

Cinéma d'exposition 2.0: **Mixed-Reality Games in and around the Museum¹** *Olivier Asselin, Université de Montréal*

Abstract

The museum has always been open to virtuality, to *mimesis*, since the objects it collects are often images. But with the competition from modern spectacles, the museum was quickly confronted with a broader virtuality, that of *immersion*, which places the viewer not in front of the image, but *in* the image. Obviously, the immersive aesthetic is not ideally suited to the museum's education, cultural and cultural mandate. The long and complex history of the relationship between the museum and cinema – which culminated in the “cinéma d'exposition” – clearly demonstrates this. The museum's recent interest in mixed-reality games, which echoes the use of the Internet and video games by mass culture, has renewed this tension. We will test these hypotheses in examining *Uncle Roy All Around You* (2003), an exemplary game involving street-players and online players collaborating in the search for a mysterious missing person, which was designed by Blast Theory and which premiered at the Institute of Contemporary Arts in London.

For Paul Milgram and his colleagues, *mixed reality* refers to a large class of technologies that create a dialogue between the real and the virtual, be it by introducing virtual data into real space (*augmented reality*) or by introducing real data into virtual space (*augmented virtuality*).² Nowadays, mixed-reality

¹ A first version of this text was presented at the *New Perspectives, New Technologies* conference organized by Ludovica Galeazzo, Elisa Mandelli and Emanuele Pellegrini, Università Ca' Foscari di Venezia and Università Iuav di Venezia, Venice, 13-15 October 2011.

² Paul Milgram, Haruo Takemura *et al.*, “Augmented Reality: A Class of Displays on the Reality-Virtuality Continuum,” in *Telematic Manipulator and Telepresence Technologies, SPIE*, vol. 2351, 1994, pp. 282-292. See also Ronald Azuma, Yohan Baillet, Reinhold Behringer, Steven Feiner, Simon Julier, Blair MacIntyre, “Recent Advances in Augmented Reality,” in *IEEE Computer Graphics and Applications*, vol. 21, no. 6, 2001, pp. 34-47, <http://www.cs.unc.edu/~azuma/cga2001>, last visit 2 March 2015; Oliver Bimber, Ramesh Raskar, *Spatial Augmented Reality: Merging Real and Virtual Worlds*, A.K. Peters, Wellesley (MA) 2005; Lev Manovich, *The Poetics of Augmented Space*, in John T. Caldwell, Anna Everett (eds.), *New Media: Theories and Practices of Digitextuality*, Routledge, London 2003, pp. 75-92. This last text is also available on the author's website (http://www.manovich.net/DOCS/Augmented_2005.doc) and translated in French as “Pour une poétique de

displays are omnipresent. They appear in various forms and on different platforms, mobile in particular. They have all kinds of applications and uses: they still serve to communicate, receive and transmit information – both textual and audiovisual – in a simply dialogical mode or a community or social network, but they can have an amateur, professional, scientific, political, commercial, educational, touristic or purely recreational use as well. Mixed-reality games are thus played in both real and virtual spaces, in the city and on the Internet. At once motivated and arbitrary, localized and delocalized, *in situ* and online, these mixed-reality games cross all types of spaces: natural or urban, private or public, commercial or institutional. Paradoxically, they are favoured in particular by the *old* institutions traditionally defined by a specific *location*, a particular *building* and *real* objects – such as museums.

The museum has always been open to virtuality, to *mimesis*, since the objects it collects are often images. But with the competition from modern spectacles, the museum was quickly confronted with a broader virtuality, that of *immersion*, which places the viewer not in front of the image, but *in* the image.³ Obviously, the immersive aesthetic is not ideally suited to the museum's educational, cultural and cultural mandate. The long and complex history of the relationship between the museum and cinema – which culminated in the “cinéma d'exposition” – clearly demonstrates this. The museum's recent interest in mixed-reality games, which echoes the use of the Internet and video games by mass culture, has renewed this tension. Here I would like to examine a mixed-reality game that was presented in a museum context, which I think exemplifies the dialectic condition of the museum in the digital age.

l'espace augmenté,” in Olivier Asselin, Alain Depocas, Chantal Pontbriand (eds.), “Écran numériques,” *Parachute*, no. 113, 2004, pp. 34-59. Space (and much previous discussion) here prevents me from discussing further the obviously problematic opposition between reality and virtuality.

³ This is not the place to develop a detailed reflection on the notion of immersion. Briefly defined, immersion is an experience that gives one the feeling of physically entering a separate space (Olivier Grau, *Virtual Art: From Illusion to Immersion*, MIT Press, Cambridge [MA] 2003). But over the past few years, the theory of immersion has developed rapidly. Most authors today consider the term to cover a variety of experiences, and that a distinction should be made, within the general category, between several types of immersive experiences. For example, in her inaugural study of immersion, which pondered the relationship between literature and virtual reality, Marie-Laure Ryan identified four degrees of absorption: concentration, imaginative involvement, entrancement, addiction; and three types of immersion: spatial (a response to setting), temporal (a response to plot) and emotional (a response to character). (Marie-Laure Ryan, *Narrative as Virtual Reality: Immersion and Interactivity in Literature and Electronic Media*, John Hopkins University Press, Baltimore 2001). More recently, Gordon Calleja, reflecting upon immersion in video games, distinguished six dimensions of involvement: kinesthetic, spatial, shared, narrative, affective and ludic; and two phases within each of these dimensions: micro-involvement and macro-involvement (Gordon Calleja, *In-Game: From Immersion to Incorporation*, MIT Press, Cambridge [MA] 2011). On the relationships between the museum and the institution, see Alison Griffiths, *Shivers down your Spine: Cinema, Museums, and the Immersive View*, Columbia University Press, New York 2008.

Uncle Roy All Around You (2003)

Blast Theory, an artist collective based in London (lead by Matt Adams, Ju Row Farr and Nick Tandavanitj), has done pioneer work in the field by creating, as early as 2001 with *Can You See Me Now?*, games that merge online and mobile technologies through the use of GPS. In 2003, Blast Theory launched a new mixed-reality game, *Uncle Roy All Around You*, which takes place simultaneously in a real city and on the Internet, in a virtual representation of the real city, and which involves *street players* and *online players* who enter the game through computer terminals set inside the museum or from their homes, anywhere around the world.⁴ As in the first video games, the goal here is simple: you must find someone (Uncle Roy) in a limited amount of time. Both positions of street and online players are accessible to the public. But they are not in competition; on the contrary, they must cooperate to thwart Uncle Roy, the game master, and his accomplices from Blast Theory.⁵

Street players purchase tickets on the premises of the participating institution. At the registration desk, they have their picture taken and are asked to “hand over all their possessions: phone, purse, bag, loose change, etc.” In exchange, they receive a handheld computer and a code number. They are then shown how to operate the computer and, most importantly, they are informed of their mission: within 60 minutes, they must find Uncle Roy, a mysterious character we know little about, who is hiding somewhere in the city. Finally, the players are invited to enter their code into the handheld computer, which starts the game – and the countdown. On the small screen, a map of the district appears, which the player can drag around, zoom in or out at will, and on which the names and positions of online players are shown. Once outside the building, the player receives a first text message from Uncle Roy himself: “Meet me in the park by the lake. I’ve marked your map with the location. Click the ‘I’m here’ button to confirm you’ve arrived and I’ll come to meet you.” The game continues in the same manner: when the player arrives at the first meeting point and confirms his position, he receives a new text message from Uncle Roy giving him new directions.

Online players may register anywhere, from any computer, on the game’s website. A virtual city appears on their computer screen, a miniature version of the real city, and their own avatar, in a third person perspective. By using the arrow keys on their computer keyboard they can move around in this virtual world and discover the position of other players: the online players are marked by a white dot and the street players by a red flashing dot, which brightens when the player

⁴ For the presentation of the game by the authors themselves, see the Blast Theory website: <http://www.blasttheory.co.uk/projects/uncle-roy-all-around-you>, last visit 2 March 2015.

⁵ The game’s operation is ensured by a small technical crew from Blast Theory. From an improvised control room on the game’s real sites, the crew operates the server and can communicate with the street players through an independent channel.

declares her position. But online players also have access to a map of the gaming area and to photographs of selected locations.

Players may interact, but exchanges are carefully regulated. Online players can send public text messages to all other online players (whose recent exchanges appear at the bottom of the screen), and private messages to selected street players (whose ID cards appear at the right of the screen). Street players can record and send short voice messages to online players who write to them – or ignore them. All players receive text messages from Uncle Roy.

This is how players cooperate, and this cooperation is encouraged. On the one hand, online players have only a virtual existence and they need street players to accomplish their mission; on the other hand, street players have only a limited knowledge of the game and may benefit from the expanded knowledge of online players – for example, when Uncle Roy's rendezvous are so enigmatic that they require an exploration and an interpretation of the whole game space.⁶

Towards the end of the game, Uncle Roy prompts the street player to go to a specific address: "Go to 12 Waterloo Place and ring the bell marked Roy." Often with the help of an online player who has a picture of the entrance, the street player finds the address and rings the doorbell. The door opens automatically and the player finally enters Uncle Roy's office. The office is empty, but it looks as though it was recently occupied. Uncle Roy's presence can be felt everywhere. The lights are on, so is the radio. There is a red vinyl chair and a small coffee table, black metal shelves and a large architect's desk. On the desk is a model of the city made of Post-it notes and on the opposing wall hangs an augmented reality display showing, on the same model, all active players, whether they be online or on the street.

At the same time, online players are informed that a street player has entered the office and they are invited to join him, virtually. But first, they must answer a series of questions, including this last one, which binds them:

Somewhere in the game, there is a stranger who is also answering these questions. Are you willing to make a commitment to that person that you will be available for them if they have a crisis? The commitment will last for 12 months and, in return, they will commit to you for the same period.

If they accept, online players are asked to type in their address and phone number. Then, they are allowed to *enter* the virtual office, where they get a live webcam feed of the street player in the real office.

Meanwhile, in the real office, the street player finds a postcard on the table, on which a simple question is printed: "When can you begin to trust a stranger?" Uncle Roy asks the player to answer the question, in writing, on the very card, then to look into the webcam and to imagine a stranger looking back at him. Finally, he is invited to leave the building, with the card in hand, and to wait close by

⁶ Having said this, *Uncle Roy All Around You* is less engrossing for online players than for street players and Blast Theory had to revise certain rules and parameters in later versions of the game.

in a telephone booth. At that moment, the phone rings and a voice instructs the player to enter a white limousine parked on the corner of the street – and to fasten his seatbelt. The limousine is indeed there, with a driver patiently waiting. The player enters, buckles his seatbelt and soon after Uncle Roy himself – really an actor – climbs aboard the vehicle, which drives away. During the car ride, Uncle Roy asks the street player the same questions online players had to answer earlier. If the player accepts to commit herself to a complete stranger for twelve months, she must write her contact information on the postcard. The car stops in front of a mailbox and the player is invited to slide the card inside – addressed to Uncle Roy. The game ends here and the player is abandoned to her fate on the sidewalk (not far from her starting point...). But Blast Theory's team eventually pairs each street player who has accepted, blindly, the mutual aid contract with an online player who has also consented. The contact information of each player is then sent to the other one. For one year, each of the two players may receive a request for help from the other one, whom s/he doesn't know, and s/he is bound to answer it.

I will not linger here on the minimal narrative situation and plot on which the game is based – it is a story of flight and pursuit – nor on the moral relations they try to establish – relations of power, domination and submission. They are probably linked to the potentialities and limitations of the mobile and locative technologies used. However, they undoubtedly do have a social and political meaning.

A Remediation of the Museum

Blast Theory's games are site-specific works: they are intimately connected to their context of reception, have often been conceived and realized according to a particular location and are adapted to each new location. They were made for specific cities, events and festivals, for particular centres and museums. *Uncle Roy All Around You* was commissioned by The Institute of Contemporary Arts in London and premiered there.

The museum here is indeed central. It is the first location of the game, its physical starting point. Many players enter the game through the museum: this is where the *ludic contract* is undertaken, through an exchange of goods and information. But the museum is also represented in the game and in many different ways with indexes, icons and symbols, through speech and text, as well as photographs models and computer graphics. Being at once the context and the referent of the game, the museum here undergoes a *mise en abyme*.

However, the museum is simultaneously and drastically marginalized. As we have seen, online players can access the game not only from within the museum, but from elsewhere too, from any other computer terminal. Moreover, from the beginning of the game players, whether they be online or on foot, in virtual space or in real space, are asked to leave the museum's premises and explore the surrounding neighbourhood. Originally, the decision may have been a technical one (given the instability of GPS and WiFi connections), but it has aesthetic and

political consequences. Immediately, the players' attention is diverted from the museum's interior – and everything it contains.

In the virtual space of the game, which is a much simplified 3D model of reality, all details disappear. The museum, as an institution, is reduced to its physical reality, its contents to its container, and the collection to the architecture and the architecture to the space it occupies and to its surfaces; that is, to coloured geometrical shapes on a map, to simple transparent wire-frame models or opaque meshes on which photographs of facades have sometimes been mapped. The very name of the museum is not always mentioned, though this is also the case with every other building and the entire city. Furthermore, *real* people do not appear on the screen, nor do cars, objects, signs, etc. We only see here the abstract avatars of the players, in a textureless space which is reminiscent of the first 3D video games. In its 3D model form, the city thus becomes a ghost town, where only a few spectres move.

In real space, the experience is not fundamentally different. Once outside the museum, street players only get back to the building at the end of the game. In the surrounding neighbourhood, they pass real people, objects and signs, but only pay attention to them if they are or could be part of the game. (The game thus instigates a certain paranoia in the player who must constantly wonder if what she is encountering is relevant or irrelevant to the game.) Usually, in the real city, players only notice that which is essential to the game and disregard the rest (they do not have enough time to be undisciplined). Their experience is mediated through an abstract image, that of the virtual city which superimposes itself onto the real city and creates a layered, biplanar consciousness.⁷

The Player's Perspective

Mixed-reality games are characterized by an exceptional spatial, temporal and social extension.⁸ Some games are played out around the entire world, across many months and imply hundreds of players. In Blast Theory's works, the game space is limited to a particular area, but it expands outside the museum, into public space and in the city, usually around one square kilometre.⁹

⁷ For a complete description of the first performance of the game, with a comparative analysis of street and online players' experiences, see Steve Benford, Nick Tandavanitj, Matt Adams, Ju Row-Farr *et al.*, "Uncle Roy All Around You: Implicating the City in a Location-Based Performance," http://www.blasttheory.co.uk/wp-content/uploads/2013/02/research_uraay_implicating_the_city.pdf, last visit 2 March 2015.

⁸ On this subject, see Steve Benford, Gabriella Giannachi, *Performing Mixed Reality*, MIT Press, Cambridge (MA) 2011; Eric Gordon, Adriana de Souza e Silva, *Net Locality: Why Location Matters in a Networked World*, Wiley-Blackwell, Chichester 2011; Markus Montola, Jaakos Stenros, Annika Waern (eds.), *Pervasive Games: Theory and Design*, Morgan Kaufman Publishers, Amsterdam 2009; Carsten Magerkurth, Carsten Röcker (eds.), *Concepts and Technologies for Pervasive Games*, Shaker Verlag, Aachen 2007.

⁹ Here, as in all pervasive games, the limits of the game are broad and ill-defined. They have

The duration of the game is also substantial – two hours for *Can You See Me Now?*, one hour for *Uncle Roy All Around You* – especially if compared to the average time spent before works of art in museums. Finally, the game implies a large number of players – many street players, even more online players – and it requires a constant interaction between them.¹⁰

But the main feature of these games is obviously that they are mixed, in Milgram's sense of the word: they do not take place only in the real world (like treasure hunts or traditional role playing games), nor only in the virtual world (like video games and virtual reality); they mix real and virtual environments. To the street players, real space is augmented with virtuality; it contains invisible virtual players and it is watched by an absent virtual gaze. To the online players, virtual space is augmented with reality, the virtual information refers to real places and real people.

The real and virtual worlds are here similar. The virtual city is a representation of the real city and the real players, whether they are on the street or at home, in front of their computer, have virtual avatars. Furthermore, both worlds are linked in real time and sometimes, live. Between the two, radio and Wi-Fi lines of communication are established which allow an instantaneous exchange of textual, audio and visual information, and most notably an exchange of audio messages and webcam images. But the two worlds are not only synchronized, they are also sometimes *syntopized* (as we could say through symmetry), or *syn-localized* (if Latin is preferred to Greek). At times, the real world and the virtual

been given various names, such as the magic circle (Johan Huizinga, *Homo Ludens: A Study of the Play-Element in Culture*, Beacon Press, Boston 1971; Katie Salen, David Zimmerman, *Rules of Play: Game Design Fundamentals*, MIT Press, Cambridge [MA] 2004) or the membrane (Edward Castronova, *Synthetic Worlds: The Business and Culture of Online Games*, The University of Chicago Press, Chicago 2005). Obviously, these metaphors do not always convey the complexity of the games and many authors have sought other models that are not strictly spatial. In his analysis of role playing, Gary Alan Fine (*Shared Fantasy. Role Playing Games as Social Worlds*, University of Chicago Press, Chicago 2002) suggests considering the limits of the game as frames – a notion borrowed from Erving Goffman (*Frame Analysis: An Essay on the Organization of Experience*, Northeastern University Press, Boston 1986), who himself borrowed it from Gregory Bateson (*A Theory of Play and Fantasy*, in Id., *Steps to an Ecology of Mind: Collected Essays in Anthropology, Psychiatry, Evolution, and Epistemology*, The University of Chicago Press, Chicago 2000, pp. 138-148) – to underscore the conceptual, pragmatic and contextual dimension of these limits. Fine distinguishes three discursive frames: the primary framework, which is entirely outside the game; the secondary framework, which relates to gaming rules (this frame is meta-communicational); and the tertiary framework, which is inside the world of the game (this frame is some ways intradiegetic). These three frameworks are mutually embedded, but players may freely circulate from one to the other without warning or notification. Dominic Arsenault, Bernard Perron (*In the Frame of the Magic Cycle. The Circle(s) of Gameplay*, in Bernard Perron, Mark J.-P. Wolf (eds.), *The Video Game Theory Reader 2*, Routledge, New York 2008, pp. 109-131) have also proposed a rich model that emphasizes the temporal dimension of gaming and presents the incessant dialogue between the player and the system of the game as a three-fold spiral movement in which gameplay, narrative and interpretation unfold.

¹⁰ On the collaborative work between players, behind-the-scene staff and occasional members of the public, see Andy Crabtree, "The Social Life of Uncle Roy: Executive Summary," in *School of Computer Science & IT*, University of Nottingham, http://www.blasttheory.co.uk/wp-content/uploads/2013/02/research_the_social_life_of_ur_executive_summary.pdf, last visit 2 March 2015.

world are visually aligned with one another, as would be a photograph of a location seen in that very location. And they are temporally connected, as when there is a live audio or video exchange of information. This synchronization and this *synlocalization* of the two worlds are manually ensured by the user (when he enters his actual position into the handheld computer, when he moves his avatar with the arrow keys of her keyboard) or automatically by the GPS.

The importance of this synchronization and this *synlocalization* is never as evident as when it fails. WiFi and GPS technologies are not infallible and players in Blast Theory's games have experienced some connection and positioning problems. Because they have found themselves outside the game space or in dead zones (close to or inside buildings), or because of the never-ending movements of satellites, some street players have momentarily lost their connection, they have sent imprecise coordinates or received data with a delay of a few seconds.¹¹

The fact remains that the synchronization and the *synlocalization* of real and virtual spaces are what makes mixed-reality games interesting. The most striking moments of the game are when both worlds become synchronous and *synlocalized* when they suddenly communicate, spatially and temporally, locally and in real time, or better, live and *in situ*, in the very location where the player stands. The game really intensifies when an online player discovers in the virtual world photographs of real places; when she sees a picture and hears the voice of the street player whose avatar she has been following on the screen; when she understands that the street players follow, in real space, her own virtual avatar and that she can therefore influence their itinerary; when street players pronounce her name and discuss with her strategies to capture Uncle Roy; when Uncle Roy himself sends her a personalized message; when a webcam image appears that gives her direct access to Uncle Roy's office; when the street player present in the room suddenly looks at her; when online players using the museum's computers see pass by them, through the real window, the street player they had been following on the screen, etc. Similarly, the game becomes very effective when street players realize they are being observed by virtual players, that is to say, by real players who are in other locations; when the messages sent by Uncle Roy refer to, not only real places, streets and buildings, but also to the people they happen to walk past at that very moment ("Pay no attention to the street cleaner with long grey hair...", "Watch a tourist cross the road and follow them [sic]," etc.). The game's climax occurs when street players finally enter Uncle Roy's office and can sense his presence without seeing him, when they are asked to climb aboard the limousine and finally, when Uncle Roy himself, in the flesh, sits beside them and starts talking to them. In such games, the street player's experience may be more exciting than that of online players. But in both positions, the most sought-after effect is the same: the effect of the real, the staging of the real presence of a

¹¹ There have been some incidents in the virtual world in which street players' avatars suddenly disappeared and reappeared elsewhere. Some online players concluded that the game had granted these players special "powers."

virtual person in real space, of a real person in virtual space (but a real presence always that is haunted by an absence).

Metalepsis is certainly the dominant rhetorical trope at work in these games. It blurs the diegetic registers and connect the world of the narratee, the world of the narrator and the world of the characters, the space-time of the players, the space-time of the authors and the space-time of fiction, the intradiegetic and the extradiegetic: the narrator and the characters communicate with the player at home, they enter his private life; the players enter the diegetic space, they become characters of the game and they interact with the other characters; likewise, the narrator also becomes a character you run into in the diegetic space, in a real car, etc. All narrative instances are fictionalized and integrated into the story; they are moreover realized and integrated into the user's life.

These games challenge representation in two ways: on the one hand, they blur the lines between the real and the virtual, between the factual and the fictional (they work on the threshold of fiction); and, on the other hand, they push back the spatial, temporal and social limits of the game (they work on the threshold of the institution). They transform the museum and the entire city into a diegetic space and into a game space, the narrators and narratees, the authors and the users, the puppet-masters and the players become characters, integrated into the story and into the game, they transform aesthetic experience into an immersive fiction. Within the ensemble of immersive practices, these games partake of both virtual reality and theatre or, more precisely, of live action role-playing games (or LARPs). (They present an *image* that is limited, *homomaterial* (Eco), egocentric (Milgram), and which involves an *allo-subjective actancial identification* (Schaeffer).

Mixed-reality games such as these are therefore paradoxical. They entertain a desire for the Real (for the thrill of real time and of live action), but at the same time, they also cause an eclipse of the real under the fiction of the game. They nurture a strange fetishism that fantasizes about both physical proximity and distance. It is not surprising that the preferred genre here is the suspense thriller.

Because they take place in a particular location, mixed-reality games seem to invite users to leave virtual reality and become aware of actual reality, they seem to promote, not immersion, but *emersion* – a rediscovery of the actual site where the game takes place, of public spaces and local communities. But when these games involve the development of elaborate narrative and ludic fictions, in real time and *in situ*, the effect may well be reversed: the real itself is virtualized, the factual is fictionalized, gamified, the local is delocalized and fictional immersion deepens.

The Institution's Perspective

The museum has always nurtured immersion. From the moment it became interested in collecting not only objects, but also objects that are images, the museum opened, within its own real space, a window to virtual space and it invited the spectator to step into it, if only by imagination. Throughout Modernity, the

museum was much interested in monumental images, such as history paintings or large-scale landscape paintings. And during the 20th century, it has opened itself up to *new* immersive technologies – to photography, cinema, video, audio guides and, of course, video games – in order to offer even more immersive experiences.

The museum's interest in immersion certainly has sociological causes. It is obviously linked to the development of immersive culture in modern mass media. It is also connected to the legitimacy crisis that all museum institutions face regularly and now more than ever. The problem is not, yet, financial legitimacy (profitability), but rather social and political legitimacy, which is now measured by public success. As recent statistics show, museum attendance is stable, in relative and absolute terms, but competition for public attention is ferocious and cultural habits are undoubtedly changing.¹² In this context, it is not surprising that museums are now courting a larger and younger public, and that their programming includes more and more exhibitions, mediums and works that have, from this point of view, an obvious public appeal. The museum's interest in immersive and interactive technologies clearly illustrates this fight for public attention.

However, at the same time the museum has always kept from completely giving into the immersive aesthetic, probably because it risked losing part of its specificity in the process. Obviously, the museum has a plural mandate, that of exhibition and conservation, education and enjoyment (as stated by the ICOM).¹³ It collects not only images but also objects, not only icons but also relics, it encourages not only immersion, but also authenticity. It thus participates in a two-fold regime that cultivates both exhibition value and cult value,¹⁴ allographic and autographic forms,¹⁵ metaphorical and metonymic figures.¹⁶

This may be the reason the museum has always preferred mixed reality to vir-

¹² See John Micklethwait, "Temples of Delight," Special Report on Museums, *The Economist*, 21 December 2013, <http://www.economist.com/news/special-report/21591707-museums-world-over-are-doing-amazingly-well-says-fiammetta-rocco-can-they-keep>, last visit 2 March 2015. Marie Bourke *et al.*, "New Trends in Museums of the 21st Century," The Learning Museum Network Project, 2013, <http://www.lemproject.eu/WORKING-GROUPS/museums-in-the-21st-century-1/7th-report-new-trends-in-museums-of-the-21st-century>, last visit 2 March 2015.

¹³ The International Council of Museums (ICOM) officially defines the museum thus: "A museum is a non-profit, permanent institution in the service of society and its development, open to the public, which acquires, conserves, researches, communicates and exhibits the tangible and intangible heritage of humanity and its environment for the purposes of education, study and enjoyment." ICOM, "Museum Definition," <http://icom.museum/the-vision/museum-definition>, last visit 2 March 2015.

¹⁴ Walter Benjamin, *Das Kunstwerk im Zeitalter seiner technischen Reproduzierbarkeit*, Suhrkamp Verlag, Frankfurt am Main 1955 (Eng. ed. *The Work of Art in the Age of Mechanical Reproduction*, Penguin, London 1936).

¹⁵ Nelson Goodman, *Languages of Art: An Approach to a Theory of Symbols*, Hackett Publishing Company, Indianapolis 1976.

¹⁶ It is important to note that if these two programs are in opposition from the museum's perspective, they may not be from the spectator's: the difference between the original and the copy is not pertinent when, in terms of the aesthetic experience, they are indistinguishable: what matters here is not the presence, but the effect of the presence.

Cinéma d'exposition 2.0

tual reality, works that create experiences that are at once immersive and emergent, that open to a virtual world while remaining tied to the real world such as large-scale photography, video installations and *cinéma d'exposition*.¹⁷ The museum's interest in works using mixed technologies likely expresses a similar concern, and it may be the symptom of the institution's epistemological hesitation. This hesitation is not new: it is inherent in the museum, and is revived whenever a new technology is developed and spreads. But digital technologies have brought about an extensive revolution that questions the museum's very foundations. The emerging culture is not only audio-visual, immersive, interactive and communicational, it is also decidedly mobile and nomadic.

¹⁷ To which we could undoubtedly add architecture, the museum's own architecture.