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When interactive artworks act as archives: Migrating and documenting *Immemory* by Chris Marker

Alexandre Michaan, Philippe Bettinelli

Université Jean Monnet, Saint-Etienne, France; Centre Pompidou, Paris, France
alex.michaan@gmail.com, philippe.bettinelli@centrepompidou.fr

Abstract

Researching Chris Marker's digital artwork *Immemory* and working on its preservation for the future reveals the relevance of considering certain media artworks as archives in themselves. Created in 1997 for CD-ROM, *Immemory* has undergone several transformations on form and content, and was brought to the web for an online version between 2007 and 2013, re-coded in Flash format. After Flash became obsolete in 2020, the need for a reflection on how to sustain the work for the future and how to inform future viewers on its various versions led to a conservation study and reflection on the ways to document it. With Chris Marker's use of re-incorporation of personal documents, references, and quotes from earlier artworks, the topic of historicization is at the core of the artwork and thus requires to play an important part in its study, when archiving it and presenting it to the public. It can serve as an interesting example of how self-contained digital artworks such as CD-ROM-based works from the 1990s can be experienced today depending on what documentation and information is accessible for the viewer.

Keywords

CD-ROM artworks, archives, new media art preservation, documentation, historicization.

Introduction

CD-ROM-based artworks from the 1990s often make use of exploration mechanics strongly evocative of those of an archive, due to the type of interaction that induced the CD-ROM medium – browsing through a complex and sometimes cryptic network of images, texts, videos and sounds [1]; similarly to the type of explorable content that was emerging at the same time on the early web.

Interacting with the CD-ROM *Immemory*, created in 1997 by Chris Marker (1921-2012), strikingly illustrates this feeling of exploring an archive, a personal and intimate one, as the whole artwork presents itself as a reflection on memory and its labyrinthine structure.

Since its first publication in 1998, *Immemory* has undergone several transformations on form and content,

and ultimately was brought to the web for an online version, which is currently subject to a conservation study and migration at the New Media Department of Centre Pompidou.

Based on the research produced for the preservation of the work, we will try to build upon two focuses previously discussed in the first and second Summits for New Media Art Archiving. Through the case of *Immemory*, we will see how an artwork or the practice of an artist can raise the question of its status as an archive in itself, following Amy Alexander's idea of « broadening our thinking about what constitutes an archive », and illustrate the importance of historicization that she stressed. We will also address what is at stake when documenting such an interactive artwork, in the perspective of « including conceptual, technological, and phenomenological approaches. » discussed by Byeongwon Ha at ISEA2020.

How can the museum deal with historicization of interactive artworks? Can the exhibition and documentation of these artworks stay truthful both to the experience they intended to provide and to their historical evolution when they have gone through many transformations?



Figure 1. *Immemory*'s main menu, leading to each of its sections. Image capture extracted from the original program.

Immemory's history and transformations

Chris Marker's artworks often build on his own network of archive material and memories shown or told in previous works. Through this pattern, he constructs with each new piece an interconnected array of references between his photographic, cinematographic or video works and writings. His works in the field of video installation and interactive media are probably the most representative of this tendency, in particular *Zapping Zone*, *Immemory* and *Ouvroir*. A clear continuity can be observed between these works, in addition to being each a form of explorable archive of Marker's own previous works, in a Russian doll manner. Studying and understanding one of these works involves necessarily researching into the other ones as well, as many elements find not only their roots in each previous one, but sometimes directly consist of updated versions of previous content – reused images, texts or entire segments of program. When exploring *Ouvroir*, an online 3D installation started in 2008 in the form of an island on the early «metaverse» Second Life, the call-backs to both *Immemory* – which was originally entirely embedded in it as a browsable floating window on the shore of the island – and *Zapping Zone*, with various images, animations and space compositions directly borrowed from them, are impossible to miss.

Although *Immemory* was created as a self-contained network of images, videos and texts on CD-ROM, it shares a vast amount of content with *Zapping Zone*, a large installation from 1990 consisting in a big structure hosting 13 video monitors and 6 Apple IIGS computers surrounded by photographs. Both artworks were produced by the Centre Pompidou, and expanded a branch of Marker's work outside from film that had started in 1978 with his first video installation *Quand le siècle a pris formes (Guerre et revolution)*. In fact, *Immemory* also exists as an installation in the museum's collection - including a specific mouse pad printed with help for navigation, a sign with Marker's iconic cat avatar and a set up with wall collages made from torn up pieces of two of his film's posters mixed together. It appears in Marker's working history as a direct continuation of *Zapping Zone's* creation process, with its production most likely starting just after Marker stopped adding new elements to *Zapping Zone*, between 1993 and 1994¹.

¹ In his essay on *Immemory* "The Book, Back an Forth", Raymond Bellour states that although it is difficult to define clearly a starting date to the production of the work, a plan was already made by Marker around 1993 [2]. Since the last computer animations and images added to *Zapping Zone* are from 1994 and were still created for the Apple IIGS, a computer that Marker left aside to begin working with the Power Macintosh during that period for the production of his film *Level Five*, it is likely that year that the first sections destined for the CD-ROM were created.



Figure 2. Screen capture of the Second Life installation *Ouvroir*.

Marker prolonged with *Immemory* his approach of installation in a computer-based self-contained form, building within it a similar dialogue between all types of media, from photographs to electronic images. The physical movement of the viewer walking around the video monitors and computers as seen in 1990 in *Zapping Zone* was transposed to a virtual navigation through point-and-click interaction inside the CD-ROM structure, following the same idea of an invitation into Marker's imaginary museum. In his own words, "the reader-visitor can imperceptibly come to replace my images with his, my memories with his, and that my *Immemory* should serve as a springboard for his own pilgrimage in *Time Regained*." [3]

In particular, *Immemory* draws heavily from some of the computer-based interactive parts originally presented in *Zapping Zone* on Apple IIGS computers, created using an earlier version of the same editing software, HyperStudio. One of these Apple IIGS programs – titled after the software's name, «Zone Hyperstudio» as a tribute to the software's designer Roger Wagner, who became friends with Marker² – can even be seen partly as a prototype of *Immemory*, with a similar structure and entire parts later reused in the CD-ROM with upgraded graphics in 1997.

Immemory has a complex history of evolution and changes, in the same way that *Zapping Zone* had before it. Similarly to how Marker kept on changing and adding elements to his 1990 installation until 1994, he produced several versions of *Immemory* between 1997 and 2009 with additions and changes. None of these changes are structural, but many images from large sections of the work such as *The Museum* and *The Xplugs*

² Marker and Wagner maintained a correspondence from 1990 to the late years of Marker's life, with many discussions about HyperStudio's functionalities in the early 1990s. Roger Wagner testified that Marker played a role in the orientation of some features and the global development of the software at the time.

photomontages were either changed or added after 1997; mostly for the second English version (*Immemory* was published twice in a translated version, in 2003 and 2008).

The biggest change is certainly its migration on the web as an online browsable work that was produced between 2007 and 2013, officially releasing one year after Marker passed away in 2012. Produced as a part of Marker's website project with Centre Pompidou *Gorgomancy* (itself an archive of various works by Marker – including, among others, *The Owl's Legacy*, the Poptronics montages and *Immemory*), the original program for CD-ROM created on HyperStudio was entirely re-coded in Flash during this period, with the goal of preserving its original look and feel, but with important technical changes nonetheless: all the tree structure was rebuilt from scratch, many of the animations re-created to fit the Flash format, and mostly, all the images were upscaled to a more fitting image definition for newer monitors, of 900x675 pixels (instead of the original 640x480 pixels) and converted into Jpegs³. This change, partly due to technical contingencies from the mid-2000s, resulted in visual artifacts that are noticeable when comparing the two versions of the images (typically blur, loss in color saturation and sharpness), generated both by the upscale interpolation to enlarge the original images and by the Jpeg compression to make them lighter for an online use.



Figure 3. Screen capture from the home page of the website *Gorgomancy* as released in 2013

After 2020, as Flash became officially obsolete with the infamous discontinuation of its support by its owner company Adobe, the necessity of producing a new sustainable online version led to a conservation and migration plan at the Centre Pompidou on the initiative of Marcella Lista, chief curator at the New Media

³ They were originally stored in the HyperStudio data folders called “stacks” as uncompressed images, extractable as PNG files.

Department, undertaken in 2021 and 2022 by a team composed of a software developer, Cyrille Parachini, a curator, Philippe Bettinelli, and a conservator, Alexandre Michaan. With the goal to make available publicly again the full work online, a re-coding in HTML5 is being conducted, and together with it, a study on *Immemory*'s history and evolution in order to document and reflect it faithfully.

Historicizing digital artworks: how a work can become intentionally and unintentionally an archive

In her 2022 article « “Always Only Once:” The paradox of preserving performative digital works », Amy Alexander emphasized a point that appears extremely relevant in the context of *Immemory*'s study and conservation: the necessity to broaden our understanding of what constitutes an archive when approaching and preserving digital works⁴. We will try to highlight here how, in some cases, the artwork itself as well as its evolution history can be studied as an archive, and particularly, documented as such. In the case of Chris Marker's work, in which writing and literature in general play an important part, this notion can be linked to those of autobiography and auto-fiction as witnessed in the work of Marcel Proust [5], and of Malraux's imaginary museum, often referenced in Marker's body of work⁵.

Several aspects that demonstrate the relevance of broadening the very notion of archive when researching and preserving Chris Marker's installations and computer-based works are notorious, all of them being one way or another about historicization. First of all, from the perspective of technology history, any artwork involving technical equipment becomes over time an historical sample of its production technology: as Cécile Dazord stated in 2016 [6], contemporary art museums often become conservatories of technologies unwittingly.

Similarly to how *Zapping Zone* was a testimony of the CRT monitors era, and of the late 1980s micro computer history with its Apple IIGS, *Immemory* carries – even regardless of any matter of intentionality – a piece of history of both mid-to-late 1990s computer technology (for its CD-ROM version) and mid 2000s online animation software (for its Flash version).

⁴ « Broadening our thinking about what constitutes an archive, as well as ambiguity between practice and archive, can allow us to broaden our recording and understanding of the histories with which we engage. Always look for opportunities for time travel. » [4]

⁵ Malraux's influence on Marker is already visible in 1953 with his film directed together with Alain Resnais *Les Statues meurent aussi*, released the same year as Malraux's *The Imaginary Museum*. The theme of building a personal imaginary museum can be observed until his late work, particularly in the 2009 video work *Pictures at an Exhibition*.

Even though its release on CD-ROM took place near the end of the decade, in 1998, with the first French edition published by the Centre Pompidou⁶, the work reflects most of the typical aspects of interactive CD-ROMs produced earlier in the 1990s. Its image definition fits the early VGA standard 640x480 pixels broadly used in the first half of the 1990s⁷, its color palette is 256 colors, and mostly, its structure made to navigate through images, videos, sounds and texts is reminiscent of many types of CD-ROMs produced in this decade, from artists' ones (such as Laurie Anderson's *Puppet Motel* from 1995) to commercial ones such as museums virtual visits (*Le Louvre, visite virtuelle* by Dominique Brisson from 1999 for instance). It includes a navigation guide with documentation on different types of cursors and icons, in a similar manner to 1990s point-and-click video games. The visual characteristics of its images reflects common technical tricks used to give the illusion of smoother color gradients in the era of limited color palettes, with heavy use of dithering, a pixel scattering technique recognizable in many of the computer images of that era.

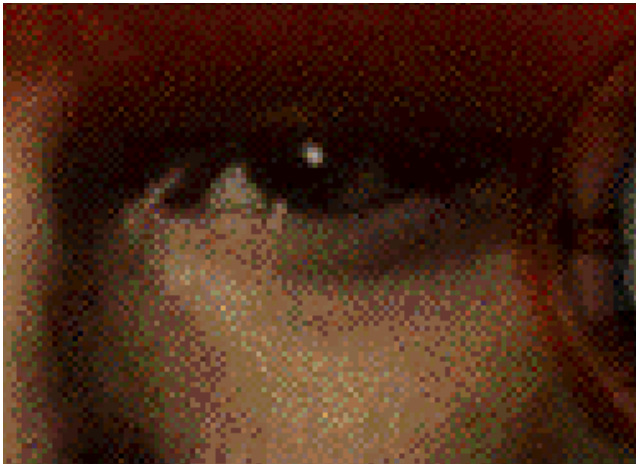


Figure 4. Example of dithering enlarged detail of the main menu central image from *Immemory*.

Additionally, studying *Immemory* in its technical aspects reveals a lot of valuable information on Marker's relationship with technology. Although it was invisible to most users of the CD-ROM, its data also tells a story about Marker's use of a specific software of which he had become a beta tester and a contributor, a story that started a decade earlier when he was working on *Zapping Zone*: that

⁶ It was later released in English by publisher Exact Change twice, in 2003 and 2008.

⁷ This display standard appeared in 1987 and stopped progressively being the main standard in the second half of the 1990s with the broadening of the 800x600 pixels display resolution. In 2001, only an estimated 7% of users were still using 640x480 pixel displays, while 53% were using 800x600 displays and the rest higher resolution monitors. (Source: statmarket.com February 17, 2001 based on a sample size of 50,465,595 web sites).

of HyperStudio. Through it, it also testifies of Marker's close relationship with its creator Roger Wagner, who is still active today and contributed to the archival procedures for *Immemory*'s original HyperStudio 3.0 files.

On another level, *Immemory*'s kinship with a form of self-contained archive of Marker's previous work, its evolution in time with Marker's additions until the late 2000s, and its incorporation into the *Gorgomancy* website as part of another archive-related entity, point out the importance of understanding and documenting what *Immemory* tells us as a puzzle piece into the broader picture of Chris Marker's body of work.

Interestingly, in his later years, when Marker builds his last computer-based interactive artwork, this time on Second Life with developer Max Moswitzer, he decides to embed the full *Gorgomancy* website as an interactive floating window in the 3D space of the « virtual world », thus incorporating again indirectly *Immemory* within it. Recalling Amy Alexander's idea of « considering an artist's attempts to historicize their practice as an archived work in itself », Marker's practice of callbacks to earlier works and reuse of content throughout all his interactive pieces makes it highly interesting to consider somehow his artistic practice as that of an archivist of his own work – in the sense of amateur archivist practice. Not only in an art history perspective but also in the context of preservation, regarding his works as interconnected components and his practice as the construction of a personal archive, is undoubtedly one of the most enriching angles of analysis of his digital work.

It also highlights one of Marker's striking specificity compared to other artists who were producing artworks on CD-ROM in the 1990s, or virtual installations in Second Life in the 2000s: his age. Being already 76 years old when he released *Immemory*, and 87 when he worked on *Ouvroir*, Marker was belonging to a generation that had witnessed a much larger part of the century's history than younger digital artists, and he had been gathering images from this history throughout his lifetime as a photographer and filmmaker. He writes, in his introductory text from the 1998 CD-ROM booklet: “*In our moments of megalomaniacal reverie, we tend to see our memory as a kind of history book: we have won and lost battles, discovered empires and abandoned them. At the very least we are the characters of an epic novel*”, followed a bit further by “*That the subject of this memory should be a photographer and a filmmaker does not mean that his memory is essentially more interesting than that of the next man (or the next woman), but only that he has left traces with which one can work, contours to draw up his maps.*” [3]

Beyond the specific case of *Immemory*, these teachings from the ongoing preservation of Marker's computer works can extend in a much broader way to many of the

1990s and early 2000s interactive digital works. Arguably many of the CD-ROM works and web-based works of this era share common roots in the « archive exploration » feel of their navigation and structure, and several have had an history of re-coding or migration that tells us much today about the evolution of software standards for multimedia production and technology in general. Similar examples to *Immemory*'s migration path through Flash and HTML5 exist, such as Michael Snow's DVD-ROM *Digital Snow* from 2002, migrated online in Flash format in 2012 and in HTML5 in 2021. *Digital Snow* notably presents itself as an archive of Michael Snow's work, including excerpts from 84 of his works that can be explored by categories, interconnected with referral links throughout the archive. This typical organization of content with sections and subsections from a central menu leading to branched sub-menus, shared with many early web-based artworks, marks the entirety of *Immemory*'s construction and clearly evokes the experience of searching through an archive.

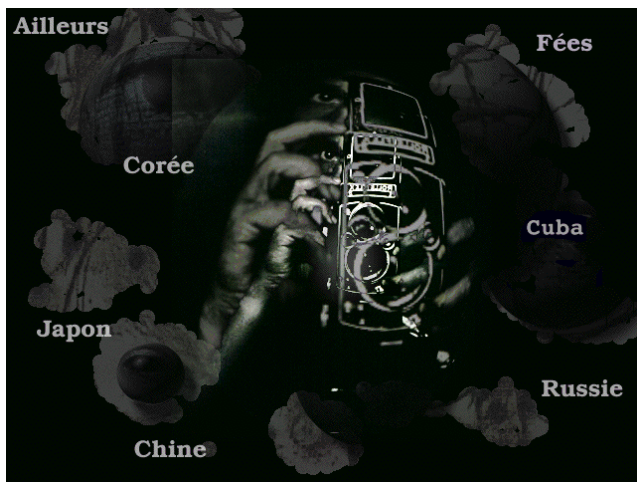


Figure 5. Example of sub-menu in one of the sections of *Immemory* (the PHOTO section). Image capture extracted from the original program.

The challenges of extensive documentation

It has been largely stated in publications on media art conservation how much the role of documentation is key in any preservation approach for artworks that go through several stages of change over time, whether they are material changes during migrations or even content changes decided by the artist. The extent and nature of the documentation produced, however, still varies a lot today in conservation studies, and the ways to achieve a documentation as complete as possible are still often researched and discussed.

During the Second Summit on New Media Archiving at ISEA2022, Byeongwon Ha stressed the need for an « inter-

locked archiving system including conceptual, technological, and phenomenological approaches. » [7] in the practice of documentation of digital artworks. While it is a recurring topic for digital art conservators and archivists to document as extensively as possible digital artworks, putting in practice the principle of a multi-facet documentation covering all conceptual, technical and experiential aspects of an artwork remains a daunting task, as it often asks for time-consuming research to build a case-specific approach. Documentation methods almost always have to be questioned and improved for each specific artwork, mostly when there is interactivity involved: even if the main relevant information such as technical specifications, exhibition history or installation plans are always obvious elements to collect, image documentation and ways to document how the user interacts with the artwork or how it is structured and browsed are much less standardizable and generally need a very advanced knowledge of the work prior to producing clear and legible documentation for the future.

In the case of *Immemory*, two main focuses emerged during the conservation study. One was aimed at producing legible representations of the hidden mechanics of exploration of the work, such as the clickable areas (which are not always apparent for the user, perhaps voluntarily in order to get visitors lost in the manner of a labyrinth) and what other « page » they lead to in the structure. The other one aimed to find relevant ways to inform the visitor of *Immemory*'s evolution over time, including its original materiality as well as its artistic changes between the CD-ROM version and the online Flash version.

To stay truthful to its two historical forms, the migration to HTML5 implied re-building again the full structure based on both the original 1997 program and the updated 2013 online one, which gave the perfect opportunity to dive into how this structure functions and how it can be mapped.

In order to archive a flat state of its whole content accessible in a single document for researchers and art historians, a large map of its arborescence was created, incorporating the 1552 « screens » (every « screen » being stored as an image file extracted from the original program) and documenting the connections between each, as well as which ones were added or changed in later versions. Each image in the map is kept at its original 640x480 pixels definition, so that it can be legible when zooming in different parts of the document, leading to a PDF file of 14000 pixels wide and 6700 pixels high. Animations and short video sequences that appear on certain pages, the only elements that could not be reproduced in such a document, are represented by icons. Finally, next to this map, extractions of the full 1552 images stored in each of *Immemory*'s categories folders and sub-folders (called « stacks » in the HyperStudio

program) are archived together with schemes of all clickable areas in each of them.



Figure 6. A preview of the map of the full *Immemory* tree structure including all its images sorted by sections and sub-sections.

A critical question that raises producing this type of documentation, perhaps too rarely explored by conservators when working on digital artworks, is how extensive documentation risk revealing too much and distorting or even spoiling the experience of an artwork? Certainly, if the map of *Immemory*'s tree structure is a valuable document for any researcher focusing on Marker's computer artworks, it can however be problematic to make it accessible to all visitors: if Marker intended his work to be a labyrinth and an invitation to wander, obviously a guide to each of its corridors was never meant to be provided.

Nevertheless, there are also elements that do appear relevant to provide to the visitor prior to stepping into *Immemory* today. The main one is arguably the opportunity to decide which version of the work to explore, the access to information on how this choice can influence the visitor's experience of the work. This includes the awareness of how computer equipment from the production era of the work impacted its aspect and type of interactivity, but mostly, in the case of *Immemory*, how some entire segments differ depending on the choice to explore the reconstructed CD-ROM version or the 2013 online one.

In order to address both these aspects, the development of the HTML5 migrated version incorporates an additional home page with a disclaimer mentioning how *Immemory* has evolved between 1997 and 2013 and offering the choice to explore either the reconstruction of the CD-ROM version with all the images fitting the original 640x480 pixels definition, or the updated version from 2007-2013 with the images upscaled to 900x675 pixels and Marker's modifications and additions included⁸. Since CD-ROM

⁸ All the upscaled images in 900x675 pixels as shown in the migrated version were re-exported from the original 640x480 uncompressed sources from the original program, to fit both needs of presenting the

artworks, similarly to web-based ones, do not have a specific model of computer unit attached to them and were produced to fit a range of computer systems commonly used at the time of their release, it is planned to produce visual documentation of the works' aspect and navigation on a typical computer system from the late 1990s, such as the 1998 iMac. Photographic and video documentation of an excerpt of navigation through the CD-ROM on this type of computer, with a cathode-ray tube display and rolling-ball mouse, will be accessible as additional documentation from this home page for the visitor.

Final words

Researching Chris Marker's *Immemory* and working on its preservation for the future reveals how much it exemplifies the relevance of considering certain media artworks as archives in themselves. With Marker's use of re-incorporation of personal documents, references, and quotes from earlier artworks, the topic of historicization is at the core of the artwork and thus requires to play an important part in its study when archiving it and presenting it to the public today. From its history of technological and artistic changes to the key position it holds in the broad picture of Marker's computer-based body of work, *Immemory* reflects the importance of understanding all the aspects carried by a digital artwork over time when undertaking its migration or its preservation in general. Whether these aspects are intentional from the artist – such as modifications or addition of content inside the work – or not, as in the case of artworks becoming testimonies of a certain technological era, documenting them often proves to go beyond the sole interest of researchers and art historians. In fact, it concerns the general public as well, as many of these aspects give not only valuable insight on when and how an artwork was produced, but also have an impact on the user experience of the work. Images that were upscaled over time to fit newer definitions of a new range of computer displays, when a digital work underwent updates and migrations such as *Immemory*'s path from CD-ROM to web-based piece, generate visual changes that are noticeable to many viewers. Visual consequences such as blurriness and images disturbingly marked by artifacts due to their inadaptation to larger display sizes, additionally to the effects of viewing images produced for CRT displays with a completely different frame on newer digital monitors, can hardly be seen as limited to a specialist matter and do impact every user's experience to some extent.

enlarged images of the 2007-2013 online version of work and still minimizing the compression artifacts that were initially due to technical constraints in the 2000s and led to some subtle but visible loss in the images used at the time in comparison with the original CD-ROM images.

Facing the challenge of sustaining the access to such artworks while staying faithful to the experience that they were intended to provide, the museum finds valuable answers in extensive documentation in all its forms. However, documentation of artworks like *Immemory* can strongly resist standardization and systematization as it also requires a critical reflection, most notably on how exhaustively it should be presented as available information next to the artwork for any viewer or not. As often in conservation, balance is key to all issues: if some documents can be solely destined to be viewed in research context to avoid the risk of spoiling the experience of the work, other information can however be necessary for the viewer to understand what he is experiencing, what changes it has been through and how it might differ from how it was originally experienced. Hopefully, people will still get lost in the labyrinth of *Immemory*, but with the choice of what labyrinth to get lost in.

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Authors Biographies

Alexandre Michaan is a media art conservator based in Paris. After graduating at the National institute for cultural heritage in France, and a stay at the conservation laboratory of LIMA in Amsterdam, where he worked on obsolete software-based artworks for CD-ROM, he has been since 2013 specializing in the preservation of audiovisual artworks threatened by obsolescence. He is currently working as a researcher, on a PhD focused on documentation procedures for the preservation of media artworks at Université de Saint-Etienne, and worked in the past years at Centre Pompidou on the digitization of video collections, and the conservation study of Chris Marker's video and computer-based installation *Zapping Zone*.

Philippe Bettinelli is a curator working in the New Media Department of the National Museum of Modern Art at Centre Pompidou in Paris. He has previously been in charge of Public Art in the French National Center for Visual Arts (Centre national des arts plastiques – CNAP), and curator in charge of Visual Arts, 1960-1990, in the same collection. Aside from new media and public art related issues, his research focuses on the crisis of landscape in modern and contemporary art, which was the subject of a three-years teaching cycle he gave with Baptiste Brun in École du Louvre. He has also been a member of the drafting committee of the journal *Histoire de l'art*, and is currently in the drafting committee of *Perspective*. Bettinelli studied Cultural Law at Université Paris Sud and History of Art at the École du Louvre before completing his studies in conversation at the Institut national du patrimoine (2014-2015).