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Preserving Born Digital Art : Lessons From Artists' Practice

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Abstract

This paper looks at the complex nature of developing effective and appropriate strategies for the preservation of born digital art, in particular networked art. These issues are approached from the perspective of artist practitioners, focusing on a case study of the preservation of a net art project by the author. It is suggested that any preservation strategy begins with artists and the conservation practices that are inculcated into the very act of creation. The paper proposes that for institutional digital art conservation initiatives to be successful they must originate from a pre-existing culture of preservation within digital art communities

1. Introduction

Initiatives for the preservation of digital art in museums and other cultural institutions will by their very nature always come later. Once the relevant significance of particular artists, their works and associated art movements has been identified and these works collected then, often at a time of crisis, the work of conservation can begin. However, with born digital work this can be too late. If the work no longer exists no strategy can preserve it. If artwork is no longer viewable as the software or hardware required is obsolete or otherwise unavailable, unless there is a clear technical description of the correct functioning of the work supplied any preservation effort is going to be guesswork. I propose that initial preservation of born digital work must emanate from artists' practice. This requires artists to think about preservation strategies at a early stage with this effort being supported by institutional initiatives, even before works are deemed worthy of preservation. Selective preservation, no matter how exhaustive or detailed, will always fail to convey the context of the work, of the networks and discourses that formed around a work's creation that are made explicit in other works of the period. A broad based preservation strategy additionally leaves open the possibility for re-evaluations by scholars at a later date to redress bias in the original analysis which is not possible when works do not exist.

1.1. Preservation Strategies

Institutional strategies then need to be founded on a deep understanding of the issues that matter to artists in the preservation of their work, and to be

conversant with the issues that mitigate against successful preservation strategies being adopted at an early stage by digital artists.

Experimental digital art working at the forefront of emergent technologies, developing new approaches and 'misusing' technology is by definition precarious. Networked art with its dependence on third party platforms, software, external links and servers requires additional vigilance. Simple events like letting domain names expire and failing to pay hosting fees can result in the permanent loss of internet based work. With complex distributed work that appropriates online content (McGarrigle, 1999), that involves activist online and unauthorized interventions (Cirio, 2013), or leverages third party platform APIs this is compounded as these elements are not under the control of the artists.

While preservation strategies correctly focus on maintaining the correct functioning of the work according to the artists' wishes (Depocas et al.,2003; Rinehardt, 2007; Rosenthal, 2010) this is not the sole factor. This paper suggests that preservation of historical networked art raises complex issues that extend beyond problems of purely technical preservation to include the context of the work's production and original presentation. While it is technically possible to preserve and view a net art work from 1999 in 2016, is it also necessary to convey something of the context of the work and the critical dialogue surrounding it? If so, how might this be achieved, and how can this process inform decisions that can be made now to aide in the preservation of current generations of born digital art with more complex interdependencies?

Through a close examination of one 1999 net art work by this author contrasted with a recent work I hope to shed light on the myriad decisions that need to be made by an artist in order to develop a self-initiated preservation strategy for an artwork. It is intended that this will assist in developing a deeper understanding of the challenges that artists face in preserving born digital art and the impact that these will have on the availability of work for future preservation initiatives.

2.0 Preserving Networked Art

2.1. Geocities and the Archive

In considering the preservation of historical net art it is imperative to establish the context of individual project's production and reception and the wider ecosystem of web 1.0 that framed these works. Geocities the much loved – in hindsight anyway – 1990s free web hosting service is a good starting point as it is representative of the pre-web2.0, internet and its demise highlights the

vulnerabilities of early internet based work. Geocities, in many ways, represented the hopes for the internet in that period; it was a space for self expression and creativity, netizens were producers not only consumers, and significantly a space where the power relationships of real life were not necessarily mirrored. The $3 billion Yahoo takeover of Geocities in 1999 marked the end of this dream for many, it can be argued that it was a major step in the corporatization of the internet that led inexorably to domination of the big five[1] today.

Geocities was coextensive with the 'heroic' period of net art and, along with its competitors Tripod and Angelfire, enabled the 1990s weird-internet that formed the backdrop for the birth of net art. By 1999, when my project *Spook…* was made, this was still a largely dial-up network. Metaphors of cyberspace, internet portals and Geocities homepages framed understanding of what the internet was, and how it might be used, misused and indeed shaped by its users. Users, including net artists, still mattered (Oudshoorn and Pinch, 2003) as the emergent technology of the internet found its mass audience. The environment within which net art of the period was produced is pivotal to understanding this work. Geocities and its clones defined the material culture of the late 1990s internet as surely as IOS and Android do today. This influence is embodied in the work of the time to the extent that it is difficult to fully understand it without a knowledge of internet culture from this period. Geocities is central to this knowledge. Founded in 1994, it was acquired by Yahoo in 1999, and shut down in 2009. Its 38 million user built webpages were deleted with only six months notice. If such a sizable part of internet history can be erased so casually, what confidence can there be for works built on any number of platforms central to the web today that are subject to unpredictable future events?

The case of Geocities starkly connects the preservation of born digital networked art to wider issues of the archiving of the internet. When seemingly stable commercial platforms can disappear on a corporate whim this introduces a precarity to all legacy platforms and systems that form the infrastructure, direct or indirect, of networked artwork. Networked art leverages a range of tools, systems and media with extensive interdependencies that are outside of the direct control of the artist or the institution. This includes systems that are directly required for the correct functioning of the work; APIs, remote databases, linked resources, scripts and plugins, proprietary file formats, as well as external components that serve to contextualize an individual work. Efforts

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[1] The five corporations that dominate the internet; Amazon, Apple, Facebook, Google , and Microsoft

to archive and preserve born digital work are always then interdependent on research and approaches toward the archiving of the internet itself, and informed by emerging techniques and standards in this field. While the internet has been archived since 1996 by Brewster Kahle's Internet Archive and made available by the Wayback Machine[2]. This collection amassed using webscraping is uneven, especially pre-2000, contains unintentional country bias (Thelwall and Vaughan, 2004) and generally requires knowledge of the original URL. While it can fill gaps archiving is not the same as preservation, archives require that the object be available whereas preserving artwork has an additional requirement that the work be viewable in as close to the original intent of the artist as possible. The archive quality has improved in recent years and archival methods for the preservation of websites have been developed that can handle a complex combination of file types. The Internet Archive .ARC file format and its successor the .WARC format have become the standards for preserving internet crawls and associated metadata in a single archive file.[3] The Geocities archive was partially saved in an effort led by Archive Team[4] that resulted in a partial copy of Geocities. This was released as a 640gb torrent file, currently available and being seeded by two people on the Pirate Bay. A number of mirror sites exist[5] and notable art projects, *One Terabyte of Kilobyte Age* by Olia Lialina and Dragen Espenschied, and *Deleted City* by Richard Vijgen, have been built on the saved archive.

2.2. Preserving Networked Art

Since the early 2000s many international museum-level initiatives for the preservation of media-based and performance art have been developed. These include the Variable Media Network at the Guggenheim in 1999 , Capturing Unstable Media at V2 Rotterdam in 2003, PANIC at the University of Queensland Brisbane, Database of Virtual Art (now the Archive of Digital Art) at Humboldt University, Emulation as a Service at the University of Freiburg, Resurrection Lab at IMAL Brussels, initiatives at Ars Electronica and ZKM, and the Rhizome Artbase.

Of most significance is the Variable Media method with its approach toward considering a work's behaviors and strategies independently of medium. This

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[2] See https://archive.org/web/

[3] For more detail on this file format see
http://www.digitalpreservation.gov/formats/fdd/fdd000236.shtml

[4] For an account of the process see
http://www.archiveteam.org/index.php?title=GeoCities#The_GeoCities_Project_and_Friends

[5] See http://www.oocities.org/ and http://www.reocities.com/neighborhoods/

introduced a critical flexibility that allowed for a variety of preservation strategies including storage, emulation, migration and reinterpretation that overcome problems of obsolescence allowing works to be preserved as living works, achieving "permanence through change" (Depocas, Ippolito, Jones, 2003). For net art the Rhizome ArtBase approach emanated from an embedded position with the net art community from the 1990s, this allowed for insights in this very specific area of digital art practice that were unavailable to other art institutions. Rhizome's Artbase set out to preserve works of net art that were deemed to be "of potential historical significance." (Fino-Radin, 2011) Initially open to artist's submissions the Artbase consisted of linked objects – linked to works that were located on servers not under Rhizome's control - and cloned objects where copies were made on Rhizome servers (Fino-Radin, 2011). The model is transitioning to contain only archived works selected by a curatorial process that leaves the status of linked objects unclear. One of the strengths of the Artbase was its broad inclusion of work and its central position within the net art community. It remains to see how broad the Artbase will cast its net or whether it will adopt a museum approach and concentrate on preserving significant works only. While understandable from a resources point of view the danger is that if it focuses on a small number of selected works the broader picture of a community of practice will be lost.

The case of Geocities highlights the fragility of the web as an infrastructure for work. If the artwork, as artist Mark Napier suggests (Depocas et al., 2003), can be considered as an algorithm or design built on a technical support, this infrastructure can then be replaced as it ages preserving the work and its function intact. While undoubtedly true in some cases this doesn't hold universally. I suggest that artworks also depend on the artistic context of their production, can require access to non-art elements that no longer exist and can't be emulated, can be intrinsically bound to specific external material and technical conditions that once they are no longer available cause the work effectively to cease to exist.

3.0 Spook...

I want to now turn to a discussion of the preservation of a specific net art work that outlines not only the process of preservation but also the decisions that led to the work being preserved. *Spook...* was a distributed net art work originally created by this author in 1999. It existing primarily as a web site and later as a CD-ROM version designed for offline exhibition. As an online art work it garnered large audiences with over a million visits in its first year alone. It received considerable attention in the mainstream media with articles in the Guardian, The UK Independent on Sunday, The Irish Times, Spain's El Pais,

USA Today and was Netscape's "Cool Site of the Day". The project was exhibited internationally including at SIGGRAPH New Orleans, Art on the Net Tokyo, the Boston CyberArts Festival, FILE Sao Paolo and at Barcelona's Fundacio la Caixa Surveillance in Art series in 2003. It has additional art historical significance as an early and relatively rare example of Irish net art and was exhibited extensively in Ireland. Despite this the project was only preserved because of the actions of its author. Had I decided to let it expire it would be permanently lost with only a few screenshots online and in catalogs as a record of its existence.

The project had a central conceptual premise; a US military server identified as "gate1.mcbbutler.usmc.mil" was recorded to have visited my website at the time, this was identified as originating in Marine Corps Base Camp Smedley D. Butler in Okinawa Japan. The project came from an interest in surveillance practices on
the web, an important topic for artists at the time. This project predated not only Edward Snowden but also the European Parliament's 2001 report into Echelon, a precursor of the NSA PRISM operation, and a favorite topic for conspiracy theorists of the time. The project used a web bot to trace every other website this US military server had visited and constructed *Spook...* as a portal through which the user could recreate this journey through the web undertaken by an imagined Marine Corp surfer in an attempt to discern a pattern in a seemingly random pattern of surfing (see figure 1).

Figure 1. Spook… entry page viewed on a CRT monitor

Spook… consisted of a website and a series of performative actions undertaken on the web. Technically the project was quite a simple project and claimed no great innovation. It was a website constructed using standard HTML code, employing HTML framesets and pop-up navigation windows typical for that period, it also used javascript, embedded flash animations as .swf files, java applets and a php based off-the-shelf message board.

Essentially *Spook...* consisted of seven content pages supplemented by five informational and help pages. These content pages provided a contextual framework, which framed the web as seen by the imagined surfer of Camp Smedley D. Butler, through a tightly curated interface. This linked to the project's appropriated material while capturing them within the frameset of the project interface to present a seamless user experience. In effect *Spook…* constituted a re-performance of the original actions on which the project was based. This re-performance was framed as a critical inquiry into surveillance on the web, but the question arose as to how this differed from the original actions? This ambiguity was at the heart of the work raising complex questions on the culture of surfing and an emerging practice of internet surveillance just beginning to come to attention through the European Parliament's ongoing inquiry into Echelon. In hindsight this was prescient stuff indeed.

The project included constant surveillance of the server logs recording all visitors to the site, to identify all new .mil domains. The domain of each new visit – and there were many – were in turn visited and indexed by a web bot, identified as Spook-Bot in server logs. This in return caused more visits and so on in an escalating cycle of web bot tit-for-tat performance. This aspect of the work was not visible to a site visitor, it was tracked through server logs and discussed in presentations of the project. It was however a crucial part of the project as it actively engaged the subject of the work – US military surfers – with the work itself. Even if not readily visible it mirrored online surveillance activities that were knowable only though analysis of server log data. This performative aspect of the project was difficult to document and posed significant preservation problems.

3.1 Developing a Preservation Strategy

Considering *Spook…* from a digital conservation perspective the issues it presents can be broken into four areas. The first is conveying its context as a net art project embedded in the web culture of 1999, this encompasses issues of the native look and feel and user experience and how that might be conveyed on contemporary computers with high resolution screens, fast internet connections and new browser standards. The second is the preservation of linked websites hosted on a myriad of servers subject to link rot over which the

author has no control, as these constitute over 99% of all the content this is crucial and difficult to overcome once the linked sites have been lost. The third aspect is the preservation of the authored core and structure of the website; this is relatively unproblematic requiring upgrading of code to meet new standards. The final issue is how to convey the time based web bot performances that took place over the first year of the project's existence especially since there was no record kept of these.

A final overarching issue is the question of whether the work should be preserved at all. When so much of a work's content is dependent on the network environment at the time of its creation can a preservation strategy be developed that can successfully convey the context so essential to the understanding, appreciation and critical sense of the work? Net artist Igor Stromajer made this argument forcibly in his 2011 work *Expunction* when he deleted 37 of his early net art works claiming that "all initial net art works lost their «natural environment», because the Internet 1.0 has already gone. It is impossible to preserve the net art works in their original form" (Stromajer, 2011)

My initial view on *Spook…* was that this was an ephemeral work, a temporary intervention into the fabric of the web that would be of its time and would slowly erode and fade away. In its early stages I documented the work with a series of screen captures that conveyed the physical look of the site with a selection of the pages that were linked to from within the *Spook…* framesets (see figure 2).

Figure 2. Spook… screen capture, Guerilla Solar

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This idea changed with a demand to produce an offline version for exhibition venues that couldn't guarantee an internet connection, a not uncommon demand for exhibitions in the 2000-2002 period. As I considered this request and how it might be achieved new aspects of the work were revealed. Not only did it work as a conceptual project about surveillance it also seemed to map out a thematically connected network of interconnected sites that spoke to the culture of surfing the web. It effectively mapped out networks of interest that formed around the activity of thematic surfing with nodes of web urls and edges of thematic and conceptual connections. This aspect so central to networked culture 1.0 was even at this point changing, if only to preserve an example of this activity *Spook…* in its widest sense, including external linked sites, seemed worth preserving. How this might be achieved was not so clear.

In building a preservation strategy for *Spook...* its context as a net art work from this period of time was essential in order for any successful preservation strategy to convey an authentic sense of the work. This included the materiality of the equipment used, typically desktop computers, CRT displays with screen resolutions of 1024 x 768 pixels or more typically 800 x 600, connected to the internet by dial-up modems. The affordances of the Netscape and Internet Explorer browsers, with their default behaviors such as permitting pop up windows, also set the scene as effectively as a white cube gallery does for contemporary art. Context also extends to the idealism of web 1.0 culture that still retained utopian hopes of, for example, the democratic potential of the digital public sphere though even at this time the writing was on the wall with mounting concern over surveillance through ECHELON. There is doubt whether this context, so crucial in the development of this work and in its reception can ever be fully understood today by anyone who had never experienced it. Any preservation strategy must decide to what degree the work depends on this context.

3.2 Network as Site

I invoke the notion of site specificity to consider the broad context of early period net art. Site specificity refers broadly to "practices which, in one way or another, articulate exchanges between the work of art and the places in which its meanings are defined" (Kaye, 2000, p1). It is an evolving concept that ranges from a determinist relationship between site and artwork, espoused by artists such as Richard Serra, that holds that a sculptural work has such a specific relationship to its site that it is effectively destroyed once removed (Deutsche, 1998: p257), to socially engaged practices that seek to bring art out of the gallery to "integrate art more directly into the realm of the social" (Kwon, 2002 :p.1). Thinking about networked art as site specific is not new (Berry, 2001; Glesner, 2003; Paul, 2003, Thomson-Jones, 2016) with a broad sweep of

interpretations from consideration of the sites of telematic performances such as *Hole in Space* (Galloway and Rabinowitz, 1980) and the *Plissure du Texte* (Ascott, 1983) to physically located (locative media) networked art that offers critical readings of site enabled through the network (McGarrigle, 2013). I suggest that site-specificity can act as a useful method of considering networked artworks – both in a historical net art context but also for future works where complex relationships with cloud storage, crowd-sourcing and specific algorithmic and software processes may lie at the heart of the work. With the growing interest in the materiality of the network and evolving notions of the stack of planetary computing (Bratton, 2015) site has the potential to encompass elements of the work beyond a narrow definition of the parameters of the artwork.

Spook… in this sense was a site specific work situated at the center of a conceptual network with 99% of its content consisting of appropriated web pages directly linked and enframed within the project's structure, the internet as ready-made as it were. As with site specificity in the expanded field we can consider some net art works to be so dependent on its relationship with site that the work effectively ceases to exist once this connection has been broken. Rafaël Rozendaal's website works, Etoy.com, Hell.com, many Yes Men projects, Igor Stromajer's deleted works and this author's Irishmuseumofmodernart.com site hijack being examples of works that cease to function once they are removed from their URL. With *Spook...* the site was the rich network of interconnected websites linked initially by the fact that they had been visited from one specific server but at a higher level through a multiplicity of layered thematic links and associations. In order to preserve the project in any meaningful way it was obvious that these multi-layered associations would also need to be preserved in any conservation effort.

I extend this reading of site to include the social and artistic exchange that formed around net art works. This includes debates on listservs such as Rhizome Raw, 7-11 and Nettime. It also includes net art projects that are no longer available by artists no longer active. The problem with histories of net art are that they show the highlights but fail to convey the ephemerality of the movement. We don't read about the artists who moved on, the works that inspired and influenced but can no longer be seen. However, these too constitute the site and their absence hampers a complete understanding of net art as an engaged critical art movement rather than a historical one. A culture of self-preservation amongst artists, facilitated and supported by institutions would go some way to address this lack. Digital preservation initiatives should, I suggest, go beyond the master works paradigm by adopting an economy of plenty through capturing a larger section of the ecosystem that works deemed

to have historical significant came from. This will thus permit multiple readings of the historical record and provide the raw material for future re-evaluations should they become necessary.

3.2 Saving Spook...

The first step in preserving *Spook…* was the most urgent. Even after less than a year links had started to erode and the prospect was that critical parts of the project would soon be lost. This involved creating an offline version of the site that went beyond the core project to include external links to as great a depth as possible. This required making complete copies of the file structures of not only the core site but all the externally linked sites and the sites linked from them to three levels of depth. This necessitated saving all HTML files, images, scripts and other media and completely replicating the website structure so it could be viewed offline. This was achieved through the use of a downloading script that followed links, downloaded all files, images and scripts reconstructing the entire structure of the linked pages from the project's core framesets and rewriting links as necessary. In effect it created a snapshot of the project's "site" encompassing both pages that were directly implicated in the project but also extending beyond the confines of the project.

Spook… encouraged a free-form practice of surfing, to replicate the experience the archive had to be kept as open as possible. My intent was that the viewer would be free to surf while remaining trapped in the confines of the project's frameset potentially making the entire web part of the "artwork". The work of the project was to provide an initial point of entry or mode of approach that would shape this experience of surfing the web, thus making available an alternate way of seeing. With *Spook...* it turned out to be a wonderfully convoluted web of conspiracy theory at the highest level, from thought-stealing military mind-rays to black choppers menacing citizens outside Huntsville Texas (See Figure 3).
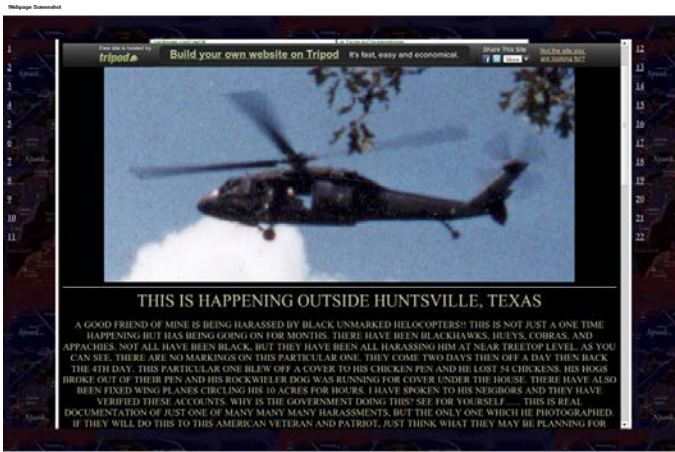
Figure 3. Spook… screen capture, black choppers outside Huntsville Texas

To replicate this experience, it was necessary to provide as deep a level as possible, but this needed to adhere to practical limits such as how much data could fit on a CD-ROM and the limited resources available to download a sizable chunk of the web which exponentially grew with each additional degree of depth requested. In the end the project saved 22,138 files or 415.3 MB (see figure 4), in 1999 terms very substantial. This replicated the structure of the external servers even to the point of including the banner ads. Most of the externally linked pages were hosted at free services like Tripod which included intrusive banner ads, removing them would have altered the experience, even when that experience was a negative one.

3.3 From Offline to Online

This saved version constituted the offline version which was used as a fallback for exhibitions were networked connection was not assured. Once the viewer reached the end of the saved material the disk would seamlessly connect to the network if it was available or display an error message. This version was problematic as it presenting a networked artwork in an offline state, however it was a necessary pragmatic compromise to be used only when there was no alternative, with the number of copies of the disk strictly controlled and accounted for. This archive became the preserved snapshot later used to conserve the work. Within two years of this action approximately 50% of the content was no longer available even at alternate URLs. This statistic is a sobering one, for no preservation strategy no matter how effective can deal with the speed this project began to erode. This highlights the necessity of artists working with networked media being the first line of preservation in

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order to maintain functioning projects that can be the subjects of broader preservation initiatives at a later date. As the links from *Spook…* began to erode in a significant way the project hit a crisis point. Either it could be left continue to rot until there was little or no content left, this would involve a shift to a documentation mode of the original project detailing its trajectory and gradual demise. This was an approach I took with a later work *The Bono Probability Positioning System*[6] (2006) which ceased to exist when Dublin City Council closed access to the live traffic cameras underpinning the project. There was no clear path to upgrade or remaking the project as it was a parasitic project that built on a hidden infrastructure of cameras that were accessed via a back-door in the city website. I deemed it to be an ephemeral interventionist project that was dependent on a specific set of circumstances that no longer existed, as such the work itself ceased to exist.
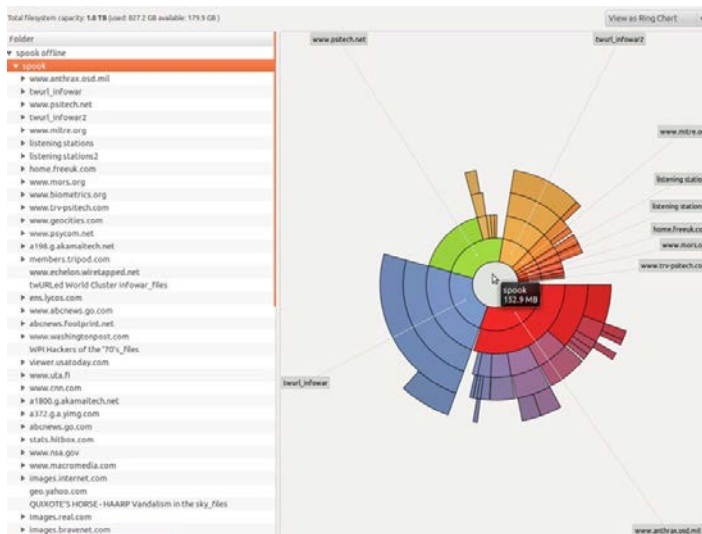

Figure 4. Visualization of the file structure of one portion of the saved Spook… site

With *Spook…* I took the decision to begin to gradually replace significant links as they began to fail. This involved firstly updating URLs if the content simply moved. This presented no problems as networked art is always dynamic and subject to change. The second option was to replace websites that ceased to exist with archived copies hosted on the *Spook…* server recreating that portion of the web even after it ceased to exist online (see figure 4). This happened with a website central to *Spook…,* psychicspy.com, an extensive resource for all

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things conspiracy run by a former US military intelligence officer that was unexpectedly deleted. This event highlighted the advantages and drawbacks to this approach. On one hand a portion of this site as it pertained to *Spook…* was preserved and is still accessible. However, the replacement is only partial and the depth of material saved and re-hosted effectively removes the option of diving deep into its world of conspiracy as part of the *Spook...* experience.

The files downloaded are exact copies of the original files, identical in every way except in their hosted URL, links followed from each page have been adjusted to account for this in some cases. When the user reaches the end of the downloaded portion of the site she can continue to surf seamlessly by connecting to the absolute urls contained in the original HTML. Of course, these links are subject to link rot and many have moved or are otherwise unavailable. This is a compromise, rather than the project making connections to a heterogeneous collection of websites sited on multiple servers in a variety of locations for a myriad of reasons we are presented with a single body of work. On the surface it looks the same but it is a facsimile not the real thing. Ultimately this matters.

4.0 24 Hour Social and Data Art

Spook… was essentially a data-driven artwork with a database which by today's standards is quite modest. I would like to contrast the experience of preserving it with that of a contemporary project by this author that works with a database more than 200 times that of *Spook….* *24 Hour Social* is a generative multi-channel video installation work that shows a full day of videos appropriated from the Vine video sharing platform, with each video algorithmically synced to the time of its original creation (see figure 5). The project was created by scraping a full day of Vines – six second looping videos from the social media platform - shared on Twitter. The videos were accessed using the Twitter API, file locations extracted and the videos downloaded and saved. The project shows a video for every second of the day, 86,400 in total from a larger database of over 120,000, over a 24-hour period. Videos are shown alongside their accompanying metadata. For this project a decision was made to capture and store the videos locally as the volume and pattern of traffic of a live version would make exceed rate limits and cause the project to be shut down quickly. From a preservation point of view this is fortuitous as it brings all the components of the work under my control, thus simplifying the process.

The project consists of a database of over 100 GB of six-second mp4 videos. These videos are played over a 24-hour period with each video played at the exact time of its creation. When multiple videos exist for a specific time a

random selection is made, introducing variability into the playback. The project is run in Processing,[7] the open source software sketchbook and language designed for the visual arts. Processing is not essential to the project, it is simply a method of displaying the videos according to the project's logic. If Processing was to become unavailable in the future, it would be relatively simple to migrate it to another environment, the techniques it uses can be easily replicated. However, processing is a good choice as it is open source and has built up a strong user base that tends to add future-proofing. The principle area of vulnerability are the videos themselves. While mp4 videos encoded with the widely accepted H264 codec are unlikely to become obsolete in the near future, this cannot be guaranteed over an extended period of time as standards change in video. Videos can, of course, be transcoded to a new format but with over 120,000 this is quite an undertaking. Storage is another area of concern. This is ensured against through multiple backups held on separate hard drives in different locations.

Figure 5. 24 Hour Social Installation view

Even if all videos were lost the project is not about these artifacts, the work is more significantly about a day of self-expression on social media and the data it generates. As long as Vine exists I am confident it can be replicated. If Vine ceases operations, it will be replaced by a similar updated service and a new version of the project could be made that will fulfil the same function. The

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[7] See processing.org

project is reproducible using a variety of methods and this is the best strategy for its preservation beyond simple storage. In this way it is completely unlike *Spook…*, whereas *Spook…* was about a specific moment in the life of the internet that needed to be preserved exactly with all related artifacts, *24 Hour Social* addresses the creative impulse of social media which is constantly renewed in updated forms.

In my practice, building on my experience with *Spook…*, questions of preservation are part of the process of making new work. I decide early on whether a work will be preserved or not. This informs my decisions on methods and tools and documentation strategies. In thinking about preservation it is important to note that not everything should be, or needs to be, preserved.

The important factor is that these decisions are built into the process by the practitioner so that they can inform the making of the work.

5.0 Conclusion

The *Spook…* project was preserved almost by accident. If a certain set of circumstances had not required an offline version at a specific moment in time it would have been lost. While the project has been mostly preserved for posterity I argue that the work does not function as originally intended. In 1999 *Spook...* was a contemporary project, designed for the latest generation of hardware it reflected a current look and feel of the internet. Today its design is anachronistic, perhaps even nostalgic, harking back to the golden era of the web. Designed for a screen resolution of 1024 x 768 pixels it sits in the corner of today's high resolution screens. It makes liberal use of pop-up windows for navigation and content, but these are automatically and invisibly blocked by web browsers rendering this aspect invisible to many. Although still online it increasingly represents a snapshot of the 1999 internet more likely to be admired as a work belonging to a past era of the web than as a critical work of art. At one level this is a question of materiality, of screen resolution and original equipment. One approach to resolve this issue, adopted with mixed results by the Digital Revolution exhibition at London's Barbican in 2014 and the Electronic Superhighway exhibition at the Whitechapel gallery in 2016, is to show net art on original hardware from the period of the work, even throttling the internet to dialup speeds when necessary. The balance between preserving networked art authentically, so that future generations can view it as it was when it was created, and in this process highlighting its separation from today's network, and evoking a sense of nostalgia for a lost web, is a difficult one.

However, this debate can only be argued if the original work is preserved. I argue that this task in the first instance falls to the artists but needs to be supported by institutions in pre-preservation outreach programs. Recent initiatives like the Rhizome DIY Webrecorder[8] are promising for web based work but more are needed that address critical issues such as migration from obsolete file formats, secure backup file storage, and methods of recording correct and desired function of works. Of course the unexpected can still happen, for example, Apple's 2015 OSX 10.10 update blocked the viewing of any glitched images, thereby unintentionally wiping out an entire school of digital art. An unofficial workaround was quickly found and distributed in the glitch community, but it is illustrative of the risk inherent in creative misuse. As artists create work with an increased complexity, leveraging multiple platforms, methods and techniques in ways that can have unexpected and unpredictable outcomes. The precarity of the work increases with its interdependencies and necessary ceding of control over constituent parts. To counter this the preservation conversation needs to happen earlier, it needs to be built into artists' methods and supported by institutional initiatives that identify generalized methods rather than significant works. Successful preservation needs more than a selection of well chosen works but cross sections of artistic ecosystems, sites rather than individual works.

References

Berry, J. (2001) The Thematics of Site-Specific Art on the Net. (Doctoral Dissertation) University of Manchester. Manchester, UK.

Bratton, B. (2015) *The Stack*. Cambridge, MA: MIT Press.

Cirio, p. (2013) Loophole for All. (Artwork) Retrieved from https://www.paolocirio.net/work/loophole-for-all/

Depocas, A.; Ippolito, J.; Jones, C. (2003) *Permanence Through Change: The Variable Media Approach*. New York, Guggenheim Museum Publications.

Deutsche, R. (1998) *Evictions Art and Spatial Politics*. Cambridge MA: Graham Foundation/MIT Press.

European Parliament (2001) *Report on the existence of a global system for the interception of private and commercial communications (ECHELON interception system) (2001/2098(INI))*.

Fino-Radin, B. (2011) *Digital Preservation Practices And the Rhizome Artbase*. New York: Rhizome,

Glesner, J. (2003) Internet Performances as site-specific art (pp. 275-288) In Sprengard, K.A.; Gropp, P.; Ernst. C. (eds.), *Perspektiven Interdisziplinärer Medienphilosophie*. Bielefeld: Transcript Verlag.

Kaye, N., (2000) *Site-Specific Art*. London, New York: Routledge

Kwon, M. (2002) *One Place After Another*. Cambridge MA: MIT press.

McGarrigle, C. (1999) *Spook....* (artwork) Retrieved from www.stunned.org/spook

McGarrigle, C. (2013) Augmented Resistance: The Possibilities for AR and Data Driven Art. *Leonardo Electronic Almanac*, 19 (1). 106-115.

8 See http://rhizome.org/editorial/2016/aug/09/rhizome-releases-first-public-version-of-webrecorder/

Oudshoorn, N.; Pinch, T. (2003) *How Users Matter: The Co-construction of User and Technology.* Cambridge MA: MIT Press.

Paul, C. (2003) *Digital Art.* London: Thames and Hudson.

Rinehart, R. (2007). The Media Art Notation System. *Leonardo - Journal of the International Society for the Arts, Sciences and Technology,* 40(2), 181-187.

Rosenthal, S.H. (2010). Format obsolescence: assessing the threat and the defenses. *Library hi tech*, 28(2), 195-210.

Stromajer, I. (2011) *Expunction – Deleting www.intima.org Net Art Works.* Karlsruhe: ZKM.

Serexhe, B..(2013) *Preservation of Digital Art: Theory and Practice. The digital art conservation project.* Vienna: Ambra Verlag.

Thelwall, M.; Vaughan, L. (2004) A fair history of the Web? Examining country balance in the Internet Archive. *Library & information science research.* 26(2) 162-176.

Thomson-Jones, K. (2016) Art and the Information Society (pp375-386). In Floridi, L. (Ed.) *The Routledge Handbook of Philosophy of Information.* New York: Routledge.

About the author

Conor McGarrigle is an artist and researcher working at the intersection of digital networks and real space. His work is concerned with the integration of location-aware technologies into the everyday and the spatial implications of ubiquitous data collection regimes. His work has been exhibited widely internationally including the 2011 Venice Biennale, the St. Etienne Biennale, EVA International, Fundació La Caixa Barcelona, SIGGRAPH, Site Santa Fe and FILE São Paulo. He is a lecturer in Fine Art at the Dublin Institute of Technology. conor.mcgarrigle@dit.ie