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Ghosts of solid air: contested heritage and augmented reality in public space

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ABSTRACT

This article critically reflects on the design and development of a new Augmented Reality (AR) experience addressing issues of contested heritage in the historic built environment. The experience – *Ghosts of Solid Air* – is a 45-minute interactive theatrical narrative for mobile phones that tells a critical story about the legacies of colonialism and histories of protest and disobedience that have shaped contemporary Britain. Audiences follow the story from Trafalgar Square to Parliament Square in central London, encountering varied contested monuments and activist figures from the past along the route. This article describes the main elements of the experience before tracing the evolution of the project and its relationship to shifting debates on contested heritage in the UK since 2020. We conclude with reflections on the challenges and opportunities of AR when it comes to opening up new modes of heritage engagement, paying particular attention to questions of justice and participation that transcend issues of representation, recognition, and reinterpretation.

Introduction

> Following the ghosts is about making a contact that changes you and refashions the social relations in which you are located. It is about putting life back in where only a vague memory or a bare trace was visible to those who bothered to look. It is sometimes about writing ghost stories, stories that not only repair representational mistakes, but also strive to understand the conditions under which a memory was produced in the first place, toward a countermemory, for the future. (Gordon 2008, 22)

> . . . the problem is not one of dealing with spirits from another world; rather, it's a matter of being sensitive to modernity's phantoms – that is, the disturbances and lingering presences, or presences of absence in the orders of visual appearance, through which current social formations manifest the symptomatic traces and uncanny signs of modernity's history of violence and exclusions. (Demos 2013, 13)

Spectral figurations have long played an important – though under-acknowledged – role in heritage discourse and practice. Think of the 'ghost tours' designed to explore hidden and maligned urban environments, or the prevalence of haunted heritage motifs in the interpretation of historic houses, archaeological sites, and sometimes even whole cities (Hanks 2015). As an absent presence, the very idea of the ghost expresses and – somewhat paradoxically – *embodies* the impossibility of ever returning to the past, even and especially when that past is manifest in other ways (in built heritage, for example, or museum objects). As the protagonist in Howard Jacobson's dystopian novel *J* declares, 'Ghosts? Of course there were ghosts. What was culture but ghosts? What was memory?

What was self?' (Jacobson 2014, 148). Typically, however, the ghost is rarely mobilised as a critical method or tactic in heritage praxis. Unlike in contemporary art, philosophy, literature, film, or even music (see Blanco, Del, and Peeren 2013; Fisher 2014), spectres and ghosts seem too contrived, too forced, to be of analytical or conceptual value to heritage theorists and practitioners (although see Sterling 2021). Indeed, critical work in heritage studies – attentive to issues of discourse, representation, participation, inclusivity, and many other symbolic and material concerns (see Harrison 2013) – has in many ways sought to distance itself from the kind of commercialised experiences associated with the idea of 'haunted heritage'. What would it mean to centre ghosts differently in heritage narratives, perhaps with the aim of 'refashioning' social relations and creating new countermemories (Gordon 2008, 22)? How might we 'follow' ghosts in a way that does not fundamentally depoliticise 'modernity's phantoms' (Demos 2013, 13)? This article attempts to answer these questions with reference to a specific case study that reveals both the elusive power of spectres in heritage praxis and the structural conditions that define who gets to follow and refashion socio-cultural worlds.

Ghosts of Solid Air is a 45-minute interactive theatrical experience for mobile phones using Augmented Reality (AR) to tell a critical story about the legacies of colonialism and histories of protest and disobedience that have shaped contemporary Britain. Designed by specialist immersive storytellers Anagram and co-created with a group of young people of colour from London, the experience emerged over three years of collaborative research, workshops, iterative design, and prototyping. Beginning in Trafalgar Square and ending in Parliament Square, in front of the Palace of Westminster, the narrative follows a route populated by the monarchs and military heroes of the British Empire, immortalised in bronze and stone: King James II, governor of the Royal African Company; Robert Clive, Governor of Bengal; Lord Mountbatten, who oversaw the disastrous partition of India and Pakistan in 1947. In recent years such statues have become lightning rods for broader debates around colonialism, race, and inequality in Britain and beyond. While Ghosts of Solid Air acknowledges and responds to such issues, the narrative does not centre on Lords, Dukes, and Kings. Instead, the AR experience fills the spaces around these contested statues with real and imaginary characters who tell a different story, one that asks what it means to speak up to power and resist oppression. We describe the experience in more detail below, before tracing the evolution of the project and its relationship to shifting debates on contested heritage in the UK over the past four years. We conclude with critical reflections on the potential for AR to open up new modes of heritage engagement, paying particular attention to questions of justice that – following Nancy Fraser (2000) – transcend issues of representation, recognition, and reinterpretation.

While this article has been co-authored by two heritage studies academics and the creative director of the Ghosts of Solid Air experience, we want to acknowledge the broader collaborative foundations and development of the project from the outset. We have already mentioned the 'Community Co-creators' who played such an integral role in shaping the concept and narrative; we provide more details on their involvement below. The wider artistic and technical team included graphic designers, visual and 3D artists, developers, writers, and producers, while the launch of the project was supported by *We Are Parable*, a creative agency focused on Black Culture and cinema. The two academic authors of this paper acted as research partners throughout, with varying levels of responsibility for advising the team, securing funding, promoting the project, and co-developing the work. Methodologically, Ghosts of Solid Air therefore falls somewhere between Participatory Action Research and Critical Design. The project emerged through participation with affected communities and explicitly sought to empower individuals through consciousness raising and collaborative knowledge production (Cornish et al. 2023). At the same time, the final 'product' aimed to inspire debate around contested heritage and shed light on the different histories of violence encoded in the historic built environment (Dunne 1999). We consider this mixed-methodology particularly valuable as a mode of *Critical-Creative Heritage Praxis*, which foregrounds (self) critique and (radical) experimentation within heritage thinking and practice. From protests against colonial statues to stringent funding measures designed to limit artistic expression

that might question governmental policy, critical heritage debates have gone mainstream in the UK in recent years. This article offers an example of how new heritage narratives, allied with new modes of *doing* heritage work, might shift the dial of such debates beyond unhelpful rhetoric and towards meaningful social praxis.

Crucially, this approach also advances literature on the value and efficacy of AR in heritage interpretation. AR technologies have now been used for over a decade in varied heritage contexts, from overlaying digital reconstructions of ancient sites onto contemporary ruins to digital animations demonstrating the original function of museum objects (for general reviews of AR and heritage see Aliprantis and Caridakis 2019; Fanini et al. 2023). AR may be used to enhance accessibility, deepen learning experiences, showcase the need for preservation, and challenge orthodox heritage narratives. Locative media more generally has also emerged as an important tool of heritage activism and revisionist memory work. As David Rosenthal explains in a review of the *Hidden Cities* group of apps,

> Locative media can roam well beyond typical 'heritage' sites, objects and priorities, joining any number of elements of the built fabric to social and cultural histories of place, and to any number of past lives [. . .] mobile media can operate as tactics of spatial storytelling to tell stories that often go untold. (Rosenthal 2022, 22)

The account we offer here aims to both underscore this potential and reveal the structural challenges and limitations of developing AR experiences that might advance critical heritage agendas.

Ghosts of solid air: an immersive experience in public space

The Ghosts of Solid Air experience begins in Trafalgar Square in London, a space often referred to historically as 'the heart of empire' (Mace 1976). On the north of the square sits the National Gallery; looking south, the seats of government – Whitehall, Downing Street, and the Houses of Parliament; to the south-west, through the neo-classical Admiralty Arch, the Mall runs to Buckingham Palace. Around the square can be found the embassies and commissions of former colonies, most notably South Africa and Canada. And looking over all this grandeur, Vice-Admiral Horatio Nelson, hero of the empire, who died in 1805 at the battle of Trafalgar. To say that this is a storied place would be an understatement. Trafalgar Square was explicitly constructed over several years to communicate British imperial prestige and provide a backdrop for state ceremonies. And yet, as David Gilbert and Felix Driver attest, from the mid-nineteenth century onwards the Square 'became as much a site for political protest as for imperial display, a place of contested meanings' (2000, 29). Perhaps unsurprisingly, many of these protests would be directed against the British Empire itself, with anti-colonial demonstrations by, for example, the India League and India Freedom Campaign in the decade before Indian independence (see Mace 1976). Today Trafalgar Square remains a focal point for national celebrations and demonstrations, a visible reminder of the different ways in which 'imperial politics continue to haunt the landscape of central London' (Gilbert and Driver 2000, 29).

The Ghosts of Solid Air experience responds to these ongoing histories of contestation at Trafalgar Square, as well as to the tourist economy that now defines the space. Wearing headphones and standing somewhere in the Square (the exact spot is not important), participants hear two voices speaking in unison. These voices – the 'gatekeepers' of the experience – persuade the user to hold their phone up and speak into the microphone, beckoning the ghost world to make itself known. Viewing the Square through the app, a colourful mist seems to descend on the space. At first you hear the babbling voices of the ghosts, then – slowly – spectral figures become visible through the drifting fog (Figure 1). The gatekeepers invite you to wander around the Square. Through this movement, sounds from history become audible: protests and speeches, chants and songs. Eventually, one voice cuts through the noise and speaks directly to you. This voice is loosely based on the historical figure of Olaudah Equiano, who was enslaved as a child and later

Figure 1. A 'ghost' appears through the mists in Trafalgar Square.

campaigned for abolition. Equiano haunts the grandeur of Trafalgar Square, mocking its obsession with the heroes of imperial Britain. He informs you that this place contains other stories, stories of people who made life worth living; and as he speaks shadowy figures appear, filling and transforming the space.

From Trafalgar Square the experience moves to the large open space of Horse Guards Parade, another site of ritual and pageantry (Figure 2). Here, as the ghost world again appears on the phone screen, participants witness a different ritual, one honouring those who have passed from the world of the living into the world of spectres. Another voice begins to speak directly to you. This is Udham Singh, witness to the Amritsar massacre of 1919, anti-imperialist activist, and convicted murderer. Singh alerts you to the soldiers and surveillance present in this public space, and in so doing tells his own story, one of provocation, trauma, and a decision to take revenge on the man he held responsible for the massacre. Singh gave a speech at his trial in 1940 that was deemed too incendiary for the public to hear. His words – which were only made available 56 years later – are spoken again and again in the Ghosts experience, prompting participants to question their own anger and frustration, and to speak up against violence and tyranny.

One last ghost remains in Horse Guards Parade. This is Josie McGowan, the first woman to die at the hands of the police in the Irish War of Independence. She haunts the west end of Downing Street, keeping watch over the London Metropolitan Police who guard the perimeter of this famous address, guns in hand. McGowan's final words invite you to move beyond the world of the dead and take action in the world of the living.
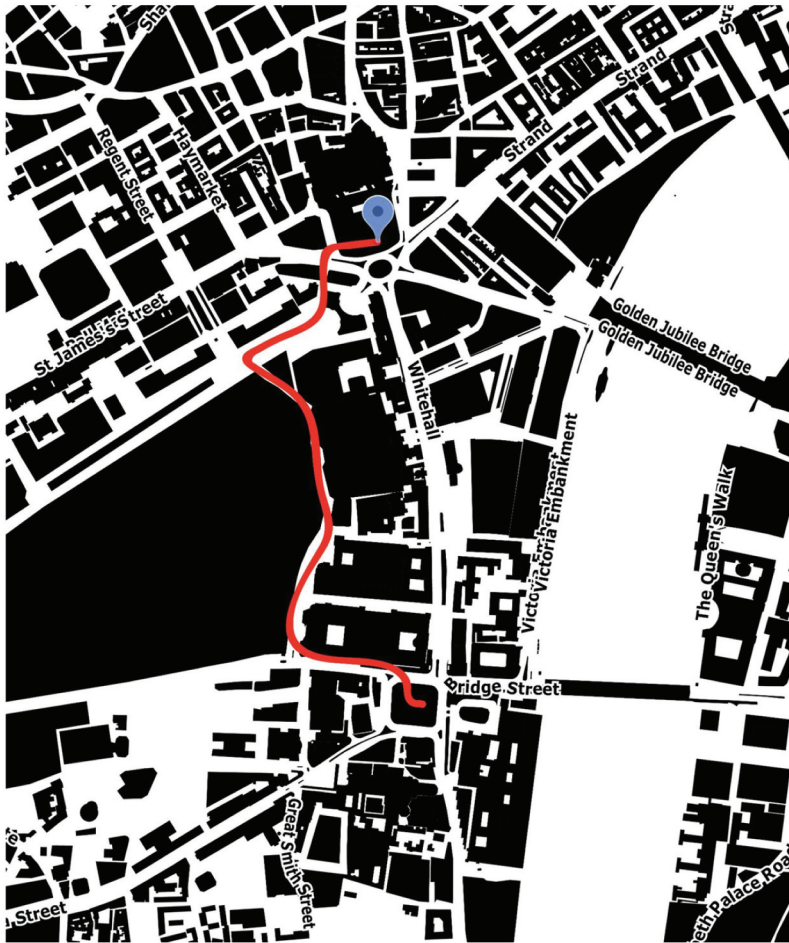
Figure 2. Map showing the route of the site-specific AR experience.

From the Parade Ground the experience continues at Parliament Square, in the shadow of Big Ben and surrounded by political statues, including Abraham Lincoln, Nelson Mandela, Winston Churchill, and Mahatma Gandhi. Here, the sonic world of the Ghosts experience shifts. Snippets of more recent personal testimonies recount moments of resistance and courage, large and small. Navern Antonio de la Kruz tells of how he became an activist after being wrongfully detained by the police. Dan Glass – a human rights activist involved with AIDS Coalition to Unleash Power (ACT UP) – speaks of campaigns for sexual freedom and queer history. Edward Daffarn is a survivor of the Grenfell Tower fire and a member of Grenfell United, a campaign group demanding justice for bereaved families and calling on the government to make homes across the UK safer and put more power in the hands of social housing residents. Finally, Andria Mordaunt – a long-time activist involved in ACT UP, Extinction Rebellion, and Just Stop Oil – describes lobbying to prevent HIV spreading among drug users and other vulnerable citizens. What felt like a ghost world trapped in history suddenly becomes a sea of voices weaving past and present calls for justice together. As the voices of contemporary activists fill the air, participants are invited to consider what stories they will tell to make their own history.

This concluding chapter exemplifies what makes the Ghosts of Solid Air experience different from more traditional heritage tours, even those that seek to reveal 'hidden' histories and deal with contested pasts (see for example Benton and Cecil 2010; Harrison 2010). Notably, Ghosts takes the

idea of contestation as a starting point rather than an outcome or motivation for the experience. The 'ghosts' make clear that historic urban environments have always been terrains of struggle, further highlighting the different ways in which these struggles go beyond the symbolic, with real material and social consequences etched into heritage spaces. Moreover, the varied stories and voices mobilised within the experience connect disparate worlds, entangling the built fabric of central London with other times and places, particularly those connected to imperial history. Here, Ghosts of Solid Air engages with and aims to further promote what Paul Gilroy (2004) terms 'conviviality', understood as the potential for indifference or openness to cultural, historical and racial difference which is afforded by the everyday experience of diversity and multicultures in contemporary urban settings such as London (see also Amin 2012). The interactive elements of the experience – especially the simple request to 'speak up' to bring the ghost world into being – also activates participants in a way that goes beyond passive listening. Finally, the narrative itself explicitly centres rather than ignores the fluidity of the present, inviting participants to look at their surroundings not as a mute trace of the past, but as a site of ongoing contestation where possible futures may be obscured or brought into view through new historical readings. In this sense the Ghosts experience unsettles and subverts statue-based narratives, which typically reduce historical complexity and colonise the future with reified images of the past. As Amitav Ghosh writes in *The Nutmeg's Curse*, struggles over statues are always 'battles over meaning, and to change the meaning of something is to change everything' (2021, 192). Below we share some user responses to the experience, showing how AR might contribute to embodied processes of heritage meaning-making, but first it is worth taking a step back to critically reflect on the collaborative approach taken to the apps production, which may ultimately be seen as more important in terms of the criticality of the work.

Developing ghosts: an experiment in critical-creative heritage praxis

While the Ghosts of Solid Air experience unfolds a critical narrative about colonial history and memory in central London, it is important to note that this story only represents one element of what we define here as *critical-creative heritage praxis*. As one of us has argued elsewhere (Sterling 2019), the 'critical' in critical heritage may refer to a number of intersecting concerns, including but not limited to: a critique of the narratives and histories on which heritage is built; a critique of the institutions, agencies, policies and agendas through which heritage operates; a critique of the exhibitions, sites, objects and interpretive schemes that mediate engagements with the past in the present; and – crucially – a critique of the 'larger issues that bear upon and extend outwards from heritage' (Winter 2013, 533). Like any heritage 'product', creating an immersive experience may surface these issues in a multitude of ways. Putting critical theory into practice in the design and development of new heritage experiences means looking beyond narrative and representation to consider the broader heritage complex, especially structural issues related to employment, working conditions, accessibility, and inclusivity. From the outset Ghosts of Solid Air sought to foreground these issues, which had a significant impact on the final experience.

Launched in October 2023 as part of the London Film Festival Expanded programme, Ghosts began life in July 2020, in the wake of the first Covid lockdowns and the intensification of Black Lives Matter demonstrations worldwide (see more on this in the penultimate section). This context informed Anagram's initial proposals for the project.[1] Inspired by the toppling of a long-contested statue celebrating slave trader Edward Colston in Bristol, Anagram sought to explore how augmented reality might be used in a *critical* manner, to digitally disrupt the monuments and narratives dominating public space in Britain. Initially commissioned to develop a 'proof-of-concept' immersive experience responding to a current issue in heritage and wider society, Anagram's original proposal asked how the lives of contemporary citizens are still entangled with problematic historical figures, and whether the presence of such figures might be disrupted in a playful and irreverent way. From the outset, the creative team leading the project wanted to situate the experience in public space, with accessibility and sustainability a key concern. This would mean making the experience

available on a smartphone, thus enabling a large and – hopefully – diverse audience to access the final work. Crucially, Anagram also aimed to develop the experience through co-creation, working with communities whose heritage often collides violently with the legacies of those celebrated on pedestals across the country.

With these parameters in mind, Anagram began developing the proof-of-concept with a group of young people of colour from London (aged 18–28). This co-creators group was assembled by producer Amaya Jeyerajah Dent, and co-ordinated by Sahar Bano Malik. The members of the group were: Janache John Baptiste, Laurice McIntosh Cargill, Kusheema Nurse, Maia Nurse, Caroline Francis, and Hannah Daisy. The creative process involved 10 workshops and site visits, focusing on the area in and around Trafalgar Square. The workshops asked questions such as: Who do we choose to memorialise in public space, and why? What do people feel comfortable doing in public space? What should the experience make people feel? How do we inspire debate rather than deliver a polemic? In addition to these workshops, the creative team embarked on a series of interviews with people involved in debates around contested monuments, and representatives of official heritage institutions, including Historic England, the Imperial War Museum, Bishopsgate Institute, East End Women's Museum, the Museum of London, and the Greater London Authority (see Figures 3 and 4).

The idea emerged during these workshops to focus not on the stories of the monuments themselves, but to deploy the creative device of ghosts to trouble and haunt the monuments on display. As coordinator Sahar Bano Malik explains:

> Working with the co-creators group helped us to better understand the complexities faced by black people today, and how they feel about the inaccurate history being taught by the British education system and through the memorialisation of these statues. During the research phase of the project, I took the team on a (socially distanced) statues tour where we got close up to the towering statues to discuss them. We covered historical context, political prowess, wealth and atrocities that had been committed, as well as discovering why these statues were being commemorated. Many statues in the 19th century were erected to honour the contribution made by individuals and groups of men to the British Empire. They were part of the honours system which was used to instil a sense of pride in the empire and were often a means of keeping the support of elites. One of our main points of discussion surrounded the idea of having these statues removed and replaced. However, we came to the conclusion that the often troublesome history of such statues had to be seen and

Figure 3. Visual annotations from the first Ghosts workshop, held in October 2020.

Figure 4. Co-creators group in Parliament Square, 2020.

Figure 5. One of visual artist-academic Mireille Fauchon's collages developed during the design stage of the project.

acknowledged, not erased. From here, we talked through our AR app in development, and wanted the chosen statue to be surrounded by ghosts sharing their narratives and giving their truthful opinions of the statue.[2]

From this foundation the creative team developed a proof-of-concept version of the app to demonstrate the core functionality and narrative of the experience. Further funding was secured in 2021 from the UK Arts and Humanities Research Council, and the app entered a development phase in 2022 and 2023. Here it is important to note the broad expertise of the production team involved in building the experience, including lead developer Phill Tew, visual artist Mireille
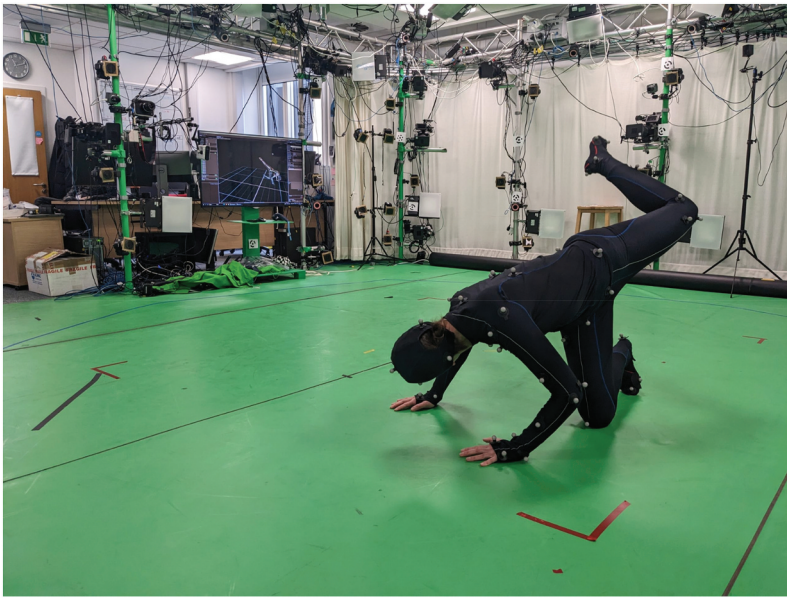
Figure 6. Dancer Tara Silverthorn performing a series of movements to provide the animated movements of the ghosts at CAMERA, a motion capture studio at the university of Bath.

Fauchon, visual developer Will Young, graphic designer Jemil Asiko, sound designer Axel Kacoutie, and co-writer Sonali Bhattacharya. We highlight this range of expertise to remind readers that any new heritage experience emerges through collective labour, and that this form of participation also represents an important dimension of critical praxis – one that is often overlooked in academic research and analysis.

During the development phase, the creative team confronted a number of critical questions and themes that are worth highlighting here. These relate to the narrative and aesthetics of the experience, different perspectives on interactivity, and the ethics and politics of creating a complex, layered digital story in public space.

As noted, when the project began, contested statues were suddenly front-page news across the world. Initial R&D therefore focused on what it meant to be surrounded by monumental – and highly questionable – forms of remembrance: who are the people celebrated on the streets of Britain? Why are they there? What stories do they tell, and what do they obscure? One statue that seemed suitable for critical reinterpretation was that of James II, which stands on a small patch of grass outside the National Gallery in Trafalgar Square. King for just three years, from 1685 to 1688, James II spent most of his life as Lord Admiral of the Navy. At the age of 27, his brother (Charles II) appointed him as the head of a new organisation called the Royal African Company (RAC). The RAC built forts, killed local rulers, searched for gold and, most importantly, built up and monopolised the British trade in enslaved human beings. As historian William Pettigrew notes, the RAC 'shipped more enslaved African women, men, and children to the Americas than any other single institution during the entire period of the transatlantic slave trade' (Pettigrew 2013, 11). James also carried the title Duke of York, and many of the people bought and sold by the RAC were branded with the letters 'DoY'. Edward Colston was a senior executive of the RAC but, as a result of his leadership of the Royal Navy, it was James who led the company. There is no mention of his involvement in the slave trade anywhere near the statue to James II.

The absence of this narrative immediately struck the co-creators and demonstrated the urgent need for new layers of heritage interpretation around key statues. As the project progressed, however, it became clear that simply adding complexity and depth to such monuments would

risk repeating a practice the creative team wanted to avoid: telling 'critical' stories about powerful people who are already well-known. As we explore in the next section, standard modes of heritage interpretation make it easy to forget that history is made by multitudes, and that meaningful change is often forced through by those who are oppressed, not gifted by those in power. Inspired by Priyamvada Gopal's rigorous dissection of the different ways in which independence from Britain was gained from below (Gopal 2019), the creative team therefore decided to shift the gaze from the statues themselves to the ghosts who might haunt these imperial relics.

Another important contextual matter also surfaced around this time. As the project developed, the movement of the Police, Crime, Sentencing and Courts Bill through parliament – and the 'Kill the Bill' protests that followed – changed the conversation on the nature of public demonstration in Britain. This Act, which came into effect in June 2022, severely curtails the right to protest. Crucially, this erosion of rights occurred at the same time as revelations of multiple sexual assaults committed by members of the London Metropolitan Police came to light. While such issues may seem distant from the familiar concerns of 'contested heritage', the creative team felt it was important to draw links between past and present forms of oppression, and the different ways in which power is manifest in historic architecture, public art, and policing.

This framing led the team to develop a subversive trip through space and time, one in which different characters demonstrate the multiple ways in which Britain's imperial past and present are connected. These connections would be amplified through affective sensations: the feeling of gravel under foot in Horse Guards Parade connecting participants with the gravel in another square, far away; the sensation of fear that comes when you realise those charged with protecting you have a monopoly on violence. The walking route from Trafalgar Square to Parliament Square draws out these connective threads, punctuated by the historical figures who introduce their own stories: Olaudah Equiano challenging the dominant narratives of his time; Udham Singh recounting a tragedy that would lead to an assassination; Josie McGowan recalling histories of police violence that echo into the present. These are 'critical' heritage narratives of a different stripe. Beyond simply reinterpreting the past, they centre history and memory in contemporary political debates, evoking the dense entanglement of past and present and the need for new narratives to shape more just and equitable futures.

The design and functionality of the Ghosts experience aimed to evoke this message in different ways. Augmented Reality is built around the possibility of adding layers to 'real' environments and objects. But what constitutes 'reality' in a mythical place like Trafalgar Square? And what can digital 'augmentation' add to a historic environment that is already so layered? To answer these questions, we need to understand that the layering techniques available through AR are more than simply technical; they are about unearthing stories, saying the unsayable, and creating entirely new experiences and meanings (see Gröppel-Wegener and Kidd 2019; Sheehy et al. 2019). In this sense AR may be seen as a way to reframe or challenge familiar conceptualisations and engagements with the phenomenal world. This goes beyond simply rendering historic environments in 3D or 'gamifying' heritage (see Boboc et al. 2022). As a medium AR can be used to gather and sell data about mass audience behaviour (as Pokemon GO demonstrated) or it can be used to communicate stories of resistance and spark change. In this it is perhaps no different from other storytelling mediums, and yet AR does present something new, offering situated encounters that can reveal other worlds and other possibilities running alongside 'reality'. Amid debates about what is permissible in public space, *augmenting* reality can help to subvert dominant stories, positioning critical digital experiences as a liminal zone for public conversations over contested heritage.

Crucially, AR also presents opportunities for interaction that place participants at the centre of the story. With Ghosts of Solid Air, this means asking participants to consider their own 'tipping points', and to explore their willingness and capacity to speak up and voice dissent. The sensation of speaking words aloud in public space aimed to create a dynamic between participants and the ghost world, one where voice and action matter. For this reason, the audio dimension of Ghosts was also prioritised in the development process. Deploying sound in public space has a long history in

contemporary art, with Janet Cardiff, George Bures Miller and Duncan Speakman for example exploring the possibilities of the medium (see Schaub 2016). While sound is often categorised as an 'accompanying medium' – implying that it is secondary to other sensory inputs – sound encompasses and moves through bodies in a profoundly different way to the visual, inviting very different modes of engagement from an AR filter, for instance. Unlike looking through or at a screen, attentive listening allows for a more open narrative, with the movement of the body becoming a vital element in the unfolding of the experience. Indeed, the experiential framing itself shifts with sound, from a carefully composed window to an internal perspective that casts the world in a different light.

This is not to say however that the visual was neglected in the development of the experience. Working with AR on the limited screen of a smartphone presents technical and artistic challenges. Rather than replicate the smooth imagery ubiquitous in contemporary videogames, the Ghosts design team wanted to create a world that felt grounded yet ethereal, dense yet intangible (see

Figure 7. Screengrab from ghosts of solid air showing a ghost emerging in foreground and Nelson's column in background, instructing the user to 'speak up' and interact to reveal the ghosts.

Figures 1 and 5–7). To this end, visual artist-academic Mireille Fauchon approached the project from an analogue rather than digital perspective. This meant building collages using archival imagery, visiting the route, and recording the location by taking rubbings of various textures and architectural elements, including street furniture, pavements, and manhole covers. Developer Will Young then translated these visual-material references into an appropriate form for Unity – one of the main 3D games engines in which AR projects are built. The intention was to create a sense of bodies and forms pressing through an invisible membrane, appearing out of the mist and then melting away again. While it would have been possible to use vast libraries of human movement available online to make these forms, the resulting imagery would have been too perfect, with smooth bodies and gestures that lacked the irregularity of human motion. For this reason, Fauchon made small models of human figures by hand. These were 3D-scanned, and then rigged with movements captured from a dancer called Tara Silverthorn in CAMERA, a motion capture studio at the University of Bath. This transformed the capacity of the ghosts to communicate emotion, allowing for imaginative encounters between the past and the present, and bringing forth stories of forgotten lives working against dominant narratives and monumental forms of remembrance.

Responses to the experience underlined this potential. A short digital survey was built into the app, with users asked how the piece made them feel and what it made them think about. One participant commented that the experience felt timeless. 'It felt like I was in a different layer from the people who were not experiencing the project [. . .] It was a strange feeling between satisfaction and uneasiness, hearing those voices and seeing that completely different layer of people around me (mostly tourists)'. Other users reported that the experience made them reflect on 'how power is manifested in symbols around us' and that it made them think about 'unknown and forgotten people who have challenged British imperial power'. While such responses align with the core aims of the project, it is more difficult to determine whether the experience fundamentally shifted people's perspectives on such issues, with audiences likely to have already been interested in challenging dominant historical narratives about colonialism. This relates to a broader challenge with such locative media. While the app itself was designed to be free and accessible to a wide range of audiences (although see below for unforeseen issues related to this goal), the simple fact that the experience could only be followed in a particular place severely curtails the potential reach and impact of the project. Unlike films, audio works, literature, or some travelling exhibitions, AR experiences are not distributable or easily replicable. Indeed, such experiences tend to be site specific, which means that telling a similar story in a different place would require a substantial redesign of the experience. While the creative team endeavoured to make the basic elements of the application adaptable to different contexts, amplifying the reach of the project would mean crafting a different narrative in response to specific environments. In general, motivating individuals to participate in pieces of this nature is a question of marketing as much as the content and nature of the experience. Partnerships with venues, community organisations, media organisations and cultural institutions are the most established methods for persuading audiences to take part in anything; for the immersive industry, these methods are still in their infancy.

Heritage gatekeeping

Ghosts of Solid Air officially launched in October 2023 as part of the BFI London Film Festival Expanded programme, which focuses on new forms of immersive storytelling using emerging technologies. Working in collaboration with *We Are Parable* – a company who specialise in providing audiences with opportunities to experience Black Cinema and TV in culturally relevant and memorable ways – the creative team participated in a number of events during the festival, and free phones running the app were made available for users.

However, despite these solid plans with high profile partners, the launch of the project was hampered by some significant challenges that have relevance for critical heritage practice. Firstly, using emerging technologies to make creative projects is a vulnerable process. Just a week before

launch, an unanticipated and unannounced update to iOS software meant that a key part of the experience – a speech-to-text library enabling the functionality of voice-activated interaction – stopped working, and the app for iOS would have to be entirely rebuilt. This meant that the app was not available for iPhones, limiting audience access to Android-based devices. In addition, very recent changes to rules governing the Google Play Store meant the experience was only available to individuals with the latest smartphones. This directly contradicted the methods used during the development process to build an app that would be functional on phones with older operating systems used by a much larger number of people. Despite requiring substantial additional funding, these issues were ultimately resolved, but they are emblematic of the difficulty of working with emerging technologies where the speed of change means that any development carried out has to be intricately tested across multiple devices, and is constantly vulnerable. There are curious parallels between this context, where two unaccountable corporations (Google and Apple) define the structural conditions within which all actors operate, and the conditions of heritage practice that critical heritage work seeks to disrupt.

Secondly, sharing a project without significant audience-facing cultural partnerships who traditionally build and maintain pathways towards engagement into their work is a complex and expensive endeavour. During the co-creation development process there was a clearly articulated desire to bypass familiar heritage institutional contexts – e.g. museums and other large cultural institutions – because of their role as alienating gatekeepers to many audience groups. As a result, the dissemination plan for the project was intended to operate in a 'guerilla' fashion – meaning that the marketing of the project would rely on other smaller organisations to spread the word and a digital campaign reliant, again, on the Apple Store and the Google Play Store. To use a 'bottom-up' approach of this kind requires a set of long-term partnerships which need to be maintained – significantly driving up the costs of the project. This challenge is intensified in the content-saturated market of London. Larger institutions are able to financially support the dissemination of projects over substantial periods of time because of their core funding. As a result, they are able to maintain their perceived position as gatekeepers of culture. Ultimately, this meant that the reach and sustainability of the project was limited by its goal to work in a more direct way with marginalised audiences, although at the time of writing we continue to explore partnerships that will amplify the visibility of the experience. Both of these issues – digital accessibility and institutional framing – shed light on the structural conditions that ultimately determine the viability and efficacy of specific heritage products, no matter how 'critical' these may be in terms of representation and inclusion.

Against 'retain and explain': augmented reality as speculative non-fiction

As already noted, this project was undertaken against the backdrop of an increasingly public debate on the role of the past in contemporary life, and what have been framed as a series of contemporary 'culture wars', particularly in the United States, Europe and United Kingdom (e.g. Duffy et al. 2021; Lester 2022; McClymont 2021; Pilkington 2021). During the demonstrations that developed following the murder of George Floyd in Minneapolis on 25 May 2020, which started in the United States and then spread to other countries throughout the world, statues and memorials perceived to be associated with racial injustice became a focus for protest. Some statues were graffitied, damaged or removed by protesters, sometimes lawfully and officially but other times in contravention of laws which protected them. In the wake of these developments, other statues were removed by authorities to 'protect' them as it was feared they could also be targeted.

In the United Kingdom, the statue of slave trader Edward Colston was spray painted, toppled by protesters and thrown into Bristol Harbour on the 7th of June 2020. It was subsequently recovered and put on temporary display. In the interim, an alternative statue sculpted from a photograph of a protester with her fist raised standing on Colston's empty plinth was placed on the site, but this was removed by the local Council the following day. On the 8th of June 2020 a caricature of a 'Black Man's Head', part of the 'Green Man and Black's Head Royal Hotel' sign in Derbyshire, was also

removed by protesters, and the nameplate on the statue of Winston Churchill in Parliament Square in London was separately spray painted with the words 'was a racist'. On the 9th of June 2020, a statue of Scottish merchant and slave trader Robert Milligan located outside the Museum of London Docklands was removed at the request of authorities, having been spray painted and covered with a cloth and protest signage in the days preceding its removal. Over the months that followed, the images of the toppling of Colston's statue catalysed discussion of other contested monuments throughout the UK, some of which had been subject to significant prior debate and contest, while others were seen through fresh eyes. As in the United States and elsewhere, a number of statues were removed by authorities, or temporarily relocated as a result of these discussions.

In January 2021 Robert Jenrick, then UK Secretary of State for Housing, Communities and Local Government, announced new laws to make it harder for councils and other public bodies to remove contested monuments in England.[3] By the time of this announcement, *The Guardian* newspaper reported that around 70 memorials to slave traders or colonialists had been removed or renamed across the UK (Mohdin and Storer 2021). In Jenrick's words, the government's new approach emphasised the need for monuments to be 'explained and contextualised, not taken and hidden away' (UK Government 2021). This followed an earlier statement by Oliver Dowden, Secretary of State for Digital, Culture, Media and Sport (DCMS), setting out the government's position on 'contested heritage': 'Rather than erasing these objects, we should seek to contextualise or reinterpret them in a way that enables the public to learn about them in their entirety, however challenging this may be' (UK Government 2020). These were followed by detailed guidelines which were issued by DCMS in October 2023 (UK Government 2023). The guidance applies to any statue or monument accessible to the public in the local community that faces calls for its removal or relocation on the grounds of changing views about the people or events it commemorates. Decision-makers may include owners, trustees or board members with care and custody responsibility for the asset in question. The starting point for the guidance is for custodians to comply with the government policy to 'retain and explain' and keep assets in situ, but to complement them as necessary with a comprehensive 'explanation', which provides the 'whole story of the person or event depicted', so that a fuller understanding of the historic context can be known, understood and debated.

What such declarations obviously leave open is the complexity of 're-interpretation'. How are these statues to be interpreted more comprehensively and explained, and how and where can individuals and groups debate the meaning and relevance of monuments within the public sphere? How can the interpretation of statues and memorials move beyond static signage to embrace an ever-changing field of interpretive encounters? What narratives and histories should be prioritised through this approach, and who gets to play a role in such processes? This is not just about wrestling with contested legacies and historic injustices – it is about the structural inequalities that continue to shape heritage as a field of practice and space of knowledge production.

In describing the new function of AR in engaging with contested histories in public spaces – with a focus on precisely what it means to *augment* reality – Rose (2021) has described AR as a form of 'speculative non-fiction'. We think projects like Ghosts of Solid Air, which are intentionally designed to raise questions and invite critical reflection, provide a means to explore and critique the broader structural inequalities shaping heritage, and speculate on alternative institutions and modes of praxis. In a context in which it is now unlawful to remove monuments deemed to be offensive (even where that might be the most desirable option and there is wide support for doing so), it is important to question the underlying logics of preservation and interpretation shaping certain approaches to heritage. Historian David Olusoga's statement on the UK Government's retain and explain guidelines is very instructive here. He notes:

> The problem I have with this guidance . . . is that it regurgitates two falsehoods. The first is that what the problem is with statues is modern attitudes changing, which implies that people approved of the statues and these men at the time, and that is often demonstrably untrue. And the other is that statues tell us our history – the advice says that removing heritage will limit our understanding of difficult parts of our history. Which

statue can we point to that tells us about a difficult part of our history? They cannot teach us history. They are always silent about the victims and they are put up by tiny members of a male elite to celebrate the lives of other members of that tiny male elite. (Olusoga, interviewed for BBC Radio 4 on 5th October 2023, quoted in Stephens 2023)

Despite moves intended to protect contested monuments, from physical relocation to legislative measures, there is a clear momentum for change in relation to statues commemorating those who profited from the slave trade, colonialism and racism globally. At the present moment in the UK, 'retain and explain' policies and the political weaponisation of imperial melancholia and nostalgia (Gilroy 2004; Mitchell 2021) make it difficult for those who wish to lawfully promote and undertake such changes. The need to constantly re-assess and re-interpret heritage of all forms continues to be an important task for activists and academics to hold those in power to account. But in the context of the overt politicisation and widespread suppression of the physical removal or material intervention in contested monuments, we suggest that the kind of immersive, speculative non-fiction augmented reality experience we document here can provide a means of engaging critically with both statues themselves, and the racist colonial narratives they reproduce, as well as a means by which to reclaim certain parts of the public sphere which are increasingly being restricted for debate and discussion.

Final reflections

While debates over public commemoration and memorialisation are nothing new, recent events in the UK and around the world have brought into sharp focus the need for more nuanced and pluralistic stories to be told in and through the historic built environment. This is not just a question of what histories are represented in public space, and how, but also who gets to play a role in telling these stories, and what agency they have to shape new narratives. 'Retain and explain' as a policy would seem to hamper such efforts, as the starting point itself – the contested statue or monument – will always dominate the narrative. Ghosts of Solid Air aimed to move beyond these limited responses to contested monuments through immersive storytelling and speculative non-fiction. At its core, the project responded to a simple proposition: that commemorating the past through statues can only ever lead to a partial and distorted view of history. This distortion works in two main ways. First, statues reduce complex historical processes to the actions of individuals, celebrating lone figures over the experiences of the many. This approach is particularly problematic when the history in question relates to a collective struggle, such as suffrage, abolition, revolution or even war. As author and journalist Gary Younge has recently argued, statues 'skew how we understand history itself. For when you put up a statue to honour a historical moment, you reduce that moment to a single person' (Younge 2021). Ghosts of Solid Air aimed to address this view of the past by digitally (re)populating the streets and squares statues inhabit with the stories of those who are not remembered. Audiences encounter a multitude of historical 'ghosts' jostling for their attention: a stark reminder of the countless narratives overshadowed by one-dimensional statues and monuments.

The second way statues distort the past relates to the process of historical interpretation. As recent events in the UK and across the world have highlighted, statues are often lightning rods for wider debates around injustice, inequality and discrimination in society. Such protests are inherently collective and dynamic, and yet their outcome is all-too-often reduced to one of two options: either the statue is removed, or it is retained (perhaps with some new plaque attached). Again, this represents a radical simplification of history and historical knowledge. As Raphael Samuel put it, history is 'a social form of knowledge; the work, in any given instance, of a thousand different hands' (Samuel 1994, 15). Understanding and re-interpreting statues should be a collective and – crucially – ongoing process. Ghosts of Solid Air has aimed to offer a platform for dialogue about the role of statues in public life and the constantly shifting meanings that may accrue around these supposedly mute and static objects. Crucially, we sought to

do this without directly addressing either the question of retention, nor direct explanation (or what some might more provocatively think of as a form of 'justification' for past injustices and the maintenance of structural inequalities).

These two intersecting concerns also relate to the broader meaning and purpose of heritage in society. In recent years, a wide range of projects have sought to rethink or reimagine the monument to address painful histories of, for example, genocide, slavery and colonialism.[4] While many of these initiatives involve whole new forms of commemoration, others subvert existing statues and memorials. Both these trends speak to a critical engagement with the past in the present, and a growing awareness that thinking differently about heritage might help to shape more just futures. As Nancy Fraser argued in her seminal paper 'Rethinking Recognition', 'culture . . . is a legitimate, even necessary, terrain of struggle [and] a site of injustice in its own right' (2000, 109). To understand statues – and heritage more broadly – as both sites of injustice and terrains of struggle is to recognise that what has been passed down and inherited should not define what might be taken forwards (on heritage as inheritance see Sterling and Harrison 2020, 2023; on heritage as legacy see: Harrison et al. 2020; Harrison 2021). Traditions, meanings, stories and material worlds are all open to negotiation. The question then becomes: who gets to play a role in this remaking? Ghosts of Solid Air aims to encourage greater participation in these discussions, especially from those who may feel alienated from debates around history and heritage.

For Fraser, confronting these injustices means 'changing the values that regulate interaction, entrenching new value patterns that will promote parity of participation in social life' (2000, 116). Participatory parity in this context seeks to avoid both authoritarianism and separatist identity politics, aiming instead for a form of democratised 'transcultural interaction' (108). Heritage and memory are key focal points for such interaction. How to foster participatory parity therefore remains an urgent question for the field, one that reaches far beyond academic discourse to impact on issues of access, inclusion and the politics of representation. We see Ghosts of Solid Air as making a significant contribution to these questions, by showing how augmented, blended and virtual reality experiences and speculative non-fictional storytelling can complicate and enhance current conversations around contested monuments and provide rich experiences which invite new and existing audiences for heritage to think critically about the historic environment and the values it embodies in contemporary society.

Notes

1. Anagram are a multi-award-winning female-led creative company specialising in interactive storytelling and immersive experience design. Their work typically combines expertly crafted experiential storytelling that blends fiction and documentary with rigorous research. They have a unique and playful approach to participatory storytelling that prioritises inclusive engagement and deep thinking. Winners of the 2015 Tribeca Film Festival Storyscapes Award, the 2019 Sandbox Immersive Art Award, part of the Best VR in 2019 at the Venice International Film Festival, Anagram were named in the Createch 100 ones to watch for 2020 by the Creative Industries Council and have been selected twice for Columbia University's Digital Dozen Breakthroughs in Digital Storytelling (in 2015 and 2019).
2. This and other reflections on the project can be found on the Ghosts of Solid Air website www.ghostsofsoli dair.com/creating-ghosts/.
3. On 17 January 2021, new laws to protect England's cultural and historic heritage were announced, strengthening the measures protecting statues, plaques, memorials and monuments which have been in place for at least 10 years. This new legislation confirmed that the demolition of unlisted statues, memorials and monuments requires planning permission (i.e. it does constitute the development of land). This legislation came into effect from 21 April 2021 via The Town and Country Planning (Demolition – Description of Buildings) Direction 2021, and was introduced at the same time as the Town and Country Planning (General Permitted Development etc.) (England) (Amendment) Order 2021, which excludes from the existing permitted development right the demolition of unlisted statues, memorials and monuments that have been in place for 10 years or more.
4. See for example the work of Monument Lab in the US (www.monumentlab.com.), or the UK-based Kinfolk Monuments Project (www.kinfolkhistory.com.)

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Amy Rose is a highly acclaimed director and maker working with non-fiction stories and interaction design. Co-founder of celebrated international award-winning immersive design studio Anagram, she is now Lead Curator of Undershed - the new immersive gallery at Watershed in Bristol, opening in October 2024.

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