

Gravitational Fields. Attraction, Roundness, and Operationality of Immersive Images¹

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TOWARDS ATTRACTIVE IMMERSIVE ENVIRONMENTS

Immersive interactive environments have come to challenge contemporary spectatorship and audio-visual creation. The domains of the virtual seem to become par excellence that which is able to absorb us and engage us. Even though they have a markedly distinct genealogy, the domains of “virtual”, “immersive”, and “digital” gradually overlap and are almost assimilated in everyday language. The emergence of the World Wide Web during the 1990s and the diffusion of digital devices are often referred to as a turning point for an intense reception and participatory media experience (Rose 2011). But, in recent decades, studies in different fields have endeavoured to show how immersive environments are by no means an invention of the 21st century: immersivity is not only clearly grounded in numerous optical devices of the modern age such as the 3-D stereoscope, the “all-view” panorama, the frameless phantasmagoria,

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The co-editors of the issue have discussed the development of the present text in synergy and they share its scientific scope. More specifically, the section “Towards Attraction Immersive Environments” can be attributed to Wanda Strauven, the section “Towards an Immersivity of Roundness” to Anna Caterina Dalmasso, and the section “Towards Operational Immersive Environments” to Simone Venturini. The section “Materialities, Senses, Imaginaries” has been collaboratively co-written.

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and the multifarious forms of peep media culture, it can even be traced to some extent to the architectural *trompe l'œil* of the Renaissance and Baroque periods, frescoes from Roman times, and as far back as the earliest forms of human expression, such as Palaeolithic cave paintings (Huhtamo 2013, Grau 2003, Nechvatal 2009).

Against the background of a rich and multidisciplinary scholarship, the role played by media archaeology (Huhtamo Parikka 2011, Parikka 2012) lies not only in questioning the newness of “new” media, and thus debunking the idea that immersive environments and experiences may be unprecedented, but also in providing different frameworks for a critical exploration of the process of virtualisation of the environment, which exceeds the state of present-day media technology. To understand this overarching techno-cultural movement, we need to take into account the entanglement between the devices and practices which elicit a transformation of our experience of images, the infrastructures and architectural spaces of reception, which are designed to become the catalyst of immersive spectatorship, through multisensory stimulation and interaction, as much as the epistemic and imaginary constructs which foster the material concretisation of media.

By triggering our bodies to respond as if the experiences they convey were real (Slater 2009), virtual interfaces can offer us intense thrills, feelings of awe, or goosebumps. Featuring roller-coasters, wanderings in outer space, flight simulators, and so forth, many of the contents that are offered to contemporary immersive users remediate the exotic fascination raised by *travelogues*, “impossible voyages”, and other curiosities in the early phases of cinema history (Bolter and Grusin 1999, for the notion of remediation.) As André Gaudreault and Tom Gunning have argued, the “cinema of attractions” at the turn of the century was characterised by a driving force that, instead of focusing primarily on storytelling, solicited spectators’ attention, inciting visual curiosity and providing pleasure through an exciting spectacle (Gaudreault & Gunning 1989, Gunning 1990, Strauven 2006). Likewise, nowadays, virtual immersive experiences renew an emphasis on spectacle and monstration over narrative, since what becomes most engaging for the audience is the disruptive sensorial impact of medium and technology and the staging of the apparatus itself (Golding 2019).

Yet, by entering CAVEs and wearing head-mounted displays, spectators are brought back not so much to the first film projections, but rather to the individual viewing devices of penny arcades, like the Kinetoscope and the Mutoscope, or even better to the embodied 3-D viewing experience of the Holmes stereoscope, which came with a hooded face cover enhancing the virtual reality effect of the stereoscopic images. In terms of collective immersive experiences, it is relevant to mention here the vanishing of the frame—both as the border of vision and the delineation of the image—epitomised, for instance, in Robert Barker’s panoramas where the spectators standing on a central platform are literally surrounded by an “all-view” painting, or in Étienne-Gaspar Robert’s (aka Robertson’s) phantasmagoria shows where both the lanternist and the

phantascope are hidden behind the screen, projecting frameless ghostly images towards the audience, with sound and smoke effects.

Indeed, in virtual technologies, the construction of iconic space no longer relies on the apparatus of the frame (Conte 2020, Pinotti 2021), resulting in a blurring of the threshold between physical reality and the virtuality of the image. However, despite the apparent unframedness of immersive environments, framing persists as a symbolic, psychic, aesthetic, or semiotic threshold. Instead of disappearing, the very perceptual function of framing is rather assumed by the experiencer's body and embodied gestures, acting like a *virtual frame* (Dalmasso 2019, Ng 2021), being constantly tracked by the sensors of the interface (Grespi 2021). The frontality of the frame is, thus, replaced by a world that is organised *around* the percipient (reminiscent of Barker's panorama), the experiencer's body becomes the pivot of a process of reciprocal performative negotiation of a shared agency between the human and the technological: between the experiencer and the constant operation of sensing and tracking ensured by the media environment.

TOWARDS AN IMMERSIVITY OF ROUNDNESS

The virtual mediascape draws our attention to another dimension of "attraction", as that which creates a *gravitational* field: it does not merely emphasise the dimension of shock and sensorial disorientation, but points to a reconfiguration of spectatorship as essentially interactive. What does it mean for creators to design an environment to be experienced (rather than an image to be seen), and for the experiencer to become the "centre of attraction" of the image-making process?

Organising themselves around this fulcrum, virtual environments give rise to "self-centred worlds" (Catricalà and Eugeni 2020), which are articulated according to the percipient, by delimitating or augmenting their cognitive capabilities, featuring different forms of "exocentric images" (Bédard 2022), that is, images produced by a camera attached to the body of an actor which, paradoxically, generate the impression of an immobile body in a moving world. Thus, by entering the virtual space, the experiencer accesses subjective *perceptive bubbles* similar to those described by the ethologist Jacob von Uexküll, to identify the way in which each species appears to be enclosed within an environment (*Umwelt*) made up of its own perceptual and operational possibilities, as in a "soap bubble" (Pinotti 2021).

Whether they provide access to a hermetically sealed illusionistic environment (virtual reality), or to a space which allows the superimposition of data and elements over the surrounding environment (mixed and augmented reality), extended reality media need to be reframed as the barycentre of what Hito Steyerl has called "bubble vision" (Steyerl 2017): an aesthetics that characterises not just the experience of digital media but also informs digital technoculture as such. As the artist argues, on the one hand, this trope hints at a condition of

isolation and deceit, as suggested by so-called “filter bubbles”, which create a parallel universe of information across media platforms and networks, and, on the other hand, it is a metaphor for globalisation and complexity, as we speak for instance of “real estate bubbles”, triggering the constant fear of economic collapse, burdening the destinies of an interconnected society. Besides, the isolation enacted by the figure of the bubble has recently found realisation in the global confinement imposed by the Covid-19 lockdowns, during which the accessibility to the “real” has been mediated worldwide by virtual and digital technologies.

Hence, the metaphors of circularity and roundness, whose emblem is the spherical figure of the bubble, feature a twofold structure, being suspended between a centripetal and a centrifugal movement. If the use of circular all-encompassing images grants a privilege to the observer as the centre of representative space, similar to that constructed by the tradition of Renaissance perspective, at the same time it also encloses the percipient in a regime of surveillance and subjugation, condensed by the dispositive of the Panopticon, but also presaged by the process of a capitalistic and military possession and mapping of space, historically strengthened by the different forms of aerial view. Furthermore, roundness is also a figure for the eye, an organic shape opposing the geometry of the frame, which stands in contrast with the orthogonality of the Albertian quadrangle. Even before the eye as organ of vision, circularity indicates the hypnotic power of the eyespot (Caillois 1984), as it may precede the function of vision, constituting itself as a pole of attraction.

Then, although the constraints it imposes on the observer's agency, the bubble provides at the same time a safe operating space, able at once to foster an organic engagement of the subject (Berleant 2010) and to work as a “disorientation device” (Ahmed 2006) or a means of “de-automatisation” (Deikman 1972). In this perspective, the bubble also offers a way to challenge the stable position of the subject: its topology comes to displace and even to reverse the model of the Panopticon, to turn it inside-out, showing the subject's effect on the surface, letting them resurface and interrogating them in a world that co-constitutes with them, to force them to recognise that every movement performed necessarily affects the surrounding environment.

TOWARDS OPERATIONAL IMMERSIVE ENVIRONMENTS

The contemporary tension towards immersivity inherits and preserves a deep time (Zielinski 2006). Several “topological” devices of the early modern age and the 19th century place the role of the human subject in relation to a “real” increasingly articulated and challenged by mediatised environments. The “sites of reality” (Crary 2002) established by immersive media infrastructure of modernity aim to overcome the limits of subjective vision and thus support

and help the progressive inadequacy of the human subject with respect to the technological a priori. Mixed, augmented, and virtual environments and images unfold a long-term training and negotiating ground of the conditions of existence of subjects, media, and their reciprocal and intertwined relationships.

Such relationships, therefore, draw attention not only to the form of roundness *per se*, but to a processual, operational roundness in terms of circularities, recursiveness, and feedback (Johnson 2011), constantly at work in augmented, virtual, immersive, interactive worlds and their media infrastructure. As a result, the narcissistic and reflexive background of these centric worlds is characterised by a continuous solicitation of the subject to take in information, provide and receive feedback, interact, thus corresponding to a hybrid training, and constantly operational environment.

Such ambivalence inherent in the roundness of immersive and interactive environments lies, on the one hand, in generating a utopian vision; while, on the other hand, from a "historico-pragmatic" perspective, circularity challenges and disorients the subject, proving to be close to the "perverse" and heterotopian practices already known and experienced by cinema itself, which found experimental and training settings in the scientific, medical, surveillance, military, and sensor-monitoring fields—the so-called S/M practices of the cinematic apparatus (Elsaesser 2005). As the environmentalisation of images, stimulated by virtual and immersive technical devices, challenges their representational status, immersive images become closer and closer to the recursivity of operational images, thus working in harmony with the processes of transformation from a visual to an *invisual* culture (Parikka 2023).

An apparently paradoxical convergence between the environmental and the operational framework ceases to be so if we consider immersive media and their images as the result of continuous oscillations between media transparency and opacity. Within the broad and productive scholarly debate generated by the successful definition coined by Harun Farocki in the early 2000s, Thomas Elsaesser was perhaps the most effective in relating "operational images" to the concepts of simulation, mimesis, and *trompe l'œil*. Since "mimesis has become a matter of generative algorithms' [...] operational images are images that no longer function like a 'window on the world', they point the way to a new definition of what an image is." (Elsaesser 2017: 216 and 219).

As is well known, *trompe l'œil* is a recursive key concept and deep pattern for immersivity, described in terms of "excessive mimesis" (Marin 2001) and "optical illusion" (Grau 2003), for its belonging to the order of hallucination (Marin 2001) or sacredness (Balke, Siegert and Vogl 2015). But as far as we are concerned here, the field of cultural techniques and the framework of operative ontologies, and within them the genealogy of *trompe l'œil* unfolded by Bernard Siegert, provide a more useful viewpoint. Here, the trigger of immersivity emerges "from margins, edges, and borders [...] constantly reinterpreted as represented objects [...] It is this oscillating between the transparency of the imaginary [...] space and the opacity of the material carrier, and more importantly, it is the re-entry of the latter into the former, that keeps generating the *trompe l'œil*"

(Siegert 2015, 191).

While the institutionalisation of a specific media infrastructure testifies the “taming” of a techno-cultural environment and the weakening of media competitions, on the contrary, the contemporary oscillation between framedness and unframedness, visual and invisual, representational and operational into the interactive, virtual, and immersive worlds is an indication of an ongoing negotiation in the struggle for the environmentalisation of images. Therefore, immersive media show an entangled historicity of their visual and material infrastructure (Parks and Starosielski 2015), where augmented, extended, and virtual images retain traces of their own operational modes and chains of construction, superimposing and overwriting several cultural techniques, such as tracking tools, diagrams, grids, or the 20th-century cinema and media imaginaries and narratives.

Through the different narratives and imaginaries unfolded by historical media, we can catch archaeological and discursive glimpses of the a priori of contemporary immersivity, which appears in this perspective as an intensification and articulation of a long-standing process. It is an imaginary that continuously challenges material, historical, and subjective temporalities, aesthetics and formal representations, and psychic-sense-motor principles of (de-)automatisation and (de-)individualisation of the subject in a circular, operational, and immersive media environment.

In the end, as Barthes noted almost fifty years ago (Barthes 1975), the co-presence in the proto-immersive space of the movie theatre of an image-oriented narcissistic body and a fetishistic body oriented towards material excesses and margins, can be traced back to how virtual immersivity in narcissistic terms can lead to the loss of the crucial freedom to orient the gaze towards the edges (Pinotti 2020). An archaeology of the virtual has therefore a critical research objective, aimed at exploring the shift between a narcissistic unframedness, presentness, immediateness, and a fetishistic operational perverseness in immersive worlds, and at ensuring that the “edges” and “margins” of virtual environments will retain their fundamental role of negotiating and balancing the relationships between materialities, senses, and imaginaries.

MATERIALITIES, SENSES, IMAGINARIES

The different contributions in this thematic issue investigate the notion of the virtual, and the present state of the art of virtual technologies, by delving into the deep time of cinema and media history and by developing the ambiguity of the spherical figure, which is treated both as a metaphor, a topology, a material condition of technological devices, a cultural technique, and an epistemic and imaginary dispositive.

The opening essay by Élise Jouhannet offers the theoretical framework of the immersive roundness and the circularisation of the image, as opposed to the classical rectangularly framed film image and media screen. Through the

metaphor of the bubble and the transhistorical imaginary which springs from it, the author proposes to rethink the materiality of virtual reality in terms of transparency and elasticity, tracing an alternative genealogy, both historically and symbolically, from the first hot-air balloons to the inflatable “bubbles” of expanded cinema.

The next two articles look into site-specific immersive dispositives and their materialities. VR technologies are commonly presented and understood as a dematerialisation of human experience, which is in contrast with the hypermediation of virtual interfaces and in particular with the fact that the gestures and bodily movements of the spectator are precisely the source of the actualisation of the virtual image. This is already somehow embedded in “topological” devices of the early modern age, as explored by Matteo Citrini in relation to the toposcope and by Maja-Lisa Müller in relation to early modern choir stalls. Both authors focus on the material conditions of an immersive experience, respectively in the Alps and in the architectural spaces of the church. Citrini traces the non-linear and heterogeneous history of the toposcope, a panoramic device consisting of a (semi)circular table with topographic information about the surroundings. Originally designed for the detection of fires, the toposcope was repurposed into a tourist attraction during the 19th century, offering to the mountaineer an experience of *in situ* virtuality. Similarly, the inlaid decoration and *trompe-l'œil* imaginary of the wooden choir stalls discussed by Müller placed the clergy in a virtual space, a space within a space, or rather a hybrid space at the intersection of virtuality and actuality. For this purpose, Müller revisits Brunelleschi's experiments in central perspective pointing out the importance of *situated* vision and the connection between the spheres of depicting and depicted.

Then follow two contributions that focus on the sensorial immersivity of cinema, centred around two key figures of the early-20th-century debate on the senses of cinema: Aldous Huxley and Frederick Kiesler. Huxley's parody of the talkies through the “invention” or imaginary medium of the feelies is critically analysed by Giancarlo Grossi from a media-epistemological perspective. Furthermore, by reconnecting the feelies to the cultural history of olfaction, Grossi suggests how the mediatisation of this repressed sense is connected to the colonisation of subjectivity, a fact which reveals a clearly dystopian scenario for the author of *Brave New World* but which is at the same time essential for the further (theoretical) development of virtual reality. Anna Franceschini, on the other hand, places Kiesler's work in a media-archaeological perspective, highlighting the Austrian-American architect's visionary intuition of cinema as a totalizing and virtualizing experience. Therefore, Franceschini's contribution is focused on the sensoriality of Kiesler's stage productions, window displays, and movie theatre architecture, which she discusses in terms of spatial virtualisation.

The issue closes with two contributions articulating two complementary imaginary archaeologies which underpin this process of virtualisation of space, by addressing, on the one hand, the history of virtual reality installations, and, on the other hand, the moving image in one of its most essential forms. While

George Themistokleous' contribution analyses *Osmose* (1995), the pioneering work by Char Davies which marked a turning point in the artistic explorations of the virtual medium, the essay co-written by Barbara Le Maître, Natacha Pernac, and Jennifer Verraes outlines a *mise en abîme* of the immersive condition by drawing on Chris Marker's *La Jetée* (1962). Themistokleous focuses on the unique bodily experience designed by *Osmose* to reveal how virtual reality can engender a "de-automatisation" of sensibility, that is, an un gearing of one's habitual perception, from which can spring the potential for present-day and future VR works. In the analysis developed by Le Maître, Pernac, and Verraes, the complex narrative and the paradoxical temporality articulated by the science fiction of *La Jetée* act as a prefiguration of immersion through memory and time-travel, culminating in a decoupling of the position of the subject, who, suspended between fetishism and narcissism, negotiates a peculiar co-existence between the virtual and the real.

The different approaches to virtuality, articulated by the contributions collected in this thematic issue, reflect as many ways to "think media archaeologically" (Strauven 2012 and 2013), that is, different perspectives towards conducting research in media archaeology, from studying the recurring motif or *topos* of the bubble to tracing discontinuities in the history of the toposcope, from reading the classical history of Renaissance perspective against the grain to conceptually (re)enacting the discursive media invention of the *feelies*, from uncovering the new in the old within the writings of Kiesler to imagining the future of VR and time-travelling by analysing complex narrative structures. Through these diverse contributions and media archaeological approaches, which both look back into the past and forward into the future, the thematic issue as a whole aims at shedding new light on the contemporary mediascape and at stimulating the ongoing debate about virtuality and immersivity.

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