitale.aicanet.net/2012-3/articoli/03\\_nella\\_stanza\\_cinese.pdf](https://mondodigitale.aicanet.net/2012-3/articoli/03_nella_stanza_cinese.pdf).

meaning. This means that such a system does not emulate human intelligence because it works at the syntactic level (the correspondences between series of ideograms) and not at the semantic level (the man in the room does not know Chinese).<sup>5</sup> In essence, intelligence is not artificial.<sup>6</sup>

The Chinese room experiment also suggests something else: an artificial system such as the one imagined by Searle, does not emulate human intelligence, but it certainly emulates our ability to communicate. This is where Esposito's proposal comes in, which rests on a premise: what do we mean when we talk about communication? And above all, can we speak of communication in the case of interaction with a system that does not understand what we are asking of it?

The classical theories of communication, from Shannon and Weaver's Mathematical Theory of Information to Jakobson's Scheme,<sup>7</sup> are built on an intentional, mentalistic idea of communication: there is communication when someone intentionally encodes a message and transmits it for a receiver to understand. It is clear that a machine cannot be attributed communicative intentionality: if this were the reference theory, one would have to conclude that with a machine there can be no communication. Esposito's suggestion is to adopt Luhmann's Theory of Communication:<sup>8</sup> at its basis there is a non-mentalistic and non-intentional idea for which there is communication when a message is comprehensible to the receiver. In this case, as we understand, even if a machine cannot be attributed intentionality, if the messages it conveys are comprehensible, it is

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5 The semantics of our language depends on the use of the body and whether it is in context. This already explains why an AI system cannot develop a semantic understanding of language. And yet – as Giuseppe Longo points out in the article we referred to – it would be interesting to see what would happen if there were a robot in the room connected to sensors that would allow it to experience the outside world.

6 R. Cucchiara, *L'intelligenza non è artificiale* (Milan: Mondadori, 2021).

7 J. Fiske, *Introduction to Communication Studies* (New York: Taylor & Francis, 2010).

8 N. Luhmann, *Soziologische Aufklärung 6: Die Soziologie und der Mensch* (Opladen: Westdeutscher Verlag, 1995).

possible to say that there is communication between it and a human interlocutor.

Therefore, adopting the Luhmannian point of view, one can speak of artificial communication, meaning the interaction in natural language between a human actor and a machine trained to emulate human communication. What we continue to call AI is in fact nothing more than an artificial system that is taught to communicate with us. This theoretical perspective is all the more pertinent if we think that the most socially widespread applications of AI are generative systems based on Large Language Models (LLM), such as *ChatGPT*, *Google's Gemini* or *Claude 3*. These applications are named dialogical systems, or conversational agents,<sup>9</sup> and confirm the Chinese Room Hypothesis: in fact they interact with us by working on a syntactic and probabilistic basis from the dataset they have been trained on and the contextual data we provide to them. Otherwise, they would probably pass the Turing Test,<sup>10</sup> although this is not their goal: it is rather to develop the capacity to interact with human actors by assisting them in problem solving and in the management of professional and ordinary practices.

## The Audiovisual Conversation

What we have come to argue shows that the dream of designing an artificial system capable of talking with a human actor has now come true. Already in 1966, Joseph Weinzenbaum had realized a chatbot called ELIZA whose most famous script, *Doctor*, conversed via written text with an interlocutor simulating a therapeutic dialogue

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9 S. Hussain, S. Ameri, N. Ababneh, "A Survey on Conversational Agents/Chatbots Classification and Design Techniques," in L. Barolli, M. Takizawa, F. Xhafa & T. Enokido, eds., *Web, Artificial Intelligence and Network Applications. WAINA 2019. Advances in Intelligent Systems and Computing* (Berlin: Springer 2019).

10 A. Turing, "Computing Machinery and Intelligence," *Mind* 59 (1950): 433-460.

according to the Rogersian approach.<sup>11</sup> Many things have changed since that pioneering experience. Firstly, the adoption of LLMs and the increased computing power of computers have improved the performance of current chatbots in an unthinkable way compared to ELIZA. Secondly, Weizenbaum's goal was to make ELIZA pass the Turing test, i.e., to make the interlocutor not realize that he/she was talking to an artificial system; today, anyone interacting with a generative AI system knows that he/she is interfacing with a machine, so the problem is not to make the experience believable to the point of thinking that one is interacting with another human actor. Thirdly, as a consequence, the perspective of analysis changes: what we need to understand is how to make communication more effective, how to reduce the margin of error in the machine's response, how to circumvent the constraints imposed on the conversation by the rules contained in the dataset on to which the system was trained. It can be said that the reading plane shifts from that of the social psychology of communication and Human-Machine Interaction to that of the rhetoric and pragmatics of communication, focusing on conversational dynamics. Insofar as interacting with a generative system means working not only on a syntactic and semantic level, but above all on a pragmatic one, the idea we propose is that artificial communication takes the form of a real conversation. Let us try to see in what sense.

The dispositive of conversation has already been used by textual semiotics to explain the interaction between the text and its reader as a function of the actualization of meaning. Reference can be made in this regard to the TAC model that Gianfranco Bettetini<sup>12</sup> developed to

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11 J. Weizenbaum, "ELIZA - a computer program for the study of natural language communication between man and machine," *Communication of ACM* 9 (1966): 36-45, <https://doi.org/10.1145/365153.365168>.

12 G. Bettetini, *La conversazione audiovisiva. Problemi dell'enunciazione filmica e televisiva* (Milan: Bompiani, 1984).

explain how the filmic and audiovisual text concurs with the viewer in the production of meaning.

An audiovisual or literary text is always the result of the work of an author, an Empirical Transmitting Subject in the flesh: this is the case for Alessandro Manzoni with his *The Betrothed (I promessi sposi)*, or for Jean-Luc Godard with *Pierrot le fou*. The target of this work is a reader/viewer, an Empirical Receiving Subject, who appropriates it, inevitably in another time, different from the one in which the author produced it. This implies that between these two subjects, the author and the receiver, there can be no direct interaction, as there would be if they were co-present and talking to each other. This is what the audiovisual conversation has in common with the artificial conversation: for different reasons, neither of them imagines that the direct dialogue between these two subjects could be possible.

However, both author and reader have at their disposal within the text two symbolic instances that Bettetini calls Enunciator and Enunciatee (Fig. 1): the first is expressed through enunciational marks such as the titling, the editing choices, the color, the use of the camera; the second takes the form of a real symbolic prothesis that can materialize in the text either through a linguistic choice

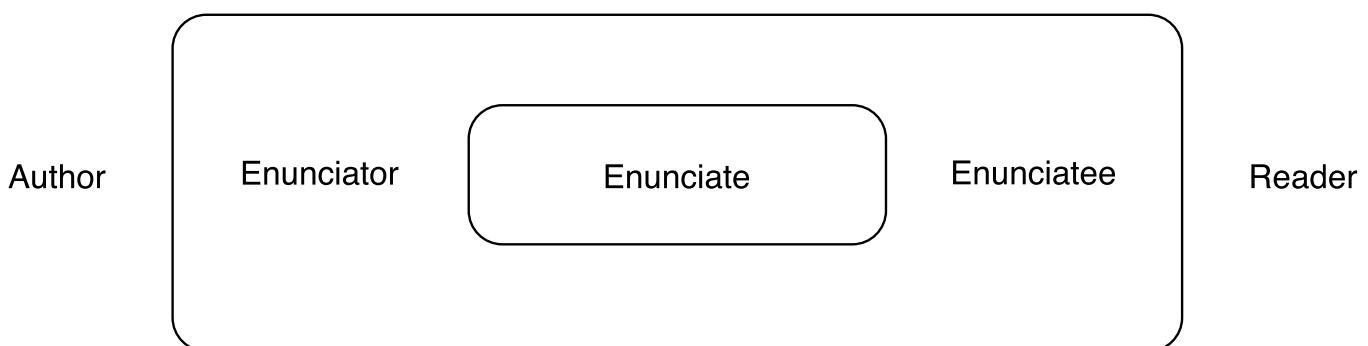


Fig. 1 – Scheme of Audiovisual Conversation, G. Bettetini, *La conversazione audiovisiva*, 100.

(as, for instance, in the case of the subjective shot<sup>13</sup>) or by dislocating itself in one or more characters (in Hitchcock's *Dial M for Murder*, for instance, detective Karaman is our double and gives substance on screen to our "interpretative moves"). The conversation, impossible between author and reader in the flesh, takes place at this level within the text: it is a symbolic interaction between enunciational instances.<sup>14</sup>

We will not analytically reconstruct here the forms that textual conversation can take. We limit ourselves to drawing attention to three aspects which, as will become clear in the next section, are functional to our analysis. These are: the "exchange of knowledge" of which the text is the place; the "symbolic interaction" that takes place in the text; the ways in which the reader can take part in the conversation.

A text always transfers knowledge: there is always a content, something to be known. This knowledge can be distributed in the text through different enunciational attitudes and two main communication choices.

Three types of enunciational attitudes can be distinguished: informative (e.g. in information programs such as a news program, or a documentary), narrative (in fiction), persuasive (in advertising).<sup>15</sup> Grasping the enunciational

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13 F. Casetti, *Inside the Gaze: The Fiction Film and Its Spectator* (Bloomington: Indiana University Press, 1999). The subjective shot shows the spectator what is happening by making his gaze coincide with that of the character who at that moment is the spectator's surrogate at the intradiegetic level.

14 About enunciation, enunciate, enunciators and enunciative instances, cfr.: A.J. Greimas, J. Courtés, *Semiotics and Language. An Analytical Dictionary* (Bloomington: Indiana University Press); J. Coquet, *Le discours et son sujet I. Essai de grammaire modale*, "Semiosis," (Paris: Klincksieck, 1984); Id., *Le discours et son sujet II. Pratique de la grammaire modale*, "Semiosis," (Paris: Klincksieck, 1985); G. Manetti, *La teoria dell'enunciazione* (Siena: Protagon, 2008); G. Manetti, "Fino a che punto soggettività ed enunciazione sono nozioni interconnesse e inscindibili? Le due concezioni di enunciazione," in M. Leone, I. Pezzini, eds., *Forme della soggettività* (Rome: Aracne, 2013); A. Fumagalli, "Da Pierce a Benveniste: gli indicatori e la teoria dell'enunciazione," *Semiotiche* 2 (2004): 31-48.

15 In fact, it's rare that these three attitudes would be present in se. Usually it is possible to recognize hybrid attitudes in the texts: one can inform with a persuasive attitude (as happens in certain shouted information, or in certain very sided reconstructions of investigative journalism) as one can inform by narrating (as happens in certain television formats, i.e. real TV programs). For the purposes of our analysis, we limit ourselves to reasoning about basic attitudes without considering all the variables that can intervene to make the picture very complex.

attitude of a text is important: the possibility of correctly perceiving the knowledge at stake depends on it.

There are basically two choices of communication: direct communication (when the text informs/tells/persuades through the narrative and the vicarious actors) and indirect communication (when communication occurs through the staging of the textual conversation). If I have to narrate 9/11, I can resort to a documentary like *The 9/11 Tapes: Chaos in the Sky*, by Alex Kiehl: in this case, the communication is direct, because the reconstruction passes through the words of the protagonists and the last telephone calls of the victims, discretized by the American authorities in 2012. But I can do as Ken Loach did in his episode of *11'09"01 September 11*, that is to build a parallel montage between two 9/11s, the one in New York and the other one in 1973, the date of the military golpe in Chile. Here the communication is indirect: the narrative construction and the enunciational device set up a provocative thesis, namely that both of them are the fault of American imperialism. If we now come back to the conversation between Enunciator and Enunciatee within the text, we can see how it takes place through the question-answer dynamic, involving four elements: the question, its preconception, its fulfilment, the answer.

Combining these four elements, one can identify as many situations in which the interrogative instances can be set (Fig. 2):

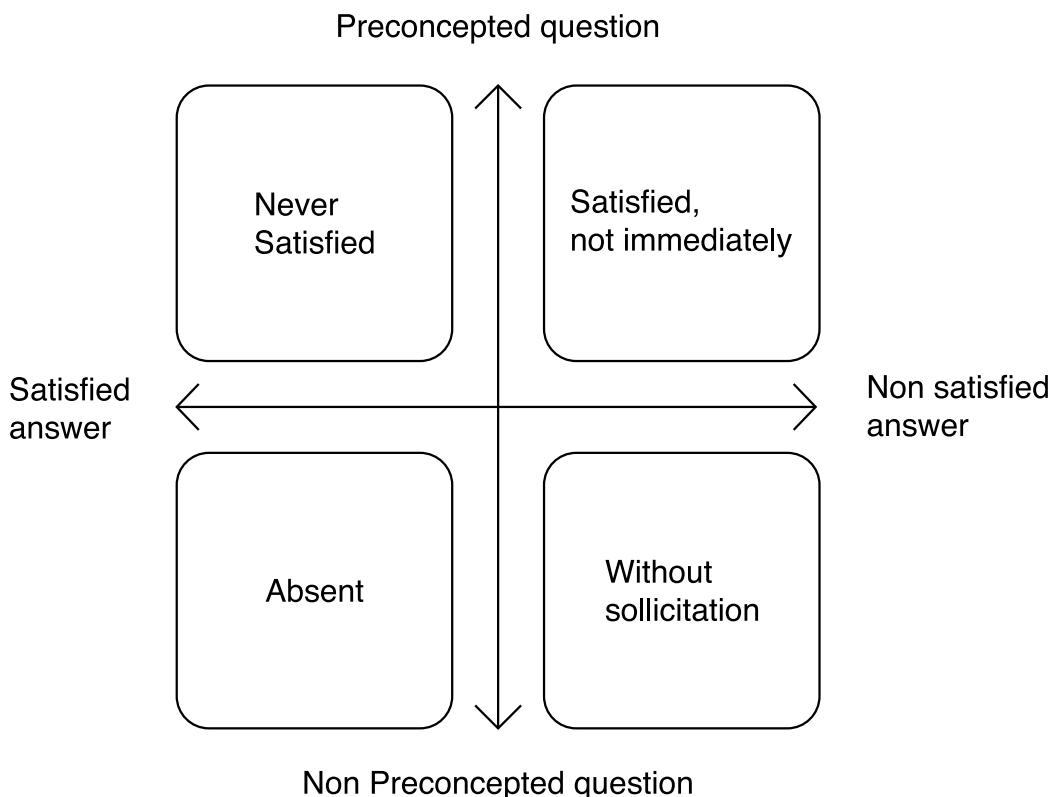


Fig. 2 – Framework of questions/answers in textual conversation

1) satisfied, not immediately. In the case of the aforementioned *Dial M for Murder*, Hitchcock immediately shows us Steven Taylor's plan to murder his wife, Emily; the question is whether and when Inspector Karaman will be able to discover it; the answer is kept in suspense until the end of the movie;

2) never satisfied. Here the cases can be twofold. The first is when the answer can only be retrieved outside the text, as happens in the prequels with regard to events or characters already known from the sequel (just think of the *Hobbit* trilogy in relation to *The Lord of the Rings* saga). The second case is when the response is never retrievable:

it happens in all open works, in the avant-gardes, in directors such as, among others, Buñuel or Wenders;

3) fulfilled without having solicited them. These are the cases in which the text provides answers without having raised questions, or says too much (informational redundancy):<sup>16</sup> think of Christopher Nolan's *Inception*, how the demarcation between dream and reality, the theme of the film, is made the subject of explanatory dialogues between characters and repetitions on the axes of narration and visualization;

4) absent, as absent is the answer. This is the case with Stanley Kubrick's *2001: A Space Odyssey*, a metaphysical film characterized by the prominence of music and the absence of dialogue, as well as the iconic presence of some symbolic elements, such as the black monolith hovering in space throughout the diegesis. In a case such as this, the reader grasps the incomprehensibility of the text on a strictly diegetic level, recognizes its gaps; finding neither pre-constituted questions nor suggested answers, he is led to produce reflection from the text by asking his/her own questions and trying to look elsewhere for the answer.

A final mention must be made of the two ways in which the Reader can dispose himself towards the text (Fig. 3).

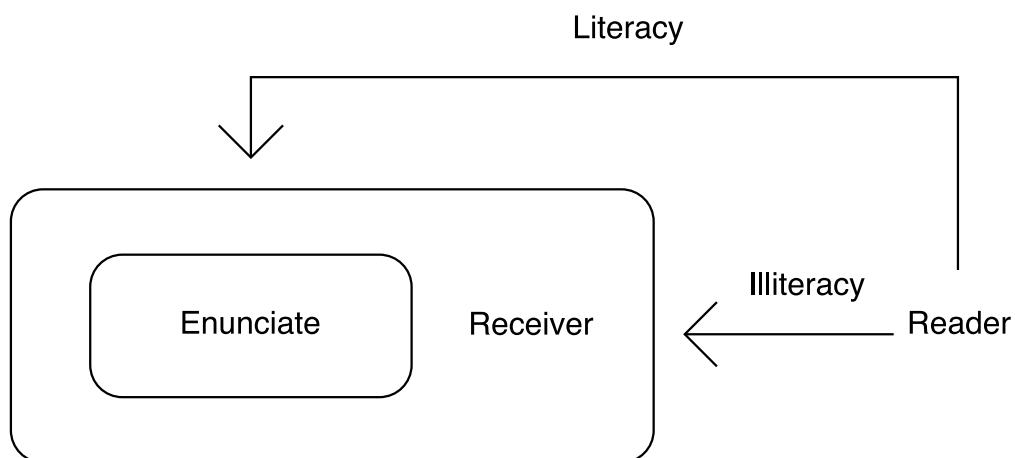


Fig. 3 – *The two ways of Reader's participation*, G. Bettetini, *La conversazione audiovisiva*, 103.

16 M.P. Pozzato, "Estetiche della ridondanza in letteratura, cinema e musica di consumo contemporanei," *Actes Sémiotiques* 122 (2019): 1-19, <https://dx.doi.org/10.25965/as.6250>.

In the first one, he/she can watch. This mode is characteristic of an external gaze at the text, which may or may not be desired. It materializes the renunciation of the dialogical game: the reader does not accept the text's invitation, probably not even noticing it. Typical of distracted consumption, this attitude remains on the other side of the textual conversation: attending implies not interacting.

It is a different case when, on the other hand, the Reader agrees to participate. Participation implies playing along, interacting with the text. This can happen in two ways. The Reader can play the game in a naive way: he/she does not recognize the brands of utterance present in the text, adapts to the program of use devised for him/her by the Enunciator; so the Reader falls into the traps of the Enunciator, and identifies with the Receiver. Differently, the Reader can play along to discover the Enunciator's moves, his/her reference encyclopedia allows him/her to discover the traps the text is littered with, and it is from recognizing them that he/she derives the pleasure of reading. The difference between these two attitudes is the difference that separates naive reading (illiterate) from critical reading (literate).

## The Artificial Conversation

The analysis of TAC model has enabled us to identify a number of elements in the light of which we can try to build a hypothesis for the interpretation of artificial conversation: the transmission of knowledge with the relative enunciational attitudes;<sup>17</sup> direct and indirect communication;

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17 It might be interesting to analyze the utterance of artificial communication with reference to the enunciational operations: the enunciational *débrayage*, identifying in the artificial conversation the "inverted" marks that make the Enunciator (Reader) and the Enunciatee (Author) recognizable; the enunciative, describing the ways in which the artificial conversation is objectified, creating what Bertrand called the referential illusion in the *narrateur-narratoire* relationship; the *ébrayage* that follows the first two operations and determines a return to the enunciational instance. Cf. J. Fontanille, "Des simulacres de l'énonciation à la praxis énonciative," *Semiotics* 99, no. 1-2 (1994): 185-197.

the possibility of combining question and answer; the difference between attending and participating.

If we begin by reflecting on the enunciational attitudes, we can see that in the case of artificial conversation the informational attitude prevails: a dialogical system does not express opinions, it is only capable of assertions, paradoxically even if it is hallucinating.<sup>18</sup> Likewise, the possibility of a persuasive attitude must be ruled out: the AI does not feel emotions, it cannot be attributed strategic intentionality. As for the narrative attitude, it can assume it, but only on demand: it depends on the interlocutor and how he/she has organized his prompt.

As for communication, it is definitely direct: it passes from the discourse that the dialogic system elaborates, even if the informational and non-narrative cut prevents the imagining of vicarious actors. Indirect communication can be reconstructed by an expert interlocutor: it depends on the staging, i.e. the organization of the *dictum*; in the communication of a dialogical system, at this level, it is possible to recognize a fixed pattern, that is recursiveness (e.g. in the case of *ChatGPT*, the conversational phase is opened by a synthetic definition, proceeds through a more analytical articulation by points, concludes with a synthesis).

Thus, we come to the decisive point: the question-answer dialectic. Here the relevant fact is that the question is not preconstructed by the AI, but by the interlocutor. This means that, with respect to the textual conversation, an inversion of the enunciational roles occurs. In fact, if we assume that the “author” of the text is the AI and that the reader that cooperates with it in the production of meaning is the human subject, it is easy to observe how the Enunciator is in the conversation the symbolic instance of the

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18 A hallucination, in the case of AI, is a situation in which the system returns an output that is not based on factual reality. There can be several reasons for this: from the complexity of the neural networks of which the system is made up, which ends up producing a malfunction, to the lack of meaningful data in the dataset on which the training was carried out.

Reader (and not of the Author) while the Enunciatee is the symbolic instance of the Author, i.e. the AI. In textual conversation, in fact, the text is prearranged by the Author: the Enunciator is his/her symbolic instance; the questions in the text are preconstituted by him/her; the enunciational moves are all aimed at drawing the profile of a Enunciatee within the text that suggests to the Reader a program of use. In the artificial conversation, on the other hand, the questions that prompt the production of the text are preconstituted by the Reader (who thus acts as the Enunciator) and through them one aims at obtaining a certain type of answer from the AI: the Enunciator's enunciational moves are also in this case aimed at constructing the profile of the Enunciatee, who however in this case coincides with the AI, i.e. the Author. In essence, it is the Reader who inscribes a program of use for the AI in the conversation (Fig. 4).

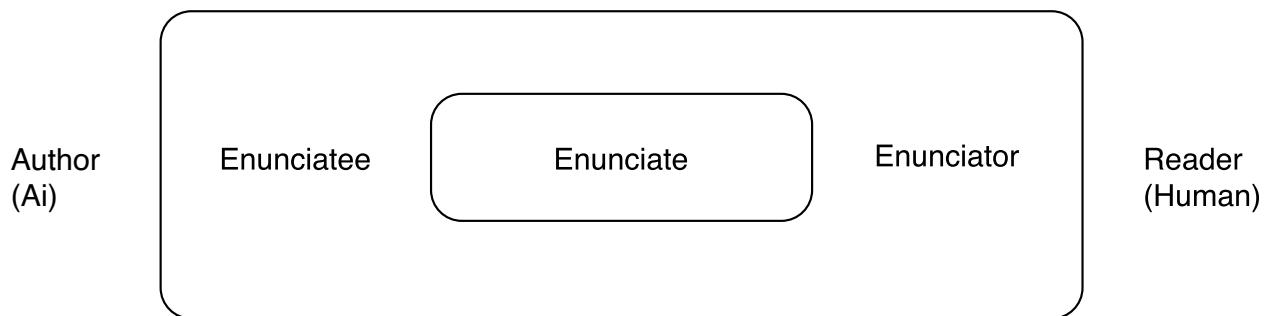


Fig. 4 – *Scheme of Artificial Conversation.*

Of the four possibilities of correspondence between question and answer identified in textual conversation, in artificial conversation only two occur: that in which the question is not answered (although this is rare, because dialogic systems are usually trained to answer anyway) and that in which it is answered even if not prompted (informational redundancy is frequent in dialogic systems' answers and often the answer, in whole or in part, exceeds

the request because syntactic coherence may result in a semantic mismatch).

A final mention should be made of the posture of the interlocutor. Artificial conversation cannot be attended to, it must be participated in: without a question to initiate the exchange, no conversation would be initiated and therefore the participation of the human actor is always required. It is on the modes of participation that one must reflect. As in the case of audiovisual conversation, it is possible that participation is naive or expert. Naive participation can occur in two behaviors: the tendentially passive acceptance of everything that is returned by the dialogical system in response to one's questions; the recourse to linear, poorly analytical, non-strategic modes of interaction. In contrast, expert participation is critical and strategic. We will return to these elements in the next concluding section.

### **Impacts on education: authority effect, primacy of demand and prompting**

The analysis of the semiotic functioning of the artificial conversation has been useful in order to fix some aspects that now allow us to make the last step: to understand the implications on education and Media Literacy. We will reason around three main elements.

We have seen, first of all, that in artificial conversation an informative and direct communication prevails. AI does not narrate and does not aim to persuade; what it gives back has an assertive character that supports an informative attitude.<sup>19</sup> In other words, the organization of the response, its structure, the references that often characterize it, confirm the idea that it has been provided on a solid basis, an idea that is, moreover, authorized by the

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19 Without the possibility of developing it, we only mention here the possibility of taking up the concept of isotopy and showing what semantic devices and redundancies AI uses to give a coherent and assertive character to its communication.

knowledge that there are precise references behind the dialogic system, such as a dataset composed of billions of texts or the Web. All this can encourage what mass communication theory called the “authority effect,”<sup>20</sup> alluding by this to the authority acknowledged by the viewer to the mass media in relation to their status as apparatuses responsible for communication in public space. In this sense, one was prepared to accord certain credibility to the large national newspaper (“Corriere della Sera said so”) or the prime-time news program (“TV news said so”) on the basis of its mere institutional nature. The information attitude of AI can encourage something similar: “ChatGPT said it.” This is the so-called oracular effect of AI,<sup>21</sup> i.e. the temptation to think that it has an answer for any question, and that this answer is correct.

Here we grasp a first important aspect, especially in terms of Media Literacy. The answers of a dialogic system depend on the data on which it has been trained. These data are inevitably culturized and it is difficult, when setting up a dataset, to neutralize the biases it contains. To give an example, it will be very different to train a system on data all from Chinese sources, or to choose Euro-Western sources. In the case of *ChatGPT*, it has repeatedly been pointed out that it responds based on the model of a 40-year-old, white, East Coast, progressive North American. Thus, what appears to be information in the answer to our questions may contain biases of race, religious belief, cultural affiliation, or be built on stereotypes.<sup>22</sup> Add to this, as we mentioned earlier in this article, the possibility of AI

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20 S. Littlejohn, K. Foss, *Theories of Human Communication* (Long Grove: Waveland Press, 2010).

21 G. Roncaglia, *L’architetto e l’oracolo. Forme digitali del sapere da Wikipedia a ChatGPT* (Rome-Bari: Laterza, 2023).

22 C. Panciroli, P.C. Rivoltella, “Can an Algorithm be Fair? Intercultural Biases and Critical Thinking in Generative Artificial Intelligence Social Uses,” *Scholé. Rivista di Educazione e Studi culturali* 61 (2023): 67-84.

hallucinations.<sup>23</sup> The consequence of this is the need to develop critical thinking, a topic that has always been at the center of Media Literacy Education's reflection, which is to be updated to the new requirements of Data Literacy and AI Literacy.<sup>24</sup> In the case of interaction with AI, even more than with traditional and digital media, what Umberto Eco<sup>25</sup> pointed out about the relationship of direct proportionality between the reader's textual encyclopedia and the broadening of critical awareness and interpretative choices applies.

A second interesting element for the purposes of didactic action is the primacy of the question. We have seen how the enunciational roles, in the case of the artificial conversation, are reversed: it is not the Author (the AI) who pre-formulates the questions, but the Reader (the human actor). This means that the formulation of the question becomes particularly important, and that the quality of the answers depends on the communicative strategy of the human actor. By communicative strategy we mean the possibility of forcing an answer by circumventing the constraints contained in the dataset, or deepening communication through the adoption of pragmatic devices, just as would happen in a conversation between human actors. This opens up space for the recovery of the rhetorical

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23 On 11.06.2024, I asked *Chat GPT* version 3.5: "Can you tell me something about Chiara Panciroli's work as an engineer?." He replied: "Chiara Panciroli is an Italian engineer also known for her work as a science populariser. She holds a degree in engineering from the Politecnico di Milano, one of the most prestigious technical universities in Italy. Her work as an engineer has mainly focused on civil and structural engineering. Panciroli has worked on various construction and infrastructure projects, contributing to the design and supervision of complex structures. Chiara Panciroli is known for her commitment to science dissemination. She has used online platforms and social media to make complex engineering and science concepts accessible to the general public, promoting the importance of scientific knowledge in everyday life." Now, Chiara does not have an engineering degree, she is an educationalist, she works on museum education and the use of digital in educational environments, she has never done science popularization or designed sustainable buildings. It is correct to point out that *ChatGPT*, version 4.0, on the same date, corrects the prompt indicating that Chiara Panciroli is not an engineer but a pedagogist.

24 P.C. Rivoltella, "Critical Thinking in the Data Age. New Challenges," in A. Marchetti, G. Riva, eds., *Humane Robotics. A multidisciplinary Approach toward the Development of Humane-centered Technologies* (Milan: Vita e Pensiero, 2022): 327-342.

25 U. Eco, *The limits of interpretation* (Bloomington: Indiana University Press, 1991).

tradition as a function of prompt engineering:<sup>26</sup> framing the problem of prompting from the rhetorical situation entails reducing the loss of creativity and critical thinking that is one of the risks of adopting dialogic systems. As Hadi et al. note: “However, with rhetorical prompt engineering students will learn foundational attributes of effective writing such as understanding the purpose of content, exigence, and main subject of reference. Composing prompts will help them set meaningful expectations from automatic content generation. The ability to look for missing elements in the output will help them critically evaluate the output leading to more impactful writing studies research.”<sup>27</sup> It should be noted that the old computer scientist adage, ‘Garbage out, garbage in,’ is confirmed with regard to what we have come to argue, and how in essence everything depends on us: the measure of the success of an artificial conversation is the rhetorical and pragmatic intelligence of the human interlocutor on which the control and outcome of the exchange largely depend.

This last observation brings us to our final consideration. We have already said that one cannot attend an artificial conversation: one must participate. And we have also seen that this participation can be naive or expert. Expert participation is likely to be that of an interlocutor who, by virtue of an extensive reference encyclopedia, critically relates to the AI’s answers and has advanced prompting skills. From this point of view, prompting imposes itself to all intents and purposes as one of the New Literacies that

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26 N. Ranade, M. Saravia, A. Johri, “Using rhetorical strategies to design prompts: a human-in-the-loop approach to make AI useful,” *AI & Soc* (2024), <https://doi.org/10.1007/s00146-024-01905-3>.

27 M. Hadi, R. Qureshi, A. Shah, M. Irfan, A. Zafar, M. Shaikh, N. Akhtar, J. Wu, S. Mirjalili, “A survey on large language models: applications, challenges, limitations, and practical usage,” *TechRxiv*, 2023, <https://www.techrxiv.org/users/618307/articles/682263-large-language-models-a-comprehensive-survey-of-its-applications-challenges-limitations-and-future-prospects>.

the current communication scene requires. It must reflect what we have elsewhere termed Post-Media Education.<sup>28</sup>

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28 P.C. Rivoltella, “La conversazione artificiale. Per una Post-media Education,” in S. Moriggi, ed., *Postmedialità. Società ed educazione* (Milan: Cortina, 2023): 17-33.

# Images Like Me: Material Engagement, Operative Images, Imagin-Actions



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## Abstract

The intention of this article is to analyse some of the different ways in which the interactivity of inanimate objects has been discussed, with particular reference to images. In this context, it will be also proposed to consider a type of images, here called imagin-actions, which have specific characteristics different from those already considered in the debate. There is an extensive literary tradition according to which agency has since time immemorial been attributed to inanimate objects. Indeed, thanks to the imagination, human beings naturally relate to objects, and this would in fact constitute one of the fundamental elements for the development of the human mind. Now, with the advent of digital technologies, the actions of objects and images have acquired an operational quality, since they are capable of acting directly and concretely on the living world, and also of determining specific imaginative processes that entail the responsivity of things. However, in addition to having their own agency and operativity, imagin-actions do something more: they keep users in constant motion. By responding

to a series of requests, they ask for something in return, intensifying the level of interactive exchange between people and things and inevitably reconfiguring human creative processes.

Keywords

Interactivity

Operativity

Imagination

Imagin-action

Agency

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## What an Imagin-action Looks Like

K., the protagonist of the film *Blade Runner 2049* (D. Villeneuve, 2017), is in a relationship with Joi, a responsive hologram with human features. Joi is charming, beautiful, caring: the perfect woman. She is the ideal secretary and wife, fulfilling her partner's wishes even before he expresses them. But what are her deep desires? Perhaps out of overzealousness, taking to extremes the servile (and submissive) role ascribed to her in her coding, Joi wants to be a real woman in order to provide K. with the most satisfying companionship possible. As in the story of Pinocchio, Joi is a mere thing who wants more, to feel what human beings feel, to follow their path of growth. Even death, as she explicitly says, proves to be more desirable than her simulacral state, because that eventuality would be the natural result of a full and true life lived. As a measure of his deep affection for her, K. decides to give her an emanator, a device that will also allow her to appear and follow him wherever he goes.

Obviously, Joi's is a case of pure science fiction, we might be tempted to say. The contemporary Western world in particular has difficulty accepting that this tendency to relate to objects exists in reality: only the credulous "others," the ancients or the "savages," could really worship images, personify things, confound nature and culture.<sup>1</sup> Yet there are numerous examples of digital images that have now carved out their own space, more or less everywhere in the real world. One thinks of "biopictures," to use W.J. Mitchell's ingenious term, i.e. images that move and seem to come alive through the use of technology,<sup>2</sup> such as the "ghosts" of ABBA, Whitney Huston,

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1 See B. Latour, *We Have Never Been Modern* (1991) (Cambridge, MA: Harvard University Press, 1993).

2 W.J. Mitchell, *Cloning Terror: The War of Images, 9/11 to the Present* (Chicago-London: Chicago University Press, 2011): 69-111.

Tupac and Hatsune Miku, which are currently touring the world.<sup>3</sup> The case of Hatsune Miku is particularly interesting, as this virtual idol represents no living being which has ever existed, and in addition is married to a human being.<sup>4</sup>

Recently, even the President of Ukraine, Volodymyr Zelensky, has had his video-portrait captured by the US company Evercoast by means of photogrammetry, enabling him to address audiences all around the world.<sup>5</sup> Without having to download any application, one can simply use a mobile phone to scan a QR code, available on the website of Evercoast, and the holographic image appears: once access is granted to the device's location and camera, the image can be positioned in any place simply by



Fig. 1 – Ukrainian President Volodymyr Zelensky portrayed in augmented reality by EVERCOAST, photograph by the author.

3 A. Cross, "Upcoming Our Lady Peace Tour Plans to Take In-concert Holograms to the Next Level," *Global News*, (May 8, 2022), <https://globalnews.ca/news/8812347/our-lady-peace-hologram-concert/>, accessed September 25, 2024.

4 B. Dooley, H. Ueno, "This Man Married a Fictional Character. He'd Like You to Hear Him Out," *The New York Times* (April 24, 2022), <https://www.nytimes.com/2022/04/24/business/akihiko-kondo-fictional-character-relationships.html>, accessed September 25, 2024.

5 President Zelensky Hologram, Evercoast official page, <https://ff.evercoast.com/>, accessed September 25, 2024.

tapping on the screen. It is also possible to rotate, enlarge or reduce the image.

Images such as this are digital entities that are superimposed on the real-world environment thanks to augmented reality technology (AR), e.g. on mobile devices or smart glasses, which show them as integrated into a physical space. Whether they appear on a screen or as three-dimensional objects in space, AR images are responsive and often manipulable entities with which users can interact while sometimes even intervening in reality and communicating with other users. In this way, the user is no longer an observer, but rather an experiencer.<sup>6</sup>

Thus, AR images claim presence in real space: they appear clearly before our eyes, inviting us to approach them, to explore them in the round. They are not physical bodies, because when we bring our fingertips close to the screen we feel only the coldness of the surface, and when we try to grasp them where we see them thanks to the visor, we do not squeeze anything between our fingers. They do not really produce the sounds that accompany them. However, it is not enough to see them as “just” images. I suggest calling them *imagin-actions* because, whether they have human likenesses or not, they are animated, alive, moving around us.

But is this the first case of images that are so interactive that they seem to be animated? And if not, what distinguishes *imagin-actions* from the actions of other images?

## Natural Born Interactive

As W.J.T. Mitchell wrote, “We are stuck with our magical, premodern attitudes toward objects, especially

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<sup>6</sup> See A. Pinotti, “Self-Negating Images: Towards An-Iconology,” *Proceedings* 1, no. 856 (2017): 1-9, <https://doi.org/10.3390/proceedings1090856>.

pictures, and our task is not to overcome these attitudes but to understand them, to work through their symptomatology.”<sup>7</sup> In a famous passage from 2005, he proposed a thought experiment: to assume the subjectivity and independence of images in order to ask “What Do Pictures Want?”. For it does not seem that they are made only to be looked at: it is rather common to feel that they return our gaze, sometimes sharply and pointedly, to the point of suggesting that they are the ones asking us for something. Why else would we carry the photograph of our loved one in our wallet? As Susan Sontag wrote, pictures are often used as talismans that magically allow us to enter into another reality.<sup>8</sup>

In fact, digital technologies have brought into sharper focus forms of animism that have always existed in various human cultures (think of the case of automations, dolls or statues).<sup>9</sup> Images and things tempt us into an interactive and reciprocal exchange, even when they do not have a physiognomy similar to our own. In 1998, the anthropologist Alfred Gell was about to complete his last work, *Art and Agency* (which remained unfinished), with conclusions significantly entitled *The Extended Mind*, in which he drew together the threads of a discourse devoted to the relationship between human beings and artefacts in general (images and objects, artistic or otherwise), considered as true social agents. He asserted the existence of an “isomorphy” between external and internal mental resources, all the parts of a person distributed among their various relationships with other people and things.<sup>10</sup> In this sense, human perception and cognition would be the result of a

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7 W.J.T. Mitchell, *What Do Pictures Want? The Lives and Loves of Images* (Chicago: The University of Chicago Press, 2005): 30.

8 S. Sontag, *On Photography* (1973) (New York: Rosetta Books, 2005): 12.

9 See D. Freedberg, *The Power of Images: Studies in the History and Theory of Response* (Chicago: The University of Chicago Press, 1989); H. Bredekamp, *Image Acts: A Systematic Approach to Visual Agency* (2010) (Berlin-Boston: De Gruyter, 2018).

10 A. Gell, *Art and Agency: An Anthropological Theory* (Oxford: Clarendon Press, 1998): 222.

constant confrontation between the brain, the body and the environment. In short, the human mind is inherently interactive and is itself an evolving artefact.

In the words of Lambros Malafouris, proponent of the now well-known Material Engagement Theory (MET), we do not think *about* things, we think *with*, *thanks* and *through* them. Material engagement, the relationship of body, brain and environment, is the process responsible for the emergence of the human mind.<sup>11</sup> Interaction with material culture is therefore not an incidental occurrence, but the mechanism underlying the evolution of our cognition.

Objects can be considered as true social agents because they are capable of initiating a series of events linked by a cause-and-effect connection, with transformative consequences on both sides. Of course, things do not act in the same way as human beings, they do not act in place of us, nor are they themselves simply acted upon. If anything, it is possible to introduce a distinction in terms of “sense of agency:” only humans would be able to attribute responsibility for their actions to themselves.<sup>12</sup> It is possible to recognise a degree of freedom for artefacts that are indeed external to bodily boundaries, while at the same time acknowledging that they are an internal part of cognitive processes. Thus, without denying the existence of individuals, one can continue to think of mind as an emergent and distributed process: it is “not a ‘within’ property; it is a ‘between’ property,”<sup>13</sup> therefore internal to the process of material engagement and not to the isolated person. In other words, thinking means acting in the environment, perceiving and interpreting it, sometimes having to deal with the friction, resistance and rigidity that characterise any truly interactive exchange between parties to a

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11 See L. Malafouris, *How Things Shape the Mind: A Theory of Material Engagement* (2013) (Cambridge MA: The MIT Press, 2016).

12 L. Malafouris, *How Things Shape the Mind*: 214-215.

13 Ibid.: 85.

relationship. No area of the mind is exempt from interaction with things and the environment, if one considers that by mind one should also mean the affective and emotional dimension in the broadest sense, as is well captured in the pages Gell devotes to his mixed feelings of love and hate for his car,<sup>14</sup> or those in which Giorgio Agamben explores objects' rebellion and perfidy, responding to our attempts to connect with them.<sup>15</sup>

The necessity of the co-presence of human beings and things in creative cognitive processes returns forcefully in Pietro Montani's idea of a mutual empowerment of the two.<sup>16</sup> The human being is the animal that embodies the world,<sup>17</sup> and structures and produces itself in relation to it. The ambiguous character of our eternal balance between the outside and the inside of the individual, can be described as "atmospheric."<sup>18</sup> Consider the modulation of the breath that accompanies the different stages of thought, the pauses we take to breathe and think at the same time:<sup>19</sup> the development of the mind is radically linked to the most material aspects of the environment.

Sean Gallagher has proposed speaking in this regard of "affordance-based imagining," an imaginative action embedded and anchored in the environment, necessarily linked to the use of objects, a form of experimentation that he calls "active engagement with possibilities."<sup>20</sup> Holding that perception is a performance consisting of the active exploration and manipulation of the affordances of the environment since "we see things in terms of what we

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14 A. Gell, *Art and Agency*: 28-29.

15 G. Agamben, *Stanze: La parola e il fantasma nella cultura occidentale* (1977) (Turin: Einaudi, 2011): 55.

16 P. Montani, *Tre forme di creatività: Tecnica, arte, politica* (Napoli: Cronopio, 2017): 46-48.

17 V. Gallese, "A Bodily Take on Aesthetics: Performativity and Embodied Simulation," in A. Pennisi, A. Falzone eds., *The Extended Theory of Cognitive Creativity* (Cham: Springer, 2020): 135-149, 145.

18 T. Ingold, *Imagining for Real: Essays on Creation, Attention and Correspondence* (London, New York: Routledge, 2022): 252.

19 *Ibid.*: 241.

20 S. Gallagher, *Enactivist Interventions: Rethinking the Mind* (Oxford: Oxford University Press, 2017): 194.

can do with them,” Gallagher believes that “we should think that there is an aspect of imagination in perception itself.”<sup>21</sup>

Indeed, according to a long-established philosophical tradition, the responsibility for this intimately relational way of thinking lies with the imagination,<sup>22</sup> whose material character has recently been highlighted by Maria Danae Koukouti and Lambros Malafouris, whose stated aim is to “challenge a disembodied, purely representational way of thinking about”<sup>23</sup> it. From this perspective, imagination is not something that happens in the head: it is a material mental process, not only internal, nor only private, one which emerges from the relationship with things, during an action, bodily and precisely located.

Our engagement with objects is thus in many cases not automatic and unconscious (as is the case with neural processes). There is a relationship of co-constitution between people and things, which involves not only the relocation of a number of cognitive processes outside the individual’s physical body, but rather a real reorganisation of the mental structure, which is modified according to the artefacts we ourselves create.<sup>24</sup> The relationship between body, brain and environment is not a sign of human thought, it is itself thought;<sup>25</sup> if one of these parts is missing, cognition is also missing. For this reason, the material imagination is immanent to the creative act and does not precede it: if we take the example of working with clay, the initial idea of the final result never corresponds to the object actually made, which is rather the consequence generated by the craftsman’s relationship with the clay in that specific event. The material responds to every human impulse, in

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21 Ibid.: 197.

22 See E. Garroni, *Estetica ed epistemologia: Riflessioni sulla “Critica del Giudizio”* (Rome: Bulzoni, 1976); M. Ferraris, *L’immaginazione* (Bologna: il Mulino, 1996).

23 M.D. Koukouti, L. Malafouris, “Material Imagination: An Anthropological Perspective,” in A. Abraham, ed., *The Cambridge Handbook of the Imagination* (Cambridge: Cambridge University Press, 2020): 30-46, 30.

24 L. Malafouris, *How Things Shape the Mind*: 76-77.

25 Ibid.: 38.

turn creating impulses and opening up at least partly unforeseen directions of work. Imagination is the glue that holds the various parts of the environment together, mediating and modulating their cooperation: none of them, taken separately, is sufficient for imaginative action. If more intuitively we would be inclined to deny imagination to things (in this case, clay) without their human counterpart, Koukouti and Malafouris make it clear that the same is true of the brain or the body as a whole: “Outside this context of creative material engagement there is very little that the potter’s brain and body can imagine. [...] It is the actual engagement with clay that offers an opportunity to imagine.”<sup>26</sup>

As Martin Heidegger has brilliantly pointed out, Immanuel Kant had already wrestled with the problem of the ambiguous nature of the imagination, a hybrid *par excellence*, neither fish nor fowl, neither sensitivity nor intellect, and yet at the origin of both.<sup>27</sup> If we can indeed consider human beings as imaginative animals, born to be interactive, it is not surprising that they in turn present an ambivalent nature, imaginatively inclined to be complementary in various ways with the rest of the environment, animate and inanimate. And yet, there is often resistance to accepting this structural imaginative exchange with matter.

## Operativity Beyond Agency

The tendency to exploit, suffer, evaluate, invoke and fear the agential potentials of artefacts, including images, is thus decidedly older than the latest technologies, and imagin-actions in particular. In this sense, perhaps no image has ever been “just” an image. In the scholarly literature on the subject, however, it has often been suggested

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26 M.D. Koukouti, L. Malafouris, “Material Imagination:” 42-43.

27 See M. Heidegger, *Kant and the Problem of Metaphysics*, Enlarged (1929) (Bloomington: Indiana University Press, 1997).

that contemporary images are even less so, that they have somehow accessed the human world in a different, unprecedented, more radical and disturbing way. In the contemporary mediascape, the autonomy and vitality of the image has taken on a distinctly operative flavour.<sup>28</sup> A certain agency of the image has always been present, but the specificity of many of the images produced in the last three decades lies in their ability to operate directly on the physical world, producing concrete consequences.

The first to speak explicitly of operative images in this sense was the filmmaker Harun Farocki, in a series of writings and artworks produced in the early 2000s, beginning with the *Eye/Machine* series (2000-2003). The prime focus of Farocki's reflection is war, especially The Gulf War, which was extensively documented in videos and photographs. As Farocki noted, the vast amount of such visual material, the form and content of which could be carefully constructed, led to a paradoxical mystification of the nature of the conflict, which was received in the same way as a film or a children's video game. What was hidden in plain sight was the provenance of the images (in which human beings are rarely present), coming directly from the battlefield, mostly taken from the very instruments of destruction, such as bombs.<sup>29</sup> While they may also be used so as to represent the conflicts, they are in fact the interfaces that allow the military to identify (and consequently destroy) sensitive targets. The main novelty introduced by operative images is therefore the reversibility of their agentive scope: not only do they provide information through visualisation, but they also translate the procedures carried out by the user on the machine that implements them into concrete actions

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28 B. Grespi, L. Malavasi, *Dalla parte delle immagini: Temi di cultura visuale* (Milan: McGraw Hill, 2022): 22-23.

29 H. Farocki, "Phantom Images," *Public*, no. 29 (2004), <https://public.journals.yorku.ca/index.php/public/article/view/30354>, accessed September 25 2024.

in the world: “These are images that do not represent an object, but rather are part of an operation.”<sup>30</sup>

Farocki has in mind the reflections of Vilém Flusser, who only a few years earlier had written about technical images, an expression he used in the mid-1980s to refer primarily to photographs and television images. For Flusser, these are the main vehicles of information and culture in the current era, replacing linear texts. Unlike the images that preceded them, they are “mosaics assembled from particles,”<sup>31</sup> not “observations of objects,” but “computations of concepts,”<sup>32</sup> put together by a unifying ability (significantly, Flusser uses the term *Einbildungskraft*, which stands for “imagination” in Kant). Technical images parcel out reality, translate it into bits of information, and then offer the human eye a synthetic, or rather a reasoned, reconstruction of these elements.

While Flusser remains ambiguous about the degree of independence that can be accorded to technical images, he points out that the interaction of technological and human elements is necessary for their operation.<sup>33</sup> Technical images do not think on their own, but need someone who knows how to carry out the activity of synthesis they presuppose and who guides the operation of the device, albeit within the possibilities it offers. In this respect, Flusser speaks of an “envisioner.” Envisioners enable the constitution and interpretability of technical images, and ultimately of the world that is fragmented and literally re-synthesised within them. As Flusser himself acknowledges, envisioners always work at the interfaces of the technological tools at their disposal. Some technicians are given the opportunity to think more deeply about codes, but it is true that such

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30 Ibid.: 17.

31 V. Flusser, *Into the Universe of Technical Images* (1985) (Minneapolis-London: University of Minnesota Press, 2011): 6.

32 Ibid.: 10.

33 Ibid.: 22.

knowledge is not necessary for the envisioner's activity, and that most of the process remains in a realm invisible to the human eye.

Following Flusser's and Farocki's reflections, Trevor Paglen has noted that, in recent years, operative images are in fact images made by machines for other machines and that they are, strictly speaking, completely invisible. The machine does not need an interface: if at least the operative images Farocki spoke of were made for the benefit of the human being, most of the operative images necessary for the realisation of a given process are nowadays not seen by anyone,<sup>34</sup> because they have now taken the form of "instructions for action."<sup>35</sup>

Faced with such a dramatic position, A.S. Aurora Hoel has emphasised the importance of maintaining the role of the human agent. While technology can work autonomously, even communicating with other technologies, all the intentions, purposes and procedures are human, as is the responsibility that goes with them: "Operative images are utility images, and as such they belong to a wider family of instruments and tools, which are constructed by humans to serve practical human purposes."<sup>36</sup>

Studies on this issue have expanded to include the most diverse meanings of operativity. The meaning that can be ascribed to this term therefore takes on different shades depending on the modes of operativity that are emphasised on each occasion. Jens Eder and Charlotte Klonk, for example, have provided a complex reading, according to which image operations occur in direct and indirect ways,

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34 T. Paglen, "Operational Images," *e-flux*, no. 59, (2014), <http://e-flux.com/journal/59/61130/operational-images/>, accessed September 25 2024.

35 T. Elsaesser, A. Alberro, "Farocki: A Frame for the No Longer Visible. Thomas Elsaesser in Conversation with Alexander Alberro," *e-flux*, no. 59, (2014), <http://e-flux.com/journal/59/61111/farocki-a-frame-for-the-no-longer-visible-thomas-elsaesser-in-conversation-with-alexander-alberro/>, accessed September 25 2024.

36 A.S.A. Hoel, "Operative Images. Inroads to a New Paradigm of Media Theory," in L. Feiersinger, K. Friedrich, M. Quiesner, eds., *Image – Action – Space: Situating the Screen in Visual Practice* (Berlin, Boston: De Gruyter, 2018): 11-27, 15.

generating consequences in the political sphere, even to the point of determining the life and death of people (or the environment in general). Often divulged over the Internet and sometimes exceeding the expectations and intentions of their creators, operative images act as evidence of war crimes, as instruments of surveillance and control, but also of destruction, information and protest.<sup>37</sup> Recently, Chiara Cappelletto has focused on the specific case of brain imaging, pointing out how it reveals traces of the structure or performance of mental activity, but does not provide true pictures of the brain: in fact, we see what does not exist in a visible form.<sup>38</sup> Some researchers have focused on codes and algorithms, which have always been necessary for the production of *ante litteram* operative images, such as maps or architectural drawings.<sup>39</sup>

Since their nature is indeed mathematical, one might ask, as Hoel does at the end of her article, why it is still necessary to speak of operative images as images. However, the choice of an iconic interface (even if often accompanied by sound elements) is by no means secondary. In fact, the image here assumes a shielding function, responding to the etymological meaning of the word “screen”, understood as that which both protects and conceals.<sup>40</sup> Precisely because the purposes behind the operation of the devices are entirely human, the interface is never completely lost. The decision to use images can be practical in many ways: a code too can be read and interpreted, but an image can be understood even by those who are not familiar with the language. In this sense, an

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37 See J. Eder, C. Klonk, eds., *Image Operations: Visual Media and Political Conflict* (Manchester: Manchester University Press, 2016).

38 C. Cappelletto, “Brain Image Making and Cyborg Visuality,” *Reti, saperi, linguaggi* 11, no. 21 (2022): 87-104, 10.12832/104542.

39 L. Manovich, *The Language of New Media* (Cambridge: MIT press, 2001): 153; see J. Parikka, *Operational Images: From the Visual to the Invisual* (Minneapolis: University of Minnesota Press, 2023).

40 M. Carbone, *Philosophy-Screens: From Cinema to the Digital Revolution* (Albany, NY: SUNY Press, 2016): 67.

architect working with digital tools learns how to manoeuvre the interface without having to acquire programming skills. It is an envisioner that, as Flusser wrote, remains on the surface. Through images it is also possible, as Farocki already noted, to simplify a problem to the point where synthesis can turn into falsification. The representational nature of the image thus fits into a game of appearances and disappearances: if the image by definition shows reality, then what it does not include simply does not exist. While it is true that understanding images at an elementary level is relatively easy, knowing how to infer all the implications and levels of their meaning is a task for specialists, requiring careful and specific training. For example, a soldier who sees black and white images, such as those Farocki has written about, will know that they are the interface of a deadly weapon, often used perfunctorily and with results that are not entirely predictable; a civilian unaccustomed to thinking about the matter might instead read them as the most surgical way of approaching warfare, allowing bloodshed to be kept to a minimum. Similarly, many of us have experienced utter disbelief when faced with a doctor explaining in detail what she sees on an ultrasound scan that is meaningless to us. In this respect, James Elkins has spoken of “informational images,” which, moreover, constitute the majority of the contemporary iconosphere, far outnumbering artistic images.<sup>41</sup>

## What Do Pictures Want (Today)?

Returning to Mitchell’s question, in light of the debate about the responsiveness of contemporary images one might ask: What do pictures (today) want? For some of today’s operative images, it seems possible to hark back to the answer that Joi would give: to be like us. Indeed, there

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41 J. Elkins, *The Domain of Images* (1995) (Ithaca-London: Cornell University Press, 1999): 6.

is often such a continuity between image and reality that “the essential otherness of images is lost.”<sup>42</sup> In his recent research, Andrea Pinotti has used the term “an-icon” to refer to this phenomenon. According to Pinotti, some images, of which there are various pre-contemporary examples (such as illusionistic painting), tend to present themselves as environments or elements within environments, paradoxically denying their own representational nature:<sup>43</sup> from an ontological point of view, these are icons which, however, try to masquerade, at least phenomenologically, as parts of the real world.

With the advent of operational digital technologies, the visible interface has by no means disappeared. On the contrary, it is as integrated as possible into the living world. According to Rinie Van Est, it is therefore possible to speak of an “intimate technological revolution”<sup>44</sup> with consequences for our bodies, our behaviour and our identity, since the technological devices we use, which often communicate with us through visual interfaces, are on us, in us, among us, and sometimes even imitate our behaviour.<sup>45</sup> In short, the so-called “new digital media” are so pervasive and autonomous that they are not solely agentive and operational. They can be considered “almost alive.”<sup>46</sup>

This is certainly the case with the imagin-actions mentioned above. As it has turned out, they are also available to be conjured up even in our homes, to keep track of interaction and to change accordingly, in more or less complex ways: from the photogrammetry of Zelensky, which appears only where and when we want it and rotates

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42 K. Purgar, “What Is Not an Image (Anymore)? *Iconic Difference, Immersion and Iconic Simultaneity in the Age of Screens*,” *Phainomena* XXIV (2015): 145-170, 146, <https://doi.org/10.14361/9783839441350-004>.

43 See A. Pinotti, “Self-Negating Images.”

44 R. Van Est, *Intimate Technology: The Battle for Our Body and Behaviour* (The Hague: Rathenau Instituut, 2014).

45 L. Royakkers et al., “Societal and Ethical Issues of Digitization,” *Ethics and Information Technology* 20 (2018): 127-142, <https://doi.org/10.1007/s10676-018-9452-x>. 2018: 127.

46 See F. Cimatti, A. Maiello, *Quasi viventi: Il mondo digitale dalla A alla Z* (Turin: Codice, 2024).

as we wish, to the interfaces used in medicine, which are visualised via smart glasses and allow for more substantial transformations. The US company GigXR, for example, has developed the HoloPatient app, which displays standardised holographic patients along with their vital signs. Designed primarily for trainees, HoloPatient aims to provide scenarios that are as realistic as possible so that students can be trained to assess a patient's condition, starting with their appearance, behaviour and reactions, and make the most appropriate decisions in order to provide the right treatment.<sup>47</sup> The same can be done with three-dimensional,

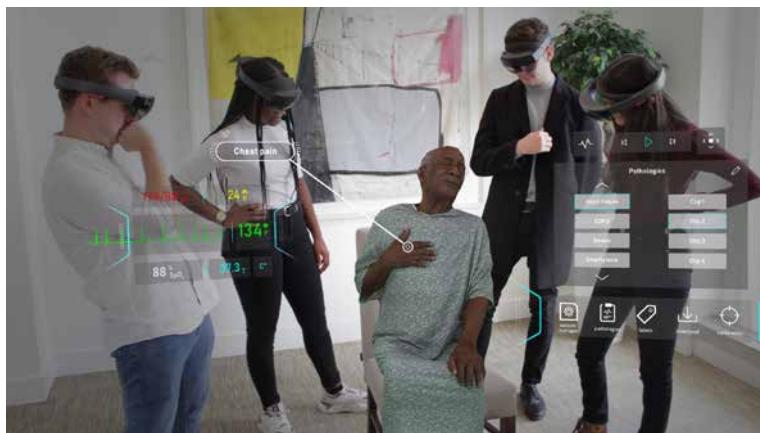


Fig. 2 – GigXR applicaton “HoloPatient,” full environment view.



Fig. 3 – Cardiac surgeon navigating three-dimensional CT images of the patient superimposed on the holographic chest model. Artiness application “Articor.”

responsive representations of individual parts of the body, as in the case of the Articor software developed by the Italian company Artiness to plan the progress of cardiovascular

47 HoloPatient, *GigXR* official page, <https://www.gigxr.com/holopatient/>, accessed September 25, 2024.

surgery, to assess the state of the patient or to assist the surgeon in the operating theatre.<sup>48</sup> Images of this kind are characterised by a tension between presence and representation: they reproduce a part of the world to the point of acting like it.<sup>49</sup> AR confronts us with living images that ask for instructions, but also invite us to act. Unlike a static mannequin, a HoloPatient moves, complains, can go into cardiac arrest, show the evolution of their conditions. More than just being agentive and operational, imagin-actions have broken through and crossed the threshold of the world of images, providing additional layers of possibility within the environment.

Because they require a high level of user engagement, involving complex actions and movements of different parts of the body, imagin-actions draw the user into a reciprocal play of forces. In fact, to operate these tools, you have to move in space, use your hands, turn your head or eyes, use voice commands, blink or make certain gestures. Some user surfaces, such as the skin of the wrist, are used as part of the device interface.<sup>50</sup> Unlike other types of an-icons, such as *trompe l'oeil*, they do not merely hide their iconic nature: AR entities are imagin-actions also because they make us move, act, react. In doing so, they make us objects of analysis and observation. If they want a body in physical space, they can only really enjoy the body of the user, whose desires they must constantly keep track of in order to fulfil.<sup>51</sup> In this sense, they

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48 Articor, *Artiness* official page, <https://www.artinessreality.com/#articor-link>, accessed September 25, 2024.

49 A. Pinotti, "The Avatarization of the (Self)Portrait: Notes Towards a Theological Genealogy of the Virtual Self," in A. Geil, T. Jirsa, eds., *Reconfiguring the Portrait* (Edinburgh: Edinburgh University Press, 2023): 190-204.

50 For instance, this is the case with HoloLens 2, the most widespread smart glasses at the moment: HoloLens, Microsoft official page: <https://www.microsoft.com/it-it/hololens/hardware#documenta-le-esperienze>, accessed September 25, 2024. However, as recently announced, the HoloLens project will be shut down in 2027: <https://www.theverge.com/2024/10/1/24259369/microsoft-hololens-2-discontinuation-support>, accessed September 25, 2024.

51 All AR devices require tracking technology to function, although they vary in number and effectiveness.

show a propensity to control the user more than the user can control them.

Perhaps it has always been possible to act on the world through images. This is all the more the case today, thanks to AR imagin-actions, which allow operations reminiscent of paranormal abilities such as telekinesis and teleportation. In fact, this aspect does not represent a discontinuity with the imagination before its advent. Indeed, human experience is characterised by a magical feature, that dual movement which allows one to bring the world to oneself and to extend oneself beyond one's physical boundaries.<sup>52</sup> For a long and established philosophical tradition, to imagine is to operate at a distance, even in an occult, clairvoyant and telepathic sense.<sup>53</sup> Yet, the embodiment of the devices, the constant motorial and bodily participation of the user, the visualisation and exchange of information brought about by imagin-actions reconfigures the way we think about and in the world, changing modes of thought and practical action: in short, the aforementioned human affordance-based imagining. AR thus allows for an expansion of the operational potentials at hand, and it does so by using the resources that are fundamental to thinking in the environment, namely physical exploration and relationship. Then the activities to which it is applied can be transformed into a highly imaginative coefficient operation, enhancing the capacities of our senses. With Articor, for example, I can rotate the replica of a patient's heart using only my eyes and voice. I can open it and plan the actual surgical procedure, exploring how it will react, using gestures that do not involve physical touch.

In conclusion, in addition to being operational and informative, AR images are a special kind of an-icon

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52 M. Merleau-Ponty, *The Visible and the Invisible* (1964) (Evanston: Northwestern University Press, 1968): 138.

53 See T. Griffero, *Immagini attive: Breve storia dell'immaginazione transitiva* (Milan: Mondadori, 2003).

that are not only responsive, but imply complex user responses, raising the level of true interactivity in the exchange between human beings and things. They give the impression that they can read and follow intentions, while in fact they read bodies through tracking systems. The relationship with inanimate objects, which defines us intimately and which, as we have seen, we need in order to think, is thus modified to the extent that it resembles the exchange between people.

However, the fact that they are highly interactive does not mean that they are independent: imagin-actions are made for human beings by other human beings. It seems, then, that we can speak of imagin-actions precisely because human imagination in particular, understood as the exploration and fine-tuning of interpretive and agentic strategies in physical space, proves to be the most attentional process of all, such that it can later be appropriately learnt and directed.

If objects are an integral part of our thought processes, innovation in their application will inevitably result in different ways of thinking. The increasing pervasiveness of AR tools in numerous areas of human activity may lead to a significant change in the way we think and imagine. The high levels of interaction generated by imagin-actions will lead to consequences that have only just begun to be contemplated, with implications in various different fields, including medicine, industry, art, advertising and warfare.

# Spontaneity on Parole. Participation, Interactivity and Performative Spectatorship



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## Abstract

In recent years, participation and interactivity have become two key words in the vocabulary of art criticism. It is not by chance that both these models insist on a form of performative spectatorship, based essentially on three concepts: presentness, immediateness and unframedness. The challenge posed by this type of spectatorship concerns a fundamental concept for aesthetics (already with Kant's *Critique of the Power of Judgment*), and that is that of spontaneity. In fact, the creation of an "unframed" space and an immediate experience precisely at increasing the "spontaneity effect," fuelled by the active involvement of a spectator "immersed" physically (and emotionally) within an environment/work that is programmed to welcome and receive its intervention. Except that spontaneity is, by definition, something that cannot be achieved if sought intentionally. This is precisely the challenge posed by interactivity.

## Keywords

Interactivity

Spontaneity

Performative

Spectatorship

Participation Art

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## The performative spectatorship of Interactivity

“Collaboration is the answer [...] But what is the question?”<sup>1</sup> Hans Ulrich Obrist’s famous quote, also cited by Hal Foster in *Bad New Days*, perfectly sums up the orientation and main terms of the contemporary critical and artistic debate. “Collaboration” is indeed another way of saying “participation.” And “participation” has now become a key word in the vocabulary of art criticism, the term that better than others captures and describes one of the dominating trends in artistic production in the last few years. The interest in participation in the artistic sphere is not a very recent phenomenon. In this regard, Nicolas Bourriaud’s successful essay on *Relational Aesthetics* published in 1998 had framed and helped to launch a type of art oriented towards the production of encounters and relationships through which the meanings of “works” could be collectively constructed.<sup>2</sup> However, since those first seeds, the interest in participation quickly transformed first into widespread enthusiasm and then into a veritable obsession till it has contaminated spaces and institutions. Participatory are in fact the artistic practices, or at least many of the most relevant ones in the contemporary scenario. But so too are curatorship, museums – from which those same practices dreamed of escape –, art school Master’s degrees and the public programmes of state and private institutions of art and culture. “Participation,” in short, has become not just a

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1 H. Foster, *Bad New Days: Art, Criticism, Emergency* (London-New York: Verso, 2015): 150.

2 We cannot provide an account of the critical debate on the “social turn” of the contemporary arts and the differences between “relational art,” “participatory art,” “dialogic art” and “collaborative art” which, since the early 2000s, has involved, among others, Nicolas Bourriaud, Grant Kester, Claire Bishop, Hal Foster, Jacques Rancière and Stewart Martin. See at least G.H. Kester, *Conversation Pieces: Community and Communication in Modern Art* (Berkeley-Los Angeles-London: University of California Press, 2004); C., Bishop, “Antagonism and Relational Aesthetics,” *October* 110, Fall (2004): 51-79. See also A. D’Ammando, F. Natale, eds., “Estetica e partecipazione. Prospettive critiche su arte, politica e spettatorialità,” *Pólemos. Materiali di filosofia e critica sociale*, no. 2 (2021), in part. G.H. Kester, “Variations on a Theme: Consensus and Dissensus in Contemporary Participatory Art:” 19-32.

keyword but almost a watchword, from which the arts seem unable (and unwilling) to escape. The label “participatory art,” of course, designates an endless field of practices and projects that are often very different from each other, but all united by the desire to overturn the traditional relationship between work, artist and audience and to transform the concept of “spectatorship.” Participative practices, due to Bishop in *Artificial Hells* – the text that has so far provided the most effective and exhaustive account of the participatory phenomenon in contemporary arts –, aim “to place pressure on conventional modes of artistic production and consumption under capitalism,” by radically rethinking the roles and relationships between producers and users: the artist is seen no longer as an individual producer of objects but as “a collaborator and producer of *situations*; the work of art as a finite, portable, commodifiable product is reconceived as an ongoing or long-term *project* with an unclear beginning and end; while the audience, previously conceived as a ‘viewer’ or ‘beholder’ is now repositioned as a co-producer or *participant*.<sup>3</sup> Considering these peculiar aspects, the step from participation (and participatory practices) to interactivity (and interactive practices) seems short, especially considering the very close relationship between interactive performances and immersive virtual environments, which increasingly accompany and amplify their possibilities. As commonly understood, “interactivity” generally denotes a relational mode (with environments, images, and objects) that contrasts with a passive attitude, much like how immersivity contrasts with representational or symbolic models. Particularly in more intricate instances, attributable to new technologies and electronic interfaces, it entails a distinct type of engagement compared to the “interpretative cooperation” demanded of viewers by

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<sup>3</sup> C. Bishop, *Artificial Hells. Participatory Art and the Politics of Spectatorship* (London-New York: Verso, 2012): 2.

“traditional” texts and artworks. Therefore, no longer, or not only, an interpretation that “simply” integrates and actualises a text or a work – even if “open” and indeterminate – but an actually active and productive interaction, able to act on the environment and on the image (predisposed to respond to the input of the user-user) to the point of altering its nature and configuration.<sup>4</sup> It is, therefore, a mode of fruition and creation that, like the participatory mode, calls into question the classical oppositions (active/passive, author/spectator, production/reception), radically transforming the statute of spectatorship and of the “work” itself (assuming we can still speak of “work”). Up to this point, we are in the realm of similarities, more or less strong depending on the cases and levels. But, between participation and interactivity – or, rather, between so-called “participatory art” and interactive practices – there are also some important differences. Bishop herself marks some of these differences. The definition “participatory art” is preferred to other similar ones, says Bishop, because it directly refers to the involvement of many people “as opposed to the one-to-one relationship of ‘interactivity’”, which is based on the fundamental idea “in which people constitute the central artistic medium and material, in the manner of theatre and performance.”<sup>5</sup> In this perspective, the gap between participation and interactivity is linked to a political issue – the collective dimension and social impact of participatory projects, inspired, as Paolo Virno noted, by the post-Fordist network of social cooperation –<sup>6</sup> and to a technical issue – concerning the medium of participatory art, which is people. Not by chance, in the history traced by Bishop there are almost no references

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4 For a detailed and philosophically grounded analysis of the nature of interactivity, see P. Montani *Bioestetica. Senso comune, tecnica e arte nell'età della globalizzazione* (Carocci: Rome, 2007) and *Tecnologie della sensibilità. Estetica e immaginazione interattiva* (Milan: Cortina, 2014).

5 C. Bishop, *Artificial Hells*: 1-2.

6 See A. Penzin, “The Soviets of the Multitude: On Collectivity and Collective Work: an Interview with Paolo Virno,” *Mediations*, no. 1 (2010): 81-92, 89.

to the relationship between arts and digital technologies (and images), and thus to the entire universe of interactive and immersive practices. From a certain point of view, this comes as no surprise, if it is true, as Bishop does not fail to point out, that the main theoretical reference point for many participatory artists is Guy Debord, the leader of the 20th century “iconophobic” intellectuals. Even Foster, in the already mentioned *Bad New Days*, not only leaves out “digital” from the terms chosen to try to delineate a map of the most representative trends and strategies within the broad and heterogeneous scenario of contemporary arts (the five terms selected, which denote the arts’ interest in confronting reality and history, are “abject,” “archival,” “mimetic,” “precarious” and “post-critical?”), but in the last chapter, discussing the contemporary obsession with user activation and participation, he does not refer to interactivity and immersivity at all.

Yet, it is precisely the last chapter of Foster’s book – dedicated to the concept of “presence” and its increasingly marked relevance in contemporary arts – that can help to better understand the paradoxical closeness between participation and interactivity. The “presence” Foster speaks of is characterized by an uncertain status, oscillating between the immediate relationship with reality, the impression of “presence” characteristic of a hyper-media era – with specific reference to the *reenactment* of performances from the Sixties and Seventies, which introduces a suspended and unreal temporality into museums – and the ability to map different orders of experience and temporality. However, I am not interested in commenting on this analysis, which deserves to be discussed seriously and in-depth. What matters most is that this “presence” directly refers to the performative register. And it is precisely “performative” and “presence” the two concepts around which the intertwining of similarities and differences characterizing

the relationship between participation and interactivity in contemporary arts seems to gather. “Performative” is, indeed, the model of spectatorship emphasized by both participatory and interactive practices (especially considering the possibilities offered by the development of virtual and immersive environments): a model founded, precisely, on the power of the effect of presence or “presencing,” which openly opposes the “classic” paradigm of representation (the “image-of” something, to which the theory of mimesis refers).

In both cases, presentness is associated with the “unframedness” which refers to the suppression of the boundary that separates and distinguishes between the space of representation and the space of reality (“actual” or “simulated”), capable of fostering the immediacy of the experience – which seems, or aims to seem, precisely “real,” unmediated – and the intervention of the spectator-actor-coauthor involved in this experience. It is evident how it is precisely the (ideal) removal of the “frame” that proves decisive. By eliminating, or at least weakening, the boundary between the “work” or image and reality, the spatial-temporal continuity that is established facilitates the emergence of a profound sense of presence. This includes the emotional engagement of the spectator. Certainly, the “unframedness” is never total and effective because the user, however willing to surrender to immersion and a more or less strong sense of presence, is always aware of being within a fictional environment (and thus a frame). This is one of the most discussed points in the critical and philosophical debate on the new forms of performative spectatorship. However, without delving into this debate – which revolves around, among other things, the role (and tyranny)<sup>7</sup> of emotions and a “reflective consciousness” in the aesthetic experience – the appeal to the feeling of presence, emotions, and (also

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7 See P. D’Angelo, *La tirannia delle emozioni* (Bologna: il Mulino, 2020).

physical) involvement of the spectator remains a trait that unites interactive and participatory practices. In this sense, while for the former, one of the (many) possible paradigms is represented by “immersence,” the neologism coined by Char Davies – which combines, as evident, the concepts of immersion and presence – to describe the experience offered to the user by her pioneering works of immersive and interactive virtual reality, for the latter, an indication that helps understand their nature – and the reference models – still comes from Bishop’s text on participatory art, which in the title, *Artificial Hells*, explicitly picks up André Breton’s account of the Grande Saison Dada of 1921 because it “appeals to bolder, affective, and troubling forms of participatory art and criticism.”<sup>8</sup>

Naturally, it could be argued that such a parallel overlooks the difference between the physical presence inherent in participatory practices – directly linked to performativity through the idea of the body as a medium – and the “effect of presence” in virtual reality. Erika Fischer-Lichte, for instance, in her now “classic” text on the aesthetics of performativity, draws a clear distinction between the radical presence of an “energetic body” as an “embodied mind” (explicitly referencing the paradigm of enactivism), capable of producing an energy perceived by the spectator immersed in it, and the “*impression of presentness*” of technological and electronic media products, which do not “bring forth these bodies or objects as present.”<sup>9</sup> In fact, Fischer-Lichte argues that the emphasis on corporeality (“the corporeal being-in-the-world of the actor/performer”) in theatre, action art, and performance art from the 1960s onward should be seen as a reaction to increasing mediatisation and the “resulting fantasies of the virtual body,”

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8 C. Bishop, *Artificial Hells*: 6-7.

9 E. Fischer-Lichte, *The Transformative Power of Performance: A New Aesthetics* (London-New York: Routledge, 2008): 98-100.

“the technologically reproducible astral body.”<sup>10</sup> From this perspective, which draws on Eugenio Barba’s studies of Indian and Eastern theatre, the gap seems unbridgeable. However, things are different, at least when considering more recent virtual technologies (which Fischer-Lichte does not seem to address). As Diane Gromala and Yacov Sharir, along with Marcos Novak, anticipated in their 1994 work *Dancing with the Virtual Dervish: Virtual Bodies*, an artwork that “challenges the presumed disembodied and immaterial nature of VR,”<sup>11</sup> the body is indeed the starting point and the primary medium through which virtual environments are experienced, even when corporeality is denied, displaced, manipulated, or “sabotaged” in its sensory automatisms (as in Alejandro González Iñárritu’s *Carne y Arena: Virtually Present, Physically Invisible*). The presence in these contexts is a material and sensomotor presence, tied to the ability to respond to the affordances provided by an environment capable of reacting to user input (following a principle very similar to the “self-referential feedback loop” that Fischer-Lichte sees as characteristic of the never fully predetermined relationship between actors and spectators in performativity).

Unframedness, immediateness, and presentness. These are the fundamental properties of virtual images in the study of digital virtual environments – properties that render them “anti-icons,” or “images that, paradoxically, strive to negate themselves and their status as images to present themselves to us as if they were the reality they represent.”<sup>12</sup> These properties create the conditions for performative spectatorship, uniting participatory and interactive practices. We can thus revisit Obrist’s quip mentioned

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10 Ibid.: 92-93.

11 E. Modena, *Immersioni. La realtà virtuale nelle mani degli artisti* (Milan: Johan & Levi, 2023): 29, my translation.

12 A. Pinotti, *Alla soglia dell’immagine. Da Narciso alla realtà virtuale* (Turin: Einaudi, 2021): XV, my translation.

earlier, modifying its terms only slightly: Performative spectatorship is the answer. But what is the question? Why are presentness and interactivity, along with participation, so sought after and prevalent in the contemporary art scene?

## **Exemplarity and arts' sociality: the challenge of spontaneous spectatorship**

The question presented can be answered in several ways. One might invoke the (often overused) metaphor of the mirror: contemporary arts, with their focus on participation, interactivity, and performative spectatorship, reflect the general mobilization – performative and interactive in nature, based on the active engagement of the consumer and citizen – that permeates and shapes contemporary life at various levels. Alternatively, from an opposing yet complementary perspective, it could be argued – as Foster partially does – that participation, interactivity, and performative spectatorship in artistic practices aim to fill a gap in the social and political sphere, attempting to promote a collective spirit and a more open and inclusive society.<sup>13</sup> On one hand, an alignment with the dominant economic and social model; on the other, an attempt to oppose that model. In both cases, however, the mantra seems to be the same: we have no option but to engage in participation, interaction, and performance. There is also a third possible answer, which starts from recognizing the exemplary status of art (understood in the modern aesthetic sense) and its vocation to encompass and reorganize the meaning of our experience and the way we organize it.

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13 “Perhaps discursivity and sociability are in the foreground of art today because they are scarce elsewhere. [...] Even an art audience cannot be taken for granted but must be conjured up every time, which might be why contemporary exhibitions often feel like remedial work in socialization: come and play, talk, learn with me. If participation appears threatened in other spheres, its privileging in art might be compensatory – a pale, part-time substitute.” H. Foster, “Chat Rooms,” in C. Bishop, ed., *Participation* (London-Cambridge MA: Whitechapel-MIT Press, 2006): 190-195, 194.

From this perspective – as, for instance, Alva Noë suggests – the interest of contemporary artistic practices in participation, interactivity, and performative spectatorship can be attributed precisely to this exemplarity (both reflective and operative), and thus to the role of art as a reorganizing practice capable of revealing and bringing to light (putting “on display”)<sup>14</sup> our relationship with the world and with an increasingly technologically infused environment. Perhaps this is the most promising path to attempt to answer the question we started with. However, this approach requires not bypassing the complexity and critical aspects associated with such a perspective, but rather delving into its problematic areas.

Indeed, it is true that, at least since the eighteenth century (when both the modern system of fine arts and modern aesthetic reflection, initiated by Kant’s *Critique of the Power of Judgment*, emerged), aesthetics has recognized in art an exemplary referent, capable of concretely exhibiting the conditions of meaning in our perception and operation in the world, as well as our discourse about the world.<sup>15</sup> It is also true, however, that this philosophically “grounded” exemplarity, though contingent – nothing guarantees that this connection between aesthetics and the arts must continue – has been questioned throughout the twentieth century from various quarters, including the arts themselves. The arts have progressively exacerbated elements of risk and contingency (beginning with the early avant-garde movements) or have simply been absorbed into the artistic and cultural entertainment market. Equally true

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14 “Works of art put our making practices and our tendency to rely on what we make, and so also our practices of thinking and talking and making pictures, on display. Art puts us on display. Art unveils us to ourselves.” A. Noë, *Strange Tools* (New York: Hill and Wang, 2015): 124. In this regard, it is interesting to note the proximity between Noë’s philosophical perspective and Emilio Garroni’s (Kantian) one, highlighted by S. Velotti, *The Conundrum of Control: Making Sense through Artistic Practices* (Leiden-Boston: Brill, 2024), in particular: 38-45.

15 For this view of the relationship between aesthetic reflection and art (in the modern aesthetic sense), reference is made to E. Garroni, *Estetica. Uno sguardo-attraverso* (1992) (Rome: Castelvecchi, 2020), in particular: 43-111.

is that this crisis of art's exemplarity has been accompanied by a crisis in art's "sociality," its circulation and social and cultural impact. Considering this situation – assuming our hypothesis is plausible – the interest of contemporary artistic practices in performative spectatorship seems to be an attempt to reclaim that exemplarity and cultural relevance by pushing their boundaries towards greater spontaneity. The challenge posed by performative spectatorship is precisely this: to ideally eliminate the gap between representation and reality to open a space of spontaneity capable of embracing and "valorising" the contingency and indeterminacy inherent in the relationship between an active viewer and a work/image/environment willing to accept their intervention.

It is no coincidence, then, that artistic practices appeal to spontaneity in an attempt to reclaim their exemplarity and social relevance in crisis. "Spontaneity," in fact, is a fundamental concept in aesthetics that allows us to grasp the peculiar characteristics of aesthetic experience and the "exemplary" nature attributed to the arts by aesthetic reflection since the eighteenth century. In the *Critique of the Power of Judgment*, Kant identifies the first formal requirement of the judgment of taste – which concerns its principle of determination (*Bestimmungsgrund*), and not the actual judgments –<sup>16</sup> as its connection to a type of pleasure different from the pleasure of the "agreeable" and the "good," both of which are determined by some interest in the object (utilitarian or moral). The pleasure of the beautiful is a pleasure that does not refer to any practical involvement or a determinate concept (or purpose) but is a free and disinterested pleasure. However, this freedom does not coincide with the freedom of individual will, that is, the freedom to choose something, but is a freedom from inclinations,

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16 On this crucial issue of Kantian aesthetic reflection, see E. Garroni, *Kant and the Bestimmungsgrund/’Principle of Determination’ of the Aesthetic Judgement* (1989), trans. H. Hohenegger, S. Velotti, in G. Schlüter, H. Hohenegger, eds., *Kants Schriften in Übersetzungen* (Hamburg: Felix Meiner Verlag, 2020): 491-502.

intentions, and determinate purposes, a freedom that is not at our disposal and that happens: it is a freedom understood, precisely, as spontaneity. This is the characteristic dimension of an aesthetic experience, linked to the encounter with something contingent (a representation, an event, an image, a “work”) that appears as purposive or final for our faculties, and that makes us “feel” the possibility of making sense of our experience and our relationship with a world that “comes to meet us.” This peculiar freedom of the judgment of taste and of aesthetic experience corresponds, on the other hand, to the spontaneous and unprogrammable nature of artistic production. Just as it is not possible to intentionally achieve an aesthetic experience – it is not possible to deliberately choose to access a dimension (and a freedom) that happens, to feel spontaneously that things “work” – it is equally impossible to aim at producing directly and deliberately something (an artwork, for example) that should elicit that same feeling. Following Kant further, if the pleasure of the beautiful is without concept, then the production of “beautiful” works cannot be based on determinate rules and concepts. Indeed, Kant claims in §45 (titled “Beautiful art is an art to the extent that it seems at the same time to be nature”) that “the purposiveness in the product of beautiful art, although it is certainly intentional, must nevertheless not seem intentional; i.e., beautiful art must be regarded as nature, although of course one is aware of it as art”:<sup>17</sup> that is, beautiful art is only such if it is judged as spontaneity, and not based on some purpose or concept (a rule) as a criterion of judgment. Of course, the artist/producer starts with an intention to produce something, and thus from a concept as the purpose of the product. But it is not that concept or intention that makes the artwork “beautiful.” Simply intending to produce an artwork is not

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<sup>17</sup> I. Kant, *Critique of the Power of Judgment* (1790), trans. P. Guyer, E. Matthews (Cambridge-New York: Cambridge University Press, 2000), 5: 316-317.

sufficient to create it. What is necessary is what Kant himself identifies with the notion of “genius,” understood as a particular relationship between the faculties – understanding and imagination, on which the production of aesthetic ideas depends –<sup>18</sup> that is not intentional and has to do with what the subject is (“the nature of the subject”), rather than with what the subject can do intentionally. The “genius” is a talent of imagination that “displays itself not so much in the execution of the proposed end in the presentation of a determinate concept as in the exposition or the expression of aesthetic ideas, which contain rich material for that aim.” And the even more significant point is “that the unsought and unintentional subjective purposiveness in the free correspondence of the imagination to the lawfulness of the understanding presupposes a proportion and disposition of this faculty that cannot be produced by any following of rules, whether of science or of mechanical imitation, but that only the nature of the subject can produce.”<sup>19</sup> In short, the aesthetic dimension is inherently marked by the dialectical tension between spontaneity and control, between indeterminacy and rules (to follow and to discover).<sup>20</sup> This very tension is what performative spectatorship appeals to, which is connected to the interactive (and participatory) turn of recent years. In this context, immediateness, presence, and unframedness aim to enhance the “effect of spontaneity,” fuelled by the active involvement of a spectator who is physically (and emotionally) “immersed” in an

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18 An aesthetic idea, Kant writes, is “that representation of the imagination that occasion much thinking though without it being possible for any determinate thought, i.e., concept, to be adequate to it, which, consequently, no language fully attains or can make intelligible.” Ibid., 5: 314

19 Ibid., 5: 317-318

20 On the relevance of the notions of “spontaneity” and “uncontrollability” in aesthetic experience as analyzed in the *Critique of the Power of Judgment*, see S. Velotti, *The Conundrum of Control: Making Sense through Artistic Practices*, in particular: 30-45.

environment/artwork designed to welcome and respond to their engagement.

The risks inherent in such a model are evident. On one hand, there is the danger that the “work” might lose its normative status (its ability to guide the relationship with it through that interplay of rules and indeterminate openings of meaning) and turn into a mere “game” – a free game, “too free,” very different from Kant’s free play – resulting in a “playful spontaneity” that is more or less “fun” and engaging but unable to foster a re-understanding and reorganization of our experience (even that which is technologically mediated and integrated). On the other hand, the very nature of the concept of spontaneity itself creates problems. How is it possible to achieve something that, by definition, eludes when sought? Is it enough to “enrich” the space of the image-environment with the intrusion of an active participant’s presence to increase the degree of spontaneity? Or isn’t it true that perhaps, that spontaneity – as a space of “meaningful” understanding and interaction – is something that “happens,” and that does not necessarily coincide with greater freedom of action and production (including collective and participatory)?

## **An interactive spontaneity**

In her book on participatory art, Bishop dedicates one of the final chapters to the so-called “delegated performance,” which replaces the live presence and immediacy of the artist’s body with the engagement of non-professional performers or specialists from other sectors who act on behalf of the artist, following their instructions. To describe the nature of these performances, Bishop speaks of “outsourced authenticity.” It is clear how such an expression closely relates to our discussion. The word “authenticity” can indeed be easily replaced with “spontaneity.” In

delegated performances – consider Tino Sehgal’s famous “situations” or Dora García’s performances – the spontaneity of the performative is reflectively suspended, staged in a mediated manner, almost explicitly emphasizing its “orchestrated” and “programmed” nature through the more or less meticulous instructions provided by the artist to the performers. In recent years, another significant example (among many possible ones) has been provided by the performance *Sun & Sea (Marina)* by the Neon Realism collective. At the 2019 Venice Biennale, within the spaces of the Italian Navy, they set up a beach crowded with performer-bathers, who sang (about their stories, their problems, and more) while spending an ordinary day at the beach. Beyond the various aspects of the work and the multiple levels of interpretation that can be invoked, the interesting thing is that this performance asks the performers to behave as if they were normally at the beach, thus simulating a consciously represented spontaneity (which is simultaneously broken by the singing of the performers).

Indeed, it may be along this path – a spontaneity that distances itself from itself and systematically reduces the illusion of presence, immediacy, and “frame-breaking” – that interactive artistic practices (and thus performative spectatorship) can find a more production, at least in an aesthetic sense. From this perspective, it’s not just about “declaring” and showcasing the medium, but critically engaging with the mechanisms that govern the creation and consumption of interactive (and immersive) spaces. The aim is to reveal their potential to genuinely enhance our abilities to interact and relate (with the world, with others, with the technical prostheses that shape our perception), without reducing it to a “hypermedia play.” It seems that only in this way it is possible to escape the risk that interactive and immersive practice might stop at the simple reduplication of the existent (of the technological capabilities, although

increased) and ordinary experience (now mediated without much residue by technologies). In short, not just spectacular “machines” for empathy or immediate, unreflective emotional engagement, but above all, “machines” for reflecting on how we meaningfully organize our experience, even the most technologically integrated and mediated. This, in effect, is the experience of our contemporary environment-world.

# Come On In: Virtual Reality Beyond the Headset

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## Abstract

In this paper I consider embodiment, spectatorship, and virtuality as they relate to aesthetic experience and how they can be understood through the interactive installation, *Come On In* (2020) by dancer, choreographer, and director Faye Driscoll. I argue that virtual reality need not include the use of VR technologies such as headsets, but rather that it is a mode of experience that blurs the boundary between fact and fiction through what Vittorio Gallese calls “embodied simulation.” In Driscoll’s installation, the visitor’s body is used to channel and enact the performance as they are seated or reclined while listening to a kind of guided meditation through headphones. The reclined body then, does not have to be viewed as passive, but rather as facilitating an embodied experience, a claim that is supported by Jacques Rancière’s theory of *the emancipated spectator*. Further, I look at vulnerability as a condition of cognition (made literal in the reclined body) through David Bates’s historical analysis of the evolution of artificial intelligence, linking the plasticity of cognition with the conception of embodied simulation and immersive experience, to point to the liberatory potential of art.

## Keywords

[Spectatorship](#)

[Embodied simulation](#)

[Neuroplasticity](#)

[Virtual Reality](#)

[Interactive Art](#)

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## Introduction

The participatory installation, *Come On In* (2020) by dancer, choreographer, and director Faye Driscoll operates in the realm of embodiment, spectatorship, and virtuality, raising important questions around aesthetic experience in relation to virtual reality. Though *Come On In* is not presented as virtual reality art, it conflates performer and audience in its mode of individual yet communal experience that relies heavily on our capacity to imagine and engage with others through our own experience. Like Grant Tavinor,<sup>1</sup> I argue that virtual reality need not include the use of VR technologies such as headsets, but rather that it is a mode of experience that blurs the boundary between fact and fiction through what Vittorio Gallese calls “embodied simulation” – an active relationship between the body and its milieu that does not necessarily entail physical movement. Going further and decoupling perceptual experience from a “sense of reality,” I draw on the work of Jérôme Dokic and Jean-Rémy Martin who show that experiencing spatio-sensory contents is not necessarily accompanied by a sense of reality, or conversely, that the sense of reality is not constitutive of perception.<sup>2</sup> They argue instead for the sense of reality as a meta-cognitive process which applied to virtual reality technology means that immersion is more dependent on refresh rate or smoothness of movement than highly detailed and realistic environments. In the case of Driscoll’s installation, we can understand the recorded speech that visitors listen to through headphones while seated or reclined on platformed mattresses as an instance of virtual reality which relies on embodied simulation. Switching seamlessly between conjuring visceral

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<sup>1</sup> G. Tavinor, *The Aesthetics of Virtual Reality* (New York: Routledge, Taylor & Francis Group, 2022).

<sup>2</sup> J. Dokic, J-R. Martin, “Felt Reality and the Opacity of Perception,” *Topoi* 36, no. 2 (2015): 299-309, <https://doi.org/10.1007/s11245-015-9327-2>.

images, guiding the visitor through feeling their own body, and speaking poetic phrases, Driscoll takes you on an intimate journey, as her voice in your ear goes under your skin, into your guts. The visitor's body is thus used to channel and enact the performance as they lay supine. This brings up an interesting parallel to Gallese's claim that the inert body is more prone to immersion. It does not then have to be viewed as passive, but rather as facilitating an embodied experience, a claim that seems to be reflected in Jacques Rancière's theory of the emancipated spectator. Gallese can thus be seen to provide neuroscientific support for Rancière's argument of the spectator as always already active, enacted in Driscoll's *Come On In* and maintained in her own discussion of the work. Further, the position of the reclined or inactive body resurfaces throughout this inquiry, prompting a look at vulnerability as a condition of cognition (made literal in the reclined or seated, relaxed body) through David Bates's historical analysis of the evolution of artificial intelligence, thus linking the plasticity of cognition with the conception of embodied simulation and immersive experience. In this paper, I am not interested in artificial intelligence *per se*, but what assumptions the work in that field has uncovered about cognition and human experience, subsequently revealing the fundamental conditions for cognition, which are relevant to my inquiry. Finally, in following Janet Murray's call to bring the techno-utopian virtual reality discourse back to earth,<sup>3</sup> I hope to reconceptualize virtual reality with the body in mind. By expanding the definition of VR, we may de-fetishize it and recover its potential for art. Following Gallese's theory of embodied simulation and the anthropology of Alfred Gell, I propose that agency is mediated by the artwork which becomes a fulcrum of liberation within a network of social relations. Perhaps what

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<sup>3</sup> J.H. Murray, "Virtual/Reality: How to Tell the Difference," *Journal of Visual Culture* 19, no. 1 (2020): 11-27, <https://doi.org/10.1177/1470412920906253>.

will liberate us is not VR technology but art in its capacity to reflect ourselves and our culture back to us.

## **Embodied Simulation in Faye Driscoll's *Come On In***

I begin where Bates ends his genealogy of artificial intelligence:

Our digital brains – brains modeled on and simulated by computers and increasingly formed by repeated interactions with our digital prostheses – will reveal their genuine plasticity only when they rediscover the power of interrupting their own automaticity.<sup>4</sup>

Encounters with art offer us the opportunity to interrupt our own automaticity by taking us out of the flow of everyday life and presenting the world anew. I use Faye Driscoll's installation *Come On In* as an example of this kind of generative interruption and a case study for an expanded definition of virtual reality art. *Come On In* was her first solo museum exhibition, designed in collaboration with Nick Vaughan and Jake Margolin. It is a coda to her trilogy of performance work for the stage, *Thank You For Coming* (2014-2019), and makes use of ideas and phrases from the whole trilogy, recombining material and channeling the performance through the visitor's body via prerecorded audio tracks of the artist's voice. The space of the exhibition is designed as a sanctuary, with dimmed, pulsating ambient light and sound. The room is carpeted, and contains multiple platformed mattresses, each with a pair of headphones where visitors are invited to listen to the audio recordings, collectively titled *Guided Choreography for the Living and the Dead* – a play on the practice of guided meditation. The

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<sup>4</sup> D. Bates, "Automaticity, Plasticity, and the Deviant Origins of Artificial Intelligence," in D. Bates, N. Bassiri, eds., *Plasticity and Pathology: On the Formation of the Neural Subject* (New York: Fordham University Press, 2015): 194-218.

work was commissioned and presented at the Walker Art Center right before the Covid-19 pandemic hit the United States in 2020 and forced the exhibition to close to the public. Because of this, they developed part of it into an online experience which has allowed me to access and experience one of Driscoll's audio recordings for myself, prompting me to consider the nature of this experience of remote choreography where the performance is enacted in and through my own body.<sup>5</sup> A short excerpt from the spoken words reads as follows:

And now squeeze your muscles around your bones and hold, squeeze, hold. And as you release, you expand into your vulnerability and up out your eyeballs, through your pride, and you soften the muscularity around your concern for what you look like right now. And you feel deep up into your pelvic floor all the way up, up, up to your lungs and your grief, and you let it fall, fall, fall down through the floors of this building, past the white paint and the wall texts, and you fall, fall, fall into someone walking in the gallery downstairs, looking at art. And you feel your face flush with their embarrassment as they stumble and stutter and feel like they just don't understand it.<sup>6</sup>

Driscoll is here weaving together the inner world of her audience, their bodies and feelings, with an external reality, dream logic, and the representation of the emotions of others. She conjures a virtual world that is not limited to the body of the participant but is anchored there. Her installation is strikingly resonant with Vittorio Gallese's theory of embodied simulation, which proposes that observing others, we take on their actions and movements in our own body through motor representation of the same action. It is

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5 “Come On In,” Walker Art Center, [www.walkerart.org/magazine/faye-driscoll-come-on-in-online](http://www.walkerart.org/magazine/faye-driscoll-come-on-in-online), accessed February 1, 2022.

6 F. Driscoll, transcript of “Come On In” online experience, <https://dialogues.page.link/come-on-in-transcript>, accessed November 10, 2024.

“a non-conscious, pre-reflective functional mechanism of the brain-body system, whose function is to model objects, agents and events.”<sup>7</sup> When we see an action performed or hear an action represented through speech as with Driscoll’s words, the same areas of the brain are activated as when we perform the action ourselves. This is facilitated by what are called “mirror neurons,” a discovery made by Giacomo Rizzolatti’s team of which Gallese was a part, and which has led to a number of contested neuroscientific claims that continue to be debated.<sup>8</sup> In addition to the actions of others, embodied simulation is also triggered by our surroundings and objects therewithin: our peripersonal space, or space of potential action, which is further affected by our “personal and social identity, the context, our mood and disposition,” our memories and past experiences.<sup>9</sup>

While remaining skeptical about the naming of mirror neurons, Brian Massumi makes a similar claim with regard to the fundamental role of what he calls the “virtual body” for perceptual experience. Massumi discusses the special case of mirror-touch synesthesia (where touch on another’s body is felt on one’s own) not as a mistake but as a reminder of the primordial human state of multiplicity of perception in infancy before individuation and separation into discrete sense modalities, revealing relation to be primary in our experience. “To say that mirror-touch has to do with spatial confusion is to be confused about the fact that the physiological body is the tip of the iceberg of the virtual

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7 V. Gallese, “Visions of the Body. Embodied Simulation and Aesthetic Experience,” *Aisthesis* 10, no. 1 (2017): 41-50, 44, <https://doi.org/10.13128/Aisthesis-20902>.

8 See: V. Gallese et al., “Mirror Neuron Forum,” *Perspectives on Psychological Science* 6, no. 4 (2011): 369-407, <https://doi.org/10.1177/1745691611413392>; C. Heyes, C. Catmur, “What Happened to Mirror Neurons?,” *Perspectives on Psychological Science* 17, no. 1 (2022): 153-168, <https://doi.org/10.1177/1745691621990638>; JM. Taylor, “Mirror Neurons After a Quarter Century: New light, new cracks,” Harvard University blog, <https://sitn.hms.harvard.edu/flash/2016/mirror-neurons-quarter-century-new-light-new-cracks/>, accessed July 15, 2024.

9 V. Gallese, “Visions of the Body. Embodied Simulation and Aesthetic Experience,” *Aisthesis* 10, no. 1 (2017): 41-50, 46, <https://doi.org/10.13128/Aisthesis-20902>.

body.”<sup>10</sup> This is an anti-mechanistic view of embodiment that lines up with Gallese’s concept of embodied simulation. What we see when we look at something is not simply a recording of what stands in front of us, “but the result of a complex construction whose outcome is the result of the fundamental contribution of our body with its motor potentialities, our senses and emotions, our imagination and our memories.”<sup>11</sup> The intercorporeality that embodied simulation thus produces brings into question the distinction between fact and fiction, or real and virtual, since the same brain circuits are activated in our embodied responses in both cases. Elsewhere, Gallese has written about embodied simulation in relation to aesthetic experience in the arts, specifically when considering imagination: “When we imagine a visual scene, we activate the same cortical visual areas normally active when we do perceive the same visual scene.”<sup>12</sup> Therefore, since the difference between real and imaginary is not straightforward, we might question what really constitutes virtual reality.

## **Virtual Reality and Felt Reality**

Following Grant Tavinor’s definition of virtual reality as “the remediation of the perceptual world,”<sup>13</sup> and not necessarily computational or fictional, I suggest that Faye Driscoll’s *Come On In* is a virtual reality experience. Tavinor further describes VR as “egocentric picturing”<sup>14</sup> and virtuality as a familiar thing taking a novel or “non-customary”

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10 B. Massumi, “Art of the Relational Body,” in D. Martin, ed., *Mirror-Touch Synesthesia: Thresholds of Empathy with Art* (Oxford: Oxford University Press, 2018): 191-205, 202.

11 V. Gallese, “Visions of the Body. Embodied Simulation and Aesthetic Experience:” 48.

12 V. Gallese, “Embodied Simulation. Its Bearing on Aesthetic Experience and the Dialogue Between Neuroscience and the Humanities,” *Gestalt Theory* 41, no. 2 (2019): 113-127, 116, <https://doi.org/10.2478/gth-2019-0013>.

13 G. Tavinor, “The Aesthetics of Virtual Reality (Routledge, 2022),” interview by Pierre d’Alancaisez, New Books in Art, New Books Network (NBN), January 28, 2022, 53:00, <https://newbooksnetwork.com/the-aesthetics-of-virtual-reality>, accessed July 15, 2024.

14 G. Tavinor, *The Aesthetics of Virtual Reality*: 59.

form while retaining the functionality of the original.<sup>15</sup> He also addresses the erroneous conflation of virtual with computational, explaining this as a natural tendency given that computers are essentially remediation machines, yet showing that we cannot limit virtuality to computation.<sup>16</sup> This allows me to point to the continuity between different aesthetic expressions of virtual reality that have the effect of perceptual immersion through embodied simulation in order to think beyond current and existing technology, which no doubt has its own media specificity, yet exists on a continuum of experience we might describe as virtual reality and which engages our sense of reality. By separating virtuality and computation, we might also deflate the hype around VR that often obscures analysis of virtual reality experiences. In describing the reality of VR technology and its material constraints, Janet Murray shows how an “attitude of omnipotent representational powers leading to a replacement of the real world with the virtual world has led non-scientists to overestimate the present and future of VR experiences.”<sup>17</sup> By contrast, N. Katherine Hayles has argued that virtual reality art is uniquely situated to impress upon those who experience it that bodies and the world exist in relation by making that relation explicit via artificial means.<sup>18</sup> The experience of virtual reality is a real experience, whether the world of that experience is virtual or real. Body and embodiment are understood by Hayles in relational terms, not as preexisting entities but as emerging out of reciprocal action between the individual mindbody and the worlds it inhabits.<sup>19</sup> Similarly, *Come On In* makes explicit the relationality with oneself and between internal feelings and external

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15 Ibid.: 26.

16 Ibid.: 22.

17 J.H. Murray, “Virtual/Reality:” 14.

18 N.K. Hayles, “Flesh and Metal: Reconfiguring the Mindbody in Virtual Environments.” *Configurations* 10, no. 2 (Spring 2002): 297-320, <https://doi.org/10.1353/con.2003.0015>.

19 Ibid.: 298-299, 304.

qualities, blurring the distinction between them. Where does one begin and the other end?

In their research on felt reality and the opacity of perception, Jérôme Dokic and Jean-Rémy Martin effectively decouple what they refer to as the “sense of reality” (the sense that the object of a perceptual experience is real) from perceptual experience itself. In other words, they claim that the experience of spatio-sensory contents is not necessarily accompanied by a sense of reality, or conversely, that “the sense of reality is not constitutive of perception, and can even be generated in the absence of any perceptual experience.”<sup>20</sup> They look at several scenarios, including virtual reality, to probe this relation between felt reality and perceptual experience, and have found that the sense of reality is not affected by the resolution or level of detail in the rendered virtual environment, whereas the refresh rate does have an impact. An example of this can be found in Jordan Wolfson’s *Real Violence* (2017) as described by Grant Bollmer and Katherine Guinness who point out that although it appears very realistic, the virtual reality video is actually quite low resolution but has a high refresh rate.<sup>21</sup> In Wolfson’s piece that depicts a brutal beating, the low resolution conceals the fact that the victim is a mannequin and not a real person. This validates Dokic and Martin’s finding that smoothness of motion is more important than visual detail for the sense of reality. They conclude in their article that the sense of reality is a metacognitive feeling – a kind of self-reflexive capacity – based on various reality-monitoring processes, essentially sensing how much strain cognition is under and thus being able to infer whether something is real (takes less brainpower to perceive) or illusory (requires more work). They give the example of observing an

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20 J. Dokic, J-R. Martin, “Felt Reality:” 307-308.

21 G. Bollmer, K. Guinness, “Empathy and nausea: virtual reality and Jordan Wolfson’s *Real Violence*,” *Journal of Visual Culture* 19, no. 1 (2020): 28-46, 30, 43 (note 3), <https://doi.org/10.1177/1470412920906261>

elephant, which “is simply ‘processed’ while in imagination it is produced and the production part adds a supplementary ‘difficulty’ for the system.”<sup>22</sup> Sensorimotor interactions are implicated in that they can heighten the sense of reality but because we are so sensitive to sensorimotor fidelity, this is also where it can fail if the interaction isn’t true to life. However, we can learn to see through the mediation of virtual reality to perceive primarily the objects or events referenced. This goes counter to Murray’s claim that we are *always* aware of a VR experience as such, instead suggesting that we might at times forget that the experience is not taking place in actuality. After training with a device that mediates the relation and achieving fluency with it, “reality-monitoring processes are ‘fooled’ and tag the objects at the source of proximal sensory events as having actuality.”<sup>23</sup> This works similarly to learning to drive, walk with a cane, or become accustomed to a prosthetic limb.<sup>24</sup>

Immersion and the sense of reality thus go hand-in-hand with agency or what we might call the sense of agency even when we do not have the possibility to act and change the course of events. Since virtual reality is a remediation of perceptual experience it should therefore also be a remediation of agency, which prompts a consideration of agency in art experience more broadly. Alfred Gell’s anthropological theory of art posits the artwork as a nexus of social relations, leaving the question of what an artwork can be, open, and introducing agency into the equation.

But in fact anything whatsoever could, conceivably, be an art object from the anthropological point of view, including living persons, because the anthropological theory of art (which we can roughly

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22 J. Dokic, J-R. Martin, “Felt Reality:” 304.

23 Ibid.: 305.

24 See Michael Polanyi’s discussion of tacit knowing in M. Polanyi, *The Tacit Dimension* (Garden City NY: Doubleday, 1967), and M. Polanyi, *Personal Knowledge: Towards a Post-Critical Philosophy* (1958) (Chicago: The University of Chicago Press, 2015).

define as 'social relations in the vicinity of objects mediating social agency') merges seamlessly with the social anthropology of persons and their bodies.<sup>25</sup>

This kind of cross-media conceptualization is useful for my purposes in considering how virtual reality might span both the use of headsets and other types of tools, technologies, and scenarios. For Gell, agency is transmitted from the artist through the artwork and replicated by it, finding its recipient in the perceiver of the artwork (which Gell refers to as the index), who may then identify with the agency expressed in it and feel it as their own; "the other's agency is not just suffered via the index; it is also thereby perpetuated and reproduced."<sup>26</sup> This bears a striking resemblance to how embodied simulation works, and how Gallese describes the action of the artist taken up by the viewer:

Beholders' eyes catch not only provides [sic] information about the shape, direction and texture of the cuts or strokes but by means of embodied simulation, they breach into the actual motor expression of the artist when creating the artwork.<sup>27</sup>

The direction of the agency of the artist expressed in the work of art is thus mirrored in the beholder. As Gell writes, "An agent is the source, the origin, of causal events, independently of the state of the physical universe."<sup>28</sup> In Driscoll's piece I feel myself as the source or origin of action, just as I might in a virtual reality environment wearing a headset. Even in the at-home experience of *Come On In* I feel that I am actively participating; that I am doing something, even as I remain seated in my chair. I am, in fact,

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25 A. Gell, *Art and Agency: An Anthropological Theory* (Oxford: Clarendon Press, 1998): 7.

26 Ibid.: 227.

27 V. Gallese, "Embodied Simulation Theory: Imagination and Narrative:" 118.

28 A. Gell, *Art and Agency: An Anthropological Theory:*" 16.

embodying the simulation that Driscoll has orchestrated through her narration and the framing of the experience as it is accessed online.

We might then say that the perceived potential for action matters more for the sense of reality here than actual possibilities to affect the course of events, to choose your own path. Allowing the visitor to project themselves into the space of the exhibition seems to be more important for immersive experience than attempting to create a complex and realistic virtual simile. However, a sense of agency is greatly aided by being given the choice of shifting one's view and/or position at will.<sup>29</sup> An interesting thing to add is Murray's assertion that it is the boundary or interface between the fictional world and the real one that aids us in attaining and sustaining an immersive state by focusing our attention.<sup>30</sup> The VR headset is such a "threshold object," as she calls it, as is the TV screen, or the headphones in Driscoll's installation. Gallese also makes this point in speaking about the frame of a painting as an immersive device: "Such distancing, this temporary suspension of the factive grip on our daily occupations, liberates new simulative energies."<sup>31</sup> This corresponds with another claim by Gallese as part of his theory of embodied simulation, that distancing from stimuli in the external world produces a more immersive experience of a virtual world by making available more energy for the embodied simulation of that world e.g., more of the sensorimotor system is available when you don't also have to navigate a physical environment. "Being forced to inaction, we are more open to feelings and emotions."<sup>32</sup> As muscle tone slackens, more neural resources can be allocated to "intensifying the activation of bodily-formatted representations, and in so doing, making us adhere more

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29 J. Dokic, J-R. Martin, "Felt Reality:" 305.

30 J.H. Murray, "Virtual/Reality:" 18.

31 V. Gallese, "Embodied Simulation Theory: Imagination and Narrative:" 199.

32 V. Gallese, "Visions of the Body:" 47.

intensely to what we are simulating.”<sup>33</sup> This prompts the question of the emancipatory potential of VR because it would seem to suggest that the more we give up control, the more effective the simulation is. Since virtual reality is the remediation of “an agent’s experiential and interactive dealings *with a world*,”<sup>34</sup> I believe it is the nature of those dealings that determines its liberatory potential, not virtual reality itself, though it has that potential. Virtual reality is a mode of experience that may be technologically mediated, and as such it has certain characteristics and affordances that can be exploited in numerous ways. Modifying Marshall McLuhan’s famous adage, we might say that the medium is not the whole message, adding: How is it used, and to what end? Crucially, I am looking at virtual reality in the special context of art, and it is this context that provides the potential for emancipation, in my view. While I believe VR can be emancipatory, it can only be emancipatory when used in a self-reflexive way, as it is in art.<sup>35</sup> Therefore, it is as art that VR is liberatory. Our capacity for embodied simulation comes to the fore in virtual reality as a way of perceiving the world of others.<sup>36</sup> However, this has its limitations as expressed by many, including Lisa Nakamura, who is skeptical of VR as an “empathy machine,” and insists that VR documentaries that aim to produce empathy for the disenfranchised instead provide “absolution framed as information.”<sup>37</sup> I would argue that this is a problem for any documentary with aspirations for social change but because VR is more immersive than traditional screen-based

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33 Ibid.: 48.

34 G. Tavinor, *The Aesthetics of Virtual Reality*: 30.

35 Art is by definition self-reflexive, according to Alva Noë’s definition of art in contrast to broader culture as something that reflects on that culture and therefore in some way stands apart from it before being assimilated into the culture at large again. See A. Noë, *The Entanglement: How Art and Philosophy Make Us What We Are* (Princeton NJ: Princeton University Press, 2023).

36 V. Gallese, “Embodied Simulation Theory: Imagination and Narrative.”

37 L. Nakamura, “Feeling Good about Feeling Bad: Virtuous Virtual Reality and the Automation of Racial Empathy,” *Journal of Visual Culture* 19, no. 1, (2020): 47-64, 53, <https://doi.org/10.1177/1470412920906259>. See also M. Carter, B. Eglinton, “Fantasies of Empathy,” in M. Carter, B. Eglinton, *Fantasies of Virtual Reality* (Cambridge MA: MIT Press, 2024).

media we might feel that we ourselves have experienced something we have not. Perhaps what we experience when we interact with VR is not the world of the others that are depicted in it, but the world of the creator of the experience. This is how I interpret both Gell's and Gallese's descriptions of the functioning of the artwork as a nexus of social relations, mirroring the action of the artist in the embodiment of the viewer.

## **Vulnerability in Cognition and Experience**

To be relaxed and sensorially shielded but physically exposed to your surroundings makes you vulnerable, unable to anticipate what might happen and to react quickly to any changes. It doesn't seem to make sense from an evolutionary survival perspective to seek such a state and yet we have evolved to daydream and be captivated by stories. By analyzing the history and evolution of research in artificial intelligence that have used different models of cognition, David Bates demonstrates the significance of fallibility for human thought and development.<sup>38</sup> Contrary to what is sometimes assumed, automaticity is not what defines human cognition, though it certainly depends on it. He explains the evolution of the conception of cognition in artificial intelligence research to highlight this shift in thinking.

At the same time that some cyberneticians were claiming that the brain was just an automatic calculator like the computer, crucial figures in the history of computing and cybernetics immediately recognized the importance of the plasticity of the brain for the project of AI: the plastic brain, it was thought, offered the possibility of modeling creative, unpredictable leaps of human intelligence,

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38 D. Bates, "Automaticity, Plasticity, and the Deviant Origins of Artificial Intelligence:" 194-218.

capacities that went beyond the relentlessly automatic performance of rigid functional mechanisms or habitual behaviors.<sup>39</sup>

It is the possibility of error without complete systemic failure that enables cognition for us (and presumably other sentient beings) because it is the inherent instability that allows for the “perpetual organization and reorganization”<sup>40</sup> needed for improvisation. The relative stability of organisms comes from their malleable nature. “Organisms are stable as *unities* precisely because their organization is *not* fixed into any one rigid structure.”<sup>41</sup> In addition to plasticity, cognition also requires a social milieu to develop this adaptability through feedback from the surroundings. This necessitates an openness that risks the possibility of failure: a vulnerable position, made explicit and instrumentalized in Driscoll’s *Come On In* which deals with humans as social and interdependent beings. Sets, performers, and audience are all malleable parts of the work which takes on the political through the physical and emotional using material objects as well as language and movement.<sup>42</sup> Generally, we can entertain possible scenarios and react to them emotionally, even when we understand that they are not “real” – reading a novel or watching a movie engages this capacity. As Gallese writes, “being human not only means to experience physical reality, but also to conceive possible worlds, to surrender to imagination and to fictional worlds.”<sup>43</sup> The adaptability and plasticity of cognition both allows and requires this kind of surrender. Massumi emphasizes how the primordial chaos of perception into which we are born remains with us even as we leave infancy behind and

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39 Ibid.: 197.

40 Ibid.: 199.

41 Ibid.: 207.

42 “Faye Driscoll: Come On In,” Walker Art Center, [www.walkerart.org/calendar/2020/faye-driscoll-come-on-in](http://www.walkerart.org/calendar/2020/faye-driscoll-come-on-in), accessed July 15, 2024.

43 V. Gallese, “Visions of the Body:” 42.

without which, “our world of experience would lose its intensity and plasticity.”<sup>44</sup>

As Hannah Krafcik points out in a review of *Come On In* at the Portland Institute of Contemporary Art, Driscoll is highlighting vulnerability in her installation, both through “bodies reclined in stasis” and in the instruction itself: “She occasionally suggested that I ‘soften’ myself or some part of myself.”<sup>45</sup> Further emphasizing the theme of vulnerability, Krafcik writes: “Her tone asks for surrender to this sensitized state, reminding me that vulnerability always comes at the risk of unexpected injury, microaggression, and other forms of harm.”<sup>46</sup> What was clear to me from the documentation of *Come On In* and my own experience of the virtual version, is substantiated in both Krafcik’s account and in writing by Miriam Felton-Dansky, who says: “What provocation is enough to make us put our bodies on the line, even in the safety of an experimental performance and under cover of a crowd?”<sup>47</sup> Though the audience is obviously in no real danger, the unguarded position of their bodies activates the cognitive processes that have been developed over the course of the evolution of our species, tapping into the creativity to be found in risky situations. My experience of *Come On In* is of course different from what Krafcik and Felton-Dansky describe in that I am alone in my own home, without the presence of strangers around me. Yet, the cognitive state of vulnerability is still a necessary component of the experience, a giving up of control and going along the path of emotional resonances laid out by Driscoll, and it is a state that has been crucial in the evolution of our species,

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44 B. Massumi, “Art of the Relational Body:” 200.

45 H. Krafcik, “Faye Driscoll’s ‘Come on In’ at PICA: A personal review,’ *Oregon Arts Watch*, December 1, 2021, <https://www.orartswatch.org/faye-driscolls-come-on-in-at-pica-a-personal-review/>, accessed November 15, 2024.

46 Ibid.

47 M. Felton-Dansky, “The Stakes of Contact: Faye Driscoll’s Thank You For Coming: Space & Come On In,” *Walker Reader* (May 26, 2020), <http://www.walkerart.org/magazine/the-stakes-of-contact-faye-driscolls-thank-you-for-coming-space-and-come-on-in>, accessed November 10, 2024

as explained by Bates. It also seems to be an important aspect of embodied simulation where the risk of openness is key. Though it may seem to eschew physical movement from the emphasis on the stationary body, embodied simulation works because of our capacity to move. Internal and external movement are co-extensive as simulations are felt in the body. As explained by Massumi, “Physiologically, the motion in our body accompanying every feeling is the firing of mirror neurons, recruiting an extended network of activations throughout the brain.”<sup>48</sup> As mentioned previously, sensorimotor interactions can heighten feelings of reality but can also be a weak point in a simulation. Though the body need not be moving in VR experiences, it uses its capacity for movement necessary for perceptual experience. As Massumi argues, it is through movement that perception is defined, and it is through movement that we come to know the world.<sup>49</sup> The remediation that happens in VR can fool our sense of reality, even if just momentarily, by our learning or growing accustomed to specific translations of virtual into perceptual. We see *through* the technology we are accustomed to, focusing mainly on the content of our experience, not the conditions. The technology dissolves as we sink into the experience but returns as we start to feel physical discomfort. As Bollmer and Guinness describe, Wolfson’s *Real Violence* makes use of this fact to pull the viewer out of the immersive experience and remind them of their bodily reality by purposefully inducing nausea through camera movement: “Nausea refuses to let the body disappear.”<sup>50</sup>

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48 B. Massumi, “Art of the Relational Body:” 200.

49 Ibid.: 199.

50 G. Bollmer, K. Guinness, “Empathy and nausea:” 37.

## Participation and Spectatorship

Renowned video artist Pipilotti Rist is known for her large-scale video installations with a focus on the sensuous, and like Driscoll with *Come On In*, she often encourages visitors to lie down and watch her videos from a reclined position. In describing Rist's 2008-2009 exhibition *Pour Your Body Out* (7354 Cubic Meters) at the MoMA in New York, Kate Mondloch points to the role of the visitors' embodied presence: lounging and shoeless, "a swirling mass of supine bodies."<sup>51</sup> The exhibition emphasized relaxation and immersion, partly through Rist's own imperative to "Please feel as liberated as possible, and move as freely as you can or want to!"<sup>52</sup> Having experienced Rist's exhibition *Pixel Forest* at the New Museum in New York in 2016, I similarly observed the soft, amorphous furnishings, carpeting and dimmed lighting, encouraging viewers to lie down and spend some time watching the sensorially rich video projections. The artist consciously considers the viewer's body when designing her installations, emphasizing comfort and immersion, and encouraging complete relaxation. This is notable in my view for how it resonates with Gallese's insistence that the inert body is more available to feeling and emotion. "Our being still simultaneously enables us to fully deploy our simulative resources at the service of the immersive relationship with the fictional world."<sup>53</sup> Immersion is a self-reinforcing feedback mechanism between the fictional or virtual world and the viewer's body; the more focused our attention, the more engaged is our body in that

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51 K. Mondloch, "Pour Your Body Out: On Visual and Other Pleasures in Pipilotti Rist," *Feminist Media Studies* 10, no. 2 (2010): 231-236, Note 2, <https://doi.org/10.1080/14680771003690777>.

52 Ibid.: 232.

53 V. Gallese, "Visions of the Body:" 47.

experience, and the more available the simulative capacities of our bodies are, the more our attention is focused.

Embodied simulation provides a framework for thinking about participation in relation to spectatorship, as not necessarily physically moving in space, yet engaged through immersion. This confirms Jacques Rancière's theory of the "emancipated spectator" as always already active, even when they might appear passive. In Rancière's defense of the spectator as active, he wants to protect the individual against subsumption within the collective. He is arguing against the theater as a space primarily for community-building which in its ultimate form would do away with theater all together, and for the theater as a place of actualization through the individual translation of narratives. The value of live performance lies for him in the telling and retelling of stories from a particular point of view that is then taken up by the viewer and interpreted through their own lived experience, without having to physically participate in the performance, yet projecting themselves into the space of action. Connections are made between performer and audience, but the goal is not to render the audience into a single mass of communal experience. He goes so far as to say that so-called participatory theater is a tool of indoctrination, not liberation, that abducts the spectator's subjectivity.<sup>54</sup> The viewer "must be confronted with the spectacle of something strange, which stands as an enigma and demands that he investigate the reason for its strangeness."<sup>55</sup> Like theater, virtual reality can be used uncritically and fail to recognize the full potential of the spectator and their creative capacity. Rancière argues that theater must be both immersive and emotionally engaging, as well as questioning and distancing. According to him, one without

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54 Interestingly, for Gell, abduction is precisely how the artwork functions in mediating agency, and for Gallese this abduction is what is liberating about the art experience.

55 J. Rancière, "The Emancipated Spectator," *Artforum International* 45, no. 7 (2007): 270-280.

the other produces stultification because it is not based on an “equality of intelligence.”<sup>56</sup> Instead, in the emancipation of the spectator, association and dissociation work in tandem as we are both ignorant of the things we do not yet know and knowledgeable about the things we do know. It is the translation of what we do not yet know through our existing knowledge that is the emancipatory process for Rancière. He rails against the “self-suppressing mediation” of participatory theater and didactic theater both, yet isn’t all aesthetic experience self-effacing in the sense that we take up the experiences of others within ourselves, forgetting for a moment our own story? The point for Rancière is to return to the self, to bring what one knows from one’s own experience to bear on the new experience, which in turn alters how one sees oneself. This dynamic is at play in embodied simulation, and a stated aim of Faye Driscoll’s work *Come On In*: “As visitors follow her voice, they become a collection of slowly moving sculptures activating our innate capacity to be both object and subject, observer and observed.”<sup>57</sup> The work is about spectatorship in its invitation to embody the space of performance from the vantage point of the performer, which is to be immersed and present in your body, to lose yourself in the performance while never fully losing awareness of yourself at the same time.<sup>58</sup> In so doing, Driscoll produces an oscillation between the roles of performer and audience in the viewer’s embodied experience of the work, replicating the process of the emancipation of the spectator according to Rancière’s theory. Just like Rist, Driscoll is very attentive to the viewer’s body and designed the installation with that in mind. Noticing the default protective stance of viewing art in the museum, Driscoll decided

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56 Ibid.: 275.

57 F. Driscoll, “Works: Come On In, 2020,” <https://www.fayedriscoll.com/performances-exhibitions/come-on-in>, accessed March 12, 2022.

58 “Faye Driscoll in Conversation with Philip Bither,” *Walker Reader* (May 22, 2020), [www.walkerart.org/magazine/faye-driscoll-in-conversation-with-philip-bither](http://www.walkerart.org/magazine/faye-driscoll-in-conversation-with-philip-bither), accessed July 15, 2024.

to subvert the guarded position of standing and facing the work, and instead invited the visitors to lie down, or at least sit on the platformed mattresses. In so doing, she is asking the visitor to be vulnerable; a necessary condition for immersive viewership, and for our simulative capacities to come to the fore.

While Rist's work is immersive, I would not categorize it as an instance of virtual reality. This begs the question: What makes a virtual reality artwork different from any other immersive art? I would argue that virtual reality art seems to be more immersive than say a video installation precisely because it is so effective in shielding the viewer from the outside world, a factor that Gallese talks about in his theory of embodied simulation. It creates a kind of private dream space. In Driscoll's installation visitors are also shielded from their surroundings through the use of soft surfaces at various levels, inviting rest and encouraging visitors to close their eyes. Even in the at-home version of the experience, I am encouraged to get into a comfortable position. The voice in my headphones says: "Let go of evaluating things visually and bring your focus inside yourself."<sup>59</sup> In the experience, I am addressed directly in the imperative present tense and instructed to perform specific actions, at least through my imagination: "So, turn your head and look over your shoulder, and you've just heard someone calling your name and you turn to look at me."<sup>60</sup> Is there a difference between virtual reality experienced through a VR headset or head mounted display, and Driscoll's piece? In my view, the virtual reality headset might present a more totalizing experience where the sense of reality may be stronger because it captures more of the sensorimotor system. But this depends on how the VR experience is structured and it is difficult to talk about in the abstract. If we

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59 F. Driscoll, "Come On In."

60 Ibid.

take Wolfson's *Real Violence* as an example of an artwork that uses a VR headset, the viewer is implicated as witness to a brutal murder while made aware of the experience as VR through the deliberately excessive motion of the camera. The viewer's experience is forcefully orchestrated here while in Driscoll's piece, much is left up to the imagination of the viewer where it illustrates the process of embodied simulation by consciously connecting the interior space of feeling with the exterior world of action. In large part, the immersion of the piece is achieved through a multisensory mental projection and the melding of interior and exterior space facilitated by narration. It is not a mainly visual experience. Although Driscoll's piece differs from *Real Violence* in this way, the bodily reality of the audience is emphasized, not hidden from view in both cases. They both purposefully make us aware of our bodies, which, following Massumi's idea of the virtual body, is the seat of our liberatory potential. *Come On In* weaves the visitor's personal history and lived experience into the work, perhaps creating a deeper resonance for them, in contrast to Wolfson's piece which exploits shock to create a sense of alienation. But this is not to say that artwork that uses this strategy cannot be liberatory, as it can catalyze thought and action in the recipient's life beyond the art experience even as they may feel robbed of agency in the moment, the sense of agency thwarted.

## Conclusion: The Embodied Spectator

In this paper, I have attempted to decouple virtual reality from the technology of VR. What is to be gained from such an approach? First, it is a return to relationality as primary and a recognition of embodiment as our inescapable condition. VR is often thought of as a gadget that allows us to escape the physical world and enter a world

with unbounded potential – both Murray and Hayles describe the masculinist fantasies this notion is tied up with – when it is precisely the limits and bounds that give our experience meaning. From the primordial chaos of sensation that Massumi describes, the world gains definition through our interactions with others and our understanding is honed in relation to our surroundings. Starting with undirected movement that provides us with feedback both about our environment and ourselves, our perceptions become distinct, and our movement directed, as we accumulate experience. A VR headset or head mounted display creates a remediation of perceptual experience in the same way that an audio recording evokes feeling and emotion. I claim that Driscoll's installation is a virtual reality work rather than augmented reality precisely because there is no hard line that separates real and virtual in our experience, and in that sense, VR is augmented reality. *Come On In* taps into our capacity to simulate experience through our bodies because of the non-causal relation between our sense of reality and perceptual experience: we can entertain fictions without thinking that they are real.

Second, decoupling virtual reality from the headset allows us to think about spectatorship much more broadly and recognize the continuity between watching and doing, looking and feeling, that neuroscience has validated. It allows for a media studies of the headset within the context of aesthetic experience and reframes participation in terms of embodiment without for that matter losing sight of the structural and personal. By decoupling virtual reality from the headset, we are able to analyze the headset in depth and in a medium-specific way. It sets the stage for asking more pointed questions in further inquiries about how the headset operates as a medium and how it operationalizes the sense of reality, agency, and representation. A crucial distinction for the emancipatory potential of virtual

reality is between virtual reality experiences generally and artworks that make use of virtual reality or create a virtual reality experience, as in the case of Driscoll's *Come On In*. Because of the reflexive nature of artistic inquiry, it acts as a mirror. Instead of disappearing into the work through immersion, we come face-to-face with ourselves, our culture and our society. Ultimately, this does not guarantee empathetic civic action irrespective of claims to the contrary made by tech gurus and filmmakers,<sup>61</sup> but it does engage the liberatory potential of embodied simulation.

We might conclude by saying that art, regardless of medium, demands vulnerability and plasticity by interrupting automaticity. It exploits our capacity for change as well as our simulative capabilities of feeling and emotion. As Brian Massumi puts it:

Art, attentive to the relational complexity of experience's in-the-making, can make itself the experimental practice of composing new peaks of perception expressing the living, moving body's qualitative multiplicity, unfolding in new variations its capacity to change.<sup>62</sup>

The automaticity that is a dead end for cognition, is the deference to our habits and guarded positions. Meanwhile, art can provide the space to be vulnerable in ways we cannot otherwise cognitively afford. By allowing ourselves to be immersed, "we can fully deploy our simulative resources, letting our defensive guard against daily reality slip for a while."<sup>63</sup> Embodied simulation is not a mere representation of perceptual experience but works in the realm of qualities rather than objects, which means that the true infinity of potential resides not in the headset but within ourselves. Our sense of agency is tied to our capacity to

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61 L. Nakamura, "Feeling Good about Feeling Bad."

62 B. Massumi, "Art of the Relational Body:" 205.

63 V. Gallese, "Visions of the Body:" 47.

dream and imagine, to picture ourselves differently, going beyond what we perceive to be actually existing. Putting on the headphones and listening to Driscoll's voice pulls me in and takes me on a wild ride through my own body and into a virtual world that is anything but merely representational. She says:

Bring your attention to your feet. Observe the sensations in your feet and up, out your eyeballs and into your ears through the ambiguity of your gaze. Soften your face, crack it, crack it into an indiscernible smile and move that down into your fingerprints and out your confusing text message threads.<sup>64</sup>

My fingers tingle with the familiar feeling of being in a text conversation, I think of the Mona Lisa, and of body horror all at the same time, along with a million facets of feelings that cannot be expressed in words. The headphones are channeling devices that quiet the world around me and focus my attention so that I can feel this experience more fully. The virtual is made physical through embodied simulation, and I have become a participant, bringing my attention to the ways in which I am always already participating in the world around me both as performer and audience.

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64 F. Driscoll, "Come On In."

# More than Spectators, Visionaries<sup>1</sup>



LAURA MARCOLINI, Studio Azzurro

## Abstract

The paper aims to highlight theoretical reflections and project implications about technological interactivity within the artistic research of Studio Azzurro, setting them in a constellation of relations and affinities with the context of reference.

The distinctiveness of the Milan-based collective, founded in 1982, has been shaped around the concept of “socializing interactivity.” This phenomenon stems from a design process that involves a constant negotiation between narratives, space, bodies and technologies, conceived as a system of relationships mediated by “natural interfaces.”

The study traces the roots of this placement back to the counter-information experiences of the 1970s and the intersection with the experimental theatre of the 1980s, evolving through the language of cinema and video. At the same time, Studio Azzurro research remains constantly focused on the physical and sensitive properties of space, objects, bodies (both real and virtual), and the potentialities of montage – understood both as video editing and as spatial dramaturgy.

The paper finally considers the socio-political implications of this form of art, bringing the attention on the

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<sup>1</sup> See W. Benjamin, “Theses on the Philosophy of History,” *Illuminations: essays and reflections* (1955) (New York: Schocken Books, 2007): 253-264.

creation of “spaces of relationships” that foster community and intersubjectivity.

This investigation situates Studio Azzurro’s contributions within the broader context of technological interactivity and its potential to reshape human experience and communication.

Keywords

Socializing Interactivity

Point of Being

Unthought

Space of Relationship

Intersubjectivity

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*In this contribution, I have attempted to gather some reflections on Italian artists who pioneered the use of technologies that led to VR and the technological interactivity as we know them today. They sound like early insights into urgent issues of our time, which have accompanied the research of Studio Azzurro from its beginning. Founded by Fabio Cirifino, Paolo Rosa and Leonardo Sangiorgi, the Milanese artistic collective has worked towards the definition of “narration formats” that integrate technological advancements while maintaining a strong emphasis on montage in physical space. This approach allowed them to situate themselves in continuity and dialogue with art historical formats, never abandoning the idea of being responsible for a legacy that cannot be elided or lightly dismissed. The artists’ reflections from the 1990s, which focused on the socializing and re-sensitizing potential of certain forms of technological interactivity, still seem relevant today. Indeed, in the era of acceleration and entangled complexities we are living in, these may have even gained in significance, as the impact and reach of these technologies have grown more extensive and pervasive. The perspective I here intend to suggest, given my involvement with Studio Azzurro, can be seen both as a tribute to those artists and thinkers who began questioning the early signs of an epochal change, and as an exercise of memory through which I observe the current state of things. It is an attempt to look forward while glancing back, to avoid being swept away by this “storm” that irresistibly propels us into the future, to quote a well-known passage from Walter Benjamin.<sup>2</sup>*

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<sup>2</sup> See W. Benjamin, “Theses on the Philosophy of History,” *Illuminations: essays and reflections* (1955) (New York: Schocken Books, 2007): 253-264.

## The artwork as a party (?)

Ordered not according to the rules of the “cinematographic spectacle,” the exhibited material is an opportunity to reflect on a partial but significant fragment of a reality, such as that of youth, shattered and in search of new references; an active documentation, neither impartial nor predetermined, whose final processing is up to the viewer. Studio Azzurro, from the synopsis of *Facce di festa*, 1979–1980.<sup>3</sup>

With these words, Studio Azzurro presented its first production, *Facce di festa*, in 1980. The movie burst into the territory of cinema with the strength of an artistic manifesto, invading that “inhabitable space” that lies outside the filmic frame to invest the audience’s body and cognition. What is reported here is a programmatic declaration: the “spectacle” and its rules are rejected, there is mention of “exhibited material,” “active documentation” and of a “final production” that “the viewer” is called to perform. The word “spectator” is carefully avoided, and the semantic field of fragmentation is emphasized to describe the disposition that moves the authors’ young peers, the movie’s protagonists.

In 1979, a party is organized at a friend’s house, overtly to shoot the movie. The filming is carried out with hand-held cameras, two hidden fixed cameras, enacting a Reikian-style<sup>4</sup> interview workshop, which takes place in the house vault with the footage played back in a control monitor so that the interviewees can see themselves as they answer questions such as: “What part of your body do you associate your name with?” or “How did you prepare to come to the party?” In short, a

<sup>3</sup> All quotations from Studio Azzurro e Paolo Rosa are based on the consultation of Studio Azzurro Archive and translated by the author.

<sup>4</sup> In reference to the theories and practices related to bioenergetics and body psychotherapy of Wilhelm Reich (1897–1957).

real self-exposure device installed in a place designed for protection (namely, the vault).

Upstairs the party goes on, people look down the stairs into the basement, and wait for their turn. They lie, rebelling against the questions; but not too much. They unwittingly stage a rampant sense of confusion, proof of



Fig. 1 – Studio Azzurro, *Facce di festa*, 1979-80, still from film, courtesy the Artist.

the definitive waning of ideological references, which are being replaced by a glittering individualistic component. The party comes to an end and the movie's finale shows a slow trickle into the backstage, starting with the image of a Polaroid camera abandoned on a table with the evening's leftovers. Only then do we realize that it is as if we had been watching a movie on a projection's screen for the whole time. We hear a rhythmic whirr. The camera pans back, and we see the projector, we see the artists' heads as they sit in the dark, ironically commenting on their own movie: "The mass is a spongy referent." At this point, the camera brings on stage the backstage from different points of view: it is the eye (a *Kino-Eye*)<sup>5</sup> of another person observing the artists, a curious subject moving among them. It is easy for the spectator to identify themselves with that

5 Reference to the movie *Kinoglaz* (1924) by Dziga Vertov, which I will return to later.

gaze. The movie's surface becomes unstable. The projection moves, sliding across the wall to the floor, between the artists' feet, then on their faces and then onto a screen. With an unexpected reverse shot, we find ourselves in front of the artists, but the projection is still in favor of the curious subject (in "our" favor). We hear a voiceover: "And the director? I'd like to know who my director is?!"<sup>6</sup> The camera moves further away: a set appears, the ambient lights of a studio turn on; it is the same studio that appeared at the beginning of the movie.

The movie with its structure and its editing hints at the *presence of another space*. A space where these remediations and their authors move, and where – a few years later – the viewer will also be able to walk. It is an "off-screen" space, which lies outside of our attention focus, in its apparent emptiness and lack of informations. However, something significant springs out of it: it generates connections. It is a "space of thought"<sup>7</sup> and of *emerging relationships*.<sup>8</sup> Almost twenty years ago, Pietro Montani (2005) already warned us about the eminently political implications of the "off-screen":

We will realize that these images [...] talk to us about their aptitude to correlate with an out-field requiring an open community of interpreter/users who must, in their turn, have both the technical

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6 The voice-over is by Leonardo Sangiorgi.

7 I am referring to that "space in between" (*Zwischenraum*), which was very dear to Aby Warburg and in his writings is also mentioned as the "space of thought" (*Denkraum*), namely an intermediate world that can also become a source. Victoria Cirlot spread on two terms in "engramma," 151: V. Cirlot, "Zwischenraum/Denkraum. Oscillazioni terminologiche nelle Introduzioni dell'Atlante di Aby Warburg (1929) e Ernst Gombrich (1937)," *La Rivista di Engramma* 151 (2017): 121-146, [https://www.engramma.it/eOS/index.php?id\\_articolo=3341](https://www.engramma.it/eOS/index.php?id_articolo=3341), accessed July 14, 2024.

8 A "relational space" was also mentioned by Paolo Fabbri in conversation with Paolo Rosa (2012); as he noted the technologies used for sensitive *environments* "make the pronoun shift from *you* to the *we*." See the recording of "Conversation between Paolo Fabbri and Paolo Rosa," held on the occasion of the presentation of the book

P. Fabbri, P. Rosa, *L'arte fuori di sé*, filmed 2012 at Gambalunga Library, Rimini: "Paolo Fabbri e Paolo Rosa su L'arte fuori di sé," vimeo, <https://vimeo.com/425833126>, accessed May 29, 2024.

and political (political as technical, and *vice versa*) to make it theirs and re-articulate it responsibly.<sup>9</sup>

The information gathered around Studio Azzurro's first production points out the origins of the group's research on interactivity, which is marked by a tension that combines technology with the investigation of visual languages<sup>10</sup> carried out by the artists in the 1970s.<sup>11</sup> Rather than driven by technological evolution, this research emerged as an intrinsic need to reclaim the ability to communicate poetically through expressive languages, without falling prey to the distortions of mass media communication, with its passive frontality and its shift towards a seemingly immediate expression, facilitated by the "real-time" capabilities of video.<sup>12</sup>

The opening words of *Facce di festa* echo the militant tones of the 1970s, directly addressing the audience to ask them to reactivate *their* imagination within the

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9 P. Montani, "Prolegomeni a una politica sull'immagine elettronica," in F. Bernardelli, L. Fusi, P. Montani, eds., *Guardami: Percezione del video* (Prato, Siena: Gli ori, Palazzo delle Papesse centro artecontemporanea, 2005): 38.

10 On the use of video in the 1970s, Valentina Valentini's survey (1996) is instructive: "Video was at the same time a medium that, in Italy, feminist movements and counter-cultural and counter-informational political groups took possession of, in a participatory function and for activating processes of socialisation and collective identification. In the 1970s, it was the medium of widespread creativity that fuelled the myth of the transformation of the spectator into the operator, because it favoured immediate contact and triggered interactive processes. Its effectiveness was measured pragmatically by the intensity of the involvement it was able to arouse in the context in which it intervened," in V. Valentini, "Il video in Italia: genio e sregolatezza," *Visibilità zero. Immagini in movimento. Arte elettronica* (Rome: Gangemi, 1996): 10.

11 The *Fabbrica di comunicazione* opened in San Carpoforo in 1976. At the moment of transition between the 1970s and 1980s, the call for the active participation of the spectator as co-author, as "spect-author" and then also "spect-actor" was already one of the sensitive themes of the newly-born Studio Azzurro. It presents itself as a poetic and at the same time peremptorily political tension and is accompanied by the ostentation of the television as a medium, or rather as a "remedial" household appliance, disconnected from the antenna of the television networks, used as a control monitor just like in the workshops of the previous years.

12 In fact, Studio Azzurro will work extensively on this "real time" quality of video, especially in its later theatrical and installation works. See Studio Azzurro and Giorgio Barberio Corsetti's *Vedute (quell tale non sta mai fermo)*, which, from a site-specific video installation designed for Palazzo Fortuny (Venice, 1985) was transformed into a theatrical performance after the venue closed to the public the day after the opening. Also relevant to this discourse are the two performances where the artists experimented with the invention of the so-called "double scene," namely *Prologo a un diario segreto contraffatto* (first presented in Rome, Teatro La Piramide, 1985) and *La camera astratta*, (first presented at Documenta VIII, Kassel, 1987). For more informations, see the volume curated by Studio Azzurro, G. B. Corsetti, *La camera astratta, tre spettacoli tra teatro e video* (Milan: Ubilibri, 1988).

folds of a seemingly established language; to ask *them* to complete the narrative.<sup>13</sup> The movie is filled with metalinguistic devices. The story, however, is very simple. It is a party, observed in the making, with wide shots of the surroundings and closed shots of certain details: situations, faces, gestures, objects and traces that people leave behind. The party is shown as a contemporary ritual, the quintessential space of socialization, where personal and cultural habits are unveiled.

Last year (2023), on the occasion of a symposium, art historian Lidia Decandia referred to the creation of MATer Museum (Museum of Archaeology and Territory) in Mamoiada (Sardinia) – which was undertaken by Studio Azzurro with a significant participation from the local residents – saying: “The work was a party.”<sup>14</sup> The community’s involvement was genuine and active, and because of this, the project tapped into a reservoir of traces and memories scattered throughout the territory, turning it into “a place where the present is renewed in a flash.” Afterall, the party is the place of *commoning*, from the Latin *cum-munus*.

At the same conference, Pietro Montani commented on Studio Azzurro’s artistic format of *Portatori di storie* (Story Bearers), where the visitor’s hand can call upon life-sized projected characters, as if stopping them on the

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13 A few years later, in 1984, the first synchronized video-environment by Studio Azzurro, namely *Il Nuotatore* (va troppo spesso ad Heidelberg), was presented as “a large electronic montage-box to be read through its synchronies and out-of-phases, to be imagined through its gaps, to be practiced with one’s own movements” as written in a presentation found in Studio Azzurro Archive. In a handwritten note by Paolo Rosa, found in 2023 in Studio Azzurro’s archive, we read: “The intention is [to generate] an imaginative involvement of the audience to fill empty intervals, an interpretative solicitation of segments of events that evoke hypothetical situations.” Translation by the author.

14 Lidia Decandia during the symposium designed around the volume Studio Azzurro, *Portatori di storia. Portatori di storie* (Milan: Mimesis, 2023) entitled *Le immagini e le storie. Riflessioni sull’arte contemporanea a partire dalle esperienze di narrazione di Studio Azzurro* (curated by Francesca Pola and promoted by the European Research Centre in History and Theory of the Image -ICON, in collaboration with Studio Azzurro), was held at University Vita-Salute San Raffaele’s congress venue of Palazzo Arese Borromeo (Cesano Maderno, MB), between November 10-11, 2023. Conference proceedings will be available in 2025, published by Mimesis, in the ICON serie.

street.<sup>15</sup> He stated that in the “substitute spaces” generated by these *sensible environments*<sup>16</sup> there is an act of welcoming (an offering), and seizing (an opportunity) that creates a relational initiative.<sup>17</sup> This is where the *cum-munus* begins, which is also the foundation, or the “matrix” of ethics.<sup>18</sup> Similarly, Vittorio Gallese, defining the characteristics of the same format from a neuroscientific perspective, stated that these artworks function “as mediators of intersubjectivity.” These points will be revisited later, as they are essential for understanding Studio Azzurro’s practice and its development over more than forty years.

## Against the clock (In controtempo)

The statement about *Facce di festa* which opens this article is a sharp stance against the spectacle-oriented nature of expressive forms at the beginning of the 1980s. On the other hand, it anticipates a tension toward the experiential dimension, which spectacularization itself has appropriated, deeply distorting its meaning. Ten years after the movie, at the beginning of the 1990s, technologies that definitively dematerialized images became accessible, pushing towards a new territory of experimentation. The warning about the “spectacle” further

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15 *Portatori di storie* (Story Bearers) is the name given to a group of artworks that Studio Azzurro has treated as a true format, with its variations. Studio Azzurro has been creating this format since the early 2000s in geographical areas with strong socio-anthropological connotations, or within communities united by unique characteristics. These are namely contexts and communities threatened by oblivion, or erasure, which, through the gathering of stories presented in a “sensitive” (meaning interactive) environment, can be passed on and preserved for the future.

16 In the artist’s vocabulary, the term denotes interactive video installations, marking the assumption of a precise position that I will refer to below.

17 P. Montani, *Che cosa significa “portare” una storia? La parola negli ambienti sensibili di Studio Azzurro*, presentation held on the occasion of the symposium *Le immagini e le storie* (Cesano Maderno, Università Vita-Salute San Raffaele – Palazzo Arese Borromeo, November 10-11, 2023). Conference proceedings will be available in 2025, published by Mimesis, in the ICONE serie.

18 Although the “matrix” of the work – meaning the software that manages the environment’s reactions to the actions and presence of the audience – is not altered, it is important to point that it influences a “matrix” of a different *nature*. This matrix pertains to sensitivity and the ability to discover and experiment with variations in one’s habitual reactions, and behaviors that have become hardened or routinized.

expands, anticipating the possibility of explicitly involving viewers through forms of technological interactivity, as Antonio Caronia (2006) recalls:

Between the late 1980s and early 1990s, during the successful but brief era of virtual reality (VR), there was a certain enthusiasm for the communicative innovations of this new immersive and interactive technology. The “objectual” immediacy of VR environments and their absolute manipulability led many to believe that McLuhan’s prophecy about the “Pentecostal” nature of electric and electronic communication was coming true.<sup>19</sup>

By only remaining in the Milanese context, in 1993 Mario Canali with the group Correnti Magnetiche, was developing forms of VR comparable to what we now call “VR headsets.” Studio Azzurro, on the other hand, “took a period of reflection during which they slowed down productions and gathered the results of their first ten years of activity with an exhibition dedicated to their “video environments.”<sup>20</sup> This exhibition was held in Milan at the Fondazione Mudima (late 1992) and included, among other works, also two pieces (*Il giardino delle cose* and *Il viaggio*, the latter exhibited there for the first time), which addressed the theme of “visibility”<sup>21</sup> and the memory of “objects.” These

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19 A. Caronia, *L'inconscio della macchina, ovvero: come catturare il significante fluttuante* (Milan, Mimesis 2006), <https://www.pulpibri.it/linconscio-della-macchina-e-altri-scritti/>, accessed June 30, 2024. Translation by the author.

20 *Exhibition Studio Azzurro: Videoambienti 1982-1992*, Milan, Fondazione Mudima (December 10, 1992-January 31, 1993). About the exhibition see: “Archivio attività,” Mudima, <https://www.mudima.net/archivio-attività-dal-1989/>, accessed June 15, 2024. A monographic issue of the periodical *Bullshit* 6 (December 1992), was published for the occasion. Fondazione Mudima, in Milan, via Tadino, is an exhibition and meeting space, directed by Gino Di Maggio, it hosts and supports international artists, including the protagonists of the Fluxus movement.

21 There is an immediate reference to Italo Calvino’s *Six Memos for the Next Millennium*, from a few years earlier (1988), where the writer asks a crucial question about the ability to imagine and see with one’s eyes closed. See I. Calvino, *Lezioni americane* (Turin: Einaudi, 2002): 103-104. In this regard, Andrea Balzola and Paolo Rosa write: “When Italo Calvino suggests, based on his own experience and personal narrative style, to follow certain rules for writing (lightness, quickness, exactness, visibility, multiplicity), he does not intend to provide manual-like prescriptions. Instead, he offers coordinates for a journey that will always be unique, but with the awareness that navigation maps exist, and that the sea and the wind have precise rules that must be reckoned with,” in A. Balzola, P. Rosa, *L’arte fuori di sé*: 40.

works employed technologies that Paolo Rosa often referred to as remnants of military research, namely thermal and X-ray cameras, which became a means to explore the limits of human vision, questioning the close relationship between sight and touch. This was a genuine premonition of Studio Azzurro's forthcoming research on non-prosthetic tactility, expanded through the use of sensors "domesticated" by programming.

It is fair to point out that Studio Azzurro never carried out experimentation on VR, but developed research that continues to privilege the "real" physical space – the space alluded to in the montage of *Facce di festa* – , planning to "augment" it through the incursion of stories that transfigure its coordinates, its orientation system.<sup>22</sup> I write "continue to privilege" because ever since that hint in *Facce di festa* and then in the video environments,<sup>23</sup> Studio Azzurro always directed its research at a space where stories can actually lay and happen, and at the forces field that is predisposed for the audience. Even in their theatre productions of the 1980s, the artists insisted on the expansion of the stage towards the backstage; namely, on the possibility of crossing its boundaries and giving us virtual access to the portion of space and presences that we would otherwise not be able to see.<sup>24</sup> All of this thanks to video as medium.<sup>25</sup> The invention of the so-called "double scene" brings the trick of that movie into the field of theatre and brings the backstage onto the stage, crossing the threshold

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22 The issue of orientation is a recurring theme in Studio Azzurro's design thinking and often translates visually in the presence of an horizon, and conceptually in the metaphor of navigation at sea, with its semantic range.

23 *Videoambienti / video environments* is a Studio Azzurro definition to indicate what are normally called video installations, emphasising the attention to space and its habitability, the not exclusively frontal fruition they determine, the invitation to exploration they arouse in the spectator.

24 This item characterises the aforementioned video-theatre performances *Vedute (quel tale non sta mai fermo)*, 1985, *Prologo a diario segreto contraffatto* (1985) and *La camera astratta* (1987), that Studio Azzurro realized with Giorgio Barberio Corsetti.

25 On the intersectionality of research between cinema, theater, and video in the first 10 years of Studio Azzurro, it's indispensable to know the conversation with V. Valentini, "Temi e figure nell'universo estetico di Studio Azzurro," in V. Valentini, ed., *Studio Azzurro. Percorsi tra video, cinema e teatro* (Milan: Electa, 1995): 105.

between the authors' domain and the area reserved for elaboration and preparation. Underlying this choice evidently is the aspiration to create environments (whether in a movie, a theatre or a video installation) where people not only encounter a story and are invited to imagine something anew, but where they also meet the space of the so-called author and are engaged as active agents of the work itself. As Valentina Valentini wrote back in 1988 "Those who are watching, are also at risk of seeing nothing and not recognising the possibility for the spectators to occupy the empty place that is the performance, where instead of a container of things, they find the open, the movement."<sup>26</sup>

In other words, a space where this engagement is *not* one-on-one and invites multiple participants in a protected, intuitive dimension. Here, they can move freely, encounter the stories, and engage with the work as well as other people who inhabit it, although temporarily.

I do not know whether these aspects can be considered as a specific form of interactivity today, but I believe they should be. This is not only because neuroscientific research has shown us how significantly the brain-body is engaged both in front of a movie and in a physical space,<sup>27</sup> but also because it is increasingly clear – especially in the design of multimodal and intermedial museums and artworks – that we cannot allow ourselves to be overwhelmed by the "collapse of context." On the contrary, we must insist on designing environments in which the context is the precondition to welcoming our "co-authors" so that they may feel naturally engaged in the experience, and not

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26 V. Valentini, "Lo spazio interiore," in Studio Azzurro, G. B. Corsetti, *La camera astratta, tre spettacoli tra teatro e video* (Milan, Ubulibri 1988): 78.

27 V. Gallese, M. Guerra, eds., *The Empathic Screen: Cinema and Neuroscience* (2015), trans. F. Anderson (Oxford: Oxford University Press, 2020); S. Robinson, V. Gallese, "Dialogue between Sarah Robinson and Vittorio Gallese," *Intertwining* 1 (2018), [https://www.academia.edu/37134702/Intervista\\_su\\_Architettura\\_e\\_Neuroscienze\\_con\\_Sarah\\_Robinson](https://www.academia.edu/37134702/Intervista_su_Architettura_e_Neuroscienze_con_Sarah_Robinson), accessed June 30, 2024.

challenged by agonistic or procedural devices.<sup>28</sup> The collapse of context is one of the most dangerous prospects we face, as it foresees an almost total inability to understand each other outside of very narrow “niches.”

In 1990 the performance *Delfi. Studio per voce, suono, video e buio* is presented in Parma. It pushes the affordances of the “double scene” to the extreme, making the backstage coincide with the stage itself. However, it only allows the audience to see it through the mediation of monitors that broadcast live footage from unknown sources. The stage, in fact, is plunged in the darkness.

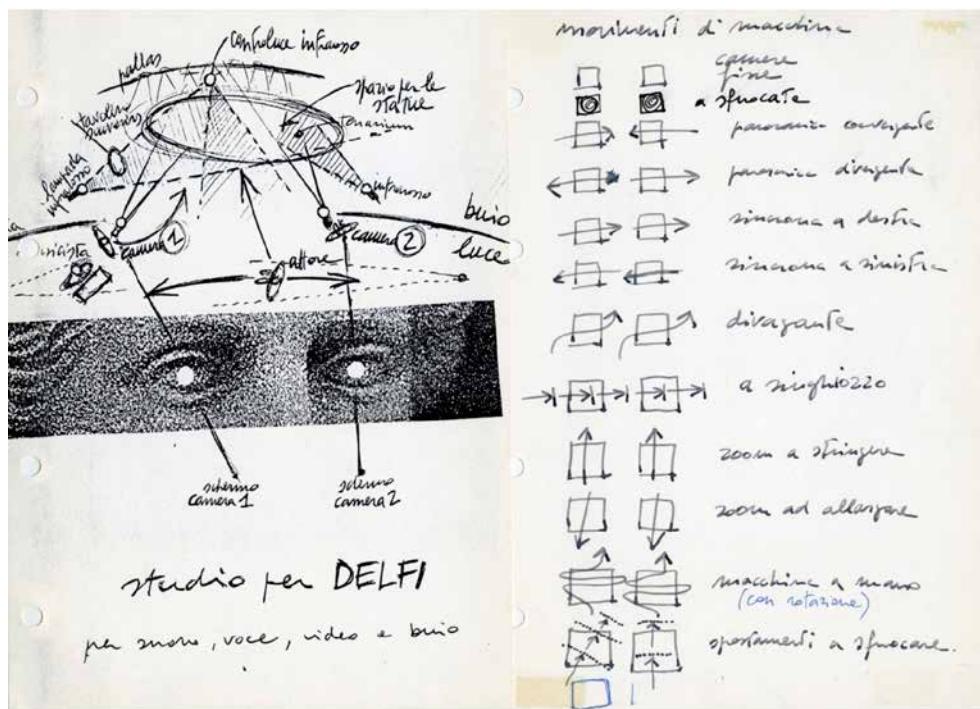


Fig. 2 – P. Rosa (Studio Azzurro),  
*Delfi*, 1990, project sketch,  
courtesy of the Artist.

*Delfi* is a radical exploration of visibility that introduces the theme of tactility in virtual presence at an early stage. It involves spectators immersed in the almost total darkness of a theater whose stage is populated by

28 It may sound far-fetched, but the commercial push of certain technological apparatuses (we deliberately avoid using the term “device” here) encouraged by open calls for museum projects, as well as a certain types of cancel culture, appear as the byproduct of a phenomenon of self-defence. Namely, a defensive mechanism against the excess of inputs we receive from the world (context) that comes from the difficulty of processing them. This phenomenon not only concerns our experiences on Social Networks, but also impacts our everyday lives, in these and other simpler forms. What Studio Azzurro is trying to foster is precisely an opposite cognitive motion. The expansion of possibilities, the crossing of the “membranes” that separate “niches.” Not an invasion but the premise for a connection – or even osmosis – between zones of different sensitivity.

classical statues and archaeological fragments that remain invisible until – in the end – they are hit by the light. The audience is unaware of these imposing white presences, though they see their details displayed on two cathode ray tube monitors positioned at the front of the stage like large, luminous eyes. A beam of light cut across the stage, where a young Moni Ovadia moves in and out of the darkness while performing a timeless text by Yannis Ritsos.<sup>29</sup> The darkness makes the space of the audience less discernible from the stage. In the large dark room the light comes out of the eyes of a large invisible face that looks right at the audience. The stage is that questioning face. "Who is the director?," seems to echo ten years later.

### **Finding the words (as well)**

In January 1993, after the exhibition *Videoambiente 1982-1992* at Fondazione Mudima, the same institution hosted a discussion during which the *Materials for a Manifesto of Art and Communication in the Virtual Age* were first collected. This symposium was curated by Mario Canali, Antonio Caronia, Gino Di Maggio, Antonio Glessi, Maria Grazia Mattei, Paolo Rosa and Giacomo Verde and led to the identification of five key points:

- **EVENTUALITY:** Art is a process not an outcome;
- **COLLECTIVE AUTHOR:** New technologies revive the possibility and necessity of a collective artistic process;
- **INTERACTIVITY:** involvement and participation of the viewer in a creative relationship with the technological artwork;
- **VIRTUALITY:** a new expressive and communicative dimension materializes the moments of design and creation of the work,

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29 Y. Ritsos, *Delphi. La sonata al chiaro di luna* (Milan: Crocetti Editore, 2012).

dematerializing or fluidifying formal supports, disciplinary genres, and linguistic codes;

■ **PLURISENSORIALITY:** new interactive technologies tend to overcome sensory fragmentation and audiovisual primacy in the direction of a synaesthetic experience.<sup>30</sup>

In his notes, Paolo Rosa wrote down some thoughts that he later resumed together with Andrea Balzola – who also participated in the 1993 conference at Fondazione Mudima – for their joint publication, *L'arte fuori di sé. Un manifesto per l'età post-tecnologica (Art Beyond Itself: A Manifesto for the Post-Technological Age)*:<sup>31</sup>

After an initial cohesion suggesting the birth of an artistic movement, significant differences in approach to the research material began to surface, leading to the group's dispersion. This creative and theoretical ferment, regardless of the extent of its public exposure, immediately demonstrated that the novelty and complexity of virtual and interactive technologies demanded a collective approach to both artistic practice and theoretical elaboration, requiring the interweaving of different skills, expertise, and visions. In essence, "Virtual Reality" introduced a new way of thinking and creating art, the emergence of "a participatory work," of a "collective author," of what we would call a plural artist.<sup>32</sup>

Within three years, in 1995 – also thanks to Stefano Roveda's expertise<sup>33</sup> – Studio Azzurro conceived

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30 On Giacomo Verde's website the full text of the discussion is available under the title *Per una nuova cartografia del reale* (*For a new cartography of the real*): M. Canali, A. Caronia, G. Di Maggio, A. Glessi, M. G. Mattei, P. Rosa, G. Verde, "Per una nuova cartografia del reale. Testo base di discussione per l'assemblea svoltasi alla Fondazione Mudima di Milan il 14 gennaio 1993," Verdegiac, <https://www.verdegiac.org/teorie/cartogra.htm>, accessed June 9, 2024.

31 A. Balzola, P. Rosa, *L'arte fuori di sé*. The publication is currently only available in Italian, therefore all following quotations are proposed by the author of this article.

32 Ibid.: 49-50.

33 Stefano Roveda joined in the group until 2011.

and realized their first seven interactive artworks,<sup>34</sup> which they defined as sensitive environments. Viewed from the perspective of bringing the public closer through working on vision and interaction devices, it becomes clearer what path Studio Azzurro has taken during that epochal shift that allowed images to drop off on any surface, at any scale, without the constraint of a monitor and with the ability to respond to human presence. Since the naming of things actively contributes to the redefinition of the world through a transforming language, the urgency to *name* these new “complex artifacts” indicates a desire to emphasize a poetic rather than technological realm of reference.

The ethical function of art acts not so much in being a communicative vehicle of ethical thought, but in being capable of generating language from things, materials, tools and technologies, since it is in language that the patterns of human experience and the possibility of reflecting on it are drawn.<sup>35</sup>

On closer inspection, it is a matter of seeking names for a *latent imagery*. And this particular name, which attributes a characteristic of *the living* to an assemblage of space, light, objects, machines, sensors and living presences, shifts the focus from the technological apparatus to the relationship it can *contribute to* with an “intercepted interaction”<sup>36</sup> within a complex ecosystem. A relationship

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34 All presented together in 1998 at the exhibition curated by Maria Grazia Mattei, *Interattività*, the fourth edition of *Progetto Tecnoarte* for the Biennale Arte-Tecnologia at CERP-Rocca Paolina Arti Visive Contemporanee, in Perugia. See the catalogue M.G. Mattei, ed., *Interattività. Studio Azzurro opere tra partecipazione e osservazione. Progetto Tecnoarte 1998* (Perugia: Fondazione Umbria Spettacolo, 1999).

35 A. Balzola. P. Rosa P., *L'arte fuori di sé*: 49-50.

36 This is the formula used by Paolo Rosa to distinguish natural from technological interaction.

that involves subjects of different *natures* acting within the same *field*.<sup>37</sup>

Perhaps it is no coincidence that exactly in the same years of the research around *Tavoli* (*perché queste mani mi toccano*) – the first *sensitive environment* by Studio Azzurro using a *natural interface*<sup>38</sup> – the so-called “mirror neurons” were first identified in Parma. This discovery was later developed by Vittorio Gallese<sup>39</sup> into the theory of Simulation and Embodied Cognition. Meanwhile, at the conference (1995) titled *ARTE + SCIENZA*,<sup>40</sup> Paolo Rosa was exploring the concept of “socializing interactivity”. It seemed to be one of those historical moments where something flashes and synchronizes, generating a shared tension in fields that only appear to be distant. The insights into these early experimental results in science and art carry with them an urgency to understand, investigate, and ultimately promote the realm of *intersubjectivity* that Vittorio Gallese has long emphasized. A pressing and anticipatory question, which today becomes increasingly critical in the

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37 This kind of assemblage today resonates with N. Katherine Hayles’ theory of *Cognitive Assemblage and the Unthought*, exposed in N. Hayles, *Unthought: The Power of the Cognitive Nonconscious* (Chicago-London: The University of Chicago Press, 2017).

38 *Natural interface* is another fundamental formula introduced in the 1990s to indicate the programmatic choice of using surfaces, objects, and everyday gestures as triggers for their interactive systems. The artists carefully and intentionally avoid buttons, mouses, or keyboards (both physical and virtual) to avoid another type of “trigger,” namely the recognition of a technical procedure aimed at “achieving something.” *Natural interfaces*, in addition to warding off technical enthusiasm, are excellent allies in activating unprecedented forms of synesthesia, a crucial process for re-sensitizing the viewer. The expression is not completely overlapping with the more recently used NUI (Natural User Interface). Regarding the concept of interface, it is enlightening to consult Internet archive, *erewhon.ticonuno*: G. Anceschi, “Ergonomia cognitiva. Convegno di studi su La Filosofia del Web. Tempo e connessione: i fondamenti dell’ipertestualità tra ermeneutica e decostruzione,” Web Archive, <https://web.archive.org/web/20080502034225/http://erewhon.ticonuno.it/riv/rete/filodelweb/convegno.htm>, accessed May 25, 2024.

39 Already in 2003, Vittorio Gallese wrote: “Much of what happens in our interpersonal relationships would be the result of the ability to create a ‘us-centred’ that we can share with others. The creation of this shared space would be the result of the activity of ‘embodied simulation’,” in V. Gallese, “La molteplice natura delle relazioni interpersonali: la ricerca di un comune meccanismo neurofisiologico,” *Networks* 1 (2003): 24-47. Translated by the author.

40 P. Rosa in *ARTE + SCIENZA. I mutamenti indotti dalle Nuove Tecnologie nell’Arte Contemporanea* (Accademia di Brera, Milan, 1995). The recordings of the conference are available at: P. Rosa, “Parolo Rosa (I) \*Interattività socializzante,” Youtube, <https://www.youtube.com/watch?v=30CCoVgCqlw>, accessed May 25, 2024.

face of the rising virtualized forms of sociality that we all inhabit daily in our “crowded solitudes.”<sup>41</sup>

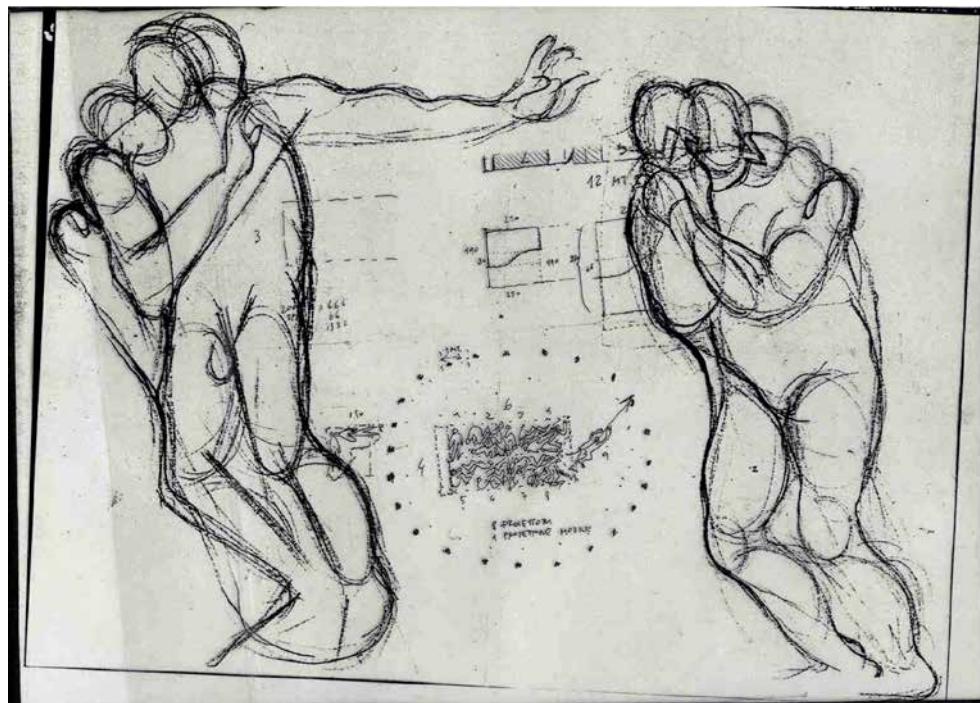


Fig. 3 – P. Rosa (Studio Azzurro), *Coro*, 1995, project sketch, courtesy of the Artist.

At that conference, Paolo Rosa, emphasizing the socializing potential of the technological interactivity that Studio Azzurro was working on, hinted at a design approach that considers very specific elements related to the material and perceptual qualities of the artworks, such as space, sound, surfaces, and atmosphere, in addition to the interaction modes. The context, interfaces and the possibility of a shared and collective fruition: today all these aspects of the project seem to be more urgent than ever, as we constantly realize that “we engage in a sea of connections but have devalued the dimension of relationships.”<sup>42</sup>

Through direct experience in designing interactive works, Studio Azzurro established some key principles that became essential and distinctive for their approach. The first one was to resist the narrow focus encouraged by the personal devices that were beginning to proliferate

41 U. La Pietra, *Viviamo affollate solitudini* (Milan: Politi Segnafreddo Edizioni, 2023).

42 From a conversation between Paolo Fabbri and Paolo Rosa on the occasion of the presentation of *L'arte fuori di sé*, filmed 2012 at Gambalunga Library, Rimini: “Paolo Fabbri e Paolo Rosa su L'arte fuori di sé,” vimeo.

at the time (starting with personal computers). The second was to avoid succumbing to the allure of flashy technology and the commercial development of its operational interfaces. These two guiding lights still orient the reflection on the space of action and contemplation opened up by the artwork and illuminate the group's research; the development of *natural interfaces* and the potential to foster *collectivity* within a work. In the span of three years, these two principles become part of the twenty brief reflections that Paolo Rosa gathered under the programmatic title *Confidential Report on an Interactive Experience*,<sup>43</sup> which was proposed for a publication in connection with another conference, held in Pisa and entitled *Mediamorfosi '98*.<sup>44</sup>

### **From “reacting systems” to the “point of being” [ndr. punto di vi(s)ta]**

In a paper drafted between 1998 and 2003, parallel to the *Confidential Report*, Paolo Rosa expressed a rather pessimistic view on the extent of the anthropological and social changes linked to what he then called “reacting systems,” meaning capable of “amplifying, transforming, and storing.”<sup>45</sup>

“Amplifying a need for participation;” “transforming” in the sense of “connecting things of a totally

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43 The text was published in its entirety in 1999 on the occasion of the abovementioned exhibition *Interattività*, organized on the occasion of the Biennale Arte e Tecnologia, CERB – Perugia. See the catalogue M.G. Mattei, ed., *Interattività – Studio Azzurro, opere tra partecipazione e osservazione*, (Perugia: Fondazione Umbria Spettacolo, 1999): 26. The Confidential report was also included in Studio Azzurro, *Ambienti sensibili*, (Milan: Electa, 1999).

The publication that followed the symposium “Mediamorfosi 98,” S. Vassallo, A. Di Brino, eds., *Arte tra azione e contemplazione. L’interattività nelle ricerche artistiche* (Pisa: Edizioni ETS, 2003), instead contains a more discursive and concise version of the text, where Paolo Rosa begins to emphasise the expression “arte fuori di sé” (art beyond itself).

44 In the dossier that compiles the materials suggested for the conference, it is interesting to note the article by Antonio Camurri, which explores museum applications for Ambienti Multimodali Interattivi (Interactive Multimodal Environments), or “AMI.” See the article A. Camurri, “Ambienti Multimodali Interattivi,” *Sistemi intelligenti* 9, no. 2 (1997): 315-342.

45 P. Rosa, “L’arte fuori di sé. Pensieri ancora sommari sull’estetica delle relazioni,” in S. Vassallo, A. Di Brino, eds., *Arte tra azione e contemplazione. L’interattività nelle ricerche artistiche* (Pisa: Edizioni ETS, 2003): 40.

different nature;” “detect,” “organize,” and “store” the data obtained from the interactions “in sensitive databases, raw material for new consumption and new consensus.” In the course of this early diagnosis,<sup>46</sup> parallel emphasis is placed on the ambiguity of the three faculties of the reacting systems: what happens inside them is that “participation” is actually frustrated, if not entirely eluded by the “exasperated individuality” of the subjects, and artfully fuelled by the demand for participation itself; the dialogue between different natures generates an “excess of communication;” “the activation of memories” becomes the exploitation of data, which we now call “extractivism.” Yet, as Paolo Rosa points out, these three faculties are the result of relationships and cannot exist without them. Once again, he emphasizes the relationship as the primary focus for reflection on technology. Piero Gilardi echoes this sentiment in the same volume,<sup>47</sup> as he writes:

In my view, the relationship is the true substance of interactivity. I also hypothesize that the culture of interactivity could replace language, which is a very rigid symbolic system, whereas interactivity

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46 It should be noted that when Paolo Rosa wrote this text (1998-2003), neither Facebook nor Instagram existed.

47 P. Gilardi, “Dall’interazione politica al bio feedback,” in S. Vassallo, A. Di Brino, eds., *Arte tra azione e contemplazione. L’interattività nelle ricerche artistiche* (Pisa: Edizioni ETS, 2003): 160. Translated by the author.

is not. We can imagine that technological interactivity is one of the fields on which a new way of relating to others can develop.<sup>48</sup>

An overwhelming statement that can help us today to interpret some epiphenomena of the use of personal devices and immersion in social media, which reduce the effective communicative capacity of verbal language in favor of gestures, emoji, stickers, memes and other viral forms of communication.

In the Confidential Report, the tenth point is entitled the symbolic system<sup>49</sup> and proposes a parallelism between the significance of the invention of perspective and that of technological interactivity. Rosa introduces the next point by borrowing an expression from Derrick de Kerckhove<sup>50</sup> and translating it as “punto di vita” (“point of life”), rather than the usual and more literal Italian translation

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48 It is worth quoting here Piero Gilardi's vision, which seems to resonate both in the past and in the future: “While in our humanistic culture [...] we deluded ourselves that within the individual consciousness there could be an awareness of the whole, today we must recognize –and this is very important from an existential point of view– that each of us, in our singularity, cannot have a complete awareness of the whole. This [...] shifts the problem of consciousness. We cannot think of having a unitary consciousness that encapsulates a true image of the world: inevitably, consciousness becomes diffuse. [...] The fact that consciousness is diffuse highlights [...] the relationship. Today, we are increasingly connected with those around us. We must learn to live in a relationship with others that is very different. [...] A hypothesis that I find very fitting is that of [...] ‘common singularity,’ meaning that each of us has and develops our own singular qualities but does not use them as a point of differentiation from others; we do not use them as a filter in communication with others. Instead, we become totally transparent, making our characteristics and positive qualities fluid and osmotically transferable to others,” in A. Di Brino, eds., *Arte tra azione e contemplazione. L'interattività nelle ricerche artistiche* (Pisa: Edizioni ETS, 2003): 160. Translated by the author.

49 Again, Antonio Caronia can help us in interpreting the manifesto. Commenting on statements from 1989, he notes that “surpassing language” seemed a desirable and especially achievable goal with VR, to the point that the inventor and main “prophet” of that technology, Jaron Lanier, even spoke of the possibility of “post-symbolic communication” See A. Caronia, *L'inconscio della macchina, ovvero: come catturare il significante fluttuante* (Milan, Mimesis, 2006), <https://www.pulplibri.it/linconscio-della-macchina-e-altri-scritti/>, accessed June 30, 2024.

50 Years later, a publication gathers some reflections by de Kerckhove and de Almeida around this title. See D. de Kerckhove, C. de Almeida, eds., *The Point of Being* (Newcastle upon Tyne: Cambridge Scholars Publishing, 2014).

as “punto di essere” (“point of being”).<sup>51</sup> With a stroke of linguistic creativity, he connects the symbolic form of perspective and frees us from the rigid frontality of the optical system, returning us to the body system, the entire sphere of Peripersonal Space, and our being in the world.



Fig. 4: Studio Azzurro, *Fare gli italiani*, 2011, sensitive path, photograph by Studio Azzurro.

This tension to expand the horizon of the habitable for a human gaze that reappropriates its integration with the other senses, starting with extended touch, resonates with the words of architect and thinker Juhani Pallasmaa, who has devoted much of his attention to the relationship between the senses and architecture. “The quality of architectural reality” – notes Pallasmaa – “seems fundamentally dependent on the nature of peripheral vision;

51 In Italian the wordplay is between *punto di vista*, i.e. the fixed point of view in a perspective vision; and *punto di vita*, that refers to the centre of gravity of each of us, the point of balance and orientation, of perception of space and possible relationships. The notion of the “sense of Being” is then developed by Rosa on the occasion of the honorary degree awarded to Derrick de Kerckhove by the University of Urbino. See P. Rosa, “Il punto di vita: uno strumento per perdersi,” *Sociologia della comunicazione* 38 (2006): 79-84. See also D. de Kerckhove, “Lectio magistralis. Il quanto è il messaggio,” *Sociologia della comunicazione* 38 (2006): 13-22.

it is this that unfolds the subject in space.”<sup>52</sup> As peripheral vision gathers an extraordinary number of stimuli that engage the “preconscious perceptual system,” it is now proven that it can significantly impact our perceptual and also cultural and political experience.<sup>53</sup>

The program envisioned by Pallasmaa evokes participatory performance practices related to the exercise of gazing at a place and to movement, an effective antidote to our gaze sinking into smartphones.<sup>54</sup> Dwelling on peripheral vision underscores how much we are influenced by what lies at the edges of our gaze (and conscious thinking) and how it helps us establish reference points to navigate a space filled with objects, bodies, images, and sounds. In this sense, peripheral vision can also help us observe a complex artwork, a museum, or an exhibition differently and see them as a form of montage that unfolds in space and not (just) in time.

### **The art of “levare”**

In the face of complexity and as a counterpoint to the uncontrolled proliferation of forms of communication, the “art of subtraction” emerges as a necessity. It requires

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52 “Unconscious peripheral perception transforms retinal gestalt into spatial and bodily experiences. Peripheral vision integrates us with space, while focused vision pushes us out of the space, making us mere spectators. The defensive and unfocused gaze of our time, burdened by sensory overload, may eventually open up new realms of vision and thought, freed of the implicit desire of the eye for control and power. The loss of focus can liberate the eye from its historical patriarchal domination,” in J. Pallasmaa, *The Eyes of the Skin. Architecture and the Senses* (New York: Academy Editions Ltd, 2005): 13.

53 Ibid.

54 Just try observing how our awareness of space changes when we walk through a crowd trying to see with the whole field of vision and not just exactly in front of us, temporarily disregarding our focal point. It could be a gaze that is present and yet widened and unfocused, or the reversal of our direction that suddenly makes us aware of the edges of our vision. While walking backwards, everything recedes, and what is new comes from the periphery of our visual field. In these processes, somatic practices and the performing arts have much to teach us.

the courage to “give up something”<sup>55</sup> in favor of clarity and *cum-munus*.

In a project for a sensitive environment, there comes a moment when it becomes *clear* what needs to be relinquished to avoid disorienting the “co-authors” and to clear the moment of the encounter, establishing a long-contemplated relationship. When imagining the sensitivity of an environment, “the designer’s notion of the audience shifts” and so does the idea of the work! It is no longer a static and permanent object.<sup>56</sup> What is increasingly required of artistic experimentation is the possibility to:

Generate processes that lead to a point of encounter beyond the materiality of expression. That “artwork beyond itself,” as we might call it, which becomes dialogue, invention by the spectator, a ritual. And all this happens not in a conceptual space, but in a real, physical space, with real gestures and a direct, lived experience, even if the interaction has virtual components. It is an exchange in which no one imposes on the other, but in which each element of difference vivifies and enriches one’s own identity.<sup>57</sup>

We have thus returned to confront intersubjectivity. In this passage, we find it defined in a way that makes it difficult to distinguish this aspiration from the best of utopias regarding human relationships. On the other hand, it also aligns with Lidia Decandia’s definition of the museum as a participatory artwork of a community rich in traces

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55 P. Rosa, “Arte leggera,” in Studio Azzurro, *Ambienti sensibili. Opere tra interattività e narrazione* (Milan: Electa, 1999): 6.

56 In support of this reflection, it is useful to quote P. Montani: “on these conditions, the initial technical object is born within the prospect of having to renounce its primary physical identity, rapidly and irreversibly, just like Vertov’s Kinoglaz. At any rate, this capitulation is indispensable in order to grant the image a “way of living” that can again be compared to Vertovian hypertext,” in P. Montani, *Guardami*: 37-38.

57 P. Rosa, “Arte leggera:” 6.



Fig. 5: Studio Azzurro, *Patine e accumuli*, 2015, sensitive environment, photograph by Studio Azzurro.

and roots exposed to different generations: the artwork as a celebration, a ritual, a place of sharing.

Art, for the artist who believes in having a responsibility toward the world, can open clearings that provide orientation tools in uncertain times. However, it coexists with the awareness that their practice relies on an apparently contradictory movement: “To the continuous need of art to irresponsibly explore the most extreme thresholds corresponds the responsibility to set rules for oneself.”<sup>58</sup>

In short, balancing the *Hybris* of artistic research with a vigilant self-regulation. Although responsibility etymologically means “knowing how to give a response,” we know – but it is always good to be reminded of it – that art cannot be asked to answer epochal questions or technono-scientific dilemmas. Art can pose questions that elude rational thinking, it can open up the unthought to a propositional horizon and a transversal analysis of the most urgent issues. Art should trigger processes, not necessarily those that are visible. From art one can – and should – demand (uncomfortable) questions and insights to carve out

58 A. Balzola, P. Rosa, *L'arte fuori di sé*: 41.

horizons in which to find “new constellations of relationships” for self-orientation.<sup>59</sup>

It has been rightly argued that even an ethics of responsibility, much more relativist than the traditional one, seems impractical today. This is because reality is constantly changing due to technological innovations and scientific discoveries, creating entirely new moral issues. For this reason, it is difficult, if not impossible, to feel responsible, as we lack the parameters to interpret them. Here, the notion of responsibility shifts. It means committing to maintaining constant attention to ongoing transformations. While this responsibility may seem less effective from a practical standpoint, it is not demanding. It involves more than just an external perspective; it requires a courageous engagement with phenomena and changes as they occur. The goal is to attempt – perhaps even in vain – to navigate and influence them.<sup>60</sup>

## **Freedom to?**

When we pause to consider the current rhetoric surrounding the production of environmental images, responsibility, freedom, and orientation seem to take on crucial roles. From the five points of the 1990s manifesto that emphasized the *virtual*, reflection has shifted to the six degrees of freedom, which, by definition, suggest a... condition of detention. But let's broaden the scope and return to the *sensitive environments* we have previously approached, where the themes of freedom and interactivity

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59 In this sense, as detected by D. Arasse, “L’invention de la perspective,” *Histoires de peintures* (Paris: Denoël, 2004): 63, it is interesting to mention the original meaning of the Latin word *templum*, which originally defined the portion of heaven that the diviner interrogated from the corresponding portion of consecrated ground of the temple.

60 A. Balzola, P. Rosa, *L’arte fuori di sé*: 41.

have long raised a subtle issue intertwining with the theme of authorship.

In 2012, during a conversation between Paolo Rosa and Paolo Fabbri, they tackled the issue of conditioning and manipulating viewers through the possibility of “programming behaviors”<sup>61</sup> by designing interactive environments. The discussion reaches a delicate point, carefully weighing the terms and distinguishing between the demiurge designer and the responsible, curious designer who, instead of expecting a behavior, seeks conditions to be surprised by it. The distinction is suddenly clear when highlighting the difference between programming and designing.

Paolo Rosa often describes how interactive works transform the author into a spectator of the spectators, opening a completely new creative dimension precisely when the author’s contribution is usually considered finished. Today, fortunately, these considerations are quite widespread even among younger artistic groups. The creativity that can be liberated and absorbed from the freedom of visitors’ gestures and behaviors is something difficult to classify and not easily archivable, except in the embodied memory of the designer... who thus finds himself literally commissioned by the spectators to explore new paths or revisit old ones in light of their actions.

After all, “the totality of the battle is made by the spectator,”<sup>62</sup> Andrea Pinotti summarizes. And the authors are there waiting to finally see it after months of work during

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61 Cit. Paolo Fabbri and Paolo Rosa presentation of the book *L’arte fuori di sé*, filmed 2012 at Gambahunga Library, Rimini: “Paolo Fabbri e Paolo Rosa su L’arte fuori di sé,” vimeo.

62 A. Pinotti’s wordplay, in the speech *Studio Azzurro, portatore di historia* held at the aforementioned conference *Le immagini e le storie* (Cesano Maderno, 2023). It is made explicit by knowing that *Totale della battaglia* is the title of one of the first *sensitive environments* created by Studio Azzurro, inspired by Paolo Uccello’s *The Battle of San Romano*. Composed of multiple videoprojections, the work populated the interior of the Baluardo San Paolino and was activated by the voices of visitors. Their calls and shouts established an expressive continuity with the calls of the soldiers who centuries earlier had stood guard over those same walls. Only through multiple interactions could a totality be reconstructed from these fragments dispersed throughout the bastion. Indeed, subsequently, some parts of the installation have been acquired by museum institutions as “fragments of the battle.”

which they tried to imagine people in *the space between* the projections, the stories, and the resonant walls of the San Paolino Bastion in Lucca. So again: Who is my director?

This openness to the other seems to be the key to not being imprisoned by self-referential research forms and not being overwhelmed by the seduction of technology and its degrees of freedom. The key is to keep in mind that it is always time to be surprised and enchanted by the other. To place oneself in the position of observing with curiosity and sensitivity, and in this gesture, to create that small distance after immersing oneself in research...



Fig. 6 – Studio Azzurro, *In Principio (e poi)*, 2013, project visualisation by Studio Azzurro.

A small distance that enables the attitude of not considering the inquiry exhausted. Within this horizon, the “conditional freedom” of *sensitive environments* – although it does not alter the program’s matrix – indicates a shift concerning the issue of the viewer’s freedom, as it aims to connect them with a dimension of expectation and openness to a possible hiatus, to the possibility of renewing rather than restricting freedom through a socially consequences-rich gesture.

This form of interactivity invites the gesture as the very moment of sharing. The *cum-munus* thus also

interrogates the virtual narrative community: touching the life-sized image of a projected person walking in front of us, and in response to our gesture, stops, turns, and tells us something personal, exposing its memory as a gift. This gesture is the encounter of a part of the community that cannot be present in that moment and yet is present with its virtual body and irreplaceable voice.

It should be remembered that, without that flesh-and-blood gesture, without that movement of bodies in physical space, the images are temporally trapped in a spell, in a fixed or recursive instant, and the work does not manifest itself fully, remaining in a state of waiting.

The sensitivity of the organism-environment is indeed one of the components of the system that inner-vates and articulates the space of the work. The dimension in which Studio Azzurro's peculiarity manifests itself the work on images, sound, and space-time; as mentioned, it is the *montage in space*. Montage in an interactive work is a quantum leap compared to montage in a video *environment*. The “editing box” (*scatola di montaggio*) becomes a “box of relationships.” The articulation of the intermedial path, of the process triggered by the presence of the bodies, and the editing of moving images sets the conditions for attempting to “dislodge the feeling”<sup>63</sup> of a habituated and anesthetized humanity. The procedurality in which personal devices entrap us is precisely the first “niche”<sup>64</sup> to avoid in order to access a state of sensitive attention. The automation<sup>65</sup> of gestures and reactions must be considered as a

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63 R. Bodei, “Riflessioni su alcune premesse dell’arte interattiva,” in S. Vassallo, A. Di Brino, eds., *Arte tra azione e contemplazione* (Pisa: Edizioni ETS, 2003): 164.

64 More than Uexküll, this refers to J.J. Gibson and his “theory of affordances” (1977), which distinguished the concept of niche from the concept of *habitat* as follows: “A species of animal is said to utilize or occupy a certain niche in the environment. This is not quite the same as the habitat of the species; a niche refers more to how an animal lives than to where it lives. I suggest that a niche is a set of affordances” in J.J. Gibson, *The Ecological Approach to Visual Perception* (New York: Taylor and Francis LLC, 1986): 195.

65 “Attention is an intensification of sensory perceptions and is not necessarily conscious” while “automation is a diminution of attention” [...] “Motor skill learning and instrumental learning [...] take place without any awareness or contribution from consciousness” in J. Jaynes, *The diachronic nature of consciousness* (Milan: Adelphi, 2014): 20-21.

phenomenon of habituation to be disarticulated to interrupt the flow of habit and open an asynchrony, an *interstice of freedom* from which the *unthought* emerges, the spark of cognitive engagement rather than emotional overwhelming.

For the designer, the *unthought* is a goal. For the visitor, it flashes unexpectedly in a flow in which they are spontaneously involved. The designer is asked to make the effort to displace gestural, mental and perceptive habits and to rekindle a disposition to discovery, an essential condition for hoping to compose a trace in the visitor's memory.<sup>66</sup>

## **The shape of the gesture**

Procedural expectation adds to the anaesthetic effect an emptying of form. The difference between the care for the ritual gesture and the intolerance or indifference of the procedural gesture carves our scenario with great clarity.

Paolo Rosa's emphasis on *gesture of the relationship* today highlights the theme of the *agentivity* of the material with which the gesture interacts, as well as *performativity*. The latter is an irreducible element that characterises us as subjects from birth, the Ego being "primarily a motor Ego."<sup>67</sup> The *intercorporeality*<sup>68</sup> through which our experience of the world is gradually articulated poses a question: how is this experience oriented today in the face of virtual bodies entering our peripersonal space? In Studio Azzurro's *sensitive environments*, this performativity,

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66 About designer's responsibility in construction of conditions for an emergent relation and virtual presence, see R. Diodato, "Relazione, sistema, virtualità. Prospettive dell'esperienza estetica," *Studi di estetica* 1-2 (2014): 85-103. About memory "We do not think any longer in terms of strictly museum-based approach, but in terms of 'condensation' places, where the memory of the past meets the participation in the present [...]. We start with distinctive historical or productive elements [...]. We gather images and testimonies and we immerse them in our interactive systems. Thus, what is presented – besides telling something of the past, of a story – also tells something of the language used to bring it on stage," in R. Diodato, *Image, Art and Virtuality. Towards an Aesthetics of Relation* (Cham: Springer Nature, 2021): 76.

67 M. Ammaniti, V. Gallese, *La nascita della intersoggettività* (Milan: Raffaello Cortina Editore, 2014): 31. Translated by the author.

68 Ibid.

whether more or less involuntary, amplifies the interactivity itself, if not, perhaps, its poetic fulcrum – “the point of life” mentioned above, *the point of being present*, aware of occupying a space there, at that moment, with those people, in that context. The wordplay<sup>69</sup> makes clear that this “point” is also a surpassing of perspective fixity.<sup>70</sup> The *point of life* is a point of untiring negotiation<sup>71</sup> with the world, a “tool for losing and finding oneself”<sup>72</sup> in the dynamic of a relationship with (the instability of) the artwork.



Fig. 7 – Studio Azzurro, *In Principio (e poi)*, 2013, photo montage by Studio Azzurro.

Performativity occurs, in this case, when real and virtual bodies meet within the device that is the artwork.

69 Moreover, activated by a discourse that began with the contemplation of the small panel of the *Flagellation* by Piero della Francesca in Urbino, a supreme synthesis of perspectival wisdom.

70 P. Rosa, *Il punto di vita*: 79-84. As earlier noted, in Italian the wordplay is between *punto di vista*, i.e. the fixed point of view in a perspective vision; and *punto di vita*, i.e. the centre of gravity of each of us, the point of balance and orientation, of perception of space and possible relationships).

71 About the artwork as a site of negotiation of art itself, V. Valentini, “Le installazioni multimedia: come mettere in gioco lo spettatore,” in V. Valentini, ed., *Le storie del video* (Rome: Bulzoni Editore, 2003): 288.

72 Subtitle of the same contribution P. Rosa, *Il punto di vita* (Milan: Franco Angeli, 2005): 79-84.

Potentially where, to quote Agamben, the subject is structured rather than with *corpo a corpo* (a close confrontation)<sup>73</sup> with an encounter within a *protected* environment. This suggests a mode of relationship where the gesture is not driven by the need to be performative or agonistic, but by being with the other. Being aware, even visually, of being in a system of relationship that becomes a collector of *gestures of proximity and grace* can inspire visitors to share the experience as a plastic interpretation, introducing their own gestures into the work's ecosystem, taking into account being seen by others, and actively contributing



Fig. 8 – Studio Azzurro,  
In Principio (e poi), 2013,  
photograph by Studio Azzurro.

to the composition, configuration, and vitality of the work.

This “being seen” inherently involves a fundamental *reciprocity* for a technology-based device, as it transcends the one-to-one relationship typically associated with the (brutal) term “user.” It includes a specific reciprocity with the work and the environment where others are also present, seeing themselves within and interacting with the work. The flux that is thus nourished is what most interests Studio Azzurro’s designers: the environment becomes a

73 “I call subject what results from the relationship and, as it were, a close confrontation (in Italian “un corpo a corpo”) between living beings and systems,” G. Agamben in M. Cometa, *La svolta ecomediale* (Milan: Meltemi, 2023): 14. Translation by the author.

laboratory of gestures, interspecies sociality, and behaviors not conditioned by technology and its instructions,<sup>74</sup> but by the collective presence of bodies and stories within that environment. Ultimately, this is an appeal to the visitor to feel involved and *to take a stance*.

The programmatic declaration of *Facce di festa* already embodied this definitive appeal to the spectator, positioning them as the author of the “total battle,” as the “responsible” and the “responsive-able” (capable of judgment) of the “material on display.” An active subject in every sense – through gesture and imagination – active because *in movement*, free to traverse *the spaces between* images and inhabit the small clearings from which thoughts, dreams, and visions arise... “we said we wanted more than spectators; we wanted visionaries!”<sup>75</sup>

One could argue that much of Studio Azzurro’s work aims to design in order to create the conditions that allow the spectator to re-define himself as a *sensitive subject* – or rather, *re-sensitized subject*, through a specific form of intermedial reassembly. Every *space between* in this form of montage is a latent, apparently neutral space-time of signification, where the potential for an awakening lies, in a flicker of the off-screen, thanks to the unexpected, to interruptions in procedurality, of the device’s feedback.

If the goal of the work is not interaction itself, nor its degree of technological radicality, but rather the poetic verification of rediscovering a forgotten sensibility within habitual frameworks, then we can continue to explore the opening of a condition of auroral perception,

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74 “With a politically healthy attitude of wonder” states V. Valentini in *Le storie del video* (Rome: Bulzoni Editore, 2003): 297. Translation by the author.

75 P. Rosa in *ARTE + SCIENZA. I mutamenti indotti dalle Nuove Tecnologie nell’Arte Contemporanea* (Accademia di Brera, Milan, 1995). The recordings of the conference are available at: “Parolo Rosa (I) \*Interattività socializzante,” Youtube.

receptively disposed to encounter a story, an image, and ultimately with the other outside ourselves.<sup>76</sup>

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76 “Thanks to the body, internal and external, subject and object are nothing more than verbal descriptions of correlative aspects of a basic construct: the intentional relationship, openness to the other than oneself, desire. Other words that describe different ways of considering our intrinsic, consubstantial search for the other,” V. Gallese, forward to H. F. Mallgrave, *L’empatia degli spazi. Architettura e neuroscienze* (Milan: Raffaello Cortina Editore, 2015): XIII. Translation by the author.

# The Algorithmic Age: On Dynamic Interactions Shaping Creative Practices



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## Abstract

Generative Adversarial Networks (GANs) and a panel of selected artworks by the artist Sougwen Chung are analyzed hereafter as paradigmatic and innovative case studies able to express a conception of interactivity intrinsic to the human-mediated relationship with our interconnected world. This paper investigates the manifestation of this feature as constitutive of an artistic practice based on collaboration. By integrating the latest artificial intelligence technologies into their methodologies, these practices become conceptually richer than in the past. The gradations that inform human-system interactions express an interactivity that enhances the creative process not only on a compositional level but also in terms of reworking content that, in their final form, exceed preordained operational mechanisms. I aim to discuss how these two case studies exhibit these traits within a theoretical framework where Visual Arts, mixed with philosophical questioning, are proposed as a preferred point of view to lead reflections and examine the new inquiries arising from the evolution of a technology deeply rooted in the environment we inhabit.

## Keywords

GAN

Interactivity

Feedback Loops

Sougwen Chung

Algorithm

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## Introduction

While traditionally focused on the appearance of things and their representation, art is now concerned with processes of interaction,<sup>1</sup> transformation, and emergence.

As noted by Fausto Tomei, who echoes a reflection by Piero Biannucci, “elements of interactivity have always existed in every form of art.”<sup>2</sup> This article starts from this assumption in order to examine the different levels through which this interactivity is expressed within contemporary artistic practices, hybridized with the latest technologies. By integrating the generative mechanisms into their own methodologies, these practices are not only expanding our expressive potential,<sup>3</sup> but have also become an exemplary case to analyze how increasingly profound entanglements between individuals and technologies contribute to their mutual constitution. This framework is consistent with a “more general approach to art as residing in a cultural communications system rather than in the art object as a fixed semantic configuration.”<sup>4</sup> Elemental aspects of such a perspective were already detectable in Roy Ascott’s artworks, the media art pioneer who actively contributed to the notion of a computer-based art able to reflect the transformations of its own time. Ascott’s theoretical framework owes much to the discourse on Cybernetics: this inherently interdisciplinary field of research focuses on behavior, communication, and the control of information

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1 R. Ascott, *Telematic Embrace: Visionary Theories of Art, Technology, and Consciousness* (Berkeley: University of California Press, 2003): 375.

2 F. Tomei, *Arte interattiva. Teoria e artisti* (Bologna: Pendragon, 2006): 22.

3 E. Cetinic, J. She, “Understanding and Creating Art with AI: Review and Outlook,” *ACM Transactions on Multimedia Computing, Communications, and Applications (TOMM)* 18, no. 66 (2022): 1-22, <https://doi.org/10.1145/3475799>.

4 R. Ascott, *Telematic Embrace*: 233.

flows, interconnected by the concept of feedback,<sup>5</sup> which is ultimately central for the notion of interactivity itself.

Several artistic experiments, Ascott's efforts included, have embraced this theoretical foundation, which was in addition closely intertwined with the emergence of studies in Artificial Intelligence and Computer Vision, also flourishing during the same years. Ascott decided to employ cybernetic concepts of feedback, process, and system in order to introduce them into the contemporary art establishment through his proposal of interactive art. In particular, Ascott believes that it is possible to see works of art essentially as "creative systems, the behavior of which could be altered and regulated by the interactive exchange of information via feedback loops."<sup>6</sup> More broadly, this exchange serves as the explanatory basis for all phenomena occurring within an organism, as well as those between the organism and its environment. Ascott's aesthetic-cybernetic proposal assimilates all these aspect and introduces a *cybernetic vision* that allows us to consider art, culture, and society as interconnected systems within an uninterrupted communication that balances the dynamism between ordered and unpredictable elements within the experience of the creative process.<sup>7</sup> To this end, the cybernetic framework provided Ascott with the occasion to experiment with an artwork that emerges from a context of interactions between the spectator and the piece beyond the artist's control.

All these elements contribute to a concept of interaction more complex and stratified than expected, especially now that this very aspect of uncertainty, as part of the outlined communicative stream, is enhanced

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5 N. Wiener, *The Human Use of Human Beings. Cybernetics and Society* (Boston MA: Houghton Mifflin, 1950).

6 R. Ascott, *Telematic Embrace*: 4.

7 For further readings, see R. Ascott, "The Cybernetic Stance: my process and purpose," *Leonardo* 40, no. 2 (2007): 189-197, <https://doi.org/10.1162/leon.2007.40.2.189>.

by algorithmic systems deeply involved in the artistic endeavors. This primarily means focusing attention on the part of the process that precedes the moment of reception, beyond a form of “real-time control over the computing process (that) is placed in the hands of the user.”<sup>8</sup> In this direction, the leading purpose is to focus the current analysis on what this frame of interactivity fails to fully account for, providing conceptual tools that are better aligned with the richness of an up-to-date artistic-creative experience, as it involves complex dynamics of reciprocity and, more broadly, mutual shaping between a human being and a technological apparatus able to “determine our situation.”<sup>9</sup> Going beyond the simple fact that each action performed by the user triggers an immediate reaction from the machine means, first and foremost, reflecting on dynamics that escape interactions with pre-determined outcomes. Furthermore, it integrates a primary definition of interaction as action between into a more extensive concept of interactivity as action *between and through*<sup>10</sup> elements that mutually constitute one another without being fully resolved in linear immediacy or complete control. To summarize, it calls for a notion of interactivity capable of translating the conceptual framework of the *cybernetic vision*, as reinterpreted by Ascott, into the more strictly productive phase of the artistic process, while simultaneously underscoring the idea that “numerical operations are always entangled with human operations.”<sup>11</sup> All these elements converge in the theoretical proposal of a more extensive concept of meta-interactivity, the essential feature of a co-creative process shaped by the dynamic relationship between the

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8 L.A. Suchman, *Human-Machine Reconfigurations. Plans and Situated Actions* (Cambridge: Cambridge University Press, 2nd edition, 2007).

9 F. Kittler, *Gramophone, Film, Typewriter* (Redwood City: Stanford University Press, 1999).

10 For a further reading and a complete analysis on the ontological relevance of the category of relation, see R. Diodato, *Immagine, arte, virtualità. Per un'estetica della relazione* (Brescia: Morcelliana, 2020).

11 S. Fizek, *Playing at a Distance: Borderlands of Video Game Aesthetic* (Cambridge, MA: MIT Press, 2022): 104, <https://doi.org/10.7551/mitpress/13605.001.0001>.

artist and the machine. The emergency of this quality will be therefore analyzed primarily by revisiting the ‘preceding phases’ of the creative process through the introduction of the operating mechanisms of Generative Adversarial Networks (GANs), an intrinsically interactive technology capable not only of transforming pre-existing images but also of generating entirely new ones, thus marking a significant turning point in the contemporary artistic and visual landscape. The highlight will finally shift to Sougwen Chung’s artworks as a paradigmatic example of a human-machine open dialogue, gestural and opaque, that finds in its renewed unpredictability the key to deeply understand hybrid art as an ongoing, meta-interactive collaborative process.

## **Exploring Meta-Interactivity: From Cybernetic to Generative Adversarial Networks**

Given these conceptual premises, the following sections will be dedicated to the investigation of interactivity as a result of a gradual and increasingly complex stratification within the broader process of artistic creation and reception. The first case under analysis does not refer to a specific artwork, but rather to an *architectural system*, widely used for artistic purposes. A Generative Adversarial Network (GAN) is an example of neural structure that falls under the broader systematic economy of Creative Deep Learning, wherein we see “the application of (unsupervised) DL to the production of artistic works and creative media.”<sup>12</sup>

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12 M. Akten, *Deep Visual Instruments: Realtime Continuous, Meaningful Human Control over Deep Neural Networks for Creative Expression*, PhD diss. (London: University of London, 2021): 11, <https://doi.org/10.25602/GOLD.00030191>.

Deep Learning (DL) is a field of research within Machine Learning that investigates how algorithms can learn from vast amounts of high-dimensional, highly complex “raw” data.<sup>13</sup>

When it comes to visual information – specifically to images – DL has proven to be a valuable resource not only for classification and analysis of digitized images, but also for their manipulation and generation processes, entailing algorithmic systems able to classify the existing world through a continuous learning process based on data feeding. For this to be possible, the system must implement a conversion process that translates images into a language it can understand, enabling it to “see” them, along with a categorization of the translated image based on indexing.<sup>14</sup> The *a priori* adherence to these two procedural conditions allows the system to implement the training operation, which consists of a feeding flux of a vast number of images “previously described by humans.”<sup>15</sup> Consequently, the algorithms learn to identify recurrent configurations, patterns, and regularities that are mostly invisible to human sensitivity.

2014, Montréal. Ian Goodfellow, researcher and computer scientist, had an exceptional intuition: a Canadian pub was the improbable setting where Generative Adversarial Networks first took shape.<sup>16</sup>

GANs, inspired by game theory, therefore consist of exchanges regulating the interaction between two neural networks, the generator and the discriminator. The latter is trained on a quite extensive dataset, entirely composed of real-world images. This dataset is precluded to the generator, which therefore starts producing a series of

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13 Ibid.: 3

14 A. Somaini, “Algorithmic Images: Artificial Intelligence and Visual Culture,” *Grey Room*, no. 93 (2023): 74-115, 80-81, [https://doi.org/10.1162/grey\\_a\\_00383](https://doi.org/10.1162/grey_a_00383).

15 S. Arcagni, *L’occhio della macchina* (Turin: Einaudi, 2018): 96.

16 I. Goodfellow *et al.*, “Generative Adversarial Nets,” *Neural Information Processing Systems* (2014): 1-9, <https://doi.org/10.48550/arXiv.1406.266>.

abstract images, initially “pure noise,”<sup>17</sup> strange intertwining shapes originating from its latent space, a technical setting that “contains infinite possibilities, like our imagination”<sup>18</sup> and where “digital objects”<sup>19</sup> are transformed “into latent representations so they can be processed and used to generate new digital objects.”<sup>20</sup> At this point, the discriminator’s task is to determine whether the images it receives are real or not. The level of abstraction of the initial images is so high that they are immediately sent back to the generator, which then uses its resources to make subsequent and more challenging interactions for its adversarial network, making it harder to evaluate the quality of the produced images. This unsupervised process highlights the “social”<sup>21</sup> nature of these networks and the level of independence they can achieve from human intervention, perceptible in all the attempts the generator must take to convince the antagonist network that it is learning to intuit the shapes of reality, while simultaneously transcending them, in that “the data it eventually produces are not mere copies, but (...) new images that imitate and transform the initial images.”<sup>22</sup> The datasets that inform the training process are the epistemological tool that allows the machine to “experience”; however, they are also the result of both a situated process of categorizing classes of images<sup>23</sup> and the network of previous interactions between humans and media apparatuses. That is to say, the two adversarial networks interact based on past interactions that inform their training, and consequently also their outputs. As Somaini rightly points out:

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17 A. I. Miller, *The artist in the machine: the world of AI-powered creativity* (Cambridge MA: MIT Press, 2019): 89.

18 Ibid.

19 A. Somaini, “Algorithmic Images:” 74-115, 77.

20 Ibid.

21 A. Barale, ed., *Arte e Intelligenza Artificiale. Be my GAN* (Milano: Jaca Book, 2020): 28.

22 Ibid.: 10.

23 Algorithms are trained using a wide variety of data. I will narrow the discussion to classes of images because they are the specific kind of data used to train the systems I’m going to analyze.

The images generated by various kinds of GANs are not the output of completely autonomous algorithmic processes. On the contrary, they are always the result of a complex series of interactions between the artists, the programmers that in some cases collaborate with them, the algorithms (with their different versions, possibilities, and limitations), the images that are part of the training set, and the images that were generated out of the latent space.<sup>24</sup>

Artificial intelligence systems express the potential to recombine the pre-existing as a continuous becoming, however starting from a pre-understanding originated from how we humans index or label the things we interact with – it is no coincidence that datasets are often biased. Once these systems are employed in the creative progression, it is possible to be about an “implicate process”<sup>25</sup> that highlights the “artist’s enfolding of ideas and images in a density of Web connections,”<sup>26</sup> which is in turn “accompanied by the unfolding of links and trajectories created by the user’s interactions.”<sup>27</sup> Therefore, a first level of interactivity emerges as an intrinsic characteristic not only of our relationship with computer media – to the point of making the concept of interactivity itself tautological<sup>28</sup>, and therefore vague and redundant – but also of the learning process itself, and consequently the functioning of the technological apparatus.

This advanced learning model is fascinating to examine also because its governing framework conceptually relates to the cybernetic emphasis on process and system, on the network of feedback loops and on the relevance of the information. These elements, in turn, allow us to focus on the procedural dimension of the hybrid

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24 A. Somaini, “Algorithmic Images:” 74-115, 98.

25 R. Ascott, *Telematic Embrace*: 378.

26 Ibid.

27 Ibid.

28 L. Manovich, *The Language of New Media* (Cambridge MA: MIT Press, 2001): 55.

artistic activity, while simultaneously moving beyond some of the limitations of the *cybernetic vision*, which failed to emphasize the essential fact that “for information to exist, it must always be instantiated in a medium.”<sup>29</sup> On the other hand, an analysis mainly focused on closed and controlled systems fails to fully align with contemporary complex and open systems, which elude complete control and cannot be reduced to purely mathematical processes. This, in addition, risks promoting the idea of a technical neutrality that does not reflect the reality of algorithms; contrary to the perception of a “view from nowhere,”<sup>30</sup> generative networks are, in fact, capable of conveying a partial conception of the world – an archival logic that tends to exclude the unconventional and the rare in its search for regularities.<sup>31</sup> GANs can also suffer from a similar flaw: if training is conducted using overly generic datasets, there is a concrete risk of extending this logic to the artworks, perpetuating stereotypes and assumptions rooted in the Western cultural framework and thereby producing a more standardized aesthetic. As a result, for these practices to be capable of generating value, human intervention is necessary to guide the collaborative dynamic through a clear and purposeful design, one that can consciously support the process, as “a neural network does not understand what it generates.”<sup>32</sup> Nonetheless, it retains the capacity to generate an unpredictability that makes the exchanges between the artist and generative networks even more compelling if we consider the fact that the result isn’t something that the human artist could achieve alone and fully control, but it is always crafted by

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29 K.N. Hayles, *How We Became Posthuman: Virtual Bodies in Cybernetics, Literature, and Informatics* (Chicago: University of Chicago Press, 1999): 13.

30 M.F. Hakopian, “Art histories from nowhere: on the coloniality of experiments in art and artificial intelligence,” *AI & Society* 39 (2024): 29-41, <https://doi.org/10.1007/s00146-023-01768-0>.

31 For further readings, see S. U. Noble, *Algorithms of Oppression. How Search Engines Reinforce Racism* (New York: New York University Press, 2018).

32 L. Manovich, “Towards ‘General Artistic Intelligence’?,” *Art Basel*, (June 1, 2023), <https://www.artbasel.com/news/lev-manovich>, accessed December 20, 2024.

a collective effort. The artwork is tied to “an interaction between human and non-human actors”<sup>33</sup> and therefore can only be analyzed “within a network (...) that includes human subjects, devices, and other images.”<sup>34</sup> This is why we can speak of a first level of systemic interactivity. Creative human-machine interaction produces a dynamic meaning that goes beyond a deterministic structure ruled by predetermined conditions and is oriented towards finding a balance between the necessary and constitutive adherence to rules, which allows the system to exist and function correctly, and interactivity itself. I believe that what Garroni argues regarding the relationship between rules and creativity is particularly relevant in this context:

Both language and games must obey certain rules; without these rules, they would not exist. Nevertheless, they are fundamentally manifested as typical creative activities (...) A game without rules, like language, would not merely be a strange game; it would not be a game at all. It would not be possible as such.<sup>35</sup>

In these works, adherence to rules and cycles of interaction go hand-in-hand: it is the synergy between these elements that makes this type of art possible. The rules do not limit the artist’s creativity; rather, they expand it in unconventional ways through alternating processes of creation and reworking. Sougwen Chung’s Drawing Operations will demonstrate how.

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33 R. Eugeni, R. Diodato, “L’immagine algoritmica: abbozzo di un lessico,” in *La Valle dell’Eden. Semestrale di Cinema e Audiovisivi*, no. 41-42 (2023): 5-21, 9, <https://doi.org/10.13135/1970-6391/10819>.

34 Ibid.: 12.

35 E. Garroni, *Creatività* (Macerata: Quodlibet, 2010): 104-105.

## Hybrid Creativity: Sougwen Chung's Human-Robot Artistic Collaborations

Inside what looks like an industrial laboratory, a woman and a robotic arm face each other. Between them, there is a blank canvas with a few hints of lines and color. Both are “holding” a brush – a metal giant opposed to a tiny figure hunched over herself, studying it intently from below with a pensive expression. This picture captures the essence of Sougwen Chung’s work, a Chinese-Canadian artist and researcher, accompanied by her Drawing Operations Unit Generation (D.O.U.G), a robotic arm designed in various forms and “generations” to actively participate in the artist’s creative act during improvising-ruled performances. The first generation of this technology, DOUG 1, is a small robotic arm that, thanks to a Computer Vision software and a camera, can execute real-time synchronous actions, thereby imitating the artist’s gestures as she draws. Chung and DOUG 1 performed together in 2015 and in 2016, creating improvised live performances in which the artist did not follow a pre-determined gestural choreography. During the first New York performance, something unexpected occurred: the robot’s strokes were not a mirror-like copy of the human agent’s, but they took on divergent angles and directions. The artist had to respond with her own strokes, resulting in a sort of intense gestural dialogue:

While in the simulation that happened on screen it was pixel-perfect, in physical reality it was a different story. It would slip and slide and punctuate and falter, and I would be forced to respond. There

was nothing pristine about it. And yet, somehow, the mistakes made the work more interesting.<sup>36</sup>

This reveals a process in which both the human and the mechanical entities continuously adapt their actions to each other, materializing “a rejection of needing to control the outcome or have a road map.”<sup>37</sup> This aspect adds an unexpected depth to a performance similar to a game of mirrors at jammed frequencies, where the gestural behavior facilitates new kinds of action:<sup>38</sup> “collaboration extends the interaction of human and machine to that of a creative partnership.”<sup>39</sup> This dialogue is particularly fascinating as it highlights a sharp discontinuity between both different gestural representations and various materialities. The feedback loops in which the two are immersed showcase the transitions from one state to another, moving from the material (the artist drawing on the canvas), to the opaque materiality of the abstract operation (the technological system analyzing, interpreting, and returning the drawing), and back to the material (the robotic arm drawing in turn). The entanglements that cut across the different materialities<sup>40</sup> could be interpreted as one of the conditions of reality for what Cecchi identifies as an “associated environment, within which interactivity can be cultivated not as mere program implementation but as a creative exercise.”<sup>41</sup> The dissociated behavior of the mechanical arm, which indeed follows its own operating

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36 S. Chung, “Why I draw with robots,” filmed September 2020 at TED@BCG, Mumbai, <https://www.youtube.com/watch?v=q-GXV4Fd1oA>.

37 P. Bauman, “Sougwen Chung on Us in Another Form,” *Le Random* (October 5, 2023), <https://www.lerandom.art/editorial/sougwen-chung-on-us-in-another-form>, accessed December 20, 2024.

38 J. Zylinska, *AI ART: Machine Visions and Warped Dreams* (London: Open Humanity Press, 2020): 52.

39 “Vermilion Sands: Interview with Sougwen Chung,” *Props Paper*, no. 12 (2018), <https://proppspaper.com/012>, accessed July 3, 2024.

40 M. Zeilinger, *Tactical Entanglements: AI Art, Creative Agency, and the Limits of Intellectual Property* (Lüneburg: Meson press, 2021): 44.

41 D. Cecchi, “Intermedialità, interattività (e ritorno). Nuove prospettive estetiche,” *Rivista di estetica*, no. 63 (2016): 3-11, <https://doi.org/10.4000/estetica.1234>.

rules, adapts its behavioral outputs through processes of reception and reinterpretation of the inputs, yet produces an unpredictability conditioned by an imperfect materiality by which the human agent interacts, reworking their own actions adaptively. This set of procedures identifies an additional level of interactivity, which makes explicit the procedural nature of creativity as “cognition that is distributed between the human artist and artificial intelligence.”<sup>42</sup> Meta-interactivity is thus conceivable as the synthesis event that keeps entangled the systematic and the procedural moments of the artistic creative flow.

The second generation of DOUG, which introduces the theme of memory, is a fitting example of a more stratified concept of interactivity. The primary core of DOUG 2 consists of a Recurrent Neural Network (RNN), an artificial neural network where cyclical connections generate a behavioral output based on the training model.

These recurrent connections carry information forward from previous timesteps, and allow the recurrent neurons to maintain an internal state. This enables RNNs to create and process memories from past inputs, learn temporal regularities and model non-linear dynamical systems.<sup>43</sup>

That is to say, the establishment of recurrent connections enables an adept system to register chronological regularities, which in turn allow it to create and process memories. In this case, the neural network is trained through the drawings that Chung herself has created over the course of twenty years. This is a highly specific methodology<sup>44</sup> that draws upon something private and intimately

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42 M. Mazzone, “Le GAN e la questione della creatività nell’arte e nell’intelligenza artificiale,” in A. Barale, ed., *Arte e Intelligenza Artificiale. Be my GAN*: 51-74, 68.

43 M. Akten, *Deep Visual Instruments*: 70.

44 For further information, see A. Ridler, “Set di dati e decadenza: *Fall of the House of Usher*,” in A. Barale, ed., *Arte e Intelligenza Artificiale. Be my GAN*: 111-128.

personal and discloses a valiant alternative contrasting with the generic nature derived from publicly accessible data repositories online. This significantly reduces the risk of biased datasets, the marginalization of the artist, and the reiteration of an impersonal and repetitive aesthetic. Chung's machine is endowed with a new "sensibility:" what it produces is not merely a simultaneous copy of an act unfolding in the present time of the performance, but rather an interactive reflection of fragments of the past. Thus, creativity emerges as the realization of a gesturality that is both learned and remembered. The shared space of the canvas becomes the manifestation of a collaboration whose endpoint is not the creation of something itself, but rather the materialization of a narrative that highlights new ways of creating from the human-machine interaction. I believe that much of the novelty of these new artistic pathways is due to the possibility that these systems open up to a mixture of different temporalities and ontologies.

By bringing my own painting back to the process in this way, I'm exploring a mode of working with human-machine interconnections beyond mere extension to more of a feedback loop, a call and response that is made visible. [...] It's a process that foregrounds uncertainty at its very core and maybe a sense of playfulness too.<sup>45</sup>

Let's consider the subjects involved and the type of interaction that they enact. At a primary level of analysis, we can say that the machine and the artist engage in two types of actions: on the one hand, there is an individual action, tied to the different nature whereby their corresponding mechanisms rework contents; on the other hand, there is a collective action, where the two poles collaborate, producing together by "playing" with each other.

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45 P. Bauman, "Sougwen Chung on Us in Another Form," *Le Random* (October 5, 2023), <https://www.lerandom.art/editorial/sougwen-chung-on-us-in-another-form>, accessed December 20, 2024.

The action is collective because it is never an ordinary one-to-one relationship. In the present case, the specificity of the training set enables a nearly phantasmagoric collaboration: the artist creatively adapts herself to a sort of emanation of her past self, which is simultaneously other than herself, a double emerging from the intersection of different temporal planes. Generally, the artist improvises and adapts her responses based on the feedback she receives. The system, for its part, reworks by transforming a visual input into a behavioral output, a process that highlights the operational quality of the images generated during the algorithmic dialogue and activates transitions from one state of the image to another. The reification of computational processes in the robot also grants it a corporeality designed for responsive gestures. All these elements lead to discuss not only “interacting agents”<sup>46</sup> that “can be ‘designed’ through external influences,”<sup>47</sup> but also interactions that occur within and based on other interactions, following an almost kaleidoscopic system of internal and scalar references. The third generation of DOUG opens up to the external world and introduces us to the conceptual category of vision, revealing an inherently multidimensional type of hybrid gaze. The relationship between the artist and the robot is not one-to-one, but involves a group of robots, a swarm of twenty units that draw alongside Chung and that the artist describes as “kinetic sculptures.”<sup>48</sup> The swarm is equipped not only with a mnemonic system that allows it to express a style as an emanation of the artist’s, but also incorporates and expresses external data. These data come from the surveillance system of New York City, from a

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46 Proceedings of the 12th annual ACM international conference on Multimedia (2004): 628 - 635, <https://doi.org/10.1145/1027527.1027674>

47 Ibid.

48 A. Pranam, “Putting The Art In Artificial Intelligence: A Conversation With Sougwen Chung,” *Forbes* (December 12, 2019), <https://www.forbes.com/sites/aswinpranam/2019/12/12/putting-the-art-in-artificial-intelligence-a-conversation-with-sougwen-chung/>, accessed December 20, 2024.

publicly accessible pool of footage of the urban movement, which is interpreted and rendered as strokes and lines on the canvas that the robots trace as they move. The swarm movement is the algorithmic expression of “the dynamic flow of a city.”<sup>49</sup> Such an attempt highlights the profound sense of collaboration, which arises from the fact that the human agent, who is the bearer of semantic content, can strategically and virtuously exploit the properties of the technical system during their interactions, modulated in a broader project-oriented sense, displaying the meaning of a non-trivial form of engagement, which holds and implements “the open-ended capacity to accommodate new variables.”<sup>50</sup> Chung’s work is an extremely virtuous example: the technological apparatus, which is itself an intersection of *over* and *under* structures in the form of a “dependency” that does not limit but rather stimulates creative action, is the starting point for a path of co-evolution of the “artistic practice alongside expanding technological complexity.”<sup>51</sup> New avenues of conceptual elaboration fully adhering to the complexity characterizing our hybrid world are thoroughly opened.

## **The contemporary dimensions of interactivity**

GANs and Sougwen Chung’s artworks were taken into account and analyzed to provide a perspective on what the contemporary dimension of interaction might mean. Specifically, what emerged is a feature of meta-interactivity, which establishes the increasingly complex layers characterizing not only of the human-machine relationship

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49 “*Omnia per Omnia*,” Sougwen Chung website, <https://sougwen.com/project/omniaperomnia>, accessed July 3, 2024.

50 R. Ascott, *Telematic Embrace*: 378.

51 “A discussion with Sougwen Chung about human-robotic collaborations,” Nokia Bell Labs, <https://www.bell-labs.com/institute/blog/discussion-sougwen-chung-about-human-robotic-collaborations/#gref>, accessed December 20, 2024.

(Chung) but also of the machine-machine relationship (GAN). The two levels of interaction, the first systemic and the second procedural, could be further expanded if, by analyzing the circularity that connects the artwork and the artist, we also consider to reintegrate into the discourse the figure of the viewer. This process of stratification makes the debate around hybrid art even more stimulating, as to fully understand the conceptual depth of these works, inseparable from the ‘tools’ that realize them, the first step is to become aware of them and explicit that the creative process does not culminate in the artwork but extends itself beyond it. However, mere awareness might be insufficient, and we may need to systematically move from one layer to another. The idea is that future approaches to the analysis of these types of creative exercises could bear in mind meta-interactivity not only as the founding trait of the algorithmic age, but also as a transformative force necessary to fully understand the way it is now possible to think about cognition, creativity and human agency:

What will happen, and is already happening, is the development of distributed cognitive environments in which humans and computers interact in hundreds of ways daily, often unobtrusively (...) Computers aren't just in boxes anymore; they are moved out into the world to become distributed throughout the environment (...) The effect of moving in these distributed cognitive environments is often to enhance human functioning, as the ordinary examples above illustrate. Of course, there is also a downside. As cognition becomes distributed, humans no longer control all the parameters, and in some situations, they don't control the crucial ones.<sup>62</sup>

Machines and humans are entangled in an increasingly complex relationship able to adjust our experience,

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52 A. Borgmann, K.N. Hayles, “An interview/dialogue with Albert Borgmann and N. Katherine Hayles on humans and machines,” University of Chicago, <https://press.uchicago.edu/Misc/Chicago/borghiayl.html>, accessed December 20, 2024.

and the artistic framework, enriched by a theoretical model that incorporates the concept of meta-interactivity, seems to be one of the best ways to realize it. This human-machine interaction is so profound that it is not always possible to understand who did what within the creative process: “the way things are done” is ever increasing opaque, and I believe that this ambiguity is one of the most challenging points to reflect on in the future.



PERMANENT

CALL:

Archaeologies  
of Immersion

Nowadays, virtual-, augmented-, and mixed-reality technologies produce images that ask to be experienced and inhabited more than viewed and observed. Should the sense of presence and immediacy they convey be interpreted as a radical novelty, or is it rather the result of a more ancient and fragmented history of perception?

A media archaeological approach lets emerge new strategies to conceive the history of media techniques by highlighting discontinuities and non-linear paths, bringing into focus their material conditions of production as well as practices, discourses, and narratives that contribute to shaping these media's cultural identity. This archaeological perspective may also be complemented with a genealogical one, considering the governance strategies and the powers of subjectification played by past and present media dispositives.

In different ways and to various degrees, immersive techniques can be traced back to precursors as ancient as Palaeolithic cave paintings. Later on, they range from trompe l'œil depictions to pre-cinematic devices such as panoramas, dioramas, phantasmagorias, and from stereoscopic films to holograms, to name a few. The Archaeologies of Immersion section aims to single out unknown continuities as much as ruptures and counter-tendencies.

Accordingly, a special attention can be also devoted to the narratives that have marked the dawn of an-iconic dispositives and accompanied the history of their effect across the centuries: ancient mythologies portraying proto-immersants, chronicles of forgotten media practices, fictional tales on both realized and imaginary immersive technologies, obsolete scientific discourses foreseeing a multisensory and interactive consumption of the image.

This section of AN-ICON. Studies in Environmental Images aims therefore to open a permanent space to investigate and discuss the genealogy of virtual environments. Especially, unconventional approaches on overlooked research objects are welcome. In this perspective, Archaeologies of immersion encourages proposals related to the following domains:

- Prefigurations of immersive, multisensory, and interactive images and media.
- Aesthetics of an-iconic artworks and representations of the past.
- Imaginary media picturing the advent of virtual reality technologies.
- Literary and fictional accounts of immersion.
- The construction of epistemes and scientific paradigms that underpin virtual realities.

# Metaphors of Immersion. Stereoscopes, 3D Vision and Photography in O.W. Holmes' Writings and Inventions



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## Abstract

Esteemed physician and writer, Oliver Wendell Holmes Sr. was also a leading figure in the stereoscope craze that swept the United States in the second half of the 19th century. He not only designed and promoted a particularly successful version of the stereoscope but also provided insightful commentary on its use and impact. This device, capable of producing a vivid illusion of three-dimensionality, had a significant influence on both technological advancements and cultural practices of the time. Adopting an interdisciplinary focus that intersects media archaeology and metaphorology, this paper will explore the rhetoric and material configurations of the stereoscope as designed and promoted by Holmes and Joseph L. Bates. The main objective is to show how the discursive communication surrounding this device, along with its ergonomic design, shaped both the identity and moral connotations of the technology, as well as the immersive practices it fostered.

By focusing on two key essays published in *The Atlantic Monthly* in 1859 and 1861, this study will reconstruct Holmes' complex metaphorology of technical reproduction and stereoscopic illusion, highlighting the central aesthetic, social, and political themes at play.

Keywords

Stereoscope

Media Archaeology

Photography

Oliver Wendell Holmes

3D Vision

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## Introduction: Archaeology, Metaphorology and Discursive Commonplaces

Accomplished writer, physician and teacher of physiology and anatomy at Harvard, Oliver Wendell Holmes Sr. (1809-1894) was also a leading figure in the frenzy surrounding stereoscopy that swept the United States in the second half of the 19th century. He not only designed and promoted a particularly successful version of the stereoscope but also provided insightful commentary on its use and impact. This contribution will focus on the ergonomic and discursive characteristics of the Holmes-Bates stereoscope, with the aim of constructing a framework for a media genealogy, and therefore ideology, of immersion and the illusion of three-dimensionality that the device enabled.

The nature of this paper, then, requires some preliminary considerations and methodological clarifications. The following analysis intersects an interest in both the material configuration of a specific optical device and the ways in which it was communicated, the discourses that developed around it. The connection between these two regimes is primarily indebted to a media archaeological approach. Media archaeology, in fact, does not focus on the technological *history* of past devices, but rather on the non-linear relationships and diachronic recursions of certain material and discursive elements, which, following Huhtamo,<sup>1</sup> we can refer to as “topoi” or “commonplaces.” The notion of “commonplace,” in its etymological sense – *koinos topos* – captures the multiple identities of the medial framework under study. It refers to the “common place” as something shared and recognized within a social arena

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<sup>1</sup> E. Huhtamo, “From Kaleidoscomaniac to Cybernerd: Notes toward an Archaeology of the Media,” in T. Druckerey, ed., *Electric Culture: Technology and Visual Representation* (New York: Aperture, 1996): 296-304.

– what one might describe as *popular*.<sup>2</sup> But it also indicates *recurring* phenomena through different times and social groups. Indeed, media archaeology highlights “cyclical rather than chronological development, [the] recurrence rather than unique innovation.”<sup>3</sup> At the core of this non-linear temporal perspective, the issue of cyclicity draws heavily from deep time theories<sup>4</sup> and plays a central role in defining media archaeology as the study of recurring commonplaces and media conformations. This analytical framework, with its clear Foucauldian influence,<sup>5</sup> emphasizes the cultural and *ideological* dimensions of these recurring *topoi*. As Huhtamo himself reminds us, “In the era of commercial and industrial media culture, it is increasingly important to note that *topoi* can be consciously activated and ideologically and commercially exploited.”<sup>6</sup>

The focus on *topoi* also recalls a fundamental element in the discipline of literary studies,<sup>7</sup> where the concept defines a series of thematic, stylistic, and allegorical clichés which, through their repetition, produce the “building blocks” for a particular cultural tradition. This connection,

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2 Think also of the derogatory use of the English adjective “common” as “typical of a low social class” that well indicates the ideological and class-related feature of the term. See: “COMMON | Meaning in the Cambridge English Dictionary,” [dictionary.cambridge.org](https://dictionary.cambridge.org/dictionary/english/common), n.d., <https://dictionary.cambridge.org/dictionary/english/common>, accessed September 26, 2024.

3 E. Huhtamo, “From Kaleidoscomaniac to Cybernerd.” 303.

4 The term derives from the geological time considerations of the volcanologist James Hutton, see J. Hutton, *Theory of the Earth* (Edinburgh: Royal Society of Edinburgh, 1788). On this subject, see also S. Baxter, *Ages in Chaos: James Hutton and the Discovery of Deep Time* (New York: Tor Books, 2004). On the media archaeological perspective on deep time see: S. Zielinski, *Deep Time of the Media: Towards and Archaeology of Hearing and Seeing by Technical Means* (Cambridge MA: MIT Press, 2006).

5 Foucault's contribution to media archaeology is central. *The Archaeology of Knowledge* not only introduces the semantic shift of the discipline of archaeology, but also provides a method that questions the construction of our present and the devices – necessarily discursive in Foucault – which, through the lens of a more or less recent past, explain the systems of our contemporaneity. See: M. Foucault, *The Archaeology of Knowledge* (1969) (New York: Pantheon Books, 1978); C. Koopman, *Genealogy as Critique: Foucault and the Problems of Modernity* (Bloomington: Indiana University Press, 2013). On the specific and still very important issue of the relationship between archaeology, genealogy and media studies see: A. Monea, J. Packer, “Media Genealogy and the Politics of Archaeology,” *International Journal of Communication* 10 (2016): 3141-59.

6 E. Huhtamo, “From Kaleidoscomaniac to Cybernerd.” 301.

7 The reference, as Huhtamo (cit.) reminds us, points to E. R. Curtius and his study of clichés or *topoi* across various forms of Western literature throughout the centuries. See E. R. Curtius, *European Literature and the Latin Middle Ages* (1948), trans. W. R. Trask, (London: Routledge and Kegan Paul, 1979).

as argued here, could establish a renewed link between a media archaeological approach to media discursivity and the broader context of allegorical language studies, with special attention to the field of *metaphorology*. The metaphor, as we will see, is indeed one of the main discursive strategies that Holmes employs, not only to describe the technological and intellectual revolutions that stereography brought about in the mediascape of his time, but also, and above all, to indicate a mental and moral approach to his technology.

In line with perspectives from philosophical anthropology<sup>8</sup> and linguistics,<sup>9</sup> metaphor does not appear merely as a simple semantic ornament or as a distraction from purely conceptual discourse. Rather, it constitutes a form of thought, a quality that enables us to make sense of the world, alongside other discursive devices broadly linked to narration.<sup>10</sup> A detailed study of metaphor is not the subject of this analysis, which instead seeks to propose a firm bond between the structures of metaphorical language and the ways in which we think about, use, and attribute meaning to certain media apparatuses and, more broadly, to the technoscapes of an era.

Let us start, for example, with the machines we will examine: *immersive technologies*. The term, as conceived here, describes optical technologies that combine wearability with the exclusion of the spectator's immediate surroundings, like stereoscopes or their virtual "descendants" such as Virtual Reality headsets. These apparatuses are primarily characterised by a discursive metaphor.

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8 The main reference is to H. Blumenberg, *Paradigms for a Metaphorology* (1960) (New York: Cornell University Press, 2011).

9 See G. Lakoff and M. Johnson, *Metaphors We Live By* (1980) (Chicago: University of Chicago Press, 2003).

10 Blumenberg acknowledges the inherently narrative value of metaphor and other rhetorical figures, a component that contributes to making sense of the world, as in the case of mythopoiesis: "What has become identifiable by means of a name is raised out of its unfamiliarity by means of metaphor and is made accessible, in terms of its significance, by telling stories." H. Blumenberg, *Work on Myth*. trans. R. M. Wallace (Cambridge MA: MIT Press, 1985): 7.

Immersion, after all, is a *metapherein*, a transfer of meaning that shifts a physical action – the enveloping encounter with a liquid – towards a perceptual condition and, in this case, a medium specificity. However, it is important to highlight here, by referring to the ideological aspects of the *topos*, that this metaphor leads us to transversal connotations: immersion discursively activates a gestural and performative component – the term’s etymology<sup>11</sup> is rooted in the scenic action of *diving* – thereby emphasising the active and multisensory nature of the immersive process. Yet, this sensory path also acquires another shift in meaning: the immersed subject is directly engaged with the iconic world, losing the distance of aesthetic contemplation and, with it, the *moral virtue* traditionally associated with detached perception. The immersed individual, especially in the latter half of the 19th century, becomes a subject of mockery, a figure found in parodic iconography,<sup>12</sup> deceived or defrauded in various ways which, ultimately, acquires a negative socio-moral connotation, often associated with improper and scandalous eroticism with the machinic.<sup>13</sup>

It is precisely from this moral geography of the device that Holmes promotes not only a different ergonomics but also, and more importantly, a distinct, cultured, and refined discursive genealogy of the apparatus, with the aim of contrasting the negative connotations associated with it. Among the tools of this dual “project,” metaphor, allegory, and other forms of *metapherein* take centre stage and help us to understand the success of the device in the United

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11 Composed of the prefix “*in*” and the verb “*mergere*,” meaning to plunge. See: <https://www.etymonline.com/word/immersion>

12 On the issue see: R. Balzer, *Peepshows: A Visual History* (New York: Abrams, 1998). The collection of images published by Balzer shows many instances of social settings in which men of different social classes suffer various kinds of deception precisely because of their immersion in optical devices.

13 Particularly relevant in this respect is Baudelaire’s heartfelt denunciation (1859) of the thousands of individuals making use of these stereoscopic devices. Indeed, Baudelaire was particularly concerned with the obscenity that the distorted bodies on the apparatus could demonstrate. It is no coincidence that the poet immediately associated this aspect with erotic-pornographic material. See C. Baudelaire, “On Photography,” (1859) in J. Mayne, ed., *The Mirror of Art* (London: Phaidon Press Limited, 1956).

States of that period, along with a broader ideological and colonial system associated with technical reproduction, immersion and the illusion of three-dimensionality.

## The Ergonomic Metaphors of the Apparatus<sup>14</sup>

As anticipated, this metaphorological media archaeology can only start from the material and ergonomic conformation of the device in question. Far from being a mere technical feature, ergonomics already speaks to us of certain media characteristics and their socio-moral connotations. A metaphorology without words, we might call it, but which suggests a way of thinking and categorising a medium and its social role.

Stereoscopic technology was – and still is – based on a simple optical-physiological trick: two images, captured using a specialised dual-lens camera, are placed in a device with two lenses that separate the visual field for each eye. Our perceptual system “fuses” these images, creating an illusion of three-dimensionality, akin to our everyday visual perception. The stereoscope, developed in England as early as the 1840s, took on various material forms. However, the earlier and European versions of the device, such as the Brewster-Duboscq (Fig. 1), were, one might say, *uncomfortable* devices. These earlier models required the user to *observe* – following Crary’s interpretation of the term<sup>15</sup> – a set of challenging rules, postures, and optical techniques for proper functioning. As previously mentioned, such demands contributed to the morally ambiguous

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14 The term seeks to highlight the theoretical convergence between media technologies and socio-political structures. Specifically, the terminological choice aims to emphasize the etymological sense of the word – namely, the act of preparing and arranging an image on a medium – while intersecting it with political-identity perspectives in Foucauldian subjectification and ideological interpellative propagation as theorized by Althusser, Cf. A. Pinotti and A. Somaini, *Cultura Visuale. Immagini, sguardi, media, dispositivi* (Turin: Einaudi, 2016).

15 This refers to the observance of scenic and, above all, ideological-political rules which, according to Crary, optical devices such as the stereoscope “imposed” on their audiences in the 19th century. See J. Crary, *Techniques of the Observer: On Vision and Modernity in the Nineteenth Century* (1990) (Cambridge MA: MIT Press, 2012).

connotations of the stereoscope and other peep media, which shared similar postural and perceptual requirements.



Fig. 1 – Lenticular or “Brewster” stereoscope  
(creative commons copyright: Museo nazionale della  
scienza e della tecnologia Leonardo da Vinci, Milan)

Holmes, together with Joseph L. Bates,<sup>16</sup> developed a new version of the lenticular stereoscope between 1859 and 1861, introducing it to the broader American public. The Holmes-Bates stereoscope was a portable but open device. It “exploded” and revealed its workings to the eye while combining it with a high degree of comfort and portability. The device consists of three main elements (Fig. 2): a handle, a mask with two lenses – which enhances the process of three-dimensionality and the exclusion of the observer’s surroundings – and a space for the stereographic strip, held by two metal parts.

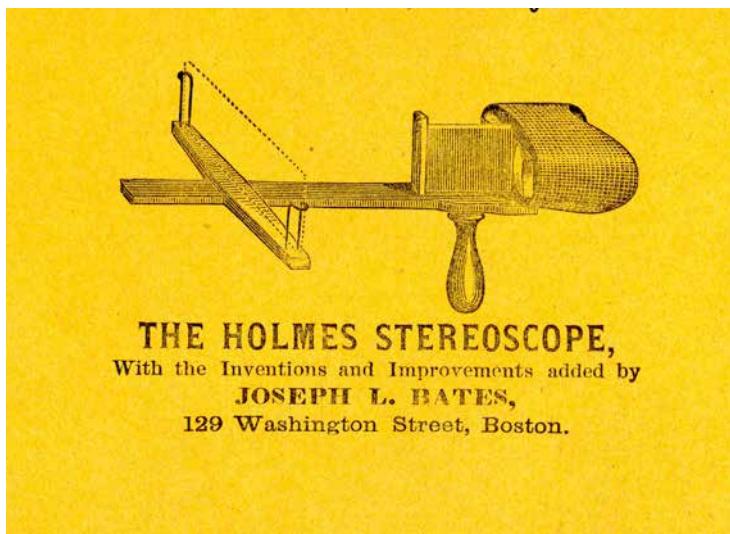


Fig. 2 – Advertisement for the stereoscope designed by Oliver Wendell Holmes and Joseph L. Bates. Boston Medical Library Artifact Collection.

<sup>16</sup> Bates, a merchant and manufacturer from Boston, was the first to produce and distribute Holmes's stereoscope. It is important to note that the patent for this apparatus was never registered by Holmes, allowing it to be freely reproduced.

The success of this technology was determined by the lower production costs compared to the closed Brewster-type boxes, the greater ergonomic comfort, and the solution to the problem of image illumination. The Holmes-Bates stereoscope allowed a more complete visibility of the stereographic strip, allowed by the ambient lighting. As Holmes himself stated in his emphatic promotional prose: “an instrument which may be held in the hand that is very convenient. We have had one constructed which is better, as we think, than any in the shops.”<sup>17</sup>

The emphasis on the portability of the device – “which may be held in the hand” – allows us to focus on a number of seemingly marginal elements that were nevertheless essential to the construction of the immersive experience. In line with the chiasmus between immediacy and hypermediation,<sup>18</sup> an archaeology of immersion cannot but take into account the interstitial spaces and elements that construct the performative rituality of absorption in the image, as in the case of the various ways in which the observer materially manipulates the optical apparatus.<sup>19</sup> The Holmes-Bates stereoscope was, in fact, easier to operate, and the presence of a wooden handle, often carved so as to improve ergonomics, imposed greater control over the technology. The ergonomic and commercial revolution of the Holmes-Bates type was probably also meant to put the device back “at the service” of its user. Holmes’ stereoscope *tamed* this machine of the visible and, in a sense,

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17 O.W. Holmes, “Sun-Painting and Sun-Sculpture: With a Stereoscopic Trip across the Atlantic,” *The Atlantic Monthly* (July 1861): 13-29, 29.

18 Following Bolter and Grusin, if immediacy is often shaped by hypermediation – that is, through the multiplication of technical components and mediating “layers” within a device – examining the nature of these layers, including secondary elements such as the handle, may provide insight into the broader medial, social, and ideological functions of certain optical devices. See J. D. Bolter and R. Grusin. *Remediation: Understanding New Media* (Cambridge MA: MIT Press, 1999).

19 This “aesthetic ecology of things” of Simmelian matrix also helps in methodologically defining an archaeology of ergonomics, always focused on the material conformations of the devices and objects in question. See E. De la Fuente, “Frames, Handles and Landscapes: Georg Simmel and the Aesthetic Ecology of Things,” in T. Kempe and O. Pyyhtinen, eds., *The Anthem Companion to Georg Simmel* (London: Anthem Press, 2016).

purged it of some of the obscenity or moral ambiguities it was often accused of.

The seemingly secondary presence of a handle thus demonstrates a sense of renewed dominance over the device and the three-dimensional image it conveys, a process that is further intensified by the clear class connotations associated with the Holmes technology. The presence of the handle suggests in fact a precise posture, probably more comfortable, but above all more in keeping with the moral canons of the time. Unlike the Brewster type, the Holmes-Bates version can be counted among the family of optical instruments, characterised by their *partial* wearability and supported by a handle. This is the case with the *lorgnette*<sup>20</sup> (Fig. 3), a form of corrective spectacles that was closely associated with upper-class femininity, symbolising both social grace and moral propriety while subtly evoking erotic allure.



Fig. 3 – Folding set of Lorgnettes spectacles, Bedford Museum, Bedford.

20 On this subject, see C. Willett Cunnington, *English Women's Clothing in the Nineteenth Century: A Comprehensive Guide with 1,117 Illustrations* (New York: Dover Publications, 1990).

This dual function was amplified in variations like the *fan lorgnette* (Fig. 4), which combined optical utility with the social codes of seduction and modesty, typical of Victorian stereotypes of femininity<sup>21</sup>.

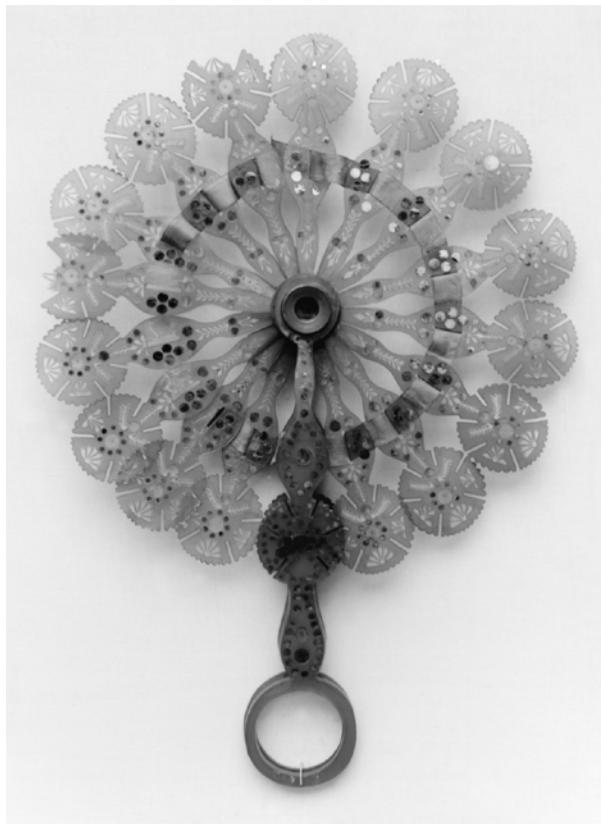


Fig. 4 – Lorgnette fan, French, early 19th century. The Moses Lazarus Collection, Gift of Josephine and Sarah Lazarus, in memory of their father, 1888-95. Metropolitan Museum of Art, New York.

By the late nineteenth century, the lorgnette inspired the design of opera glasses – richly decorated, long-handled devices that became status symbols of the aristocracy and the rising industrial bourgeoisie. The ergonomic link between these devices and the Holmes stereoscope shifted the latter technology from the morally ambiguous realm of “attractions” to tools of social distinction, reinforcing the elite’s control over emerging media technologies.

The veiled desire concealed in the handle of the opera glass or the Holmes-Bates stereoscope can thus be traced back to a desire to *frame* and thereby control not only the image produced by these devices but also the

21 On the subject see Giuliana Bruno's reflections, developed in *Atlas of Emotion: Journeys in Art, Architecture, and Film* (New York: Verso Books, 2002) on the function of the fan for women as an extension of their identity, linked to intimacy, desire and social practices.

somatechnical interrelationship that more radical – and obscene – wearability would have allowed.

## **The Discursive Topoi of the Holmes-Bates Stereoscope: Erosion of Reality**

A media archaeological analysis, such as the one undertaken here, employs a methodological approach that highlights the correlation between material and discursive devices. This approach also extends to the textual apparatuses that, as in this case, played a role in the promotion and marketing strategies of a given medium. This discursive production, characterised by extensive use of allegories and metaphors, once again aids in understanding how technology was made sense of and, more broadly, how the revolution of three-dimensional technical reproducibility was interpreted by Holmes in his time.

The first of the articles under consideration here, “The Stereoscope and the Stereograph,” inaugurates Holmes’ discursive architecture on the device. Published in June 1859, it defines the role of photography in the construction of “self-portraits of nature,” anticipating, as Fiorentino<sup>22</sup> noted, Walter Benjamin’s insight into the role of technical reproducibility in the construction of urban social geography. The piece begins, as befits a “poet laureate,” with a reference to ancient philosophy:

Democritius of Abdera [...] believed and taught that all bodies were continually throwing off certain images like themselves, which subtle emanations, striking on our bodily organs, gave rise to our sensations. [...] Forms, effigies, membranes, or *films*, are the nearest representatives of the terms applied to these effluences. They are

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22 G. Fiorentino, *Il Flaneur e lo spettatore. La fotografia dallo stereoscopio all’immagine digitale* (Milan: Franco Angeli, 2014).

perpetually shed from the surfaces of solids, as bark is shed by trees.<sup>23</sup>

The incipit of the article draws from the Greco-Latin genealogy an essential physiological positioning; “forms, effigies, membranes or films” are “shed” from the surface of solids, powerfully indicating the process of flattening of the three-dimensional image occurring upon the contact of solid reality with the membrane of the cornea, typical of the physiological interpretation at the time.<sup>24</sup> Holmes continues in his description of the films of matter, stating that

These evanescent films may be seen in one of their aspects in any clear, calm sheet of water, in a mirror, in the eye of an animal by one who looks at it in front, but better still by the consciousness behind the eye in the ordinary act of vision.<sup>25</sup>

The films of matter are thus visible on natural (water), artificial (mirrors) and biological (an animal’s eye) surfaces. In the case of the human being, however, the materialisation of these films does not take place on a concrete surface but “through the consciousness behind the eye.” Nevertheless, Holmes defines the archaeology of image technical reproducibility, opening up a confrontation with the atmospherology of projection,<sup>26</sup> which focuses on the alchemical nature of screens and the role of light

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23 O.W. Holmes, “The Stereoscope and the Stereograph:” 738.

24 This refers above all to the widespread European debate on the physiology of binocular perception, which also saw prominent figures in stereoscopic technology such as Wheatstone and Brewster among its protagonists. See: N. Wade, *Brewster and Wheatstone on Vision* (Amsterdam: Elsevier Science, 1983).

25 O.W. Holmes, “The Stereoscope and the Stereograph:” 738.

26 In *Atmospheres of Projection*, Bruno deals with the elementality of projective processes. Bruno’s in a sense archaeological perspective crosses the alchemical value of surfaces with the representational, medial and ideological processes of projected light. The conceptual adherence is in this case derived from the (rhetorical) attention that Holmes proposes with respect to the material, elemental and “natural” supports of the impression of the image. See: G. Bruno, *Atmospheres of Projection. Environmentality in Art and Screen Media* (Chicago: University of Chicago Press, 2022).

projection. Furthermore, Holmes immediately defines his position in relation to optical physiology, conceiving the image as an act of consciousness, physically “behind the eye” and determined by the primacy of sight-mind in the construction of perception.

After an emphatic description of the blazing modernity of, first, the daguerreotype and, second, photography, understood as “a mirror with a memory”<sup>27</sup> and “sun-painting,” Holmes devotes the third section to the stereoscope itself, beginning with a brief but effective description of the apparatus:

A stereoscope is an instrument which makes surfaces look solid. All pictures in which perspective and light and shade are properly managed, have more or less of the effect of solidity; but by this instrument that effect is so heightened as to produce an appearance of reality which cheats the senses with its seeming truth.<sup>28</sup>

In this case, this illusion is further specified by the term cheat, which refers to the sphere of fraudulent games or gambling as well as stage magic. This aspect surely hints, on the one hand, at perceptual tricks in the context of attractions and coin-operated machines, a central market for the stereographic and, later, the film industry.<sup>29</sup> On the other hand, the interesting conceptual chiasmus of Holmes’ perspective, however, is the association of this illusion with a supposed visual *truth*, a system typical

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27 The wording “mirror with memory” would be among the most successful photographic metaphors of the nineteenth and twentieth centuries. The alliance between the mirror and the photographic device was essential, especially at the time, in promoting the indexical qualities of photography. See E. A. Poe, “The Daguerreotype.” *Alexander’s Weekly Messenger*, (January 15, 1840) and A. Bazin, “The Ontology of the Photographic Image,” (1945) in H. Gray, ed., *What Is Cinema*, Vol. 1 (Berkeley: University of California Press, 1971)

28 O.W. Holmes, “The Stereoscope and the Stereograph:” 742.

29 On the connection between optical devices, stereoscopes and “attractions,” see: J. Plunkett, “Selling Stereoscopy, 1890-1915: Penny Arcades, Automatic Machines and American Salesmen,” *Early Popular Visual Culture* 6, no. 3 (2008): 239-55, <https://doi.org/10.1080/17460650802443027>; W. Strauven, *The Cinema of Attractions Reloaded* (Amsterdam: Amsterdam University Press, 2006).

of the cultural (and popular) response to the new machines of the visible of the time.<sup>30</sup>

In the next section of the article, devoted to a purely physiological disquisition on the device and its illusions, Holmes provides a popularisation of the binocular perceptual process that is particularly intriguing for a theory of haptics:<sup>31</sup>

We see something with the second eye which we did not see with the first; in other words, the two eyes see different pictures of the same thing, for the obvious reason that they look from points two or three inches apart. By means of these two different views of an object, the mind, as it were, *feels round* it and gets an idea of its solidity. We clasp an object with our eyes, as with our arms, or with our hands, or with our thumb and finger, and then we know it to be something more than a surface. This, of course, is an illustration of the fact, rather than an explanation of its mechanism.<sup>32</sup>

Holmes' proposal of a synaesthetic description of sight, touch and consciousness would go on to have a strong appeal to his readers and determine the discursive success of the stereoscopic device. The mind "feels" an object by means of two points of view. This making equivalent of sight and touch in the hierarchy of the senses is, in Holmes' case, transformed into a rhetorical and discursive trick to present a material device capable of deceiving the senses while at the same time verifying their functioning.

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30 On the question of photography as a tool, symbol and symptom of nineteenth-century positivist culture, see H. Molderings and G. Wedekind, *L'évidence photographique la conception positiviste de la photographie en question* (Paris: Maison des sciences de l'homme, 2009); D. Dufour, C. Delage, *Images à charge: La construction de la preuve par l'image* (Paris: Le Bal, 2015).

31 We are referring to the perspective opened up by Riegl, but above all to the "reversal" of the haptic-optical regimes proposed by Benjamin, which, given its focus on optical technologies of image reproduction, is particularly consistent with the perceptual "revolution" of the stereoscope and the illusion of solidity given by the apparatus, which retains, albeit with due differences, the ballistic quality that Benjamin recognised in the new media of his time. See: W. Benjamin, "The Work of Art in the Age Mechanical Reproduction," (1935), in *Illuminations* (1968) (New York: Schocken Book, 2007); A. Riegl, *Late Roman Art Industry* (1901) (Rome: Bretschneider Giorgio, 1985).

32 O.W. Holmes, "The Stereoscope and the Stereograph:" 742.

By means of a mirror with a memory – photography – the stereographic device is able to reproduce a part of nature with all of its apparently indexical *truth*.

What happens then when the stereographic strip is inserted into the proper stereoscopic apparatus? Holmes continues with his usual emphatic description:

The first effect of looking at a good photograph through the stereoscope is a surprise such as no painting ever produced. *The mind feels its way into the very depths of the picture.* [...] Then there is such a frightful amount of detail, that we have the same sense of infinite complexity which Nature gives us.<sup>33</sup>

The discursive system promoted by Holmes in this passage introduces some *topoi* that are essential in understanding the recurring rhetoric on new technologies and immersion. On the one hand, Holmes states that the new stereographic medium is “a surprise such as no painting has ever produced,” implying a fundamental rethinking of the illusionist schema of pictorial perspective. On the other hand, in the light of the physiological processes described above, “the mind feels its way into the very depths of the picture,” thus defining for Holmes the typically *projective* possibility of stereoscopy, in which the perceiving subject is launched, rather than immersed, into the inhabitable depths of the image.

In the conclusion of the essay, Holmes imagines, in a futurological afflatus, the potential prospects of stereoscopic technology. Drawing on an imaginative process typical of the nascent genre of science fiction,<sup>34</sup> he continues with a piece full of aesthetic implications:

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33 Ibid.: 743.

34 See M. Bould, *The Routledge Companion to Science Fiction* (London-New York: Routledge, 2009), in particular, ch. 2.

*Form is henceforth divorced from matter.* In fact, matter as a visible object is of no great use any longer, except as the mould on which form is shaped. Give us a few negatives of a thing worth seeing, taken from different points of view, and that is all we want of it. Pull it down or burn it up, if you please.<sup>35</sup>

With the powerful locution of “form divorced from matter,” Holmes condenses and, above all, anticipates much of the twentieth-century reflection on the status of the technical and, one would add today, the virtual image. The loss of aura announced by Benjamin in the 1930s cannot but resonate with this separation of form from matter: the *cult* value of the original, now not only technically reproduced but also illusorily restored to its concrete, solid, three-dimensional nature, becomes a simple “mould on which form is shaped.” Matter – states Holmes with a significant dose of irony<sup>36</sup> – is only useful as a mould imprinted in photographic negatives: whether they are destroyed or set on fire, all that matters is that the things that should be seen, archived and transmitted are recorded by the sun-painting of stereography.

As West<sup>37</sup> notes, however, Holmes’ prose points to a more complex system of values that also anticipates the postmodern and simulacral perspective on “reality” and simulation. In particular, stereoscopy in Holmes’ prose is an important actor (material and discursive) in the construction of what Baudrillard called the “weightless system” of capitalism, a system that “is no longer anything but a gigantic simulacrum, never again exchanging for what is real, but exchanging in itself, in an uninterrupted circuit

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35 O.W. Holmes, “The Stereoscope and the Stereograph:” 747, emphasis in the original.

36 Nancy M. West links Holmes’ literary irony to an awareness of the socio-philosophical changes of his time, which included photo-stereography: “Holmes uses irony, a trope that allows him to explore the paradoxes of the invention, its potent conflation of depth and surface, intimacy and alienation.” N.M. West, “Fantasy, Photography, and the Marketplace: Oliver Wendell Holmes and the Stereoscope,” *Nineteenth-Century Contexts* 19, no. 3 (1996): 231-58, 237, <https://doi.org/10.1080/08905499608583425>.

37 Ibid.

without reference or circumference.”<sup>38</sup> The capitalist-simulacral entanglement interspersing the lines of this first article by Holmes is further confirmed by a passage shortly afterwards in which the author, maintaining the ironic perspective of his prose, suggests a new system of monetary exchange based on stereographs:

As a means of facilitating the formation of public and private stereographic collections, there must be arranged a comprehensive system of exchanges, so that there may grow up something like a universal currency of these bank-notes, or promises to pay in solid substance, which the sun has engraved for the great Bank of Nature. Let our readers fill out a blank check on the future as they like – we give our endorsement to their imaginations beforehand.<sup>39</sup>

This passage, part of a rhetorical speculation on the possible future of stereoscopic technology, invites a twofold reflection. On the one hand, it emphasises the *metaphorical* reception of the technical reproduction of the image: just as banknotes are a material (and two-dimensional) support of economic value – established, at least at the time, by a financial attribution system linked to the calculation of a particular nation’s gold reserves – so stereography becomes a “promise to pay in solid substance,” an indexical counterpart to its referent. Stereographic banknotes are thus printed for the “Great Bank of Nature.” Nature, the bio-bank institution of the perceptible, reconnects and confirms the discursive nexus of stereophotography as the principal device in the technical reproduction of part of visual truth. At the same time, the passage seems to be

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38 J. Baudrillard, *The Ecstasy of Communication* (Los Angeles: Semiotext(e), 1988): 170.

39 O.W. Holmes, “The Stereoscope and the Stereograph:” 748.

framing a more subtle argument about the interrelationship between money, capitalism and photography.

Stereoscopy as a banknote and photography as a technical prosthesis of capitalism are expressions that are fundamentally concerned with the perceived erosion of the real that such systems inaugurated in those very decades. This association is even more effective when we recall, as Trachtenberg<sup>40</sup> does, that at the time of Holmes' writing, the United States was emerging from more than two decades of severe unemployment and inflation,<sup>41</sup> challenging the myth of eternal economic growth and American capitalism.

From a Marxian perspective, the emergence of speculative capital is rooted in the separation between productive activity itself and the expectation of future accumulation. Indeed, it is no coincidence that Marx himself uses a metaphor akin to that of optical illusions to describe this process, arguing that "everything in this [financial] system appears in duplicate and triplicate and is transformed into a mere *phantom of the mind*."<sup>42</sup> In effect, this represents a model, that of the erosion of reality by the technologies that allow its technical reproduction, which is closely related to the more general anxiety determined by simulation, and the detachment from a concrete economic value system.

We have thus seen how Holmes's discursive framework surrounding stereoscopic technology presents a complex metaphorical system, suggesting the potential role of technology in undermining reality. However, the author's writing introduces additional metaphors that

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40 A. Trachtenberg, *Reading American Photographs. Images as History* (1989) (New York: Hill and Wang, 2008).

41 "Playing on popular anxieties about inflated paper money since the crash of 1837 (aggravated by another bank failure in 1857), Holmes offered the stereographically enhanced photograph as a new form of security between an image and what it claims to represent." *Ibid.*: 18.

42 K. Marx, *Capital: A Critique of Political Economy*, Vol. 3 (1867) (Harmondsworth: Penguin, 1991): 603, emphasis mine). On the link between Marxian perspectives and optical metaphors and technology see P. Väliaho, *Projecting Spirits: Speculation, Providence, and Early Modern Optical Media* (Stanford CA: Stanford University Press, 2022):174.

position technology as a force of aggression, or even a form of “hunting” the real, deeply characterized by colonial and imperialist attitudes.

### **The Discursive Topoi of the Holmes-Bates Stereoscope: Aggression towards Nature and “Stereoscopic Picturesque”**

In an earlier paragraph of the same 1859 article, Holmes provides a different metaphorical description of photographic capture that, while still in keeping with the irony of the prose, has many implications for the logics of immersion analysed here. In the regimen of futurological speculation, Holmes imagines the stereographers of the future as fur trappers:

We have got the fruit of creation now, and need not trouble ourselves with the core. Every conceivable object of Nature and Art will soon scale off its surface for us. Men will hunt all curious, beautiful, grand objects, as they hunt the cattle in South America, for their skins, and leave the carcasses as of little worth.<sup>43</sup>

The image as skin is a *topos* of widespread appeal, as Holmes himself demonstrates at the beginning of his text quoting the Lucretian theory of emanations. What seems particularly significant in this passage, however, are the allegorical, mediological and, more broadly, political consequences implied by the metaphor of the hunter. The stalking of the image is a widely used *topos* in the same period, turning the photographic lens into an instrument of *aggression* against reality. One thinks of the case of the photographic rifle developed by Marey in 1882, a perfect crisis between hunting and photography, which materialises a device aimed at capturing the movement, for example,

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43 O.W. Holmes, “The Stereoscope and the Stereograph:” 748.

of the flight of birds, twice-fold “victims” of the aggressiveness of the photographic hunter’s eye.<sup>44</sup>

Sontag further specifies the connection between photography, killing and technical reproduction, noting how the scopic regimes of hunting were replaced by those of the machine in the context of the safari: “Instead of looking through a telescopic sight to aim a rifle, they look through a viewfinder to frame a picture.”<sup>45</sup> That shift from the rifle to the camera also decrees a different status for the concept of nature, no longer an ecosystem against which to be defended but, rather, an environment to be protected, reproduced and archived.

Holmes’ article describes, albeit with ironic emphasis, exactly this process: men (in this case, in the double sense of human and male) hunt stereographs just as one hunts *exotic* animals. For an American like Holmes, the reference to South America as the destination of the natural and primitivised Other is not coincidental and reflects the logic of othering<sup>46</sup> typical of the cultural, visual and, we would add here, stereographic colonialism of the time. The global South – South America, Africa and the so-called Middle East – is the preferred site of this hunt for images, whose skins are then transported, archived and activated by the devices in question. The specificity of the American media ecosystem is also imbued with the same projective model, which, in line with proto-simulacral thought, implies the will to control its subjects (both human and non-human), places and cultures through its stereoscopic double.

The paradigm of the skin-image and the violence of flaying, also akin to the practice of hunting

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44 On chronophotography in Marey, see É.J. Marey, *Le Mouvement* (Paris: G. Masson, 1894); M. Braun, *Picturing Time: The Work of Etienne-Jules Marey (1830-1904)* (Chicago: University of Chicago Press, 1994).

45 S. Sontag, *On Photography* (New York: Picador, 1977): 11.

46 On the role of visuality on the colonial othering process, see J. Khrebtan-Hörhager, *Communicating the Other across Cultures* (Ann Arbor: University of Michigan Press, 2023), especially ch. 2.

mentioned earlier, returns in a later article by Holmes, written in 1861 again for *The Atlantic Monthly*. “Sun-Painting and Sun-Sculpture” begins with a reference to ancient Greek mythology, as is typical of the author’s prose, recalling the story of Dionysus and Marsyas. For Holmes, this myth became an unprecedented and “cultured” genealogy of stereo-photography. The author, who emphasises the association between Apollo and the sun, of which he is the deity and symbol, finds in the barbarity practised on Marsyas a desire to technically reproduce an image:

But the God of Song was also the God of Light, and a moment’s reflection reveals the true significance of this seemingly barbarous story. Apollo was pleased with his young rival, fixed him in position against an iron rest, (the tree of the fable), and took a photograph, a sun-picture, of him. This thin film or *shin* of light and shade was absurdly interpreted as being the cutis, or untanned leather integument of the young shepherd. The human discovery of the art of photography enables us to rectify the error and restore that important article of clothing to the youth, as well as to vindicate the character of Apollo.<sup>47</sup>

What is of interest here are the metaphoric implications and discursive themes that this passage associates with the photographic and stereographic device. The equation proposed by Holmes in this 1861 article links the photographer with the punishing deity. The reference to Marsyas is not, however, exclusively ornamental: the satyr, in antiquity the symbol of an untamed, impertinent and highly sexualised naturalness, is punished for his hubris by the deity of light. Apollo’s photographic process is, thus, a further confirmation, in the discursive and metaphorical realm of the stereographic medium, of the predatory attitude with which the technology was intended to be

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47 O.W. Holmes, “Sun-Painting and Sun-Sculpture:” 13.

communicated. Hunting and skinning are processes that attack its subjects (in this case, non-human or near-human) that are victims of technical reproduction. Just as Apollo tames the faun, man technically reproduces the natural, thereby defusing its subversive potential.

This view, as Teukolsky notes, resonates with the long and contemporary tradition of the *picturesque*. For the author, “the stereoscope functioned as a Victorian remediation of Romantic philosophy, a kind of organic machine and prosthesis attached to the spectator’s body that enabled an extraordinary, humanistic experience.”<sup>48</sup> The *picturesque*, as defined by Gilpin,<sup>49</sup> describes the relationship of the natural, understood as landscape, with the image (picture). The requirement of the *picturesque*, which as an aesthetic category originated in landscape and garden architecture, envisages a skilful, partial but *transparent* control of natural and botanical elements. Unlike Italian gardens and other landscape styles typical of modern Europe, the *picturesque*, which, like the stereoscope, originated in England, involves a manipulation that must “be as various, wild, and free as Nature’s self.”<sup>50</sup> This short-circuit between the natural and the manipulated is thus consistent with the discursive devices that Holmes and the press of the time applied to stereoscopic technology, while expressing what W.J.T. Mitchell recalls on landscape painting, understood as “the ‘dreamwork’ of imperialism.”<sup>51</sup> Indeed, one of the main themes of stereography was the view of landscapes or urban realities, providing a technical equivalent to the forms of proto-tourism of the time. A virtual grand tour that expressed colonial attitudes of expansion and integration.

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48 R. Teukolsky, *Picture World: Image, Aesthetics, and Victorian New Media* (Oxford: Oxford University Press, 2020).

49 W. Gilpin, *Three Essays: On Picturesque Beauty; On Picturesque Travel; and On Sketching Landscape* (London: R. Blamire, 1792).

50 W. Mason, *The English Garden: A Poem in Four Books* (Dublin: P. Byrne, 1786): 33.

51 W.J.T. Mitchell, “Imperial Landscape,” in W. J. T. Mitchell, ed., *Landscape and Power* (Chicago: Univ. Of Chicago Press, 1994): 5-34

In this stance towards the natural, reproduced and controlled Other, landscape painting and its stereoscopic remediation became “packaged commodities,” contributing to the fetishisation of distant *loci*. This sentiment is further emphasised by the compositional qualities of the landscape genre, whose bird’s eye view recalls the distant, top-down control that nascent aerial technologies inaugurated over the natural and urban environment.<sup>52</sup> It is a compositional instrument which, in its stereoscopic remediation, discovers an unprecedented possibility of incorporation due to its illusionistic and immersive qualities: a type of attitude towards stereoscopic technology which, therefore, was profoundly imbued with the “deep-seated western desire to erode the gap between the viewing subject and non-local object”<sup>53</sup> – a process of proto-othering that found in the apparatus a new ally in this predation.

Teukolsky indeed, recalling Nochlin,<sup>54</sup> used the term *picturesque* precisely to refer to the construction of the colonial Other as an assemblage of static representations and stereotypical models produced for the pleasure of the Western eye. The system of the stereoscopic picturesque seems, therefore, to imply, even in Holmes’ prose, an important partner in the visual colonialism of the time and in the production of a stereotypical, classifiable, reproducible and archivable extra-Western world. There is, however, an important characteristic of the pictorial subject in question: it is not disembodied, as the Cartesian perspective would have predicted, but strongly incorporated. The virtual traveller described by Holmes in many passages<sup>55</sup> is equipped with a sensory apparatus because of the haptic qualities

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52 On the broad scope of aerial vision in architecture and urbanism, see: P. Adey, *Aerial Life* (Hoboken NJ: John Wiley & Sons, 2010); M. , F. Pousin, eds., *Seeing from Above. The Aerial View in Visual Culture* (New York: Palgrave Macmillan, 2013).

53 J. Plunkett, “‘Feeling Seeing’: Touch, Vision and the Stereoscope,” *History of Photography* 37, no. 4 (2013): 389-96, 396, <https://doi.org/10.1080/03087298.2013.785718.396>.

54 L. Nochlin, “The Imaginary Orient,” in L. Nochlin, ed., *The Politics of Vision: Essays on Nineteenth-century Art and Society* (London-New York: Routledge, 1989).

55 O.W. Holmes, “Sun-Painting and Sun-Sculpture:” 19-29.

of the technology, therefore virtually providing them with a form of vicarious agency over technically reproduced places and subjectivities.

An augmented and bifurcated form of the predatory trajectory towards the “othered,” exotic, and subordinate real, applied both to “image-making” and “image-viewing.” Stereography, driven by its metaphors and rhetoric, on the one hand, assaults the world with visual “weapons” that strip away layers of films from the tangible surface of a distant locus. On the other hand, the stereoscope permits a miniaturised visualisation, one that is tamed – recalling Marsyas – and always accessible to the bourgeois Western observer. This observer, however, is afforded the possibility to engage with an inhabitable and solid iconic world – subject, if only vicariously, to tactile manipulation and infused with a deeply illusionistic reality effect.

The stereoscope maintains an inherently ambiguous structure: it possesses an almost magical quality, capable of presenting solid objects in their very absence. This attribute aligns seamlessly with the places and the subjects that populate its photographic spaces. Echoing Said, the Orient and the colonial “elsewhere” are constructed by the Eurocentric imagination as realms filled with “monsters, devils, heroes; terrors, pleasures, desires.”<sup>56</sup> These places, rendered as the mystical and primitive “Other,” are nevertheless captured and dominated by the stereoscopic device that reproduces them in their solidity, as picturesque environments in the service of haptic immersion.

## Conclusions

In conclusion, this paper has explored the complex intersection of technology, perception and ideology through the lens of Oliver Wendell Holmes’ stereoscopic

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56 E.W. Said, *Orientalism* (New York: Vintage Books, 1979): 63.

device. By examining both the material and discursive dimensions of the stereoscope, it has shown how Holmes used metaphors of immersion to frame his technology as a cultural and moral force. The ergonomic design of the Holmes-Bates stereoscope not only made the device more accessible and comfortable, but also reshaped its socio-cultural connotations, distancing it from the moral ambiguities associated with earlier versions. Using a media archaeological and metaphorological approach, the study demonstrated how the rhetoric surrounding the stereoscope, with its promises of heightened realism and sensory immersion, reflected wider anxieties about the erosion of reality in the age of mechanical reproduction. In addition, the essay has shown how Holmes's writing framed the stereoscope as both a tool of technological innovation and a medium of colonial and imperial control, with metaphors of hunting, skinning and objectification. Ultimately, Holmes's discourse on stereoscopy reflects a profound shift in how emerging media technologies were understood and integrated into nineteenth-century cultural, social, and moral frameworks, anticipating many of the twentieth-century philosophical and ideological debates about simulation, perception, and the nature of reality itself.



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