

Playing VR Against Itself

Immersive Environments between Hypermediation and Remediation

Federica Cavaletti, Pietro Conte, Andrea Pinotti

This study¹ investigates the paradoxical dynamics of empathy, illusion, and self-reflexivity within contemporary virtual reality (VR) storytelling. After outlining the ideological and technological premises that have led many artists and filmmakers to conceive of VR as an ›empathy machine‹, the essay questions this assumption by highlighting the structural contradictions inherent in immersive media. The first section analyses the affective and ideological implications of empathy-oriented VR projects, showing how their apparent immediacy conceals deeply mediated frameworks. The second and third sections then turn to two case studies – Michał Stankiewicz's *Wish You Were Here* and John Hsu and Marco Lococo's *Great Hoax: The Moon Landing* – that deliberately challenge the rhetoric of transparency by exposing, respectively, the illusion of immersion and the instability of authenticity. Through these

1 This article was written in the framework of the research project AN-ICON. *An-Iconology: History, Theory, and Practices of Environmental Images*. The project has received funding from the European Research Council (ERC) under the European Union's Horizon 2020 research and innovation programme (grant agreement No. 834033 AN-ICON). Among the authors, Federica Cavaletti further received funding by the European Union (ERC-2023-POC *TIMELAPSE*, Project number: 101137707). Views and opinions expressed are those of the author(s) only and do not necessarily reflect those of the European Union or the European Research Council Executive Agency. Neither the European Union nor the granting authority can be held responsible for them. Both AN-ICON and *TIMELAPSE* are hosted by the University of Milan, Department of Philosophy *Piero Martinetti* (Project *Departments of Excellence 2023-2027* awarded by the Ministry of University and Research). All authors contributed equally to conceiving the structure and content of this article. Andrea Pinotti wrote section 1; Federica Cavaletti wrote section 2; Pietro Conte wrote section 3 and conclusion.

analyses, the article proposes that VR's artistic and critical potential lies not in its capacity to simulate presence or evoke compassion, but in its ability to reveal its own mediological and performative construction. In this way, the essay contributes to reframing the debate on immersive media from a rhetoric of empathy and immediacy to one of awareness, opacity, and creative reflexivity.

1. The ambiguous dimension of virtual immersion as an empathy device

Although VR storytelling is still in search of a narrative form fully attuned to its technological affordances, its ›dispositive‹ – understood as the intertwining of a technical apparatus with the ideological discourses surrounding it – already positions itself as a catalyst for empathy (intended as bodily as well as affective resonance and capacity to put oneself in another's shoes), particularly in immersive projects that engage with global humanitarian crises. This potential becomes especially evident in documentary or docufiction works commonly grouped under the label of ›immersive journalism‹.²

Asked why she shifted from traditional cinema to VR for *The Protectors: Walk in the Ranger's Shoes* (a short 2017 documentary portraying a ranger's daily life in Garamba National Park, Democratic Republic of Congo),³ Kathryn Bigelow answered without hesitation: »I think that the simple answer is empathy«.⁴ Similarly, Ai Weiwei explicitly invokes empathy – tongqing 同情 in Chinese, »to share feelings or emotions with another person« – to frame the humanitarian scope of his work.⁵ His VR piece *Omni* (actually a combination of two

2 See on empathy and VR Matthew Cotton (2021): *Virtual Reality, Empathy and Ethics*, Cham: Springer-Palgrave Macmillan. More specifically on VR and the humanitarian crisis see Francesco Zucconi (2018): *Displacing Caravaggio. Art, Media, and Humanitarian Visual Culture*, Cham: Palgrave Macmillan, Ch. 5 »On the limits of the virtual humanitarian experience«, pp. 149–181.

3 *The Protectors* (2017): »Walk in the Ranger's Shoes«, in: www.walkinginrangersshoes.com. Online: <https://www.walkinginrangersshoes.com> (last access: 13.10.2025).

4 Quoted in Adi Robertson (2017): »VR Was Sold as an ›Empathy Machine‹ – But Some Artists Are Getting Sick of It«, in: theverge.com (05.2017). Online: <https://www.theverge.com/2017/5/3/15524404/tribeca-film-festival-2017-vr-empathy-machine-backlash> (last access: 03.10.2025).

5 Ian Boyden (2018): »Not Yet Not Yet Complete. An Interview with Ai Weiwei. Part V: The Conditions of Empathy«, in: chinaheritage.net (10.2018). Online: <http://chinaheritage.net>

separate videos: *Displaced Working Elephants in Myanmar* and *Rohingya Refugees in Bangladesh*) »gives viewers an intimate view of the uprooted, both animals and humans, as they experience various forms of displacement«,⁶ allowing audiences to step into the place of both animals and refugees.

Chris Milk, when presenting his humanitarian VR productions for the United Nations, famously described VR as »the ultimate empathy machine«. In a well-known public talk, he emphasized his goal of drawing the spectator inside the »frame« of the story to provoke »more visceral emotional reactions«: »I don't want you in the frame, I want you *through* the frame, on the other side, in the world, inhabiting the world«. ⁷ For Milk, VR is an »experiential medium« – on the one hand a machine, on the other an experience that feels like »real life« or »truth«. The viewer feels physically present in that world and alongside the people represented within it.

Through the combined use of 3D cameras and binaural microphones, Milk achieves what might be described as the »environmentalisation« of the image: a 360-degree visual and acoustic field in which the spectator experiences the sensation of »being there«. Watching *Clouds over Sidra*,⁸ for example, you are not observing the Syrian girl protagonist through a »screen« or »window«; you are sitting next to her in a refugee camp in Jordan, and »you empathize with her in a deeper way«.⁹

Implicitly, Milk suggests that VR environments promise to overcome a longstanding tradition – first articulated in the modern era by Leon Battista Alberti, who in his 1435 *On Painting* defined image perception as looking through a window at a fragment of the world and its actions (*historia*) unfolding within the frame: »I will say what I myself do when I paint. First, I trace as

tage.net/journal/the-conditions-of-empathy-ai-weiwei-interview-part-5/ (last access: 03.10.2025).

6 See Ai Weiwei, presented by The Guardian, in: *acuteart.com*. Online: <https://www.acuteart.com/discover/ai-weiwei> (last access: 03.10.2025).

7 Chris Milk (2015): »How Virtual Reality Can Create the Ultimate Empathy Machine« (TED Talk), online: <https://www.youtube.com/watch?v=iXHilTPxvA> (last access: 03.10.2025).

8 The video is accessible also via browser at the following link: Within (27.01.2016, 0:08), Youtube: <https://www.youtube.com/watch?v=mUosdCQsMkM&t=8s> (last access: 03.10.2025).

9 Chris Milk (2015): »How Virtual Reality Can Create the Ultimate Empathy Machine« (TED Talk), online: <https://www.youtube.com/watch?v=iXHilTPxvA> (last access: 03.10.2025).

large a quadrangle as I wish, with right angles, on the surface to be painted; in this place, it [the rectangular quadrangle] certainly functions for me as an open window through which the *historia* is observed». ¹⁰ As has often been remarked, a thread connects Alberti's early modern reflection on painting to later technological developments, including the window-like display of our computer screens. ¹¹ By contrast, a 360-degree immersive environment dispenses with frames altogether: the ability to look in all directions appears to liberate the viewer from the director's »cut«, collapsing framing onto the user's own gaze and allowing her to decide what to attend to and how to autonomously reframe her visual field.

Milk was highly optimistic about the anthropological, biopolitical, and humanitarian impact of this immersive mode. »We can change minds with this machine«, ¹² he boldly proclaimed. His film was screened, for instance, at the World Economic Forum in Davos in January 2015 before policymakers whose decisions affect millions – and, according to him, these viewers »were affected« by Sidra's story. His collaboration with the United Nations ¹³ pursued the same aim: to present films directly to decision-makers capable of shaping the lives of those depicted. For Milk, this was only the beginning of discovering the »true power of virtual reality« ¹⁴ – namely, its capacity to alter how people perceive others and, ultimately, to transform the world.

A similar rationale has informed Alejandro González Iñárritu's work. In a BBC interview (2018), on the occasion of a Washington screening of his much-celebrated *Carne y Arena*, he elaborated on empathy and compassion as key emotions his VR installation seeks to elicit. Declaring himself uninterested in political activism and motivated solely by »humanity«, Iñárritu explained that his script was based on more than 120 migrant testimonies, aiming to enable spectators to share their experiences both sensorially and emotionally. But this sharing differs from the superficial connectedness associated with today's digital devices and social networks. Instead, Iñárritu calls for a solitary, first-person encounter between the VR user (isolated from her peripersonal

10 Leon Battista Alberti (2011): *On Painting*, Cambridge: Cambridge University Press, p. 55.

11 See Anne Friedberg (2006): *The Virtual Window: from Alberti to Microsoft*, Cambridge, MA: The MIT Press.

12 C. Milk: *How Virtual Reality Can Create the Ultimate Empathy Machine*.

13 See the presentation of this cooperation at <https://www.youtube.com/watch?v=m-SZzyRfKK8> (last access: 03.10.2025).

14 C. Milk: *How Virtual Reality Can Create the Ultimate Empathy Machine*.

environment by the headset) and the migrants. To enforce this, participants must surrender their mobile phones at the entrance, preventing any real-time sharing during the 6.5-minute experience. As an immigrant himself, Iñárritu felt compelled to create this VR work in response to what he calls a »deficit of compassion« – a phrase that resonates with Barack Obama's 2006 speech on America's »empathy deficit« to graduates at Northwestern University.¹⁵ This perspective adopts a restrictive notion of »empathy« – equated with pro-social compassion, a humanitarian sympathy for the marginalized, the poor, the excluded. Yet empathy is not inherently benevolent and does possess its dark side: even sadists must be empathetic to better inflict pain. Watching the installation at its 2017 premiere at Fondazione Prada in Milan,¹⁶ one might have wondered whether a right-wing Italian politician hostile to irregular migration would not instead empathize with the police patrol and their dogs...

Despite the shared ambition of Bigelow, Weiwei, Milk, and Iñárritu – to provoke powerful empathetic responses – their works differ in the Degrees of Freedom (DoF) offered by their VR technologies. The first three rely on 3DoF, while Iñárritu employs 6DoF. Borrowed from robotics, these terms distinguish environments where users may only orient their gaze across a 360-degree visual field (3DoF) from those where they may also move physically within the virtual space, approaching or retreating from digital entities (6DoF). Two further distinctions should be added: first, whether users are present solely as disembodied gazes or also represented through avatars – either »full-body« or »partial« (typically the hand); second, whether users remain passive spectators or are able to interact with the environment. In *Carne y Arena*, for example, the user can move within the 3D space but cannot interact with the virtual characters or objects.

Clearly, engagement intensifies when progressing from 3DoF to 6DoF and then to interactive 6DoF. Yet in all these immersive contexts, a paradox emerges: the ideological orientation of empathy is at odds with the supposed freedom enabled by 360-degree shooting. On the surface, the user's ability

15 »There's a lot of talk in this country about the federal deficit. But I think we should talk more about our empathy deficit [...]. We live in a culture that discourages empathy«: <http://obamaspeeches.com/079-Northwestern-University-Commencement-Address-Obama-Speech.htm> (last access: 03.10.2025).

16 Alejandro Iñárritu (2017): »Carne y Arena«, in: www.fondazioneprada.org. Online: <https://www.fondazioneprada.org/project/carne-y-arena/?lang=en> (last access: 03.10.2025).

to choose her perspective emancipates her from both the ›window‹ of Alberti and the director's framing. But at a deeper level, her gaze is subsumed into a predetermined emotional and ideological framework, nudged into reproducing the camera's sympathetic viewpoint. The more freedom the user feels in exploring an allegedly ›unframed‹ space,¹⁷ the more insidiously the ideological conditioning asserts itself. Believing she acts autonomously, she in fact complies with a constraining framework composed by the authorial script, the affective preorientation, the predetermined possibilities of interaction and the constitutive limits of motor exploration imposed by the device.

This condition stems from the medium itself, which destabilises the conventional structure of image reception. In immersive VR, the observer's ability to distinguish support from image – the ›twofoldness‹ that Richard Wollheim deemed essential to pictorial experience¹⁸ – gives way to a blurring of image-consciousness and lived experience. In phenomenological terms, *Perzeption* (the perception proper to images, which does not posit its objects as real) yields to *Wahrnehmung* (literally, ›taking as true‹), the perception of things in their presence¹⁹. The medium strives toward ›transparent immediacy‹:²⁰ the illusion of unmediated experience, achieved precisely through sophisticated mediation.

In this condition of transparency, spectators lose awareness not only of the technical construction of the scene but also of the director's perspective embedded within it. While believing themselves to be framing the world, they are in fact framed by the director's discourse. This loss of awareness dovetails with a further risk embedded in the rhetoric of virtual empathy:

17 *Contra*, see Mark Andrejevic/Zala Volcic (2019): ›Virtual Empathy‹, in: Communication, Culture & Critique 13/3, pp. 295–310. The authors call for a vindication both of the ›linguistic‹ (i.e. mediated) character of the representation and its framedness: ›Frames are incorrectly framed as an obstacle to perception, imagination, and empathy: rather, they are the conditions of possibility for all of these‹. On framedness and framelessness see Pietro Conte (2020): Unframing Aesthetics, Milan/Udine: Mimesis International. On the rhetoric of unframedness see also: Anna Caterina Dalmasso (2019): ›The Body as Virtual Frame. Performativity of the Image in Immersive Environments‹, in: Cinéma & Cie 19/32, pp. 101–119.

18 See Richard Wollheim (2015): ›Seeing-As, Seeing-In, and Pictorial Representation‹, in: Id., Art and Its Objects, Cambridge: Cambridge University Press, pp. 137–151.

19 For this terminological distinction, see Edmund Husserl (2005 [1898–1925]): ›Phantasy, Image Consciousness, and Memory‹, Dordrecht: Springer, pp. 556 and 584.

20 Jay David Bolter/Richard Grusin (2000): Remediation. Understanding New Media, Cambridge, MA: MIT Press, p. 23.

the illusion of accessing the Other's experience directly, without recognizing its irreducible alterity.²¹ Genuine empathy requires precisely such recognition, without fusing the Other into oneself. Instead, VR risks solipsistically absorbing the Other into the user's own perspective: »Technologies designed to foster empathy presume to acknowledge the experience of another, but inherently cannot. The user of these technologies, instead of acknowledging another's experience, hastily absorbs the other's experience into their own experience«.²²

In this sense, »perspective taking«²³ – conceived as decentring oneself to inhabit another's viewpoint – devolves into projecting one's own subjectivity onto the virtual Other, who cannot reciprocate. I am »there«, but the Other's gaze remains blind, offering no recognition.

Again, this limitation is tied to the immersive apparatus itself. While 360° cameras promise unfettered spatial exploration and the illusion of comprehensively knowing the people depicted, such »totality« is illusory. Sidra's speech, the rangers' gestures, the Rohingya refugees' movements, the Mexican migrants' expressions – all remain fixed recordings, marked by what Roland Barthes famously described as photography's »that-has-been«.²⁴ The immersive setting may produce a powerful sense of »being there«, but it cannot yield new access to the emotional or existential depths of its subjects. Only an actual intersubjective relationship can provide such progressive disclosure. Not to mention the need to take into account the situated and implicated dimension of the actors involved: authors, users, actors, characters, in a perspective that,

-
- 21 On the necessity to separate a veritable empathy respecting the Other's Otherness from an undifferentiated fusion between subjects see the classic phenomenological perspectives developed by: Edith Stein (1964): *On the Problem of Empathy*, The Hague: Springer; Max Scheler (1954): *The Nature of Sympathy*, London: Routledge.
 - 22 Grant Bollmer (2017): »Empathy Machines«, in: *Media International Australia* 165, pp. 63–78, here: p. 64. The same argument in Grant Bollmer (2020): »From Immersion to Empathy. The Legacy of *Einführung* in Virtual Reality and Digital Art«, in: Hava Al-douby (ed.), *Shifting Identities. An Anthology of Presence, Empathy, and Agency in 21st Century Media Arts*, Leuven: Leuven University Press, pp. 17–30, here: p. 26.
 - 23 On the interpretation of empathy as »perspective taking« see: C. Daniel Batson/Shannon Early/Giovanni Salvarani (1997): »Perspective Taking. Imagining How Another Feels Versus Imagining How You Would Feel«, in: *Personality and Social Psychology Bulletin* 23, pp. 751–758.
 - 24 Roland Barthes (1981): *Camera Lucida. Reflections on Photography*, New York: Hill and Wang, pp. 76–77.

given the themes addressed by the works just mentioned, cannot ignore a decolonial perspective.²⁵

Ultimately, otherness is doubly effaced: first, the director's gaze vanishes through the apparent transparency of the medium, leaving behind the inert corpse of reality; second, the represented subjects, though seemingly alive and mobile, are frozen like puppets, unable to respond. The first-person ›autopsy‹ of VR – *autos opsis*, ›I have seen for myself‹ – thus shades into the ›autopsy‹ of a post-mortem, where life has already been stilled.

What has been described so far corresponds to an attempt to highlight the structural limitations of immersive VR technology aimed at eliciting empathetic feelings and embodied engagement in viewers: such shortcomings appear particularly evident when VR works parasite narrative and stylistic conventions imported by previous media, film and TV documentaries in the first. Let us now see in the next two paragraphs, dedicated to two specific case studies, whether a design and storytelling operation that critically and even subversively addresses the conventional structures of VR can effectively overcome these weaknesses, opening up new perspectives of mediological and experiential meaning.

2. Is anyone ›there?‹ Unveiling the medium in *Wish You Were Here*

Among the aspects often associated with empathy and VR documentaries is the possibility to experience events ›directly‹. This can be interpreted according to two main meanings, corresponding to as many VR-specific ›illusions‹: experiencing events directly in the sense of ›with no mediation‹, which is associated with what is called ›transparency illusion‹; and in the sense of experiencing these events by ›being there‹, which is connected to what goes by the name of ›place illusion‹.

Following Jay D. Bolter and Diane Gromala, transparency illusion can be defined as the illusion that the media interface conveying images (and sounds)

25 See on this point: Patrick Colm Hogan (2015): ›The Psychology of Colonialism and Post-colonialism: Cognitive Approaches to Identity and Empathy‹, in: Liza Zunshine (ed.), *The Oxford Handbook of Cognitive Literary Studies*, Oxford: Oxford University Press, pp. 329–346.

can become invisible.²⁶ Such illusion is grounded in the designers' deliberate effort to hide the media interface, and sometimes in photorealism or even hyperrealism, i.e. the fact that the represented content is reproduced as realistically as possible, up to an ideally complete correspondence. The alleged consequence of transparency illusion is the perception that there is no mediation between us and what we see in the VR experience.

On its side, following this time Mel Slater and colleagues, place illusion can be described as the illusion of being in the place depicted in VR (»being there«) in spite of the sure knowledge that this is not the case.²⁷ This illusion is grounded in a combination of factors. First, the fact that the VR content surrounds the spectator or user completely. Second, the fact that experiencing VR affords what Alva Noë and J. Kevin O'Regan call natural sensorimotor contingencies: that is, perception and action seemingly work like they do in a natural environment.²⁸ This also gives rise to a related and additional illusion, called »plausibility illusion«, which induces to take what happens in the virtual world as »actually« happening. This phenomenon is more relevant in 6DoF than 3DoF environments, as it is more pronounced when a certain degree of interactivity is involved – which is the case for many, though not all, 6DoF environments. Lastly, place illusion is based on transparency illusion itself. Indeed, the idea is that, if there's no medium, then the content we experience is just here and now for us to plunge into it.

Importantly, all constructs just described are simply what their name implies: illusions. As for transparency illusion, the media interface is actually still there, even though possibly less evident. Far from being un-mediated, the depicted events are subject to at least two forms of mediation: the literal one of the interface; and the ideological one of the filmmaker's choices as to what to show and how.

Concerning place illusion, obviously enough, we are not actually transported anywhere. This is particularly worth stressing in the case of immersive

26 Jay David Bolter/Diane Gromala (2003): *Windows and Mirrors. Interaction Design, Digital Art, and the Myth of Transparency*, Cambridge, MA: The MIT Press.

27 Mel Slater (2009): »Place Illusion and Plausibility Can Lead to Realistic Behaviour in Immersive Virtual Environments«, in: *Philosophical Transactions of the Royal Society B. Biological Sciences* 364/1535, pp. 3549–3557; Mel Slater et al. (2022): »A Separate Reality: An Update on Place Illusion and Plausibility in Virtual Reality«, in: *Frontiers in Virtual Reality* 3/914392.

28 J. Kevin O'Regan/Alva Noë (2001): »A Sensorimotor Account of Vision and Visual Consciousness«, in: *Behavioral and Brain Sciences* 24/5, pp. 939–973.

documentaries, which often play with the idea of bringing the spectators to experience ›in first person‹ what is represented. Far from ›being there‹, together with the people being portrayed, we are removed from them both in space and time. In space, because – however illusionistic the representation can be – we are still in our real surroundings, while the people portrayed are part of the virtual images; and in time, because normally the events we are witnessing are not broadcast ›live‹, but they have been recorded or designed early on.

By now, as far as the scholarly debate is concerned, it is generally well established that transparency illusion and place illusion are to be taken for what they are, to the point that their critique has probably become trite. However, overemphasising VR's ability to show things ›with no mediation‹, to ›bring people there‹ has remained a widespread and quite unquestioned strategy for marketing immersive documentaries.

In fact, this is functional for most parts involved. Filmmakers capitalize on the promise of an unusually powerful and involving experience; expert users, after being disappointed in the past, can keep their hopes high that ›this time‹ they will actually get such experience; on their side, naive users (and there is still plenty of them) may simply believe that they will get such experience. As a result, authors tend to ›fool‹ the audience, and spectators tend to be happy to be ›fooled‹.

This state of affairs risks having detrimental consequences for VR. First, it can create distrust and disappointment in the medium: after all, in the long run, not even an audience that is open to being tricked really likes not getting what they keep being promised. Second, it can transform VR contents into a mere pretext for VR *effects*. This is almost inevitable, if what counts the most is achieving the forms of illusion discussed above. Lastly, and for a very similar reason, it can generate repetitive products, because they basically all have the same underlying goal.

This set of consideration takes on particular importance when the object of the VR representation is, in many possible ways, *sensitive*, or when it shows conditions that are unfamiliar to the audience, with the intent of making them ›step into‹ the condition at stake in first person. A relevant field in this regard is the representation of *illness*.

VR directors have developed different strategies to avoid overemphasising unrealistically the illusionistic properties of the medium, and to stay away from the problematic and likely offensive assumption that simply going through a VR experience is enough to experience the depicted illness directly.

In some cases, the choice is made to create some distance from the representation by privileging CGI over filmic, photorealistic images. While photorealism is not a necessary condition for place illusion, it definitely plays a crucial role for transparency illusion. Plunging into a CGI world can give the impression of being in that world, but can hardly convey the sense that we are witnessing an event as it unfolds and with no mediation: life is not a cartoon. This has been the strategy adopted by notable representations of both organic and mental illnesses, based on real stories, like *Goliath. Playing with Reality* (Barry Gene Murphy & May Abdalla, 2019) narrating schizophrenia; and *Notes on Blindness* (Amaury La Burthe, Arnaud Colinart, James Spinney, Peter Middleton, 2016), on the experience of losing gradually one's sight.

However, this is not to conclude that using photorealistic images necessarily leads to illusionistic VR in the senses discussed above. To demonstrate how things can be done differently, a case study will now be introduced and analyzed more in depth.

Wish You Were Here (2023) is a 3DoF VR documentary by theatre, film, and VR director Michał Stankiewicz about Aneta, a 36-year-old woman with breast cancer. Spectators can follow different aspects of Aneta's life in her home, as well as listen to some of her reflections. They cannot interact, but they can explore what they see all around themselves.

When the documentary begins, what is shown is an orchard that grows opposite Aneta's house.²⁹ The woman lets spectators know that they will be watching a documentary in VR, and warns, somehow enigmatically, that the representation contains a lot of errors. Deliberately, nothing in this quite long starting scene suggests that we are ›there‹. In fact, it is already possible to foresee what is particular about *Wish You Were Here*. A microphone can be spotted in the middle of the vegetation in the first frame, and a cameraman with a camera becomes visible too in the second frame.

The next scene is set inside Aneta's flat. The spectators can see how she lives, and meet her two children, whom she raises alone. However, as soon as an illusion of presence may start to set in, the film crew shooting the documentary appears in the scene.

Later on, the documentary reveals that Aneta has cancer and lets the spectator listen to her reflections about it: how she perceives her condition as absurd, sometimes not even real; how she realises that the disease is eating away

29 Description was adapted from materials courtesy of the filmmaker.

at her quality of life day by day, and how she still tries to enjoy her remaining time as fully as she can.

From this moment on, spectators will be projected into different seasons by means of a series of flashforwards. In winter, they see Aneta in more intimate situations: as she plays with her daughter, but also as she gets a massage from a therapist to ease her pain and discomfort after mastectomy. Again, however, illusionistic immersion is hindered by the film crew being visible on the scene.

In spring, Aneta's conditions have worsened significantly, and she no longer has hair. Spectators are in her room, and nothing happens, except for Aneta at some point looking at the camera. The next scene is set in Aneta's bathroom, where she says she sometimes hides when she wants to cry without being seen or heard. Again, however, this very intimate confession, which may bring spectators illusionistically close to the woman, is counterbalanced by the camera being shown, very visibly, in the bathroom mirror and other reflecting surfaces.

At this point, the flow of the filmic images is interrupted. Aneta shares that when she needs to calm down she breaths deeply and imagines being immersed in blue. As she says so, the field of vision actually becomes blue.

Finally, spectators are projected in summer. They see the orchard and a large new building. Later, they are shown an empty room, with only a camera where Aneta was previously sitting.



fig. 1: Wish You Were Here, 2023, VR documentary, R: Michał Stankiewicz. Aneta interacts playfully with a film crew member

As it is easy to conclude, the distinctive feature of *Wish You Were Here* is that, as opposed to common practice, the director does not hide the traces of the VR filmic production. On the contrary, he leaves the recording equipment in full sight, and sometimes he even artificially doubles or triples it. In the bathroom shot, for instance, the camera is reflected not only in one, but in several reflecting surfaces.

In addition, the protagonist herself acknowledges both the production equipment and the presence of the spectator(s). At the beginning of the documentary, she declares outright that »this is a film, a documentary«; that she is »walking around the camera right now«; and, most strikingly, that »you [spectators] keep following me with your eyes«. Even more than the cameras and staff in sight, this direct address is particularly impactful as it comes really early and suddenly in the documentary, catching spectators off-guard before they can understand that in the director's setting they will be »seen«.

What are the consequences of these choices? First of all, the unveiling of the production equipment and Aneta's meta-filmic attitude tell spectators unambiguously that what they see was recorded and, thus, the events are mediated: this is the end of transparency illusion. The measures adopted in this VR documentary against transparency, not so rare to be found in cinema too, hit somehow more strongly than if they were deployed in a non-immersive movie. This is because in that case, the margins of the screen (the film frame, so to speak) constitute an ongoing reminder of the mediated nature of the representation. As a consequence of the end of transparency illusion, place illusion cracks too: if events are mediated, then they cannot be »accessed«. In this case, this is primarily due to time-related considerations depending on the filmic nature of the images, and our awareness of the way they work: the mediation that we are called to acknowledge hints quite unambiguously at the fact that the events are not unfolding *now*, as we watch them, but they took place and were filmed in the past. We cannot access them any more than we can access a non-immersive movie. The director, therefore, refuses to exploit the two most »classic« illusions of mainstream VR documentaries.

The director's awareness and the fact that the fall of transparency and place illusion are fully deliberate is confirmed by his own discussion of *Wish You Were Here*. In a 2022 interview, he clarifies how he decided to turn a VR-specific feature against itself. The reference is to the »unframedness« already mentioned in this article, i.e. the (once again) illusion that, as it envelops spectators in a 360° field, different from traditional types of images, VR representations extend the limits of their frame until they ideally suppress them. In mainstream

VR practice, unframedness is used to promote transparency illusion and place illusion: in fact, essentially, the absence of a frame implies the absence of a medium as well. Stankiewicz, however, sagaciously observes that, if the frame gets so wide that you can actually look all around, at some point one becomes able to see what is behind the scene: namely, the film production equipment and crew. The take-home-message to VR creators can thus be read as a sort of cautionary tale: VR strength can just as easily become its weakness.

However, so to speak, the director appears to have a message for VR spectators as well. To grasp this, it is useful to go at the roots of Stankiewicz's inspiration, which is undoubtedly Brechtian. Indeed, the visibility of the recording equipment, and even more the protagonist's direct gaze to the spectators are clearly to be traced back to Brecht's notion of breaking the fourth wall. This move, it is worth remembering, was aimed at creating more aware and critical spectators. In an oft-cited quote by the German playwright: »The spectator was no longer in any way allowed to submit to an experience uncritically (and without practical consequences) [...] The production took the subject-matter and the incidents shown and put them through a process of alienation: the alienation that is necessary to all understanding«.³⁰

Making the VR experience less obvious, less seemingly natural, which is a responsibility of VR creators, implies in a specular way that spectators too engage in a deeper consideration of their role and even duties. If VR creators should stop relying easily on VR-specific illusions, then spectators should stop falling for them just as easily. This is particularly relevant for VR documentaries, so often showing »the pain of others«.³¹ In *Wish You Were Here*, spectators are called even aggressively (»you keep following me with your eyes«) to take into account that they are being given (partial, mediated) access to something very sensitive. In the same interview, indeed, the director states that VR gives spectators the opportunity to see themselves in a way, and – most importantly – to ask *why* they are looking. Which is important to avoid not only mindless immersion, but also any form of voyeurism.

Before concluding this analysis of *Wish You Were Here*, it is worth adding some words about the moment in which, triggered by Aneta's confidence that

30 Bertolt Brecht (1974 [about 1936]): »Theatre for Pleasure or Theatre for Instruction«, in: John Willet (ed.), *Brecht on Theatre. The Development of an Aesthetics*, London: Eyre Methuen, pp. 69–76.

31 Susan Sontag (2003): *Regarding the Pain of Others*, New York: Farrar, Straus and Giroux.

when she wants to relax she imagines being in the blue, the visual field is concretely filled with blue. In the director's words, this time from a summary³² of the documentary, until that moment the experience has been »cinematic« and »documentary«, but now it becomes »magical«. »It's a long immersive scene« the director adds explicitly, in which we get to »being together in Aneta's imaginary blue space«. Significantly, then, the most immersive moment of the documentary, when we get closest to the protagonist, almost to the point of being with her, is not illusionistic at all. This can be taken as yet another demonstration that alternatives to mainstream forms of alleged connection and intimacy are just there, available to be experimented with.

3. Live on stage: hacking authenticity in *Great Hoax: The Moon Landing*

While *Wish You Were Here* explicitly questions the assumed transparency and objectivity traditionally associated with the documentary form, it can still be classified as a documentary, as it ultimately does not dispute the authenticity of the narrative content it presents. In contrast, other VR experiences go beyond problematizing the myth of transparent narration to also question the truthfulness of the content itself, thereby prompting a deeper reflection on the role of belief – and, consequently, on the relationship between veridicity and fiction – in immersive storytelling.

Great Hoax: The Moon Landing is a 17-minute interactive VR comedy created in 2019 by John Hsu and Marco Lococo, which premiered at the 2020 Venice Film Festival's VR Expanded section. Designed as a room-scale experience providing six degrees of freedom, it enables users to move around within a designated play area, as tracking sensors capture their movements in all directions and translate them into the virtual environment in real time.

The plot is simple. Half a century after Apollo 11's 1969 moon landing showcased to the world the heights a powerful nation could reach, the Taiwanese people are grappling with deep-rooted identity struggles and growing financial instability. In search of renewed purpose, they yearn for a great national enterprise that could elevate the island's prestige on the global stage. The ideal solution? A moon landing. Yet with no real budget for space exploration, there is only one option left: to fake it.

32 Part of the directors' private portfolio. Access courtesy of the director.

This is where you step in. No matter where you actually come from, you are expected to empathise with the Taiwanese people (including VR creator John Hsu) and make every effort to help improve the island's socio-political and economic conditions. Yet soon, this form of empathy, initially appearing to align with the rhetoric common in VR documentaries, evolves into something entirely different – something with Hsu himself has defined as »political satire«.³³

In the first scene, a barely credible film director asks if you are willing to »choose your destiny« and possibly become the first Taiwanese astronaut on the moon (fig. 2).



fig. 2: John Hsu, Marco Lococo: *Great Hoax: The Moon Landing*, 2019, Serendipity/3dar. The film director enlisting you to play the first Taiwanese astronaut on the moon

By pressing the »Yes« button on the left (thus disregarding the »Don't touch my stuff« sign on the desk right next to it), you are suddenly transported to a studio designed to resemble the Moon's surface, where a film crew follows

33 John Hsu/Marco Lococo (2020): »Directors' Statement«, in: www.labiennale.org. Online: <https://www.labiennale.org/en/cinema/2020/venice-vr-expanded/great-hoax-moon-landing> (last access: 9.10.2025).

the director's orders and a pair of men, who look suspiciously like government agents, oversee the entire operation. Most strikingly, as you step out of the moon capsule, you catch your own reflection in a mirror-like screen directly in front of you – a classic strategy designed to make you feel embodied in the avatar and present in the virtual world (fig. 3).³⁴



fig. 3: John Hsu, Marco Lococo: *Great Hoax: The Moon Landing*, 2019, Serendipity/3dar. On set, filming the staged moon landing

Following the director's instructions, you strive to deliver your most convincing performance. Since the entire experience is rendered in real-time CGI, you can slowly step out of the space capsule and take that famous »small step for man, giant leap for mankind«. You can then plant a flag on the lunar surface and carry out all the heroic or pseudo-heroic actions and poses you are

-
- 34 Mar Gonzalez-Franco/Daniel Perez-Marcos/Bernhard Spanlang/Mel Slater (2010): »The contribution of real-time mirror reflections of motor actions on virtual body ownership in an immersive virtual environment«, in: 2010 IEEE Virtual Reality Conference (VR), Waltham, MA: Curran Associates, pp. 111–114, <https://doi.org/10.1109/VR.2010.5444805> ; Yasuyuki Inoue/Michiteru Kitazaki (2021): »Virtual Mirror and Beyond: The Psychological Basis for Avatar Embodiment via a Mirror«, in: Journal of Robotics and Mechatronics 33/5, pp. 1004–1012; Çağlar Yıldırım/Sercan Şengün/Mehmet Akhoroğlu/Eyup Kucuk/Fox Harrell (2023): »Through the Looking Glass. The Role of Virtual Mirrors in Shaping Empathy in Virtual Reality Perspective Taking«, in: Proceedings of the 22nd International Conference on Mobile and Ubiquitous Multimedia, pp. 501–504, <https://doi.org/10.1145/3626705.3631789>.

asked to perform, or simply those you choose, guided solely by your own will. Once the shoot is finished, the next scene takes you back to your small, dimly lit apartment, where you are counting down the days until the release date. The newspaper announces that the moon landing was successful. Finally, the phone rings, and it is once again the director, asking you to watch the TV broadcast of the epic undertaking. At first, everything seems fine, with two anchors breaking the news of the momentous event. Then you realise that the end product is no longer about the moon landing but has taken an unexpected and ironic turn: the ›original‹ footage that you helped to create has been repurposed as a kitsch Taiwanese karaoke music video with the light-hearted style of a propaganda piece. The gestures and movements you performed earlier now appear as choreographed, yet clumsy dance steps set to a patriotic pop tune (fig. 4).



fig. 4: John Hsu, Marco Lococo: *Great Hoax: The Moon Landing*, 2019, Serendipity/3dar. Your ›original‹ performance is edited into a music video

As fireworks illuminate the night sky above the island, an overwhelming wave of anger compels you to explore the interactive possibilities the simulation affords, like tossing objects out the window or hurling an ashtray at the television, shattering its screen. You feel completely alone until, in the final scene, your surroundings begin to dissolve, leaving you hallucinating, stranded once again on the (fake?) moon. This time, you are all by yourself, staring back at the Earth in silence. Eventually, adding insult to injury, you are presented

with a fine for ridiculous charges, including an »incompetent acting« fee and a »Director's psychiatric bill«.

As in a classical movie, the experience ends with the credits. Yet this was not a film but an immersive VR experience. The first question, then, is: how should we define this work? From the outset, you – the user – are asked to put yourself in someone else's shoes. This »someone else«, however, is an *actor*. Contrary to typical three-degrees-of-freedom VR documentaries such as those found in so-called immersive journalism, which claim to teleport you to another place and make you believe you are experiencing someone else's real life, *Great Hoax* does not position you as a mere spectator confronted with a recording and its supposed truthfulness. Instead, you are invited to play a game, perform a role, and act like a true actor, thereby contributing to the creation of a fake – that is, to convey the impression of a documentary that is not really a documentary but a fabrication. In this particular case, suspension of disbelief is triggered right away, which neutralises any attempt to generate plausibility or credibility. If we were to interpret *Great Hoax* from a phenomenological point of view, we might be tempted to say that an original consciousness involving position-taking (that is, believing or disbelieving in what is being shown) comes to be modified and replaced by a neutralised act in which positionality is suppressed, thereby bringing suspension of (dis)belief increasingly into focus.³⁵

This point, however, warrants further clarification. The lack of plausibility pertains to the *diegetic* world – that is, to the story in which you are asked to become the main character, the hero. Yet there is a second level of credibility: one that pertains to *you* as the individual in the flesh wearing the headset. You are asked to perform convincingly, making the disembarking from the spaceship and your every action seem believable to any potential future viewers. While you remain fully aware of the fictional, non-positional nature of the »movie« within the VR experience, you nonetheless aim to generate a kind of credibility within fictionality – a paradoxical credibility of fictionality.

References to the most famous »real« (if one might define it so) »great hoax« come into play here. Conspiracy theorists use this term to refer to the 1969 moon landing, which they claim was faked. A direct reference to this narrative can be seen in the title itself of the VR experience. However, adopting a media-archaeological perspective reveals that the idea of a moon-related hoax predates Apollo 11 by more than a century. In 1835, the *New York Sun* published

35 See Edmund Husserl (2005 [1922-1923]): »Pure Possibility and Phantasy«, in: Id., Phantasy, Image Consciousness, and Memory, Dordrecht: Springer, pp. 659–677.

a series of six articles claiming the discovery of life on the moon. Collectively known as *The Great Moon Hoax*, these articles represent an early instance of science fiction being presented as factual news. The articles were allegedly reprinted from the *Edinburgh Journal of Science*, with authorship attributed to a Dr Andrew Grant, described as a colleague of John Herschel, one of the most respected astronomers of the time. Herschel had indeed travelled to Cape Town, South Africa, in January 1834 to set up an observatory equipped with a powerful new telescope. According to Grant's fictional account, Herschel had observed life forms on the moon, including fantastical creatures such as unicorns and winged humanoids resembling bats.

To be sure, the story was a complete fabrication. The *Edinburgh Journal of Science* had ceased publication several years earlier, and Dr Andrew Grant was a fictional character. Intended as satire, the articles were crafted to mock earlier, earnest speculations about extraterrestrial life. However, readers at the time were most often deceived: they failed to recognize the story as a parody. The excitement over Herschel's alleged discoveries was so widespread that even a committee of scientists from Yale University travelled to New York in search of the original *Edinburgh Journal* articles. It was only weeks later that the *Sun* confessed the entire story had been a hoax.

In the VR experience, a reference to this story appears in the newspaper on the table of our cluttered room. There is also a second direct reference to a more recent and famous chapter of the great hoax, that is, the hypothesis that the Apollo 11 moon landing itself was fake news and that the entire documentary was staged. Several details clearly hint at this, particularly the version of the conspiracy theory claiming that Stanley Kubrick himself was the mastermind behind the fabricated landing. The theory began with a straightforward question: who in 1969 could have realistically staged a convincing moon landing? Kubrick's masterpiece, 2001: *A Space Odyssey*, had been released just the year before. From this starting point, the theory evolved, becoming increasingly elaborate and incorporating progressively more bizarre claims.³⁶

36 The theory was initially proposed in Bill Kaysing (1976): We never went to the moon, Pomeroy: Health Research. For more on this, see Roger Launius (2010): »Denying the Apollo Moon Landings: Conspiracy and Questioning in Modern American History«, in: 48th AIAA Aerospace Sciences Meeting Including the New Horizons Forum and Aerospace Exposition, <https://doi.org/10.2514/6.2010-1131>. For a critique of the main moon hoax conspiracy theories, see Paolo Attivissimo (2013): Moon Hoax, Debunked!, Raleigh: Lulu.com.

The VR work references all of this primarily through its soundtrack, which features the most iconic musical theme from 2001, Richard Strauss's *Also sprach Zarathustra*, and through the name of the film director Stanley King, a blend of Stanley Kubrick and Stephen King which alludes to *The Shining*, often interpreted by conspiracy theorists as Kubrick's admission of involvement in the fake moon landing.³⁷

Let us now return to our central question: how should we define the VR experience? This is not merely a case of VR being used to present a fabricated video or a fictional documentary. The situation becomes more complex when one begins to notice specific details that challenge, and ultimately subvert, the fictional status of the (alleged) ›fake‹ documentary. This is particularly evident in paradigmatic moments, such as when the viewer looks down at their space suit and notices that it is covered in patches – an implausible feature in the context of an authentic astronaut equipment. Or, similarly, when one observes their hands only to find that they are wearing comical kitchen gloves adorned with cartoonish kittens (fig. 5).



fig. 5: John Hsu, Marco Lococo: *Great Hoax: The Moon Landing*, 2019, Serendipity/3dar. Hardly standard astronaut equipment

37 Lunar conspiracy theories that place Kubrick at the centre of the plot have been the subject of numerous films, including William Karel's *Opération Lune/Dark Side of the Moon* (2002), Rodney Ascher's *Room 237* (2012), Antoine Bardou-Jacquet's *Moonwalkers* (2015), and Fabrice Mathieu's *Moon Shining*, which was created by combining footage from the Apollo 11 mission with several authentic Stanley Kubrick interviews. Similar conspiracy themes have also been explored in relation to Mars, most notably in Peter Hyams' *Capricorn One* (1977).

At such junctures, the user's apprehension, initially aligned with documentary codes and conventions, shifts toward mockumentary aesthetics, marked by irony, self-reflexivity, and a challenging of factual evidence and veridictive marks. Those deliberately inserted elements are designed to produce a sense of scepticism in the user, drawing attention to the constructed nature of the narrative and signalling the actual role they are *expected* to assume. It becomes increasingly clear that the user is not, in fact, meant to experience the story as the first Taiwanese astronaut on the moon, but rather to recognise and engage with a more complex interpretative role shaped by an awareness of narrative construction, epistemological questioning, and a heightened sense of mediation.

However, this is not enough since, at the end of the experience, you see your own performance transformed into a music video, which is fictional – *explicitly* fictional – by definition. This occurs without your consent, as often happens in contemporary deepfake videos. The motif of constructed reality and fabricated authenticity resurfaces, but unlike at the beginning of the experience, it is no longer you deceiving the viewers; rather, you are the one being manipulated – faked – by the director and his crew. Seen from this perspective, *Great Hoax* proves to be not only a remediation of previous media (newspaper, cinema, TV), but also a meta-reflection on VR in general and its relationship to documentary cinema in particular.

Indeed, while the whole cinematic apparatus is overtly displayed within the immersive digital environment, thus revealing the opacity of the film medium, things are quite different in relation to the medium of VR. First-person perspective, real-time body tracking, six degrees of freedom, and the interactive structure of the narrative combine to generate a strong feeling of presence, thereby inducing place illusion, plausibility illusion, and the illusion of ownership over the virtual body. This, in turn, contributes to conveying the impression of transparency of the technology. And yet, as I argue, the ironic conclusion of the diegetic experience, where your efforts to lend credibility to the fake moon landing are transformed into a parody, is at the same time a self-reflexive gesture that prompts you, the experiencer in the flesh, to reflect on the opacity of the VR medium. You are invited to leave the story, so to speak; that is, to exit the diegetic world and meditate on the artefactual, hypermediated nature of the extra-diegetic world – namely, the VR experience itself.

Moreover, as soon as you abstract yourself from the engaging narrative of the experience, you may begin to reflect on the opacity not only of the medium but also of its underlying technological apparatus. Tracking is among the

most crucial technical characteristics of VR, playing a key role in defining its medium specificity. In 6DoF experiences, in particular, real-time tracking of the user's body movements – and, in some cases, facial expressions – is constantly processed by algorithms that dynamically adjust the virtual environment in response, enhancing immersion and (potentially) interactivity. Beyond this ›attunement‹ between the environment and the user, however, tracked movements can be (and often are) stored, temporarily or persistently, for multifarious purposes: from simply saving the user's position in a game, to personalising experiences, training AI models (for example, to enhance avatar animation or gaze prediction), or even enabling behavioural profiling. This means that data resulting from tracking can be used without the user knowledge – let alone their consent. Here is where the imaginary story of *Great Hoax* and factual reality converge in a shared opacity. At the beginning of the experience, when you believed you had to fake a Moon landing, *you* were in control. At the end, however, you realise you have been deceived, and you also come to understand that your image has been exploited to create something that completely exceeds your control – making you aware that you yourself are being controlled. In this sense, *Great Hoax* is also a VR experience that urges users to reflect on the potential (mis)uses of their personal image and movements, and on the risk that their identity could be repurposed in ways that serve interests other than their own.

Disguised as a funny and rather naïve experiment, *Great Hoax* reveals itself to be a serious and thought-provoking VR experience. It urges the user to reflect on the nature of VR as a medium, to engage critically with one of its most popular, acclaimed, and ideologically charged genres – immersive journalism – and its associated truth claims, and to adopt a perspective aimed at debunking the rhetoric and hyperbolic assertions that often accompany it. All things considered, it is precisely the meta-critical awareness that *Great Hoax* elicits that makes it an artistic, rather than merely ludic, experience.

Conclusion

Through the lens of *Wish You Were Here* and *Great Hoax: The Moon Landing*, this essay has aimed not only to contribute to the debate surrounding the bombastic rhetoric of VR as an empathy machine, but also to reveal that the myth of VR's transparency is far more nuanced than commonly assumed. Crucially, this very complexity can be harnessed to create medium-specific artistic experiences, as

demonstrated in the aforementioned works, which engage in meta-reflection on the ambiguous strategies used to evoke the feeling of »being there«, as well as on the role and potential misuse of tracking technologies which are central to both 3DoF and 6DoF VR environments.

In *Wish You Were Here*, the illusion of seamless immersion is deliberately broken by exposing the documentary crew at work, forcing viewers to confront the constructed (and in this sense opaque) nature of the VR medium. This strategy directly challenges the purported immediacy and objectivity often claimed by immersive journalism.

Great Hoax pushes this critique even further by destabilising not only the transparency of the medium but also the truthfulness of the narrative content it vehiculates. Being invited to participate in a fabricated documentary, we are initially positioned to perform credibility within the story. As the experience unfolds, however, we become increasingly aware of the performative nature not only of the infra-diegetic world of the fake documentary, but also of what we are asked to do *as VR users*. This paradoxically draws attention not only to the constructed nature of the documentary we are helping to create, but also to the artificiality of the VR experience we are undergoing as physical participants. Such multilayered construction unsettles our positionality, exposing the inherent tensions between belief, fiction, manipulation, and the VR medium itself. The experience highlights how VR's power can indeed lie not (only) in transparent and empathy-inducing truth, but (also) in the capacity to make users critically aware of their role in co-producing engaging narratives.

Indeed, both case studies examined prompt a reflection on how VR continues to be described as the ultimate medium for eliciting empathy and generating a sense of presence in users. *Wish You Were Here* appears to reintroduce the traditional notion of empathy as the act of feeling someone else's emotions (specifically, their pain). Yet, the overt display of the technological apparatus abruptly breaks the illusion of presence and, with it, an overly simplistic understanding of empathy. However, this disruption does not discredit empathy itself. On the contrary, the artistic choice encourages users to reflect on the fact that their presence is only a simulated one – an important consideration when realizing that they are not truly »there« with the terminally ill patient. Empathy, in this context, is not evoked through an uncritical belief in the medium's supposed »magical« power, but rather through an awareness of its inherent limitations. It is precisely this acknowledgment that deepens and enriches the empathetic experience.

In *Great Hoax*, the naïve acceptance of the rhetoric surrounding VR is challenged through the adoption of a ludic stance, in which users are invited to step into the role of an actor or player within a game-like environment. Rather than empathizing with the Taiwanese people in their struggle for national grandeur, participants are instead prompted to reflect on the nature of propaganda and mystification – including those tied to the very technological apparatus they are using (and by which they are, in turn, being used).

Ultimately, these examples underscore the necessity of approaching VR storytelling with a critical eye. Rather than accepting the myth of VR as an objective, transparent ›looking glass‹ into others' experiences, we must acknowledge the complex interplay between narrative construction, user performativity, and the awareness of the artefactual nature of the medium. It is precisely this kind of meta-reflection – one that playfully turns VR against itself – that can help bringing the *artistic* possibilities of VR to the fore.

Bibliography

- Alberti, Leon Battista (2011): *On Painting*, Cambridge: Cambridge University Press.
- Andrejevic, Mark/Zala Volcic (2019): ›Virtual Empathy‹, in: *Communication, Culture & Critique* 13/3, pp. 295–310.
- Attivissimo, Paolo (2013): *Moon Hoax, Debunked!*, Raleigh: Lulu.com.
- Barthes, Roland (1981): *Camera Lucida. Reflections on Photography*, New York: Hill and Wang.
- Batson, C. Daniel/Shannon Early/Giovanni Salvarani (1997): ›Perspective Taking. Imagining How Another Feels Versus Imagining How You Would Feel‹, in: *Personality and Social Psychology Bulletin* 23, pp. 751–758.
- Bollmer, Grant (2017): ›Empathy Machines‹, in: *Media International Australia* 165, pp. 63–78.
- Bollmer, Grant (2020): ›From Immersion to Empathy. The Legacy of Einführung in Virtual Reality and Digital Art‹, in: Hava Aldouby (ed.), *Shifting Identities. An Anthology of Presence, Empathy, and Agency in 21st Century Media Arts*, Leuven: Leuven University Press, pp. 17–30.
- Bolter, Jay David/Diane Gromala (2003): *Windows and Mirrors: Interaction Design, Digital Art, and the Myth of Transparency*, Cambridge, MA: The MIT Press.

- Bolter, Jay David/Richard Grusin (2000): *Remediation: Understanding New Media*, Cambridge, MA: MIT Press.
- Boyden, Ian (2018): »Not Yet Not Yet Complete. An Interview with Ai Weiwei. Part V: The Conditions of Empathy«, in: *chinaheritage.net* (10.2018). Online: <http://chinaheritage.net/journal/the-conditions-of-empathy-ai-wei-wei-interview-part-5/> (last access: 03.10.2025).
- Brecht, Bertolt (1974 [about 1936]): »Theatre for Pleasure or Theatre for Instruction«, in: John Willet (ed.), *Brecht on Theatre. The Development of an Aesthetics*, London: Eyre Methuen, pp. 69–76.
- Conte, Pietro (2020): *Unframing Aesthetics*, Milan-Udine: Mimesis International 2020.
- Cotton, Matthew (2021): *Virtual Reality, Empathy and Ethics*, Cham: Springer-Palgrave Macmillan.
- Dalmaso, Anna Caterina (2019): »The Body as Virtual Frame. Performativity of the Image in Immersive Environments«, in: *Cinéma & Cie* 19/32, pp. 101–119.
- Formenti, Cristina (2014): *Il mockumentary. La fiction si maschera da documentario*, Milan/Udine: Mimesis.
- Friedberg, Anne (2006): *The Virtual Window: from Alberti to Microsoft*. Cambridge, MA: The MIT Press.
- Gonzalez-Franco, Mar/Daniel Perez-Marcos/Bernhard Spanlang/Mel Slater (2010): »The contribution of real-time mirror reflections of motor actions on virtual body ownership in an immersive virtual environment«, in: 2010 IEEE Virtual Reality Conference (VR), Waltham, MA: Curran Associates, pp. 111–114. DOI:10.1109/VR.2010.5444805 (last access: 13.10.2015)
- Hsu, John/Marco Lococo (2020): »Directors' Statement«, in: *www.labiennale.org*. Online: <https://www.labiennale.org/en/cinema/2020/venice-vr-expanded/great-hoax-moon-landing> (last access: 9.10.2025).
- Husserl, Edmund (2005 [1898-1925]): *Phantasy, Image Consciousness, and Memory*, Springer: Dordrecht.
- Husserl, Edmund (2005 [1922-1923]): »Pure Possibility and Phantasy«, in: Id., *Phantasy, Image Consciousness, and Memory*, Springer: Dordrecht, pp. 659–677.
- Inoue, Yasuyuki/Michiteru Kitazaki (2021): »Virtual Mirror and Beyond: The Psychological Basis for Avatar Embodiment via a Mirror«, in: *Journal of Robotics and Mechatronics* 33/5, pp. 1004–1012.
- Kaysing, Bill (1976): *We never went to the moon*, Pomeroy: Health Research.

- Launius, Roger (2010): »Denying the Apollo Moon Landings: Conspiracy and Questioning in Modern American History«, in: 48th AIAA Aerospace Sciences Meeting Including the New Horizons Forum and Aerospace Exposition. DOI: <https://doi.org/10.2514/6.2010-1131>
- Miller, Cynthia J. (ed.) (2012): *Too Bold for the Box Office: The Mockumentary from Big Screen to Small*, Lanham, MD: Scarecrow Press.
- Milk, Chris (2015): »How Virtual Reality Can Create the Ultimate Empathy Machine« (TED Talk), online: <https://www.youtube.com/watch?v=iXHil1TPxvA> (last access: 03.10.2025).
- O'Regan, J. Kevin/Alva Noë (2001): »A Sensorimotor Account of Vision and Visual Consciousness«, in: *Behavioral and Brain Sciences* 24/5, pp. 939–973.
- Robertson, Adi (2017): »VR Was Sold as an »Empathy Machine«—But Some Artists Are Getting Sick of It«, in: *theverge.com* (05.2017). Online: <https://www.theverge.com/2017/5/3/15524404/tribeca-film-festival-2017-vr-empathy-machine-backlash> (last access: 03.10.2025).
- Slater, Mel (2009): »Place Illusion and Plausibility Can Lead to Realistic Behaviour in Immersive Virtual Environments«, in: *Philosophical Transactions of the Royal Society B: Biological Sciences* 364/1535, pp. 3549–3557.
- Slater, Mel et al. (2022): »A Separate Reality: An Update on Place Illusion and Plausibility in Virtual Reality«, in: *Frontiers in Virtual Reality* 3/914392.
- Sontag, Susan (2003): *Regarding the Pain of Others*, New York: Farrar, Straus and Giroux.
- The Protectors* (2017): »Walk in the Ranger's Shoes«, in: www.walkinginrangersshoes.com. Online: <https://www.walkinginrangersshoes.com> (last access: 13.10.2025).
- Wollheim, Richard (2015): »Seeing-As, Seeing-In, and Pictorial Representation«, in: *Id.: Art and Its Objects*, Cambridge: Cambridge University Press.
- Yildirim, Caglar/Sercan Şengün/Mehmet Akhoroz/Eyup Kucuk/Fox Harrell (2023): »Through the Looking Glass: The Role of Virtual Mirrors in Shaping Empathy in Virtual Reality Perspective Taking«, in: *Proceedings of the 22nd International Conference on Mobile and Ubiquitous Multimedia*, pp. 501–504. DOI: <https://doi.org/10.1145/3626705.3631789>
- Zucconi, Francesco (2018): *Displacing Caravaggio. Art, Media, and Humanitarian Visual Culture*, Cham: Palgrave Macmillan.

Image Credits

fig. 1: © Michał Stankiewicz

fig. 2–5: © John Hsu, Marco Lococo.