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XR

Crossing and Interfering Artistic Media Spaces[1]

Nanna Verhoeff and Paulien Dresscher

XR does not refer to any specific technology. It's a bucket for all of the realities.

Jim Malcolm (Humaneyes Technologies)[2]

Crossing [*noun*]

1   An intersection where roads, lines, or tracks cross.
2   A place at which a river, railroad, or highway may be crossed.
3   The act by which terrain or a road, etc., is crossed.
4   A voyage across a body of water.
5   Movement into a crossed position.[3]

Interference [*noun*]

1   The act of interfering with something, or something that interferes
2   The illegal obstruction of an opponent in some ball games.
3   *Physics*; An effect caused by the superposition of two systems of waves, such as a distortion on a broadcast signal due to atmospheric or other effects.[4]

Crossing X Interfering Realities

In this chapter, we investigate some of the different ways that mobile media art projects as simultaneously experimental and performative practices are sites of inquiry into the specificities, possibilities, limitations, and tensions that we encounter within today's highly mediatized and mediated environments. These art projects produce mobile media spaces that are creative laboratories for experimentation and analysis of ubiquitous, locative, and mobile technologies and their implications for our presence and relating in this contemporary, cultural moment.

Specifically, we explore the continuum between the connecting and increasingly overlapping fields of Augmented Reality (AR), Virtual Reality (VR), and Mixed Reality (MR) as part of the more open and flexible category of Extended Reality—or as we conceptualize it here, *Crossing Reality* (XR). As an inclusive bracket, the concept of XR allows us to look beyond more rigid and historically determined, technology-based delineations that make up some subgenres of mobile media art, while seeking to explore a shared agenda of these different forms of media art. Zooming

in on a few XR projects that make use of augmented reality and virtual reality technologies, we explore in this chapter how, albeit in different ways and on different levels, these works all experiment with, and question the impact of technology. This impact on our spaces and situations, and our doings and mobilities within these spaces and situations, implies a working of technology at not only the phenomenological level, but also ontological, epistemological, and political registers that run through our private and public spaces. As such, the artistic scrutiny of technology, central to this chapter, involves technologies that are usually defined as *mobile technologies* (e.g. various GPS and other sensing technologies) but also interactive visualization technologies that activate other meanings of "mobility." As *technologies of mobility*, these demonstrate an activation of both bodily and participatory engagement, a mobilizing of affect, thought and opinion, and a productive crossing of multiple (generic and disciplinary) boundaries in co-creative processes.

XR as a spectrum rather than a category invites a creative exploration of the fluid and mutual relationships of technologies *between* and *beyond* AR, VR, and MR. It offers a comparative and inclusive lens for the various artistic genres that these technologies have inspired and, for the diversity of art projects, that interrogate and confront us with how we (can) relate to new technologies. Specifically, this relating pertains to the variety of possible "realities" that these technologies afford. Working through and beyond understanding these confrontations as the crossing—or intersecting—of separable and fixed domains of "physical" or "virtual" realities, we approach their interrelation in XR from a perspective on their performative qualities as relational reinforcement or *interference*. Relating in XR is not predeterminedly physical or virtual, or even mixed, as such adjectives want us to believe. Our perspective departs from the understanding that all *relata*—here the "realities" that can be discerned and experienced by the subject—that intersect, in various ways, are mutually *constitutive*. This does not imply a leaving behind of crossing as a productive way for thinking the diversity of realities but crossing returns as an *outcome* rather than a starting point in a conceptualization.

We borrow some of the conceptual tools for understanding realities-in-relating from the physicist-philosopher Karen Barad.[5] For Barad, characterizing something as co-constitutive means that the two entities of a relation or binary opposition are mutually implicated and come into being simultaneously. Barad uses *diffraction*, or interference, as both a phenomenon in the world (an object) and as a concept for understanding its dynamic so as to indicate that the emerging entities cannot be predicted or are not (to be) predetermined. Moreover, in their mutual constitution, they inherently and fundamentally also open up toward each other and can only become known within their relating. This entails, then, not only an analytical perspective on their relation, for which we will adopt the concept of diffraction as a methodological foundation, but also on the way that artworks, themselves, address "relating," which we will conceptualize with the synonym, interference.

Transposing and mobilizing Barad's terminology to the practice of scholarship as well as the practice of mobile media art, diffraction/interference characterizes both our perspective and the objects we are scrutinizing. Concept and object, too, are mutually constitutive. This yields a fundamentally relational perspective. Following the logic of both diffraction and interference, "realities" of XR are not layering, augmenting, or extending a shared "hybrid" reality, so much, as they are performative and literally *creative* in their meeting.[6]

The entanglement of object (art projects) and concept (thought in art as well as in scholarship), we propose, is a productive starting point for a comparative and inclusive perspective from which to consider the various ways in which artists and designers work within the domain of XR. We recognize interference both as an (ontological) characteristic of any form of relationality (mediation inclusive) and importantly for our aim, here, as a central (epistemological and political) questioning at the heart of the art projects that can be bracketed with the label "XR." In short, the projects question the consequences of their workings *in* their workings. Through the lens of

interference, we propose to look at the way mobile media art using XR technologies interrogates the implications of their affordances for crossing realities by putting these technologies to the test. As such, art and scholarship share questions and methods. Therefore, for us, the X of XR also stands for the continuity and dynamicity within the intersecting or crossing fields of technological design, artistic experimentation in a more or less activist or political key and cultural inquiry.

Mobilizing Art Spaces

The debate about the status of XR—specifically about Augmented Reality and Virtual Reality— as a technology and a medium that visually and conceptually brings together the "physical" and the "digital"—has produced various conceptual metaphors (first and foremost "augmentation" itself!) to understand the affordances of the location-based and imaging technologies to literally visualize the "meeting," to invoke Barad's book title, and relating of the subject and the multiple realities she faces. From the relational perspective that we propose, we understand reality, here, as the composite of spatiotemporal registers of a relational *situatedness* ("where and when am I in relation to my surroundings") and the experiential *subjectivity* of the "I" within this situation. This experiential positioning pertains to what one is invited to do or hold back from within a situation, and how this window of (non-)opportunity and possibly disruptive creativity changes one's subjectivity and co-constitutes the situation itself.

One of us has previously written about this phenomeno-onto-epistemological dynamic as *cartographical*.[7] Traditionally, cartography indicates representational fixity along spatial, temporal and epistemological axes. A cartography is a two-dimensional map of something that is external to it and meticulously mapped. A navigational, *performative* cartography, however, zooms in on the practice of "cartographizing," thus leaving open the possibility of a less measurable, linear, absolute integration of space, time, and thought. More precisely:

> Representation entails more or less fixed outcomes of creative production processes. The results, such as images, statements, models and materials can, for example, be transmitted or stored. This would be an insufficient understanding for some contemporary media practices and approaches to these practices that foreground process, mutability, flux, simulation, remediation, notions of becoming, and mobility. These characterize the 'pre' to representation—the processes *before* representation in which representation comes into being, in its performativity.[8]

Departing from this characterization of the activity of cartographizing itself, whereby notions such as *situationality*, *relationality*, *positionality* or *deixis*, and *corporeality* are mobilized, we can see that in the case of the various manifestations in XR the navigation between and across mediated domains produces a continuous process of encounter that is both under construction and in deconstruction.[9] As such, the performative cartographic act produces a *paradoxical reality* built on the contradictory, yet symbiotic relationship between oppositional and compositional logic. In AR, for example, this underlies the stitching together of various types of imagery into a navigable "whole," yet simultaneously making very clear the ontological cuts between the whole and its parts (examples of which will be discussed in the sections below).[10] This paradox invites the thinking through of a logic of complexity. Straddling an either-or logic as well as both-and logics that both, and falsely so, presuppose *relata*, complexity makes thinkable the ontological or immanent spatiotemporal primacy of *relatings* that are unpredictable yet effective. Binary, compositional and differently structured relations may emerge from complex entanglements, but entanglements are never a-priorily binary or compositional. XR, then, is composed in (creative) complexity of (onto-epistemological) paradox, (navigational) deixis, and (corporeal-philosophical) experience.

Crossing Be/for(e) Interference

On 9 October 2010, the Museum of Modern Art (MoMA) in New York was invaded by AR art. Artists Sander Veenhof and Mark Swarek broke into the museum's augmented space and put up *WeARinMoMA*—an exhibition without the museum's authorization. The original press release announces:

> On Saturday October 9th, the physical space inside the MoMA NY building will host a virtual exhibition occupying all floors (including an additional virtual 7th floor) in parallel to its ongoing show. […] The show will *test case* Augmented Reality art within an appropriate critical context: the bastion of contemporary art.
>
> So far, the MoMA is not involved in all this yet. But that's not a requirement anymore anno 2010, being *independent* by using AR. […] The organizers of the event, augmented reality experimentalist Sander Veenhof from the Netherlands, and Mark Skwarek, new media artist from New York, aim to address a contemporary issue caused by the rapid rise of Augmented Reality usage. What is the impact of AR on our public and private spaces? Is the distinction between the two fading, or are we approaching the contrary situation with an ever increasing fragmentation of realities all to be perceived individually?
>
> Being *uninvited guest users* of the MoMA space themselves, Veenhof and Skwarek call out any AR artist worldwide to place their artworks *within the walls* of the MoMA too on the 9th of October (Lat/lng: 40.761601, -73.977710). Since the exhibition happens in virtual space, there's no reason not to host an *endless amount* of parallel virtual exhibitions.[11] (emphasis added)

In a humorous tone, the announcement underscores the activist potential of AR as a medium that allows for a crossing of the traditional borders between the domains of institutionally established art and AR art (see Figure 45.1). Part of the New York Conflux Festival that was dedicated to the practice of psychogeography, the ambition was to investigate the implications of AR to cross public and private spaces and the possibility to reconfigure any public space—including the "walled" spaces of museums.[12] Moreover, the emancipatory potential of the technology not just resides in

Figure 45.1 The *WeARinMoMA* exhibition by Sander Veenhof and Mark Swarek (2010). Photo credit: SNDRV

allowing to invade these spaces, but also in the redistribution of curatorial power to makers, the audience, and technology. As the framing by the festival stresses:

> [B]esides the difficult qualitative judgement, the former 'helper' criterium of whether something was placed within museum walls or not, is no longer valid. Virtual artworks by 'non artists' could mix with officially curated art within an official museum. The museum offers the white cube and walls, the visitor decides what to see, curators are bypassed.[13]

As such, more than an annex exhibition in augmented space, this crosses as a form of "guerilla curation" and produces a mix of what we know—pre-existing frameworks or a priori categorizations—and what we come to know. This *coming-into-knowledge* can be seen as the result of interference: as the disturbance of the already articulated, our *a priori*. Interference, then, is the creative production of thought as a result of unfamiliarity in the meeting of the known and unknown. In the artist Lynn Randolph's words: "[d]iffraction occurs at a place at the edge of the future, before the abyss of the unknown."[14]

The staging of encounters with the unfamiliar, unexpected, and unknown is perhaps in line with what Irit Rogoff recognizes as a curatorial strategy of "smuggling" for an *embodied criticality*. Embodied criticality, as an embodied encounter, is radically different from a distanced and dismissive, intellectual criticism. She points out how curatorial strategies can produce this shift from criticism to criticality, by inhabiting a space of uncertainty rather than analyzing a problem, question, or issue from a distance. Criticality for Rogoff, is experienced in encounter:

> […] in a reflective shift, from the analytical to the performative function of observation and of participation, we can agree that meaning is not excavated for, but rather, that it *takes place* in the present.[15] (emphasis in original)

From the perspective of the present-ness of performativity, in the case of the (non-)MoMA AR exhibition, the additional works interfere not so much *in* a pre-existing exhibition space, but they activate an interference *within* this new space as it comes into being at this crossing or intersection of the two domains or "realities." The activation in the presence of this encounter puts us in a position of (embodied) uncertainty. This activation of interference/diffraction makes us, literally, look again. This second look is an invitation to museum visitors and curators, and to artists and scholars alike.

XR[x]

Working from this comparative and inclusive perspective on the diversity within the bracket of XR, we want to single out two of Veenhof's many projects and bring his AR work in relation to a recent artistic VR research project, *False Mirror* by Ali Eslami (2018). This allows us to provisionally sketch out how, within the bracket of XR, they each demonstrate in different ways how the experimental principle of crossing yields interferences in their making.

Avatar Says No x AR Flashmob

Artist Sander Veenhof is one of the pioneers in the Netherlands who uses XR—most notably AR for smartphone, Google Glass, and Hololens—for experimenting with the "non-functional" experiences of these technologies, or what we may call the *artistic experientiality*, and with the way that these experiences raise critical questions about them, or the *artistic criticality*. From hacking space and crossing borders to intervention within existing infrastructures of art institutions and other public spaces, toward examining the relationship between human and technological agency:

Veenhof's works activate the possibilities for new spatial experiences through XR, and within this experience, it offers an investigative, embodied criticality toward them. Indeed, in Veenhof's works playful engagement, curiosity, and embodiment is activated for the investigation of the implications of technology *in* the encounter with technology.[16]

Avatar Says No (2019) is one of the most recent Veenhof projects that thematizes curiosity and encounter, precisely through addressing non-compliance of technology (Figure 17, color insert). The underlying question of the work, in Veenhof's words, is:

> What does it feel like on the hololens, when encountering stubborn life-size avatars that walk away from you when you approach them, and step back to you when the distance is safe enough?[17]

The first part of this question alludes to artistic experientiality while the second folds into this experience an artistic criticality thus actualizing a hitherto unknown subject position in this case situated precisely on the threshold of possibility and non-possibility. A productive failure of crossing, it paradoxically addresses precisely the coming into being of both human and technological agency.

With this frustration of the im/possibility of meeting in AR, *Avatar Says No* seems to be diametrically opposed to one of his earliest AR works, the "first-ever" *AR Flashmob* that was held at Dam Square in Amsterdam at 2pm on 24 April 2010. There, the possibility of encounter at the crossing of public and augmented space was very much at the heart of the project. The project included the exact timing and location-specificity, typical for the dramaturgy of flash mobs as pre-planned, physical meet-ups in public spaces.

The technology of marker-based AR of the flashmob makes the physico-virtual encounter in the domain of XR in some ways also *immobile* because the meeting point is fixed and pre-arranged by way of the QR code. Crossing, there, is a *place*—a punctuation at the intersection of space and time, arresting the flow of mobility, futurity and possibility.[18] In *Avatar Says No* that uses markerless AR, the meeting of subject and her avatar remains a continuously mobile, shifting and open possibility, with each step in one direction effecting another step away. Crossing in this later project seems to be more of a paradoxical space-making process, with the encounter at once continuously present as possibility, yet also continuously frustrated and, as such, emphatically absent. Reading the works diffractively, then, brings out that both investigate the possibility and impossibility for mediated encounters through AR as a spatial and social technology. What we can learn is that agency is an *agentiality*, to borrow again from Barad, always dynamic even in its halting.[19]

False Mirror, Sacred Hill

Investigative and critical curiosity can also be recognized in the work *False Mirror* (2018) by Ali Eslami. *False Mirror* is the title of the overarching architecture of an on-going artistic research project that consists of an interactive city built in/ with Virtual Reality for which Eslami collaborates with other artists. Over time, new spaces, each with new foci and characteristics, will be developed and added. As both a continuous and collaborative research project and as an artistic practice, *False Mirror* produces and performs a form of speculative futurism in which VR as digital spatiotemporal technology is being questioned and tested in an open spatial narrative that is performed with each visit(or). The central question to elaborate on all through the development of this piece is not just: "what would it mean to be 'human' in a virtual reality?" but, as we hold, perhaps more specifically: "what human experience and agentiality is always already emerging with/in a physico-virtuality?"[20] Indeed, XR makes us see that the "human" or "human-ness" is never fully there to depart from, but perhaps there is an *originary humanicity*

Figure 45.2   Ali Eslami's *False Mirror* (2018). Ali trying to adjust the selfie camera in Skyville, inside Acid Park District. Photo credit: Ali Eslami

to begin with, instead, whereby the human is in a process of constant, renewed emergence and interrogation, exemplifying what we above called a creative process that folds thinking into making[21] (see Figure 45.2).

As an architecture, *False Mirror* consists of a series of interconnecting spaces, each with different functions and interfaces. The VR visitor can roam around intuitively and can experiment with the different features of its architectural interface. She browses through radio channels, operates in-world and out-world cameras (that share a portable display in the VR space and can either record the visitor as an avatar, or as physical body within the out-of-VR exhibition space), flies a spaceship, takes elevators to a new levels, plays gravity games with environmental sculptures, talks to the confession booth, switches the design of the walls, changes the scale of things or flips the "screen" from horizontal to vertical—just to name a few (Figure 45.3).

False Mirror is designed as a lab-space to explore with VR the speculative question of the possible intersections of *presence* and *agency*, and how these constitute our sense of reality. This sensing of reality puts the experiential aspect of spatial navigation and exploration central. In this space, ultimately an XR space, the philosophical implications of physico-virtual experiences are investigated as a fundamental element in understanding and interpreting our experience of XR through relational situatedness with its spatiotemporal coordinates.

The reciprocal relationship between technicity and humanicity in XR raises subsequent questions about their respective agency. *False Mirror* explores our relation to a non-exhaustive set of different navigational spatiotemporal registers. It presents us with questions concerning our perception of mediated reality by simultaneously creating new relational realities that interfere with known ones. These interferences as resulting from intersections of different technological modes, at times experienced simultaneously, constitute new possible forms of relating in the in-world space and invite the visitor to contemplate her humanicity (so-called essence but here thought processually) through technicity.

Albeit under construction at the time of our writing, one of the most recent new spaces in *False Mirror* is *Sacred Hill*. This collaboration with artists Klasien van de Zandschulp and Mamali

Figure 45.3   Ali Eslami's *False Mirror* (2018). Left: Acid Park–Biggtoy. According to Eslami: "You can play with this huge toy as long as you want and even more rotate the whole room 90 degrees with press of a button." Right: *Human Therapy\ Lit4Ever.* "Simulation of Virtual Sun light for the times you miss the sun (only possible with concrete hands)." Photo credit and text: Ali Eslami

Shafahi is an experiment aimed at meditative and hallucinatory experiences. Altered states of mind and consciousness in XR is what the visitor is invited to join by participating in a ritual. *Sacred Hill* is explicitly designed with the question of various crossings of digital and physical dimensions, in its material, spatial installation, and the element of live performance. The visitor is invited to enter and join with the offering of an edible tiny green pill. The bodily senses of vision, touch, and taste are immediately and simultaneously addressed. Altogether, the body is a navigational medium, assigned a specific and active role in the investigation of the complex systems of interferences between virtual and physical registers that the XR space of the work offers (see Figure 45.4).
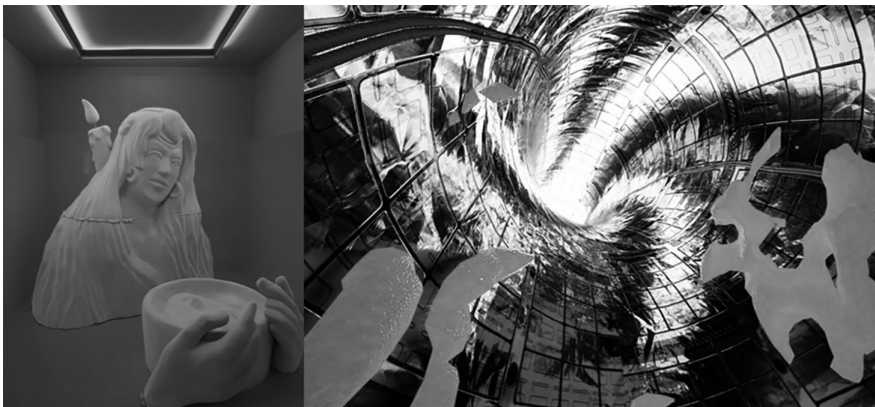

Figure 45.4   The collaboration *Sacred Hill* (2019) by Ali Eslami, Klasien van de Zandschulp and Mamali Shafahi. Left: Inspiration for physical installation, Palais de Tokyo. Right: A new emerging virtual space. Photo credit: Ali Eslami

In *Sacred Hill,* the organization of the movements of the multiple spectators/participants who join the live performance is co-constituted by intersecting in-worldly and out-worldly dimensions of its XR installation, and is simultaneously ruled by a choreography that is co-authored by the artists. As the artists attested in their 2019 project application, they were inspired by feminist science and technology scholar Donna Haraway who conceptualized the cyborg to end the dualisms between human-animal, organism-machine, and physical-nonphysical. The artists position the notion that the body is being extended and mediated through and beyond its own boundaries via technology.[22] As Haraway puts it: "Why should our bodies end at the skin, or include at best other beings encapsulated by skin?"[23] Inspired by this point of view, the artists developed a list of research questions to address the position of the body within the various instantiations of XR within the project.

Even in its current preliminary research phase, *Sacred Hill* addresses several specific questions about the relationship between technology and the body in XR. Visitors are invited to investigate the XR space from a psycho-somatic experience of the physico-virtual environment as the point of departure. In-world visitors collaborate with out-world participants, and both groups are being watched by a third group of spectators. To us, it seems that together they navigate through a loose narrative resulting in a joined spiritual experience thereby addressing the basic needs and abilities in the artistic media spaces of XR.

For artists, audiences and scholars, *False Mirror*, together with its second installment, *Sacred Hill*, provides a shared navigational space that is permanently "under construction." As such, the artwork can be characterized as a *living lab* where different disciplines and spaces are being mapped, crossed, and scrutinized in co-creative processes to experiment with and explore humanicity and technicity in the contemporary moment. New meanings of mobility and spatiotemporal navigation are being activated, and also participatory engagement is enabling a mobilization of affect, thought, and opinion. In future installments, reflections, answers, new questions, and considerations will be fed back into the project. This makes *False Mirror* an essentially unfinished project. As such, it is always also an open-ended living archive, recording how we conceptualize and test our sense of self as emergent within our relationship with similarly emerging technology.

Exit

As Nestor Garcia Canclini said in Art Beyond Itself (2014):

> [A]rt is the place of imminence—the place where we catch sight of things that are just at the point of occurring. Art gains its attraction in part from the fact that it proclaims something that could happen, promising meaning or modifying meaning through insinuations. It makes no unbreakable commitment to hard facts. It leaves what it says hanging.[24]

Both the works of Sander Veenhof and Ali Eslami can be considered as these places of imminence, even if they are simultaneously different and similar in this respect. They both elaborate on and, at the same time, ameliorate the impact and politics of technology that runs through our entangled private and public spaces. Having defined reality as constituted by and as constituting relatings, Veenhof and Eslami activate various realities. As the relata that come into being cannot be predicted, both seem to approach their artistic practice as open-ended and continuous lab work. They offer sites of encounter and inquiry for engaging spectators who join this work and who influence the work by joining.

In the crossing artistic media spaces of XR, then, "reality" as a subject-driven, experiential category is investigated as a composition of what philosopher Federico Campagna has called the dimensions of *essence* and *existence* as part of our technoworld. As Campagna states:

> '[R]eality' is the name that we assign to a state in which the dimension of essence (*what* something is) and the dimension of existence (that something *is*) are inextricably bound to each other, without merging into one another.[25]

Building on this notion of co-constitutive essence and existence, both threaded through with technology, Campagna continues that the notion that reality is not a fixed given, but is culturally and, hence, both historically situated and changing over time. Most importantly, it affects how we think about what is possible in both *imagination* and (hence) *in action*. Indeed, the current moment, felt by artists such as Veenhof and Eslami, requires a framing of the human sensing of reality with the question of technology. This thinking through what is possible in imagination and in action is specifically activated in what we have diffractively been able to distinguish as *technologies of mobility*. Such technologies mobilize the body through affect, call for subjects to engage and participate in artistic media spaces and for boundaries to be crossed in co-creation.

In this chapter, we have used *interference* to understand the way that the artistic media spaces mobilize, through the principle of crossing, positionalities that are characterized by what we have called a window of (non-)opportunity that is constantly in flux. Its synonym *diffraction*, we have used for the analytical approach, one that tries to make sense of these works through their interrelating. Activating a similar method for scholarship, this perspective of interference/diffraction, we propose, is helpful for understanding how art works and thinks, and for understanding what can happen between art and scholarship. This creative process between making and thinking we see, in the words of Néstor García Canclini quoted above, as mobilizing places of imminence, "where we catch sight of things that are just at the point of occurring."

Notes

1 The development of the theoretical foundations of this chapter builds on Verhoeff's earlier work and is enriched and further developed in conversations with, and inspired by, the work of theorist Iris van der Tuin, specifically her writings on diffraction and diffractive reading.

2 Lauren Goode, "Get Ready to Hear a Lot More About XR," *Wired*, 5 January 2019, www.wired.com/story/what-is-xr.

3 https://en.wiktionary.org/wiki/crossing.

4 https://en.wiktionary.org/wiki/interference.

5 Karen Barad, *Meeting the Universe Halfway: Quantum Physics and the Entanglement of Matter and Meaning* (Durham, NC and London: Duke University Press, 2007).

6 Ibid.

7 Nanna Verhoeff, *Mobile Screens: The Visual Regime of Navigation* (Amsterdam: Amsterdam University Press, 2012).

8 Ibid., 143; emphasis in original.

9 Here, we formulate interference using terms that are traditionally seen as poststructuralist. See also Karen Barad, "Quantum Entanglements and Hauntological Relations of Inheritance: Dis/continuities, SpaceTime Enfoldings, and Justice-to-Come," *Derrida Today* 3, no. 2 (2010), 240–68, doi: 10.3366/E1754850010000813.

10 On the principles of *plotting*, *tagging*, and *stitching* of mobile Augmented Reality, see Nanna Verhoeff, *Mobile Screens,* and more recently on the principle of *marking*, see William Uricchio, "Augmenting Reality: The Markers, Memories, And Meanings Behind Today's AR," in *Urban Interfaces: Media, Art and Performance in Public Spaces*, edited by Verhoeff, Nanna, Sigrid Merx, and Michiel de Lange. *Leonardo Electronic Almanac* 11, no. 4 (2019), www.leoalmanac.org/augmenting-reality-the-markers-memories-and-meanings-behind-todays-ar-william-uricchio/.

11 October 4, 2010, reprinted at www.sndrv.nl/moma/?page=press. The relevance of this event is positioned in relation to other "unauthorized augmentations" of museum exhibitions as part of a still ongoing practice in a 2018 article in *Wired*. Miranda Katz, "Augmented Reality Is Transforming Museums," *Wired*, 13 April 2018, www.wired.com/story/augmented-reality-art-museums/?fbclid=IwAR0E1eEF_6184a3WoKAOqCqHNzrhUREl6zXf-QhDwODYKm8ry8gQXJEVhog.

12 Psychogeography is "the investigation of everyday urban life through emerging artistic, technological and social practice." From the festival's website http://confluxfestival.org/about.

13 See also www.sndrv.nl/moma/?page=press for the reprinted statement of the former festival.

14 Quoted in Donna Haraway, *Modest_Witness@Second_Millennium.FemaleMan©_Meets_OncoMouse™: Feminism and Technoscience* (New York: Routledge, 1997), 273.

15 Irit Roggoff, "'Smuggling'—An Embodied Criticality," 2016, http://xenopraxis.net/readings/rogoff_smuggling.pdf. For more on this perspective on curation, See Nanna Verhoeff and Clancy Wilmott, "Curating the City: Urban Interfaces and Locative Media as Experimental Platforms for Cultural Data," in *Code & The City,* edited by Rob Kitchin and Sung-Yueh Perng (London: Routledge, 2016), 116–29.

16 These interpretations are inspired by a conversation between Veenhof and Verhoeff that took place for the sole purpose of this chapter in Amsterdam on 7 June 2019.

17 For this quote and a video impression of his playtesting of the work, see www.youtube.com/watch?v=P2RknGprTRA&feature=youtu.be.

18 For a related use of the term "punctuated places," see Nanna Verhoeff, "Surface Explorations: 3D Moving Images as Cartographies of Time," in *Espacio, Tiempo Y Forma.* Serie VII. Historia Del Arte (New Era) Special Issue: *Art Moves: Performativity in Time, Space and Form*, no. 4 (May 2016), 71–91, http://revistas.uned.es/index.php/ETFVII/article/view/15497/0.

19 On diffractive reading, see Iris van der Tuin, "Signals Falling: Reading Woolf and Guattari Diffractively for a New Materialist Epistemology," *The Minnesota Review: A Journal of Creative and Critical Writing* 88, no. 1 (2017): 112–15; "Diffraction as a Methodology for Feminist Onto-Epistemology: On Encountering Chantal Chawaf and Posthuman Interpellation," *Parallax* 20, no. 3 (2014): 231–44, doi: 10.1080/13534645.2014.927631; "'Without an Analytical Divorce from the Total Environment': Advancing a Philosophy of the Humanities by Reading Snow and Whitehead Diffractively," *Humanities* 3, no. 2 (2014): 244–63.

20 This interpretation is inspired by a series of conversations between Paulien Dresscher, Klasien van de Zandschulp and Ali Eslami held in 2019.

21 For "originary humanicity," see Vicki Kirby, *Quantum Anthropologies: Life at Large* (Durham, NC and London, Duke University Press, 2011), 1–22.

22 As a curator, Paulien Dresscher has been involved in the writing of the Dutch funding application for *Sacred Hill.* There the artists have elaborated on their inspirational sources.

23 Donna Haraway, "A Cyborg Manifesto: Science, Technology, and Socialist-Feminism in the Late Twentieth Century," in *Simians, Cyborgs, and Women: The Reinvention of Nature* (New York: Routledge, [1985] 1991), 178.

24 Néstor García Canclini, *Art Beyond Itself: Anthropology for a Society Without a Storyline* (Durham, NC; London: Duke University Press, 2014), xiii.

25 Federico Campagna, *Technic and Magic: The Reconstruction of Reality* (London: Bloomsbury, 2018), 17.