13

Real Time, Lived Time: AR Art, Perception, and the Possibility of the Event

CHRISTINE ROSS

Since the early 1990s, the progressive authentication of augmented reality (AR) over virtual reality (VR) in a variety of domains (medicine, military training, education, communication, transportation, tourism, art, to name the most obvious) has set about a significant reinforcement of real time as a key temporality of our epoch. Perception in real time is an indispensable prerogative of any AR design – and I adopt here Ronald Azuma et al.'s definition of AR as a system that "supplements the realworld with virtual (computer-generated) objects that appear to coexist in the same space as the realworld"[1] – if it is to adequately do what it is set out to do: to compensate for the restrictions of VR, notably the isolation of the virtually immersed user from his or her actual environment. Consider the following: an AR medical application that entails the projection of a scanned image of an organ over a patient's body to upgrade the view of that body during surgery; an automobile environment in which an AR system of visualization (supported by a Global Positioning System) gives the driver the possibility of seeing the outside world through cartographic information projected on the semi-transparent visor of a helmet; or the more mundane uses of communication and music technologies in the street (the mobile phone, the walkman, the iPod, electronic billboards) that add digital data to the user's environment. In all cases there is no combined view of virtual and real objects just as there is no live interactivity between a user and his or her surroundings if not in real time.[2] The computers that process information about a specific space, person, body, or object must be able to both read the information quasi-instantaneously as it comes in *and* return the results to the users rapidly enough so that the interaction between the user and the virtual/real environment "appears to be instantaneous."[3]

This temporal deployment does not emerge in a cultural void but, rather, in a contemporaneity in which live broadcast TV, surveillance systems, and communication over the internet have shaped an expectation of real time immediacy. The tracking systems that compose augmented reality have integrated not only a variety of surveillance technologies but, more important, the rhetorics of "live" TV, internet connection, and webcam culture as a quintessential perceptual path to virtual/real alignment. One of the important ramifications of this consolidation of liveliness is its establishment as a modality of truth. As art historian Thomas Y. Levin has recently shown, to experience an image or a communication in real time is to be part of a system of representation whose claim to truth relies not on the "impoverished spatial rhetoric of photo-chemical indexicality" but on the "thoroughly contemporary, and equally semiotically 'motivated' rhetoric of *temporal indexicality*," in which the truth of an image, of a connection, is "supposedly 'guaranteed' by the fact that it is happening in so-called 'real-time.'"[4] The impact of such a rhetorics cannot be underestimated as the efficacy of the "live" is to implement perception, cognition, and communication as real time enactments, as enactments enabled by real time. It tends to attach these to the immediate. For literary critic Fredric Jameson, this predominance of immediacy has operated not so much as the narrowing down as the *end* of temporality, "a dramatic and alarming shrinkage of existential time and the reduction to a present that hardly qualifies as such any longer, given the virtual effacement of that past and future that can alone define a present in the first place."[5] Real time situatedness, as a perceptual paradigm, only reinforces the hypothesis brought forth by historian François Hartog, according to which today's prevailing regime of historicity is *presentism*: the withdrawal into the present, the turning of the present or, even more so, immediacy, into an absolute value, whose absoluteness now means a significant disconnection from the past (perceived as lost) and the

future (perceived as increasingly uncertain). In such a regime, it is in fact the possibility of history that seems to be on the threshold of being lost.

What interests me here, however, is another hypothesis, one that doesn't so much invalidate as complicate Jameson's and Hartog's insights. I want to propose that real time, in certain conditions, is in fact productive of a specific form of temporality, one that might at first appear contradictory to real time but that is in fact generated from within that very standpoint. Such is the temporality of delay. This paradoxical temporality is particularly manifest in artistic AR applications invested in the creation of time as an impediment corresponding to the "quasi"-instantaneity of information processing, to the gap between the virtual and the real, between perception and the object-to-be-perceived. Delay, the time for a signal to go from a sender to a receiver, the duration that prevents the clean combination of the virtual and the real, is exposed as intrinsic to real time and is aesthetically explored as such. I believe this exploration to be decisive in an era of the pervasiveness of temporal indexicality, where systems of communication operate through the reinforcement of immediacy as a claim to truth. Real time becomes in these works an instance of the incapacitation, insufficiency, and fallibility of perception – that is, it becomes a site in which perception is seen as not all, as not whole, as a modality of distortion. Here lies, I argue, the creativeness of aesthetic delay in real time: through perceptual incapacitation, it broadens immediacy, discloses the indivisibility of time and perception while refusing to allow the latter to be isolated from other forms of mental processes; it even introduces a sense of futurity when least expected, in ways that sharply nuance the presentist regime of historicity. These experiments fundamentally complicate not only AR as a "perceptual" paradigm but also real time as the indicator par excellence of the death of temporality and reduced presentism.

To better introduce the raison d'être of delay (indeed: why delay? how delay?) it is therefore imperative to briefly emphasize that AR artistic investigations exemplify a specific art and science convergence. The exploration of delay exploits a meeting point between art and science: AR scientists may be searching for the faultless overlap of the real

and the virtual, but they are fully aware that this objective is far from being reached and that, "while promising, Augmented Reality is barely at the demonstration phase today."[6] Important technical obstacles, which have to do mostly with registration, still need to be overcome in order to meet the virtual/real alignment. Delay is thus a genuine part of AR systems, for both scientists and artists. Moreover, the so-called problem of delay pertains to the scientific understanding of AR as a perceptual paradigm. As specified by computer scientist Jim Vallino, AR systems add computer-generated information to a user's sensory perception, generating a composite view *for a user*: "It is a combination of the real scene viewed by the user and a virtual scene generated by the computer that augments the scene with additional information." In all applications, "the augmented reality presented to the user enhances that person's performance in and perception of the world. The ultimate goal is to create a system such that the user can not tell the difference between the real world and the virtual augmentation of it. To the user of this ultimate system it would appear that he is looking at a single real scene."[7] This perceptual motivation is reiterated by Azuma, who specifies that, "fundamentally, Augmented Reality is about augmentation of human perception: supplying information not ordinarily detectable by human senses."[8] This goal carries several technical challenges – namely, the remaining imperative to perfect tracking systems, calibration, image/sound resolution, and graphic rendering instruments. This has been from the start, this *is*, the field of (and the impetus behind) AR research. Technical predicaments have meant both a recognition of and an attempt to rectify system delay. Both Azuma and Vallino insist that this delay problem is a perceptual one, the main reason being that "the human visual system is very good at detecting even small misregistrations, because of the resolution of the fovea and the sensitivity of the human visual system to differences. Errors of just a few pixels are noticeable."[9] Indeed, according to Azuma, "The total system delay makes the virtual objects appear to 'lag behind' their real counterparts as the user moves around. The result is that in most Augmented Reality systems, the virtual objects appear to 'swim around' the real objects, instead of staying registered with them."[10] As for Vallino, again on the matter of delay:

> Our visual system is very sensitive to visual errors which in this case would be the perception that the virtual object is not stationary in the real scene or is incorrectly positioned. Misregistrations of even a pixel can be detected under the right conditions. The second cause of misregistration is time delays in the system ... a minimum cycle time of 0.1 seconds is needed for acceptable real-time performance. If there are delays in calculating the camera position or the correct alignment of the graphics camera then the augmented objects will tend to lag behind motions in the real scene. The system design should minimize the delays to keep overall system delay within the requirements for real-time performance.[11]

In short, technologically speaking, AR has a specific real time dimension that is inseparable from a variety of delaying processes that are fundamentally (though not exclusively) perceptual. This explains why artists working with AR technology and exploring its "lagging behind" component are also engaged in the investigation of perception, a fact related to the awareness that delay, in AR, is first and foremost a human (mis)registration phenomenon. In the artworks I investigate here – namely, the works of Mathieu Briand, Ann Veronica Janssens, Olafur Eliasson, and the Wooster Group – this inseparability is projected to bring the lagging of perception (or, more accurately, perception as a form of lagging) to the forefront of the aesthetic experience. Such experiments are not beyond reconceptualizing AR as a mere perceptual paradigm: indeed, as the artworks create a distance between perception and the environment, as they split perception between machine and user or simply between users, the perception of the user/viewer is (and here I borrow Jonathan Crary's terminology, which refers to the failures of attention in the modern subject) somewhat *suspended* and, as such, temporalized.[12] Concomitantly, the perception of the spectator/user is required to adjust to these deployed technological delays, in which it never ceases to participate, setting into play the inseparable mental processes that shape conscious and unconscious cognition. This intermediality (what Katherine Hayles more accurately calls "intermediation")[13] complicates the picture set out in the writings of philosopher Mark Hansen, who, in his explanation of the "newness" of new media, much too easily reduces perception to an isolable phenomenon governed by a "habit-driven, associational logic," which preperceptual processes *must* and *will* remedy so as to enlarge the instant constructed by contemporary computing technologies.[14] In other words, both media *and* the body are at play here, as well as the pre-, the post-, and the *in vivo* of perception, within a larger media-mind-brain-body-world nexus.

As Blast Theory artist Matt Adams affirms when discussing the group's online and street-chase game *Can You See Me Now?* (2001–), in which "real" runners circulating in a delimited urban territory are tracked by satellites and appear next to avatars created by computer players, the diverse delays that come about in the live game – the time it takes for the runners to actually connect with the internet and the time gap that separates the moment when an avatar is caught and the runner's official announcement of his or her catch – are elaborated as a necessary part of the user's experience.[15] But let us push this acknowledgment a bit further. For, in numerous artists' and critics' descriptions of AR art experiences, it is the notion of event that systematically surfaces to explain the raison d'être of the delay occurring in real time. This association finds one of its most limpid descriptions in a statement by Christian Moeller, a German California-based architect working in the field of interactive light and sound installations. Moeller maintains that the whole point of AR investigations, as made explicit in his *The Sound of the Growing Grass* microphone installation (1991), "a willfully unrealistic attempt ... to hear the sound of grass blades growing," is not to literally hear grass growing but, rather, to create what he calls an "event" of sensation:

> Whereas advertising attempts the impossible goal of "communication," our goal for the moving image at the architectural scale is the creation of *event*. In this way, the event is a time and place for which sensation itself is the content of the composition ... The idea of listening to grass grow is a bit naïve, but deliberately so and needless to say, the project didn't literally work. Part of the beauty in the approach was the consistent and conscientious undertaking of something that was known in advance to be unachievable. In this, the important point was not really even

knowing what the actual goal was, but following this road there might be a moment along the way that would provide an interesting surprise. For me, as for many before me, the open pursuit of the *event* is the only way we can find out something new, can learn to see in new ways, to hear in new ways, and to build cities in new ways.[16]

This statement about the event-ness of AR experiments allows me to specify my own claim: not only is perceptual delay an expansion of real time but it seems, indeed, to be tied to the creation of events insofar as we understand events as a form of unpredictable and unanticipated change or discontinuity, what Moeller calls "an interesting surprise," "something new," the act of learning to see and hear in "new ways." This correlating aesthetics – so powerfully developed in AR applications – temporalizes perception by holding up immediacy in real time, removes the goal of perfect virtual/real alignment to devise a space-time in which an unexpected change might happen. As such, it must be seen as contributing to a regime of historicity that privileges the immediate present – but only if we understand the latter as constitutive of a form of lagging and as an undirected search for the possibility of a different future. In its progressive spread into daily life, AR-delayed real time does not end temporality nor does it suspend history but, rather, it affects and discloses our epoch's articulation of the present and the future as inseparable from deferment. In 1984, in his pivotal *L'espace critique*, urbanist Paul Virilio maintained that the exhaustion of time was mostly an effect of the expansion of technologies of communication. Since the implementation of television, he argues, it is not so much space that absorbs time as time itself – the instantaneous time of electronic transmission – that erodes the temporality of delay. For Virilio, the predominance of speed and instantaneity over delay could only be highly problematic for it tolled the death knell of perspectival viewpoint and the sense of criticality that this viewpoint made possible.[17] I want to contend here that, despite (and indeed because of) the near-tyranny of real time, delay as a perceptual rift has in fact not vanished at all and that, in fact, it plays a vital part in the formation of contemporary temporality – one that I hope to elucidate in my examination of what I consider to be momentous manifestations of augmented reality.

Fig. 13.1 Mathieu Briand, *UBÏQ: A Mental Odyssey*, Installation view at "Sensorium: Embodied Experience, Technology, and Contemporary Art," MIT List Visual Arts Center, Boston, USA. Courtesy Galerie Maisonneuve, Paris.

Mathieu Briand and the Othering of Perception

Equipped with a battery-powered audio-video helmet – a head-mounted display (HDM) device composed of a built-in video camera on top and a visor located in front of the eyes that doubles as a small screen – the visitor of Mathieu Briand's (b. 1972) *SyS*05.ReE*03/ SE*1/MoE*2* (2002), or *UBÏQ: A Mental Odyssey* (2006–) (fig. 13.1) circulates "hesitantly" in the exhibition space seeing his or her environment through the visor but also, after clicking on a button attached to a hand-held device that activates the swapping of views with other participants, private views of other helmeted visitors circulating elsewhere in the same space at the same time.[18] Most vehemently in *UBÏQ* in its MIT List Visual Arts Center version of 2006, real time is a condition of possibility for altered perception in a space of self and other, in which private views become

public and are replaced by another's view. The system is only operative if two, three, or four users are engaged in the process, here and now, so as to allow perceptual substitution. This is why Briand – who stipulates that the experience of real time is the main stake of his work – prefers the phrase "lived time" to that of "real time": "if no one is there, there is no image. The exhibition was conceived like this so that the visitor is always at the heart of a work and no longer just facing an icon ... Personally, I try to conceive works within which the visitor becomes a receiver-emitter, systems that don't lead the viewer to a truth or a response, but rather lead to the self, to introspection."[19] *UBïQ* only exists when experienced, and this experience requires users (as opposed to a single user) and affects perceptions. What is the significance of this "lived time," I want to ask here, not only with respect to augmented reality research in general but also with respect to the productivity of real time and, in light of *UBïQ*'s insistence, not so much with respect to perception as with respect to altered perception via the other?

To address this point, it is crucial that one distinguishes the *UBïQ* experience from what it is supposed to be, theoretically speaking. Many critics have pointed out how it does not technically achieve what it is supposed to achieve: an exchange of viewpoints in real time. In his review of the piece, Shan Nys Dambrot, for example, concludes that the promise of exchange "falls somewhat flat" and is in fact denied by an experience that is "in both aesthetic and conceptual terms, rather less than memorable," mainly because of the "low-res viewing screens and a near total lack of colour, sound, object or image of interest in the surroundings."[20] The substitution of views is indeed far from consistent. This is so for many reasons, which have to do both with technology and psychology. First, on the technological side, the helmets are heavy; their inflexible material and standardness prevent them from fitting the head of the user; the screen is often too low in relation to the eyes; the image resolution is poor; the battery span of the helmets is short (officially ten minutes but verging more towards five), a temporal factor that doesn't give the user enough time to understand the full possibilities of the machine. All of these technical factors delay intelligible interaction not only between the user and the environment but also between users. They delay the real time situation of the performance and the perceptual ability to see clearly any view whatsoever.

I want to argue, however, that these technical difficulties are not problems to be denied for the sake of a not-yet achieved but foreseeable ability to see through the other's view but, rather, a genuine part of the work. To be perceptually perturbed is to be in an AR situation in which, as a user, you are continually asked – because of the experimental state of the technology – to adjust to different perspectives. Psychologically, this adaptive experience is corroborated by the difficulty of clearly distinguishing one's view from the other's view when these are produced through HDMs equipped with a transparent/opaque screen. This double screen, which works on an emission-or-transmission, glass-or-display logic, is, moreover, so close to the eyes that it prevents any form of distancing that would allow the user to distinguish his or her view from the other's. In other words, although users control the channel mechanism that lets them switch views, the viewing activity activates a cognitive confusion between mine and yours. This is not a *failed* experience in relation to what *should* be happening – communication, vision without noise, the seeing of the other's view, the pure rapture of the other's mental images, a bond between two, three, or four users. One can of course define *UBïQ* that way, but nothing in the work forces us to do so; in fact, everything plays with imperfections to favour perceptual (mostly visual) gaps, laggings, confusions, and challenges. Perception is exposed as it is set out to be, at least from a cognitive psychological frame of reference: a mental embodied activity that responds "to something "given" by *taking* it ... in one interpretative manner or another," whose products are both conscious and unconscious, whose state cannot be clearly detached from any *pre*-perceptual or *post*-perceptual state, and whose complexity pertains to the double fact that it is not a mere registration of sensorial stimuli and that it cannot be carried out by a single process but requires a set of bottom-up and top-down processes, including (but not restricted to) sensation, affection, emotion, attention, and memory.[21] In other words, and I follow here the findings provided by cognitive psychologists Edward E. Smith and Stephen M. Kosslyn, the installation ensures that "sophisticated cognitive processes begin to work on this material almost immediately, producing the brain's interpretation of the external world as incoming stimuli are analyzed, and existing knowledge," beliefs, expectations, and goals guide these dynamic processes.[22]

To put it differently, the uniqueness of UBÏQ lies in the fact that the work focuses on perceptual activity – staging it, challenging it, activating it, complicating it, delaying it, making the viewer aware of it, giving him or her the possibility of being exposed to other views (although never really knowing for sure whose views they are) and having his or her views appropriated by others, providing the chance to de-theologize them – in short, making real time (or, more precisely, "live time") a condition of the possibility of complex perception, whose concretization is only made possible because perception is de facto a complex set of transactions. The latter might, in turn, be a condition of possibility of event-ness or, more precisely, novelty. This is Briand's thrust, for sure, when he declares that, in his work, "our usual sense references are perturbed, but it is this destabilization that allows us to discover new things. This is the emission/reception that I'm talking about."[23] And when he declares that he wants "to branch out into alternative connections in the brain," thus enabling the user to "apprehend the world differently through new perceptions and dive into the *inframince*."[24]

In this, UBÏQ is indeed a *mental Odyssey*, but one whose event-ness is not easily graspable – although newness is hoped for, such an outcome is, by definition, unpredictable. It is a mental odyssey, which is quite symptomatic of many augmented reality artworks. For example, the perceptual pieces of Veronica Janssens and Olafur Eliasson partakes of Briand's project in their attempt to challenge perception with real time environments. Although these are not, strictly speaking, AR works (they have no virtual component), they do in effect augment the perception of space through light and fog. A brief examination of these works helps both to detach AR from the specific technology of the virtual and to highlight the desire for the event in AR artistic investigations of delayed perception. It also helps to disclose the fact that, in these specific investigations, perturbed perception is proposed as a condition of possibility of event-ness; it even partakes of event-ness.

Real Time Perception and the Event

It is never quite clear in these works whether perturbed perception is the event or whether it allows for the event. In fact, the works do not establish the necessity of this distinction. For sure, however, perturbation is activated and it does entail a form of discontinuity. This is radically manifest in the work of British Brussels-based artist Ann Veronica Janssens (b. 1956), who has produced a series of fog installations since the late 1990s – namely, *Blue, Red and Yellow* (2001), a pavilion demarcated by glass walls tinted by transparent coloured films and filled with fog; and *Jamaïcan's Colors for Melle Léone* (2003) (fig. 13.2), four rooms composed of natural light, coloured filters, and fog. Entering the room, standing still because of his or her inability to see through the cloud-like mass and, then, progressively circulating in the mutable coloured clouds, the visitor experiences blindness, space disorientation, and architectural dematerialization.

Fig. 13.2 Ann Veronica Janssens, *Jamaïcan's Colors for Melle Léone*, 2003. Artificial fog; natural light; red, green, and yellow filters. Four rooms full of coloured artificial fog. Courtesy Ann Veronica Janssens and Galerie Micheline Szwajcer.

As the perception of architecture is fluidified, the fog persists in preventing any clearly delimited representation of the environment. Such experiences, as observed by cultural theorist Mieke Bal, make the spectator conscious of how much perception is both an embodiment and a

temporality.[25] Blinded or dazzled, forced to abandon him- or herself to slow perception, immersed in coloured vapour and buffered sound, the visitor's perceptual activity – its destabilization, temporality, and adaptability – is pivotal to the work: it is through this activity that colour gains both in materiality and visibility. Significantly, in her refined and very detailed description of her experience of a light-and-fog installation made by Janssens for the Centro Cultural de Bélem in Lisbon in 1998, Bal brings in the notion of the event to name the phenomenology at work here:

> After a while, ever so slowly it seemed – but time was arrested as much as sound – vague lines came through. The event of their coming to visibility was just that: an event, occurring in time. The change in the space consisted of a gradual, partial receding of the absolute opacity of the white that surrounded me and that stuck to my skin, challenging my sense of my own boundaries. Because when this receding took place I became aware of my own dissolution. Thus, the after-effect of the event retrospectively turned the initial experience into an unsettling one, which it had not been until then. Here, another event happened, a deeply narrative one in that it had the retroversive capacity to change the state of what, before, I would have called "my mind" ... The accession to the visibility of the lines was also the emergence through the limitless cloud, of the ceiling, plinths and corners of the room. An emergence barely identifiable; fragile, in permanent danger of annihilation. Only now could I begin to see – helped by the knowledge that it was likely – that I was indeed in a room.[26]

The event, what Bal refers to as the slow yet never settled "coming to visibility" of a room, is described here as a discontinuity that occurs not out there in the space or in front of me, as something to be observed from a detached position, but both in the spectator's perception and in the space of the room. The combination of light and fog destabilizes perception; most notably, it delays it in relation to a space that cannot, in real time, be perceived immediately. The event is both subjective and objective. This form of phenomenology, in which visitors become aware of the corporeality, the temporality and spacing, of their perception, is precisely what is activated in the work of Scandinavian artist Olafur Eliasson (b. 1967). In *Seeing Yourself Seeing* (2001), for example, the installation of a pane of glass to which vertical strips of mirror have been attached at regular intervals so that the pane may both reflect the viewer and make it possible to see through the work, bring in – specifically because of its interval structure, a Duchampian delay in glass – the possibility of seeing oneself in the act of seeing. Closer to Janssens's mist rooms, Eliasson's *The Weather Project* (2003), made for the Tate Modern's Turbine Hall, consists of a gigantic semicircular sun made of hundreds of yellow mono-frequency lamps – a glowing disk suspended from a mirrored ceiling – inserted in an environment of drifting patches of fog to create a microclimate of a sun in moving clouds. The space was doubled by the mirrors, which not only created the top half of the sun but also enlarged the space vertically, whereas the fog refracted the light in ways that blurred the boundary between the space and its reflection. The mirrored ceiling also allowed viewers to see themselves surrounded by other visitors and, more important, immersed, somewhat dissolved, because of the monumentality of the installation, in the "spectacle" of this fabricated landscape. As pointed out by art historian James Meyer, this phenomenology is clearly different from minimalism and the institutional critique of the 1960s, 1970s, and 1980s. It partakes, as Bal has argued with regard to Janssens's installations, of an event:

> Something unexpected happens to spectators of *The Weather Project*. We lie down – and lose ourselves, become part of, indeed become, the spectacle before us. The phenomenological practices of the '60s and '70s, to which Eliasson's work is sometimes compared, prized an active spectator – one who could "see" and, in seeing, make informed decisions. But *The Weather Project* delivers a mass audience that cannot fail to be overwhelmed by the magnitude of the installation itself: The museum is not so much "revealed" as transformed into a destination, an event.[27]

What is this event, here, if not, as in Janssens's work, the transformation of a space into a complex seeing activity – in which participants see each other seeing and whose seeing is all about the sublime experience of being overwhelmed. Representation – the framing of an

image as distinct, the reference to an outside, the arrest of a view in time – doesn't occur. Perturbed perception in real time is first and foremost a delay, but it is also, concomitantly, a form of blurring, a loss of reference, an unexhausted duration, a corporeality, and this is what (following Meyer's description) makes the event possible. It is not by itself the event (space is there in its materiality, shaping the experience as much as my perception of it), but it enables it, privatizes it, seems to prepare and to wait for it (although events can never be anticipated or prepared). These works help us to be more precise about Briand's work: the emphasis is on perturbed perception not only as a quasi-event in itself but also as a condition of the possibility of an event that will be (if it is at all) singular to each spectator. Briand himself speaks of "introspection."

The Wooster Group's *Hamlet*

To reiterate the hypothesis I have been examining here: not only is perceived and perceptual delay an expansion of real time experience but it seems, indeed, to be tied to the desire to create events, insofar as we understand events as a form of unpredictable and unanticipated change or discontinuity. This aesthetics of delay must be seen as contributing to a regime of historicity that privileges the present but only if it is constitutive of a form of lagging, only if it is not presented or represented. So a pivotal question remains: how deeply significant is AR art's reiterated insistence on event-ness? In other words, how does it partake of a regime of historicity based on the valorization of the present, of immediacy? The Wooster Group's *Hamlet* (2006–07) (fig. 13.3), because of its archaeological dimension, brings us to these queries by disclosing how the aesthetics of perceptual delay is not only a strategy to extend immediacy within immediacy but also a specific deployment of the relationship between past, present, and future. It shows delay in its historical ramifications, as inherent to today's sense of futurity. Directed by Elizabeth Lecompte, the play is a delay of delays that "augments" Shakespeare's *Hamlet* not merely by overlaying different video, film, and on-stage interpretations of the play but also by deploying a continuous interaction between the stage actors and the filmic interpretation, structured by constant slits. The interaction is one in which

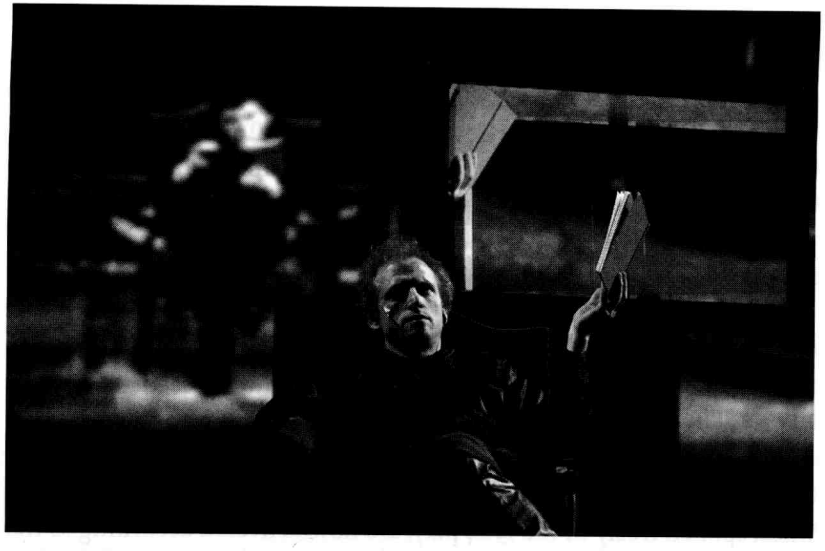

Fig. 13.3 *Hamlet*, The Wooster Group. Pictured: Scott Shephered. © Paula Court.

actors in the actual play perform their roles by mimicking the actors on film, but through a mimicking that entails minute delays in their gestures in relation to the film. To be more precise, real time enables the deployment of identities defined as imitation processes that repeatedly fail – and here I refer to Judith Butler's conception of identity as a reiterated imitation of social categories by which the subject always affirms his or her subjectivity by imitating an ideal (insofar as the latter is what can never be reached).[28] In this way, the actors embody Hamlet's own psychological state – doubt, hesitation, the inability to decide whether one will or will not revenge the assassinated father, decision as delay. By extension, as I hope to show, the interactions inscribe lagging into a regime of historicity. In this regime, real time is the temporal reference from which to conceive the co-articulation of the past, the present, and the future. And yet, the grip of immediacy is somewhat relaxed to make room for a future as the delayed perspective from which the present event might be acknowledged as having occurred or having not occurred. To be blunt: the significance of event-ness lies in the fact that

it exists (and perhaps *only* exists, if one is to follow Alain Badiou) in delay. This is Hamlet's drama.

The stage has, as its back wall, a giant screen projecting a specific theatrofilm: the filmed Broadway performance of Richard Burton's portrayal of Hamlet. Produced through the technique of Electrovision – a technology invented in the late 1960s to facilitate the shooting and recording of live performances from multiple camera angles (here seventeen) according to the logic of the "instant movie" – it was directed by John Gielgud in 1964 and retransmitted for only a few days in two thousand cinemas throughout the United States. The Wooster Group reconstructed *Hamlet* from fragments of the film, proceeded archaeologically to reconstitute the play from a film conceived as a ruin – not only as an aged version but also as a digitally re-edited one from which sections have been erased and jump cuts intensified, and whose verse lines, spoken freely in the 1964 play, are now delivered according to the original poetic metre. The film is also submitted to live editing, notably fast forwarding processes. Hamlet (played by Scott Shepherd) first enters the stage, gradually followed by the other players, in near-perfect synchronization with their film double – not only with the movements of the actors but also with the technical movements of the film (i.e., jump cuts, acceleration, erasure), which are made manifest by bodily hiccups in the real actors. Equipped with earphones and microphones, sometimes addressing themselves directly to the control room, regularly surveying the control monitor located on the side of the stage, they act, or, more precisely, embody what they attempt to imitate. They will even, at one point, speak the recorded voices of the film actors.

What this film/stage/video overlaying enables is a continual "live" confrontation between past and present, in which past and present not only exist in relation to each other but also affect each other's meaning, to become increasingly blurred as they both enter a process of decline and corrosion. The 1964 version sets in but undergoes an increasing process of deterioration due to a panoply of editing processes: parts of it are simply un-rendered; these are shortly replaced by other filmic archives, only to have the theatrofilm resurface again more damaged than before; this is continuously juxtaposed to the real time video recording of the play and to the live performance of actors who keep sending us back to the giant screen in their reiterated failed mimicking;

finally, as affairs degenerate in the kingdom of Denmark, the film in its materiality appears "to be eaten up by rot."[29] In other words, the overlay speaks of decline and the mutations of subjects and civilizations in relation to each other, whose other layer – the audience, the city outside of the theatre, the here-and-now, the future – is America itself. It discloses how Hamlet's doubt, his growing desire for revenge, and his murders of Polonius, Ophelia, Gertrude, and Laertes (involuntary or indirect, fundamentally unpredictable in contrast to the killing of Claudius) are events precisely because of their surprise quality, their unexpectedness, to be acknowledged afterwards, in the delay of time. The originality of this AR play lies in its thinking of event-ness as a delay process in the historical sense: the past and the present are deployed as catastrophic and death-ridden, but the future from which the event-ness of intertwined murders is affirmed deploys itself as a temporality that is not necessarily condemned to the repetition of that past. Its creativity lies in its deferment qualities, in its deferment of immediate present-ness.

In his study of the intimate link between perception, event, and time, philosopher Krzysztof Pomian has shown that each discreet unity of lived time "correspond[s] to a change perceived by the spectator in his surroundings ... a discontinuity in relation to the moment immediately preceding it, the result of the appearance and disappearance of something or the rearrangement of surrounding elements, in short the emergence of a new figure that detaches itself from the ground of the déjà-vu."[30] In short, an event consists of the unique change that the spectator perceives in his or her environment. It is not that it presupposes a spectator (its existence is not merely subjective) but that, to be perceived, a change must be perceptible, it must be "produced in a space open to sight, inside a horizon, and in a slice of time coextensive to the presence of the spectator."[31] It is precisely because of this dependency on a perception that is always, by definition, incomplete (perception is selective, the whole of an environment can never be fully perceived) that history – as a discipline – has been gradually transformed, in modernity, into a social science. In its attempt to establish methodologies that would allow the historian to identify the invisible forces that structure events, the French school of the *Annales* has been key to this discarding of the event from history and to the related devaluation of perception. Especially in the work of Ernest Labrousse, if events are to

be considered it is not in their uniqueness but as elements of a series that "reveal the conjectural variations of the relations between social classes whose conflict remains constant in the studied period."[32] The past ceases to be described narratively as though it were perceived. The historian moves from the visible towards the invisible forces that determine them: the history of an event needs another one to give meaning to the first. Fernand Braudel's *longue durée*, most significantly, discloses the invariance in which the event ceases to be a perceived change in an environment but the communality of which can be attached to other events in a structure that will only become a discontinuity if it makes room for a new structure in a moment called revolution.[33] Significant to our discussion, however, is the fact that some contemporary historians have articulated a certain return not to eventful history but, rather, to events as "revealers of realities otherwise inaccessible."[34] This entails a revaluation of perception.

This particular revaluation has become quite manifest in the philosophical work of Mark Hansen. In his pivotal study, *New Philosophy for New Media* (2002), in which he addresses the question of the "new" in relation to media – what makes new media *new*? – Hansen posits that the revolutionary impact of digitization lies in its production of images that break with the tradition of the image "as a fixed and objective viewpoint on 'reality' – whether it be theorized as frame, window, or mirror –" to adopt the crucial function of an interface, whose content, due to its "almost complete flexibility and addressibility, its numerical basis, and its constitutive 'virtuality,'"[35] ceases to be materially linked with the frame. The self-differing condition of media implies that the digital image does not pre-exist as an independent reality in relation to the spectator but, rather, becomes a process that is "irreducibly bound up with the activity of the body," a body that in fact gives form to and frames information to create images that, in turn, activate an affective supplement to the act of perceiving images.[36] Relevant to our discussion on how some artistic explorations of AR proceed to delay the perception of real time within real time situations, not only as a mechanism of expansion of immediacy but also as a modality by which expansion might open to an unpredictable event, Hansen posits that, in certain new media artworks, the "now" of perception is expanded by the preperceptual (namely, affectivity) as the body invests and in-forms the media image. This chance enlargement relies completely on affectivity, which, once solicited by the media image, allows the body "to experience itself as 'more than itself' and thus to deploy its sensorimotor power to create the unpredictable, the experimental, the new."[37]

Hansen's insight into new media's ability to expand the problematic instant of contemporary computing technologies is right, but his devaluation of perception, which is concomitant with his celebration of affectivity as a modality of temporal newness, is highly problematic, for at least three reasons. First, his approach leans so heavily on the creativity of the proto/preperceptual body that it remains blind to the actual transactions that mobilize the intermediation at play in the examined artworks. As literary theorist Katherine Hayles has already convincingly pointed out, intermediation, the "complex transactions" between bodies and images, between different forms of media, between "systems of representations, particularly language and code, as well as ... between modes of representation, particularly analog and digital," means that creativity cannot merely emerge from the body, even if the latter is believed to find its correlate in the media image.[38] Second, in the current field of cognitive science and neuroscience, a variety of interconnected mental processes are now believed to bring about our construction of temporal experience. As pointed out by William Friedman, it is this interconnectedness that allows us "to step outside the 'now,' the endless succession of stimuli, and to build elaborate models of time, of the fluctuations of nature, the past, the present, and future, near time and far time, even the fictitious time of novels and plays."[39] Interconnectedness – affirmed by the connectionist method of modelling cognitive abilities, which emphasizes the close relationship, indeed the anatomical connectivity, interactivity, interdependence, multidirectionality, feedback, and neural networking of mental processing – is fundamental in that it makes it impossible to separate creative processes from habitual processes. In short, it may in fact not make sense "to consider a single computation or algorithm in isolation [as Hansen does when he establishes the priority of affectivity over perception] because computations are carried out by systems of interacting subsystems."[40]

Finally, and this is where the limits of his approach help to identify the need to further our understanding of the event in real time

situatedness, Hansen's discussion leaves out the whole question of the temporal modalities by which the new can indeed be acknowledged as the new, the event as an event. For the new – the enlarged now – never simply emerges as new; as is made manifest by the film/video/stage/audience delayed overlay of the Wooster Group's *Hamlet*, it is only known to be an event in time, in history, in the future. As such, it is inseparable from delay. To begin to understand this inseparability, one must be attentive to two other philosophers whose work has also proceeded to revalue the relation between time and perception in relation to the advent of the event. I am speaking here of the work of Jean-Luc Nancy and Alain Badiou. In the words of Nancy, event-ness takes its importance from the fact that it "can only be a matter of surprise, can only take thinking by surprise ... The event surprises or else it is not an event."[41] In other words, the event can only be something that happens unexpectedly, without anticipation, without waiting, a present without presence, coming about as it happens:

> It can also be formulated like this: what is awaited is never the event; it is the advent, the result; it is what happens. At the end of nine months, one expects the birth, but that it takes place is what is structurally unexpected in this waiting. Or more precisely, the un-awaited – and the unawait*able* – is not "the fact that" this takes place ... It is not "the fact that"; it is the *that* itself of the "that it happens" or "that there is." Or even better, it is the "it happens" as distinct from all that precedes it and from everything according to which it is codetermined. It is the pure present of "it happens" – and the surprise has to do with the present as such, in the presence of the present insofar as it happens.[42]

The event is thus what moves away from caused time, represented time, and time as succession, as it leads also to a specific conception of the future in its relation to the present: it is time "as such," as the unexpected arrival, the "interruption of the process," a unique spacing of time, what AR architect Christian Moeller has named "an interesting surprise."[43] Alain Badiou, in *Being and Event* and *Logiques des mondes*, pushes this reflection on the temporal nature of the event by postulating that the latter – which he sees as occurring in the realms of politics, science, love, and art – only gets its confirmation later in time. When something completely new comes about, it is a group's loyalty to and belief in the event after it has occurred that establishes the reality of that event together with its paradigm-breaking change effect.[44] In light of these specifications, the AR artworks I have been examining here can be seen as contributing to the renewed interest in the event as a specific moulder of history, in which futurity is not detachable from delayed perception in real time, a renewal that manifests itself in the strong revalorization of perception. Favouring augmented perception, one that is submitted to destabilization more than to the critical disclosure of the ideology structuring events, as was the case with the key aesthetic explorations of the 1960s, 1970s, and 1980s (namely, in minimalism, conceptual art, performance and video art), they propel perception both as an event and as the condition of the possibility of events. Real time delay, however, as made palpable in the work of the Wooster Group, is more than the potentiality of event-ness. Indeed, it says something about our epoch's co-articulation of past, present, and future. Contrary to Hartog's claim, the future might not simply be an anticipated catastrophism that keeps bringing us back to the immanence of the present but, rather, the very temporal standpoint from which events are confirmed or infirmed, making possible – while never guaranteeing – a different future. A futurity is at work here, certainly not modernity's deployment of the future as progress, but one that is valued mostly as a lagging operation from which to look back and continue, a perceptual delay mechanism explored, as it is, in real time.

Notes

1 Ronald Azuma, Yohan Baillot, Reinhold Behringer, Steven Feiner, Simon Julier, and Blair MacIntyre, "Recent Advances in Augmented Reality," *IEEE Computer Graphics and Applications*, 21, 6 (2001): 34–47, http://www.cs.unc.edu/~azuma/cga2001.

2 For a detailed description of AR applications, especially in the field of surgery, see J.P. Mellor, *Enhanced Reality Visualization in a Surgical Environment*, AI Technical Report no. 1544, MIT (January 1995).

3 www.conferzone.com/resources/glossaryqr.html.

4 Thomas Y. Levin, "Rhetoric of Temporal Index," *CTRL [Space]: Rhetorics of Surveillance from Bentham to Big Brother* (Karlsruhe, Germany, and Cambridge, MA: ZKM and MIT Press, 2002), 592.
5 Fredric Jameson, "The End of Temporality," *Critical Inquiry* 29, 4 (2003): 708.
6 Ronald Azuma, http://www.cs.unc.edu/~azuma/azuma_ar.html.
7 Jim Vallino, http://www.se.rit.edu/~jrv/research/ar/.
8 Azuma, http://www.cs.unc.edu/~azuma/azuma_ar.html.
9 Ibid.
10 Ibid.
11 Jim Vallino, http://www.se.rit.edu/~jrv/research/ar/.
12 Jonathan Crary, *Suspensions of Perception: Attention, Spectacle, and Modern Culture* (Cambridge, MA: MIT Press, 1999).
13 N. Katherine Hayles, *My Mother Was a Computer: Digital Subjects and Literary Texts* (Chicago and London: University of Chicago Press, 2005), 7.
14 Mark B.N. Hansen, *New Philosophy for New Media* (Cambridge, MA: MIT Press, 2004), 8.
15 Interview between Matt Adams and the author, 5 November 2006.
16 Christian Moeller, "Introduction," in *A Time and Place: Christian Moeller, Media Architecture, 1991–2003* (Baden, Switzerland: Lars Müller Publishers, 2004), n.p.
17 Paul Virilio, *L'espace critique* (Paris: Christian Bourgois, 1984), 37 (my translation).
18 Gregory Volk, "Back to the Bosphorous," *Art in America* 90, 3 (2002): 45.
19 Mathieu Briand, in Evelyne Jouanno, "Mathieu Briand: Hacking Contemporary Reality," trans. Rosemary McKisack, *Flash Art* 37, 238 (2004): 115.
20 Shana Nys Dambrot, "Mathieu Briand: *UBÏQ: A Mental Odyssey,* Redcat," *Modern Painters* 66 (July/August 2006): 111.
21 Daniel C. Dennett, "Seeing Is Believing – Or Is It?" in *Vision and Mind: Selected Readings in the Philosophy of Perception*, ed. Alva Noë and Evan Thompson (Cambridge, MA: MIT Press, 2002), 483.
22 Edward E. Smith and Stephen M. Kosslyn, *Cognitive Psychology: Mind and Brain* (Upper Saddle River, NJ: Pearson Prentice Hall, 2007), 50.
23 Briand, in Jouanno, "Mathieu Briand," 116.
24 Ibid., 115–16.
25 Mieke Bal, "Ann Veronica Janssens, Light in Life's Lab," in *Ann Veronica Janssens: A Different Image in Each Eye* (Brussels: La Lettre Volée/Espace 251 Nord/Laurent Jacob, 1999), 89–102.

26 Ibid., 89–90.
27 James Meyer, "No More Scale: The Experience of Size in Contemporary Sculpture," *Artforum* 42, 10 (2004): 222.
28 Judith Butler, *Gender Trouble: Feminism and the Subversion of Identity* (New York: Routledge, 1990), 140. Gendered identity "requires a performance that is *repeated.* This repetition is at once a reenactment and reexperiencing of a set of meanings already socially established."
29 Maïa Bouteillet, "Le Wooster Group met Shakespeare en boucle," *Libération.fr,* November 2006, http://www.liberation.fr/culture/216155.fr.php (my translation).
30 Krzysztof Pomian, *L'ordre du temps* (Paris: Éditions Gallimard, 1984), 17. All quotations my translation.
31 Ibid., 18.
32 Ibid., 15.
33 Ibid., 33.
34 Ibid., 35. See, for example, E. Le Roy Ladurie, *Le carnaval de Romans* (Paris: Éditions Gallimard, 1979); and Zemon Davis, Natalie Zemon Davis, Jean-Claude Carrière, and Daniel Vigne, *Le retour de Martin Guerre* (Paris: Laffont, 1982).
35 Hansen, *New Philosophy,* 8.
36 Ibid.
37 Ibid, 7.
38 Hayles, *My Mother Was a Computer: Digital Subjects and Literary Texts,* 7 and 33.
39 William Friedman, *About Time: Inventing the Fourth Dimension* (Cambridge, MA: MIT Press, 1990), 7.
40 Kevin N. Ochsner and Stephen M. Kosslyn, "The Cognitive Neuroscience Approach," in *Cognitive Science*, ed. Benjamin Martin Bly and David E. Rumelhart (London: Academic Press, 1999), 324.
41 Jean-Luc Nancy, "The Surprise of the Event," in *Being Singular Plural,* trans. Robert D. Richardson and Anne E. O'Byrne (Stanford, CA: Stanford University Press, 2000), 165–7.
42 Ibid., 167.
43 Ibid., 172. For Christian Moeller, see note 12.
44 Alain Badiou, *Being and Event,* trans. Oliver Feltham (New York: Continuum International, 2006); and Badiou, *L'être et l'événement, tome 2, Logiques des mondes* (Paris: Éditions du Seuil, 2006).