

‘Virtual Monument Wars’: The digital future of difficult heritage

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This is an author’s accepted manuscript of:

Fawcus, R. (2024) ‘Virtual monument wars’: The digital future of difficult heritage. In P. R. Stone & D. W. M. Wright (Eds.) *The Future of Dark Tourism: Enlightening New Horizons* (pp. 90–102). Multilingual Matters & Channel View Publications.

The final published version is available at:

<https://www.jstor.org/stable/jj.21995531>

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Introduction

Monuments are an integral dimension of how a society remembers and how it assigns importance to both where it comes from and where it is heading. However, the way societies approach and maintain their monuments can be shown to be changing with the intersection of innovative technologies. This intersection offers both the potential for new forms of conservation, as well as appreciation, but with that also comes the potential for new modes of subversion and even, in some cases, technological hacking. The purpose of this chapter, therefore, will be to explore new developments in memorialisation within visitor economies. In doing so, the study will speculate on the future of technological memorialisation, outlining the following predictions:

- In the future, monuments will increasingly be digitised and mapped for the purposes of (dark) tourism, conservation, and as a response to the challenges of mediating ‘difficult heritage.’
- Virtual *monument maps* will prove to have military and security potential.
- Corporations and governments will therefore seek to control monument maps, leading from an explosion of different ideas and approaches, into a situation where incumbent power structures aim to legitimise and control singular virtual visions.
- In response, virtual monument maps will become targets for hackers and digital revolutionaries.

In short, this chapter proposes that in the not-too-distant future, monuments will become flash points for cyber warfare within virtual realms.

Monumental Tensions

According to historian Judith Dupre, ‘monuments are history made visible. They are the shrines that celebrate the ideals, achievements, and heroes that existed in one moment in time’ (cited in Anthony, 2021: online). Allen (1992: 10) further notes that the focus of such an object ‘seems to be upon the past, but its message is directed with hope toward future generations’. This, according to Waters and Russell (2012: 34) gives them ‘a symbolic meaning in a society that desires to remember’. However, this *desire to remember* is key – as monuments inevitably reflect two different concepts: both the explicit subject matter, but

also, they illustrate a time in a country's history when it was believed that those events deserved to be memorialised. Therefore, Percoco (1998: 48) suggests that while monuments may 'serve as tangible reminders of the past', they also 'tell us something about our particular time and place in history'. As a result, it can be seen that 'studying the reception of monuments over time can reveal a great deal about the shifts in cultural values during periods of history' (Waters & Russell, 2012: 35). The study of monuments and their reception might therefore 'reflect – and expose for study – social tensions, political realities, and cultural values' (Foote & Azaryahu, 2007: 125).

The destruction of a monument can be as powerful a symbol as the monument itself. For instance, in 2003, the toppling of the statue of Saddam Hussein in Firdos Square, Baghdad, was a deeply political event, which recent investigations have suggested to have been at least partially scripted by US military forces for the sake of providing the world's media with an iconic image (Fisher, 2011). In many cases, iconoclasm against the physical legacies of previous regimes became a performative act of political self-reinvention. In 1992, during the Croatian War for Independence, soldiers of the Croatian Army used explosives to destroy the 30-metre Monument to the Revolutionary Victory of the People of Slavonia, located at Kamenska and perceived as a symbol of the Yugoslav state from which they were seceding (Niebyl, 2016). In Afghanistan, the Taliban destroyed ancient Buddha statues that they characterised as idolatrous images (Bearak, 2001). Consequently, Deleuze and Guattari identify this form of political iconoclasm within dual processes as 'deterritorialisation' and 'reterritorialisation'. In other words, the incoming regime firstly targets and removes propaganda of the previous regime, before replacing it with signs and symbols that endorse their own rule (Deleuze & Guattari, 1983: 142).

Monuments are places where societal tensions can erupt into action. In the winter of 2013-2014, the Maidan Revolution in Ukraine began with a monument as its focal point – as protesters gathered around the Independence Monument on Maidan Nezalezhnosti, the central square of Kyiv. In Sofia, Bulgaria, the Monument to the Soviet Army has been repeatedly repainted in protest over the past decade, as a symbol of solidarity with events such as Ukraine's Maidan Revolution, or on the anniversary of Bulgaria's participation in the Warsaw Pact invasion of Czechoslovakia [now separated into the Czech Republic and Slovakia] (Fawcus, 2022). After Russia's 2022 invasion of Ukraine, tensions regarding Bulgaria's Soviet legacy heightened, and a decision was finally reached to remove the Soviet Army monument in Sofia (Day, 2022: online). Meanwhile in Riga, Latvia, the Soviet-era

Victory Monument was similarly kept under police guard after the outbreak of war in Ukraine, up until its official removal in August (LETA, 2022).

Therefore, it has been seen even in the past year (at the time of writing) how monuments can do more than just expose social tensions for study. Monuments can serve also as pressure points to deeper unresolved societal and political tensions. As such they have the potential to become (re)invigorated as flash points for protest or conflict once those underlying tensions eventually erupt in physical action.

The Rise of Virtual Tourism

In recent years, evolving technology in the fields of 3D cameras, photogrammetry, Virtual Reality (VR) and Augmented Reality (AR) have begun to make a significant mark on the global tourism landscape. Development and application of this technology was further accelerated by the global COVID-19 pandemic beginning in 2020, when many tourists were forced to abandon their travel plans, and virtual alternatives to physical travel presented an appealing substitute. Hintz (2020) lists 10 destinations that can already be explored virtually, without leaving one's home, including the Pitt Rivers Museum in Oxford, United Kingdom; Angkor Wat in Cambodia; the Zeppelin Museum in Friedrichshafen, Germany; and Japan's 'Cat Island'. Additionally, some darker destinations, such as the Paris Catacombs and the abandoned city of Pripyat in the Chernobyl Exclusion Zone, can be explored on a computer screen, using either Google Maps or official virtual tours offered by site managers. When COVID-19 caused the cancellation of plans for the 2020 Solstice celebration at Stonehenge, English Heritage instead proposed a virtual alternative via an online livestream (Morris, 2020). This supplemented a project they began in 1995 to create a detailed VR model of the site, based upon a comprehensive photogrammetric survey of the monument and incorporating accurate star charts and a virtual sunrise (Burton, Hitchen & Bryan, 1999).

Moreover, the use of dedicated VR hardware for immersive virtual travel experiences saw a significant rise during the COVID-19 global pandemic. Debusmann (2020: online) reported that '[in] the absence of travellers, tourism boards, hotels and destinations have turned to virtual reality', as this technology 'can offer a try-before-you-buy experience which will give people a taste for travel again leading to more holidays being booked' (Rogers, 2020: online). As a result, the 'pandemic could provide watershed moment for technology, potentially

leading to more sustainable tourism’ (Davies, 2021: online). For tourists visiting a destination in person, VR and AR technology can additionally allow for deeper and more meaningful engagement with physical exhibits. For example, beginning in 2016, the Salvador Dalí Museum in St. Petersburg, Florida, began offering VR experiences that allowed visitors to ‘step into [...] Dalí’s mind’ by immersing themselves within three-dimensional virtual reconstructions of famous paintings (The Dalí, n.d.).

In 2016, the Polish development studio The Farm 51 released *Chernobyl VR Project*, an interactive virtual tour of Pripjat and surrounding areas within the Chernobyl Exclusion Zone. Consumers who owned a compatible VR headset were then able to purchase and download the software, to experience this immersive tour in their own homes. The *Chernobyl VR Project* was created by ‘physically visiting all of these locations, shooting up to 2000 photos per room, and combining photogrammetry with 3D graphics to construct a pixel perfect recreation of the affected areas’, producing a result that was an ‘interesting blend of gaming, educational software, and documentary filmmaking’, which served to provide a respectful, educational, and immersive interactive product which might prove to be ‘the history book of the future’ (Evangelho, 2016: online). The following year, VR technology was similarly used in the creation of a virtual educational experience based on the history of the Berlin Wall. In 1993, the Newseum – a US-based interactive museum also offering travelling exhibits and, later, online experiences – acquired eight pieces of the former Berlin Wall. In 2017, they launched their *Berlin Wall VR* experience which allowed users to ‘experience the divided city from the perspectives of suppressed Germans and the East German and Soviet guards’ (Museum Revolution, n.d.). Visitors to Newseum’s Berlin Wall Gallery would be invited to don a VR headset and headphones, and then:

...walk through the streets of East Berlin and see the communist propaganda posters. With room-scale VR, visitors can walk within a 10-by-10-foot space and experience the anxiety of dodging the guard tower searchlights looking to spot wall jumpers. On the West Berlin side of the wall, visitors can use their controllers to help break down the iconic barrier to freedom (Georgieva, 2017: online).

During its first opening months, around 125 visitors per day were trying the *Berlin Wall VR* experience, which had a duration of approximately seven minutes (Feingold, 2017: online).

Mukul Agarwal, a member of the development team, said: ‘it is important for people to experience how terrifying it was to be in Berlin in the ’80s and what people living there were feeling at the time’; speaking about the technology more broadly, another commenter noted: ‘having a VR component helps people really experience important points in history’ (Feingold, 2017: online). Specifically, the technology has been said to show potential for a more personal and pluralistic way of teaching about difficult history, with the hope of this leading to healthy conversations about the past:

Projects like the Berlin Wall VR experience can become the beginning of conversations that can trigger transformation over time. VR stories will become more multifaceted and not only illustrate journeys but also allow a space for different personal narratives to emerge. We will no longer be mere visitors but involved participants (Georgieva, 2017: online).

Digital Conservation

The same technology also shows immense potential in the field of conservation. In April 2020, forest fires caused extensive damage in the Chernobyl Exclusion Zone, and several sites that had been shown to have significant tourism and heritage value were destroyed. Some of those lost landscapes may now only be visited within the virtual versions reproduced by the *Chernobyl VR Project* (or in the related game, *Chernobylite* (2019), which introduces playable combat elements inside similarly detailed recreations of the Chernobyl Zone). Elsewhere, since 2020, the Dutch creative studio DRIFT has been using drones that follow virtual 3D maps to ‘restore’ ruined monuments and buildings – such as the Colosseum in Rome – using light displays in the night sky (En Vols, 2022). Meanwhile in Iraq, where recent conflicts have caused untold damage to urban sites, drones and VR technology have been similarly deployed in a process where ‘3D models both document what happened on the ground and form blueprints for reconstruction’ (Cuthbert, 2022: online).

New technological solutions have shown utility not only in the case of destroyed monuments, but also, for those monuments whose messages have become controversial over the years. The concept of ‘counter-monuments’ was popularised in Germany, as artists began to produce new works of sculpture and memorialisation in the second half of the 20th century, to counter the messages presented by older, now-problematic monuments (Franck & Stevens,

2015). The idea is that the new monument ‘critiques the purpose and the design of a specific, existing monument, in an explicit, contrary and proximate pairing’ (Stevens, Franck & Fazakerley, 2012: 719). As such, the approach often seeks to present historical narratives as contextualised conversations rather than singular perspectives. In short, a pluralist approach to history. Indeed, in one case in Bolzano, Italy, a creative solution was deployed to defuse tensions around a fascist monument that still stands in the town centre. The monumental frieze depicts Mussolini on horseback, accompanied by the fascist slogan “Credere, Obbedire, Combattere” (*Believe, Obey, Fight*) and even until recently, the town council was torn between calls to destroy the monument, or to preserve it as a historical artefact (Invernizzi-Accetti, 2017: online). The solution, unveiled in November 2017, was to superimpose an LED display over the surface of the monument featuring a quote from the German-Jewish philosopher Hannah Arendt – *Nobody has the right to obey*. Consequently, the original message was subverted without resorting to the destruction of a (controversial) work of sculptural art (Invernizzi-Accetti, 2017).

However, development of innovative technology allows for more advanced approaches to countering or re-contextualising problematic monuments. This offers potential in post-communist countries, where ‘there is a struggle to define historical memory through the dedication of new monuments and removal of old ones’ (Mamedov, 2016: online). In the decades since the fall of Europe’s 20th century communist regimes, several formerly communist countries have passed ‘decommunisation’ laws. For instance, Estonia banned the public display of communist symbols in 2007, Lithuania followed in 2008, and Latvia in 2014. A law passed in Poland in 2009 outlawing fascist, communist or other totalitarian symbols was updated in 2017 to also include Soviet propaganda monuments (British Broadcasting Corporation [BBC], 2017). In Bulgaria, a law highlighting the ‘Criminal Nature of the Communist Regime’ was voted into effect on 24 November 2016, effectively banning the public display of communist symbols (Morton, 2016). The author’s own PhD research in Bulgaria involved developing a model for the virtual conservation of the Buzludzha Memorial House, a site of contested and difficult communist heritage, but in which a virtually constructed visitor experience was shown to offer a potentially viable solution. In turn, educational and historical tourism experiences might therefore be provided while keeping in line with Bulgaria’s decommunisation laws (Fawcus, 2022).

In summary, it can be said that virtual monuments offer the following benefits:

- A virtual experience can show a place or an artefact as it appeared in a previous condition (for example, before decay or vandalism have taken place).
- It can recreate a specific time in history (for example, by illustrating the artefact's historic context, or a historic mode of use).
- A virtual experience can be structured, written, and directed in a way that educates, avoids insensitivity, and it can highlight whatever perspective (or pluralist perspectives) its creators choose.
- Such an experience can also potentially be offered remotely, increasing the reach of the exhibit, while helping to minimise the negative effects of increased traffic to the site.
- Furthermore, a virtual exhibit can achieve all these things without changing the physical artefact itself.

VR is still an emergent field. The technology for creating virtual environments, and for experiencing them, are undergoing rapid advancement year-on-year. Meanwhile, the hardware remains quite expensive from a consumer perspective, posing a certain barrier for entry. In the case of a museum or other visitor attraction though, which provides its own hardware for tourists to use, it is already feasible to employ VR in creating novel and immersive visitor experiences. Furthermore, such technologies do inevitably become cheaper, more widespread, and thus more accessible for consumers over time. Therefore, this chapter proposes that VR and AR technology have exciting potential for remote tourism, for memorial conservation, and particularly for navigating the issues of monuments that could be considered as 'difficult heritage.' However, this study also predicts that as these technologies become more widespread, there will inevitably emerge a new struggle to control the narrative of virtual worlds.

Conflict Simulations

The same virtual and augmented reality systems that show so much potential for memorial conservation have also increasingly found their uses in the military and defence industries. A decade ago, this may have taken the form of a cost-effective shooting simulator which allowed weapons training to be conducted virtually; for example, using lasers, thus minimising ammunition costs, as well as reducing related safety and environmental issues of live-ammunition training (Soetedjo, Nurcahyo & Nakhoda, 2011). However, these training

simulations have seen rapid development in recent years, ‘with simulators evolving from basic shooting systems into more immersive situations’ (de Armas, Tori & Netto, 2020: 3495). With law enforcement training, recent research has shown that ‘realistic VR-based trainings, either by themselves or in combination with the traditional hands-on training, can be as effective as highly resource-intensive practical training sessions’ (Saunders *et al.*, 2019: 1908). Meanwhile, in the nuclear industry, the use of VR simulations has shown potential for developing security strategies, allowing site personnel to train for hostile situations within virtual versions of high-security facilities (da Silva *et al.*, 2015). This becomes even more useful in the case of hypothetical nuclear accidents, whereby VR allows for crisis training without actual exposure to potentially harmful environments (Caracena *et al.*, 2017).

In March 2022, the Russian army began retreating from the positions they had established within the Chernobyl Exclusion Zone in Ukraine as part of their invasion launched earlier that year (Kamenev, 2022). A story spread that within the abandoned Russian encampments were found maps of the region dating from 1984 – *before the Chernobyl disaster* – suggesting a grave lack of preparation for the contemporary terrain and its various irradiated ‘hotspots’ (from personal communication with the author’s Chernobyl tour guide colleagues). Elsewhere in the country, reports confirmed that ‘Russian commanders invaded Ukraine, guided by maps from the last century’ (S.B.U., 2022). How much more effective those Russian invasion forces might have been then, if only they had spent some time training with the geographically accurate, playable educational software of the *Chernobyl VR Project*. The 1983 film *War Games* explored the thin line between virtual games and technological warfare: it appears now, 40 years later, technology has caught up with the film’s predictions. The US Army has even produced its own video games – the *America’s Army* series, which debuted in 2002 – which were used as combat training simulators, as well as for screening and recruiting new soldiers from the public player base (Morris, 2022).

This study has shown how heritage and tourism experiences are increasingly adopting the same types of virtual technologies that have been previously used in video games: technologies which also have application in military training simulators, recruitment tools, or even as pre-programmable drone flight maps. Therefore, it is inevitable that these three fields – gaming, heritage, and security – will continue to converge in future through their increasing shared use of the same virtual technologies.

Heritage Hacking

In December 2019, more than 3 million players attended a live event promoting the latest *Star Wars* film, which was hosted virtually in the Massively Multiplayer Online (MMO) 2017 game *Fortnite* (Coulson, 2019). This was an unprecedented public relations move for Disney, who own the film franchise, and it succeeded by repackaging an advertisement as an interactive playable event. For consumers, virtual worlds are beginning to present an appealing alternative to real-world travel and tourism; however, the full potential of this technology is yet to be realised. For instance, some musicians are already giving virtual performances, and at some point, newscasters, politicians, and other public figures more used to working with traditional PR approaches will realise that they too can target their audiences inside virtual worlds. To that end, future virtual events might take the form of virtual warzone reporting, immersive crisis coverage, interactive historical tours, or virtual political rallies in front of national monuments, and even at those which no longer exist. Such events could be attended, potentially, by far more people than could fit into the same venues in real life.

Virtual heritage experiences currently see nowhere near the level of engagement that virtual games enjoy. However, this is set to change in time. Consider this: the MMO game *Fortnite* reported 400 million active players in 2021 (Garton, 2022). These players are very often young people who have grown up with the reality of socialising in shared virtual worlds. As this younger generation grows into adulthood, the idea of also consuming touristic and heritage experiences in virtual space will be very much normalised. As a result, it is likely that specific virtual places, such as virtual monuments, will begin to embody the same kind of symbolic power and spatial significance that their real-world counterparts already have. Virtual monuments will not be considered a novelty facsimile, but rather they too will begin to ‘reflect – and expose for study – social tensions, political realities, and cultural values’ (Foote & Azaryahu, 2007: 125). There will even be monuments that exist solely in these virtual worlds.

That said, however, a key difference with these virtual monuments is that they will not always be owned by the state. Monuments (in the real world) are inherently political objects, and as already noted, even the choice of which events do or do not deserve memorialisation is an exercise in ideology. Conversely, the (currently, largely) democratic nature of virtual realms allows a greater freedom for critiquing, challenging, or countering the message of monuments – even those which the respective states would rather not discuss. As a case in

point, Bulgaria does not list or promote the Buzludzha Memorial House – a controversial site of communist heritage – amongst its national tourism destinations. Nevertheless, this ruined monument has become a focus of global attention through the online sharing of images, and by 2018, an estimated 26,000 people were visiting the site each year. About half of these people were foreigners and of those, approximately 3,500 annual visitors had travelled to Bulgaria for the primary purpose of seeing this monument (Fawcus, 2022). Therefore, the shift from state-offered and state-controlled tourism activities to a virtual world filled with user-created content is likely to mark a fundamental shift in the prominence and accessibility of comparable sites of ‘dissonant’, ‘difficult’, or ‘unwanted’ heritage.

With contested heritage in mind, the political-artistic project NUMENT (with which the author has had some involvement) reflects a similar principle (Nument, 2022). Billing itself as an open-source mapping project for recording and publicising civil unrest, the NUMENT project guides users in placing their own digital monument (a so-called *nument*) as user-created content on Google Maps. Specifically, these are in places where historic events such as protests or uprisings have gone un-memorialised by the respective state. The project explains:

In the process of democratising the memory of these events, NUMENT challenges traditional top-down approaches to public memory, and asks: Who has the right to make a monument? (Nument, 2022: online)

The NUMENT project is just a hint of what is to come, as both the production of virtual ‘memoryscapes’ (Kennedy, 2013), and the performance of virtual counteractions are inevitably set to escalate in step with developing technology. Indeed, just as controversial monuments or sites of difficult heritage in the real world are targets for acts of protest, demonstration, or other forms of subversion, when virtual versions of such sites become more available, more visited, and more widely accepted as ‘authentic’ heritage expressions. These will themselves then become targets for new forms of political action by hackers and cyber-revolutionaries. Importantly, it should not be assumed that virtual worlds will forever remain as democratic as they are today, as there are already indications of an encroaching power struggle for hegemonic control over virtual social spaces.

The Battle for the Metaverse

At present, the virtual realm is something of the Wild West of yesteryear, which encompassed the geography, history, folklore, culture, and associated lawlessness of the America expansion in the 1800s. Thousands of different (and often unregulated) virtual spaces have been created, and explored by millions of global users, from social platforms such as *Second Life* (2003), to massive online games like *World of Warcraft* (2004), *Roblox* (2006), or the world's all-time best-selling game, *Minecraft* (2011). Many such games welcome user-crafted content. For example, *Minecraft*'s world now features dozens of iterations of each of the real world's most famous monuments, and at least three versions of the Buzludzha Memorial House in Bulgaria (Fawcus, 2022). The result of this has been the evolution of oddly democratic, if uneven, virtual social playgrounds. However, there are also dangers to working with unmoderated user-submitted content. The AR world of *Pokémon Go* (2016), for instance, gathered its in-game locations from a database submitted by players of the developer Niantic's previous game (*Ingress*, released in 2012). By uncritically incorporating these maps, the new game made several missteps, including by inviting its users to engage in play at sites such as the United States Holocaust Memorial Museum in Washington D.C. (Peterson, 2016), and at the Holodomor Genocide Museum and Monument in Kyiv, Ukraine. The latter eventually put up a sign asking visitors to please refrain from catching virtual monsters during their visit (Richter, 2016).

Currently, these various virtual worlds exist entirely unconnected to one another. Each is separate and distinct, and in terms of authority, most belong to their respective game development companies and are governed according to that company's own in-game laws. However, it is expected that virtual worlds will play a greater role in people's lives in the future – the CEO of tech company NVIDIA predicts that future virtual worlds 'will be photorealistic, obey the laws of physics and be inhabited by human avatars and AI beings' (cited in S.M.U., 2022). Consequently, some companies already anticipate such an outcome and are making serious efforts to stake pre-emptive control over future virtual spaces. For example, Facebook began making overtures into the world of social VR first in 2014, with its purchase of the VR company Oculus for \$2 billion (Solomon, 2014), and later, when its rebranded parent company, Meta, launched its own virtual social platform: *Horizon Worlds* (2021). Over the following 12 months a reported figure of almost \$2 billion was spent on

virtual real estate, in what was described as a *metaverse land grab* (Tidy, 2022). For some years now critics have been warning that ‘the end of a free and open web is imminent’, because ‘Facebook and Google now have direct influence over nearly three quarters of all internet traffic’ (Cuthbertson, 2017: online). Even the act of renaming the Facebook company to ‘Meta’ implies that this organisation intends to secure similar influence within emerging virtual worlds, to the extent of being perceived as synonymous with the very notion of a metaverse (in the same way that Google has with web searches).

In the future, virtual heritage experiences will not exist as standalone experiences offered solely by site managers and accessed discretely through their own websites or software. Rather, companies such as Meta (and others, including those yet to venture into this field), will seek to provide the entire operating frameworks within which countless virtual excursions might be situated and made possible. As companies, rather than governments, begin to dictate the creation of these virtual heritage maps, the selection of sites on offer will increasingly answer to audience demand, rather than to any sense of national ideology or regional pride. As a result, sites of dark tourism, of difficult or contested heritage, taboo monuments, former conflict points and battlefields, even sites not typically offered for touristic consumption in the real world, will inevitably be offered as virtual travel experiences so long as there is a market demand. Within such a framework, ideology will bow to capital. As Mark Fisher (2009: 4) states, ‘capitalism subsumes and consumes all of previous history: one effect of its “system of equivalence” which can assign all cultural objects, whether they are religious iconography, pornography, or Das Kapital, a monetary value’.

Virtual maps of real monuments, visited remotely by thousands of users around the world, will also prove to have tremendous value in a world increasingly infatuated with *Big Data* (Mayer-Schönberger & Cukier, 2014). Maps of human behaviour are powerful. In 2022, Amazon purchased iRobot, the company which creates the Roomba intelligent vacuum cleaners. Subsequently, the director of the non-profit digital-rights-advocacy organisation Fight for the Future commented, ‘acquiring a company that’s essentially built on mapping the inside of people’s homes seems like a natural extension of the surveillance reach that Amazon already has’ (Tangalakis-Lippert, 2022: online). Such data provides an incredible tool for marketers, but it also has security potential (and perils). Indeed, the company Ring, who produce home surveillance systems and CCTV cameras, in 2022 confirmed that on multiple occasions it had shared footage from customers’ homes with law enforcement, without having a warrant to do so (Tangalakis-Lippert, 2022). Therefore, future virtual maps of

monuments, as places of ‘exposed tensions’ and ‘history made visible,’ will become focal points for new conflicts and will prove fertile grounds for collecting data in relation to visitor patterns, behaviours, and demographics, particularly from a security and law enforcement perspective. Whoever owns these maps – that is, whichever company wins the race to be seen as the legitimate hosts of the Metaverse – will profit enormously from ensuing data collection. We have grown accustomed to an era in which access to online maps, and the power to create new maps has largely been democratised. Yet, the advent of innovative technology and the migration to new (virtual) social platforms offers new opportunities to exert control.

A final prediction for the future is that eventually these virtual worlds will begin to build themselves. Companies such as Meta and Google already own a vast amount of location information, in the form of photographs and geotags uploaded to their websites by users. Just in the last few years we have seen striking advancements in the field of AI-generated art, and at some point, we may see an AI system capable of reading spatial information from photographs. At that point, Meta could take its millions of user-submitted photographs of any one location, viewed from every conceivable angle, and from these have an AI generate a fully detailed and explorable 3D model. Naturally, the military application of such technology would be astounding – AI systems that are able to generate realistic combat simulations based on reconnaissance photography – and whichever company first secures a patent to these tools is going to become difficult to compete with thereafter. More generally, however, once AI-powered virtual worlds are effectively able to build and expand themselves, we are liable to eventually reach a day when the real world starts to feel quite small in comparison.

Conclusion

This chapter set out to explore what the future of digital difficult heritage might look like, with a particular focus on the role that representations of monuments and memorial spaces are set to play in the virtual worlds of our future. The study argued that the fields of heritage, gaming, and security already show a great deal of overlap in their application of similar virtual technologies. As a case in point, the same innovative software solution that might be applied to preserve an interactive record of an endangered heritage site, might also (with the addition of weapons, and antagonists) quite easily form the basis of an immersive 3D

shooting game; or indeed, a weapons-training simulation for military, security, or law enforcement personnel.

This chapter also examined the popularity of MMO games, played by millions worldwide and, consequently, posited that a generation who grew up with the normalisation of such virtual social experiences will also in future find it normal to consume virtual and remote versions of heritage, tourism, or museum experiences. However, it was shown that various corporations are presently engaged in a battle for control and dominance within emergent collective virtual worlds – what has been called the ‘metaverse.’ To that end, the chapter suggested that whichever companies should emerge as the victors will profit enormously from the resultant ‘big data’ associated with studying the behaviour of millions of virtual visitors at sites of digitised culture and heritage.

Moreover, the chapter predicted a shift in hegemonic and ideological control over memorial spaces, as perceived significance and visitor focus moves from traditional and state-owned physical memorial tourism to a model where increasing numbers of visitors derive similar experiences at corporate-owned virtual versions instead. Places that might once have been considered taboo, or ‘difficult’ heritage within the gaze of political hegemonies, under a corporate model might instead be managed un-ideologically and purely according to market demand. Though inevitably, such a model would attract criticism – and to this end, the chapter foretold the emergence of digital hackers, and cyber-revolutionaries, active at virtual sites of digitised difficult heritage.

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