

# Temporal Collisions: On the Use of Narrative Conventions from Genre Fiction for Location-Based Cultural Heritage Games

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On the Use of Narrative Conventions from Genre Fiction for Location-Based Cultural Heritage Games

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For decades, digital technologies have been used to offer engaging experiences in cultural heritage sites, and these experiences have shown useful as a means to convey the histories associated with the sites. While some experiences are information-driven (e.g., tour guides), others are story-driven and therefore need a narrative justification for why the past and the present collide and in which way. This paper explores how narrative conventions from genre fiction – specifically, ghost stories, science fiction, historical fiction and fantasy – can frame narrative content in cultural heritage sites. We discuss these specific literary genres and their use in locative games to achieve the temporal collisions necessary for framing story-driven locative cultural heritage experiences. We identify the nature of the main temporal connections used by the different genres (including issues of narrative control) and offered a tentative mapping of the temporal connections onto an actual cultural heritage site.

CCS CONCEPTS • Applied computing ~ Education • Applied computing ~ Arts and humanities • Applied computing ~ Education ~ Interactive learning environments

**Additional Keywords and Phrases:** Cultural heritage, locative games, serious games, narrative design, hauntology

## ACM Reference Format:

First Author's Name, Initials, and Last Name, Second Author's Name, Initials, and Last Name, and Third Author's Name, Initials, and Last Name. 2018. The Title of the Paper: ACM Conference Proceedings Manuscript Submission Template: This is the subtitle of the paper, this document both explains and embodies the submission format for authors using Word. In Woodstock '18: ACM Symposium

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## 1 INTRODUCTION

For decades, mobile technologies have been used for offering engaging experiences in cultural heritage sites, and these experiences have shown useful as a means to convey the histories associated with the sites. While the hardware platforms have converged and are now nearly always smartphones, many different approaches to the overall design of such experiences remain. For example, a popular approach is to model the experiences on the idea of “tour guides” [13]. Such experiences tend to be information-driven and work by guiding the audience through the site, providing information at particular points of interest, much like a human tour guide would do. These types of experiences are natural extensions of the audio guides that have been popular with cultural heritage sites – and also with Galleries, Libraries, Art Galleries and Museums (GLAMS) – for many years.

Recently, heritage theories and heritage encounters at archeological sites and GLAMS have taken up new and more open approaches. From embracing entertainment strategies, side by side with learning and educational goals [6] [7], David Byrnes argues for heritage as a dialogue [4], built through and by the communities that inhabit the heritage spaces; and archeologist Colin Sterling re-purposes Jacques Derrida’s concept of “hauntology” to document and stimulate new modes of connecting to heritage and doing it in a critical way. From this perspective, Sterling’s article “Becoming hauntologists” labels a certain critical comportment towards the work of heritage across various scales and contexts: “The word itself relies on the sonic similarity of ontology (ontologie) and hauntology (hauntologie) when spoken in the original French” [20]. Through hauntology, a level of uncertainty and intangibility supplants the apparent solidity of the ontological. Fredric Jameson, commenting on Derrida’s text, describes hauntology as the recognitions and resurgences that undermine the solid foundations of the present [27, p.38].

Hilary Mantel’s 2017 Reith lecture addressed the issues of how narrative and historical fiction might help us comprehend heritage and historical events [12]. Mantel focuses on the novel as a tool to speak with the dead, while heritage practice offers a much broader range of opportunities for rethinking our relationship with the past [12]. Extending on Mantel’s experiences driven by narrative rather than information, the storytelling needs justification for why the past and the present collide and in which way. This form of a narrative explanation helps create a believable story world.

Common to the works in this space is that they are concerned with the meeting of the past and the present. The smartphone-based tour guide to a cultural heritage site brings events and people from the past into the present by weaving a narrative that (hopefully) a visitor will find interesting and engaging. Even for a relatively simple experience like a tour guide, connecting the past and the present is not a trivial matter, requiring awareness of who the visitors are, why they visit the site, and how they like to interact with content. Today, everyone is familiar with the tour guide narrator as a narrative mechanism, but there are many other ways in which the past and the present can be connected; these are staples of games and fiction more broadly and can be very engaging if used well. In this paper, our particular focus is on narrative games for cultural heritage sites, i.e., games with a historical and educational purpose that use narrative and game mechanics to achieve fulfill it. Due to their historical purpose, such games intrinsically require a meeting of the past and the present, which we explore in this paper.

Our discussion around the concept of the “temporal collision” unpacks the connection of two distinct periods in time and how it happens in the audience’s mind, when facilitated by a narrative mechanism. A temporal collision is a meeting between characters, events, settings and/or themes from one period in time with those of another period in time. A temporal collision can happen due to a digital tour guide playing and narrating content about the past. But it can also occur more

dramatically (even violently) through a ghost from the past transgressing upon the present, or chaotically through a time travel device that creates complex interweaved timelines and causal events. We use the concept of “protagonist control” to describe the extent to which the characters (and in games, typically, the player) can affect (e.g., initiate or steer) temporal collisions. Protagonist control can vary considerably across (and within) genres, and good games can be created with high as well as low (or even absent) protagonist control. We distinguish “protagonist control” from “player control” (or “reader control” in written stories) in that the two are generally distinct in non-interactive stories, but they overlap considerably in most game experiences, because the player typically controls a protagonist.

In the remainder of this paper, we explore how narrative conventions from genre fiction – specifically, ghost stories, science fiction, historical fiction and fantasy – can be used to frame narrative content in cultural heritage, i.e., to connect different time periods. We discuss these specific literary genres and their use in locative games, particularly in the context of cultural heritage sites, specifically how they achieve temporary collisions. In this sense, our paper is a short review of experiences that engage with the past (and, occasionally, the future) in different ways. Rather than provide an exhaustive, formal review, we offer a discussion of a representative selection of titles. We aim to understand the different genre conventions applied to location specific experience examples that were created to help propel the visitor into the location’s historical context. In particular we analyse their approaches to time and temporal collisions as an important strategy and design element of locative experiences in heritage settings.

Many of the games that we examined try to help the visitor/player to capture a sense of what the place once was and inform the visitor about specific events or characters who inhabited the place, either factual or fictional. The locative game is a means to capture the *Zeitgeist* associated with a particular geographical location at a given point in time. In this fashion, it is essential for the player to feel a sense of presence in the space, but at the same time, feel immersed in the site’s history through the digitally represented content.

## **2 GENRE FICTION AT WORK IN HERITAGE EXPERIENCES**

In this section, we present and discuss the narrative techniques from genre fiction at work in locative storytelling and gaming that deal with heritage content in GLAMS and archeological as well as historical sites.

### **2.1 Folklore, Superstitions and Historical Fiction Stories**

Folklore is generally considered traditional stories and culture communities sharing a particular locality or even a nation. It is frequently expressed through oral traditions, e.g., Propp famously collected folk stories from people in the Soviet Union [26], but it can also take other forms (e.g., dance and rituals). Mythology and Folklore are terms that are frequently linked due to defining features involving tradition, culture and national identity [2]. Anthropologists suggest a connecting line between folk stories, superstition and, eventually, mythologies. They recall what could have been real facts, then distorted through times and interpretations. Somehow connected to both folklore and myths, is historical fiction. Historical fiction is set in a real place, during a culturally recognizable time. The story’s details and action can be a mix of actual events and ones from the author’s imagination as they fill in the gaps. Characters can be pure fiction or based on real people (often, it is both).

In education, historical fiction is a widely applied construct to teach students about history in a relatable fashion. By mixing past events and periods with a fictional story, history itself is made more accessible. The character and drama interact with past events in such a way as to involve the student in a study of the past on an emotional level as well as a cognitive level [11]. In her paper, “Historical fiction and fictions of history,” Hsu-Ming Teo writes:

[...] History is not an ‘objective,’ ‘scientific’ or ‘verifiably true’ rendering of the past because of its literary nature. It depends on written sources which are imperfectly remembered by its authors; subjectively constructed narratives which are the fragmentary remains of a complex and multitudinous past which has been lost to us. [21]

The temporal collisions in historical fiction are tightly connected with reality, hence they follow classic chronological order of past to present. With folk stories, the temporal collisions are still quite linear, but when mixed with myths and supernatural they can appropriate collisions that subvert time order of past, present and futures.

In historical fiction, a real historical setting and real historical events are used as a backdrop for a fictional plot. A significant locative work in this space is *Media Portrait of the Liberties* [15], a locative retelling of community stories from the Liberties area in Dublin, Ireland. In *Seven Stories*, visitors to Madeira can collect local folklore stories in the Rua Santa Maria in the town center of Funchal by following a map on their mobile device [16]. The narrative mechanism used in such experiences is one of a story narrated as if it were recounting factual events. In this fashion, the narrative mechanism resembles strictly historical tour guides (discussed earlier), but with a less strict adherence (and therefore greater creative freedom for the author/designers) to what is considered known about events, characters and settings from the time in question. While the *form* of historical fiction in this way typically pretends historical veracity, works in the historical fiction genre (in any medium) generally are clearly labeled to clarify the creative freedom taken by the authors/designers, for example through a “based on historical events” note. We consider this an important meta-level distinction between strictly historical narratives and historical fiction, regardless of the specific medium.

Mainstream and independent games contain good examples of what we can comfortably call historical fiction, such as the shooter *Verdun* (2013), which casts the player as a fictional squad soldier *character* in WW1 and places them in a highly realistic multiplayer trench war *setting*, most likely facing *events* of rapid death of themselves and their squad members. Another example is *We. The Revolution* (2019) in which the player plays a fictional judge *character* in a French Revolution *setting*, tasked with passing out sentences in a dangerous political game with unavoidable lethal *events*.

For locative narratives that use cultural heritage, historical fiction as a genre has real potential in casting the player as a character and letting him/her interact with fictional and/or historical characters. We consider the locative audio drama *Riot! 1831* [18] a historical fiction experience in that it is a dramatization of a particular *event* with key *characters* in a specific *setting* (the Bristol riots). Games like *Kampen om Maden* (2020) [10] focus on the use of fictional *characters* representing real thematic concerns of a historical time, and while it does deal with a specific *setting* (a WW1 historical fort), the characters are not directly related by a historical presence in the fort, and while we do classify it as historical fiction, and it does engage with real historical concerns, its engagement with the material is more thematic than that of *Riot! 1831*.

*Protagonist control* of the temporal collisions is simple in historical fiction, and it generally only takes place outside the experience, essentially making it equivalent to *player control*, as discussed earlier. When the player opens the book or loads up the game, they enter the historical storyworld of the experience, and the temporal collision occurs. Similarly, the temporal collision ends when the player ends or pauses the experience, or when the player reaches the end. This is of course also the case for the other genres that we will discuss in the subsequent sections, and we will not reiterate it further there.

## 2.2 Ghost Stories

According to the Encyclopedia Britannica, ghost stories are stories about ghosts and are considered tales of the imagination [24]. They are sometimes considered a subgenre of horror, but ghosts appear across many literary genres and cultures, and the ghost story has been subject to many transformations [23]. Brewster & Thurston observe that a ghost story is “[b]y its

very nature [...] supposed to involve the past, whether in the form of vengeful ancestors or Gothic literary precursors” [23]. In this way, ghosts can be considered narrative devices that naturally connect the past with the present. Within the ghost story genre, the goal is not always to scare the player, but to make their presence felt, to make their influence known to the player in the present.

Frequently, a ghost is not released from its ghostly existence until it has told their story, such as Hamlet’s father’s ghosts who Brewster & Thurston describe as “a restless, wronged spirit [which] can be placated only by obedience to its command” [23]. Similarly, Smith (summarizing Derrida) observes that Hamlet’s father’s ghost can be considered a “purveyor of secrets” [25], emphasizing the ghost’s role as a source of crucial (and personal) information about the past. Ghost stories frequently use this type of narrative pattern in which the past intrudes upon the present, a narrative trope that Fred Botting has described (although more broadly, for Gothic fiction in general) as a “temporal transgression” [3]. While most ghost stories use this pattern in a straightforward fashion, there are sometimes twists, such as in the film *The Others* (2001) in which it turns out that one past is intruding upon another. In this fashion, the temporal collisions offered by ghost stories are simple and easy to understand, and they are strongly motivated by the ghostly characters. It is a typical characteristic of ghost stories that the (non-ghost) protagonists are not in control of the temporal collision, i.e., they are the transgressed-upon, rather than the transgressors.

Ghosts, spirits, or apparitions are popular with cultural heritage apps as a storytelling method for engaging with witnessed and unwitnessed historical events or constructs as projected by the individual work (object, place, structure), and many works [19] [10] [17] adopt this approach. (See figure 1.) While ghosts as a trope are of course generally popular in games for entertainment (not least in the horror genre), they are frequently used in a more sophisticated way in locative games for cultural heritage. The benefit is obvious: By using characters from the past that by convention are expected to “intrude” on (or haunt) the present, the narrative or game designer not only has a useful framing device for their game, but also a potential role for the player (paranormal investigator) and associated gameplay activity (ghost hunting) and even a potential narrative resolution (the restless ghost is released after it has told its story). Ghost stories tend to be written from the perspective of the past, the ambassadors of a *Zeitgeist*, the collision with the present comes from the past. Examples include the *Spirit Locative Experience* [19] (see figure 1) in which the player encounters fictional characters from the past and interacts with them. Another experience, *Bram Stoker’s Vampires* [8] explores the legacy of the author of *Dracula* in a historical accurate location related to the author (Trinity College, Dublin). The latter places entirely fictional *characters* (from Bram Stoker’s famous book) and *events* in an authentic *setting*, hence mixing past with the present as well as fact with fiction. While strictly speaking, *Bram Stoker’s Vampires* only contains one ghost (that of Bram Stoker), the vampires from the novel have distinctly ghost-like abilities (e.g., the ability to turn into vapor), and the locative experience presents them visually in a very ghost-like manner.



Figure 1: Screenshot from the Spirit Locative Experience, 2017 [19]. The ghost is featured through AR overlaying a bush in a real forest. The ghost addresses the audience connecting the ghostly (hauntological) past with the present (ontological).

As for historical fiction, *protagonist control* of the temporal collision in ghost stories occur outside the experience when the player begins it. However, it is also present inside the experience, even if it is frequently present mainly by its emphasized near-absence. In many (perhaps the majority) of ghost stories, the ghost characters force the temporal collision (possibly even violently) through transgression. The only way for the player to resolve the temporal collision is to cause the *event* in which the ghost's mystery is solved and its story is told. (In a linear story, like a typical book or film, the reader must reach the end for this to happen.) For games, regaining protagonist control of the temporal collision can become a motivation or an objective of the game, the goal to which the player aspires: by exorcising or releasing the ghost, it goes back to the past, and the past goes back to being the past again. In typical ghost stories, this ends the temporal collision and restores order to the storyworld, at least temporarily.

### 2.3 Time Travel Stories

Time travel stories, a subgenre of science fiction, relate to the concept of moving between different points in time. Works in the genre typically describe characters moving from the present to the future or past, or both, and all the complexities and implications that may bring. Time travelers use either machines (e.g., H.G. Wells' *The Time Machine* or the *Doctor Who* series); natural phenomena like wormholes, supernatural events or similar (e.g., *Donnie Darko* (2001)); or use only their minds to travel through time and sometimes even travel to different characters in different times (e.g., the *Assassin's Creed* series or Kurt Vonnegut's *Slaughterhouse Five*). It is a typical characteristic that the protagonists in time travel stories have some degree of control, i.e., they wield some agency over the temporal collisions in their story, even if it is unreliable.

Determinism and causality are frequent themes in time travel fiction, and stories are frequently concerned with the consequences of time travel itself and the ability of the characters to affect their world. For example, a common theme is the grandfather paradox in which characters could potentially prevent their own existence by interfering with history (e.g., *Back to the Future* (1985)), or the chaotic nature of the universe meaning that small actions can have large effects (e.g., Ray Bradbury's "A Sound of Thunder"). A counterpoint to this idea of time-space as volatile is idea that time travelers

were always part of history and thus unable to change the present (e.g., *The Final Countdown* (1980)). Time travel stories have a great scope for complex interactions between different periods. While some stories use a simple present-to-past (e.g., Ray Bradbury's "A Sound of Thunder") or present-to-future (e.g., H.G. Wells' *The Time Machine*), or future-to-past (e.g., *Inception* (2010)), other works contain complex, almost puzzle-like structures of entangled plotlines that result in complex temporal collisions, which seem to resonate with the complexity of the nature of space-time (e.g., *Interstellar* (2014) or *Primer* (2004)).

Subgenres of science fiction have been used in locative games for cultural heritage, such as *The Amazing Transfabulator* [8], which uses steampunk (a subgenre of science fiction) and time-travel to frame a narrative structured around Victorian heritage in historical Oamaru, New Zealand. In this game, a historical *setting* (Oamaru's Victorian quarter) is populated with entirely fictional *characters* (Steampunk time travelers) trapped as the result of a fictional *event*. Like ghost stories, time travel is an immensely useful construct for designers of locative games for cultural heritage, because its genre conventions allow timelines to bend and meet the past to meet the present, or the future in a way that requires no further explanation than the mention of a time machine or that time travel exists. Some applications allow the player to travel back to bygone eras, like *Rome Reborn* developed by Bernard Fischer of UCLA, which is a flyover VR experience where the player immerses themselves in the Rome of Constantine [9]. Google's Arts & Culture provides experiences for cultural heritage sites all over the world, and the Time Machine Organisation, functions as a worldwide collection of "time machines," effectively a body of digital content related to cultural heritage [22].

In mainstream games, time travel themes and mechanics are popular, and instructive examples include titles like *TimeShift* (2007), which features an actual time travel machine in the form of an armored suit, *Braid* (2009), which makes a game mechanic out of time manipulation as a metaphor for the character's own regret and rumination, and *No One Has to Die* (2013) that uses time loops to encourage the player to repeat until an optimal puzzle solution is found. Time travel and time loops have good potential for locative games for cultural heritage sites, although the rewind mechanics on which time manipulation is typically based, probably less so.

*Protagonist control* of the temporal collisions used in time travel narratives varies considerably across games and reflects the complexity of the material. Frequently, the nature and extent of the protagonist control are derived from the game's thematic elements and subject to game mechanical constraints that resonate with the narrative. While many time travel stories (e.g., Ray Bradbury's "A Sound of Thunder") engage with chaos and the butterfly effect as narrative material, games typically avoid this most likely due to the computational cost of recalculating long chains of events. (For example, *The Legend of Zelda: Ocarina of Time* (1998) lets the protagonist Link visit his childhood but none of his actions there change the present.)

## 2.4 Fantasy Stories

A popular type of genre fiction is fantasy, which frequently features magical elements, such as creatures, wizards, witches, and spellcasting. Fantasy stories are immensely popular, and audiences are familiar with the genre conventions of authors such as J. R. R. Tolkien and J. K. Rowling. Many stories sit between fantasy and other genres or belong primarily to one genre but borrow elements from fantasy. For example, stories in the magical realism genre (e.g., Gabriel Garcia Marquez) presents a primarily realistic view of the world but incorporates some magical elements.

Unlike ghost stories and time travel stories, high fantasy (e.g., Tolkien and Rowling) tend not to be primarily structured around temporal collisions, although they may be included (e.g., in the form of the Time-Turner from the Harry Potter novels) as plot devices. Temporal collisions also appear in magical realism stories where they are used to return from the present to the past (e.g., Toshikazu Kawaguchi's *Before the Coffee Gets Cold*).

Fantasy has been used in locative games for cultural heritage by several teams. For example, *REXplorer* [1] (see figure 2) uses spells and spellcasting as game elements. Similarly, Mayra and Lankoski also describe their experimental location-aware game *The Songs of North*, where “the players took the role of a northern wizard with the ability to interact with the spirit world” [14]. Fantasy is helpful for this purpose, since it allows a wide range of elements to appear without further justification and explanation (e.g., it can include ghosts and time travel if desired) and immediately brings a whole collection of potential play activities to the fore (e.g., spellcasting), which are considered fun and fantastical.

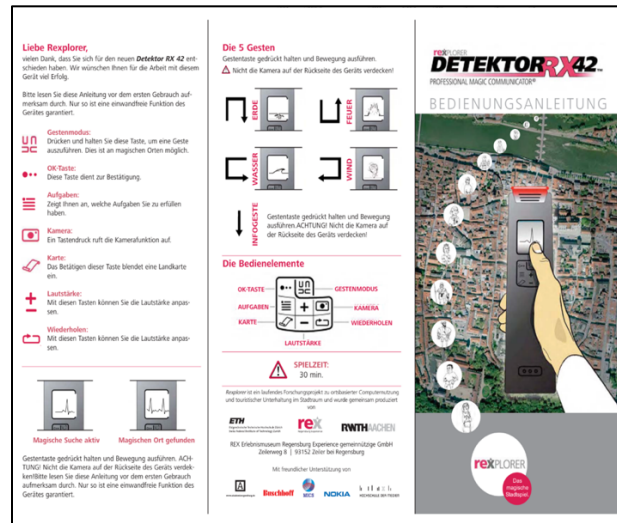


Figure 2: *REXplorer*, Ballagas et al, 2007 [1]

Fantasy is an incredibly popular genre in mainstream games with too many titles to discuss here, even in its most prominent subgenres like Fantasy RPGs. Many prominent titles feature the collisions of different periods in game time, such as *The Ocarina of Time* (1998) installment of *The Legend of Zelda* series mentioned earlier. In general, the variety and creativity of time-related game mechanics in fantasy games are very considerable, and this goes for the level of *protagonist control* also. The result can be complex, but there is inspiration to be found for designers of locative cultural heritage games.

### 3 DISCUSSION

In the previous section, we discussed four types of temporal collisions, as they are found in four distinct types of genre fictions, and we also discussed how they applied to linear narrative media, digital and locative games and storytelling. The findings are summarized in Table 1.

Table 1: Temporal Collisions Per Genre (Note: By “Meta-level,” we mean entering/leaving the storyworld)

Genre	Temporal Collisions	Protagonist Control
Folklore, Superstitions and Historical Fiction Stories	Past → Present	Meta-level



Ghost Stories	Past → Present Past → Past	Meta-level; No control, and its absence is emphasized
Time Travel Stories	Present → Past Present → Future Future → Past Complex structures	Meta-level; From little control to considerable control
Fantasy	Present → Past (occasionally others)	Meta-level; From little control to considerable control

In the remainder of this section, we will discuss the potential practical applications of these insights in an actual cultural heritage site: The Battle of the Boyne (BotB) site and landscape in County Meath in Ireland. The Battle of the Boyne site comprises the Visitor Centre at Oldbridge House, which is operated by the Office of Public Works, an agency of the Irish government, about 4 km west of the nearest bridge. The battle's other main combat areas extend in the field in front of the Visitor Centre and are signposted. The heritage visit includes the Visitor Centre itself and up to several hours of walks in the fields depending on the visitors' engagement (see figure 3). We aim to illustrate the application of the temporal collision concepts to engage visitors with the complex heritage of this site.

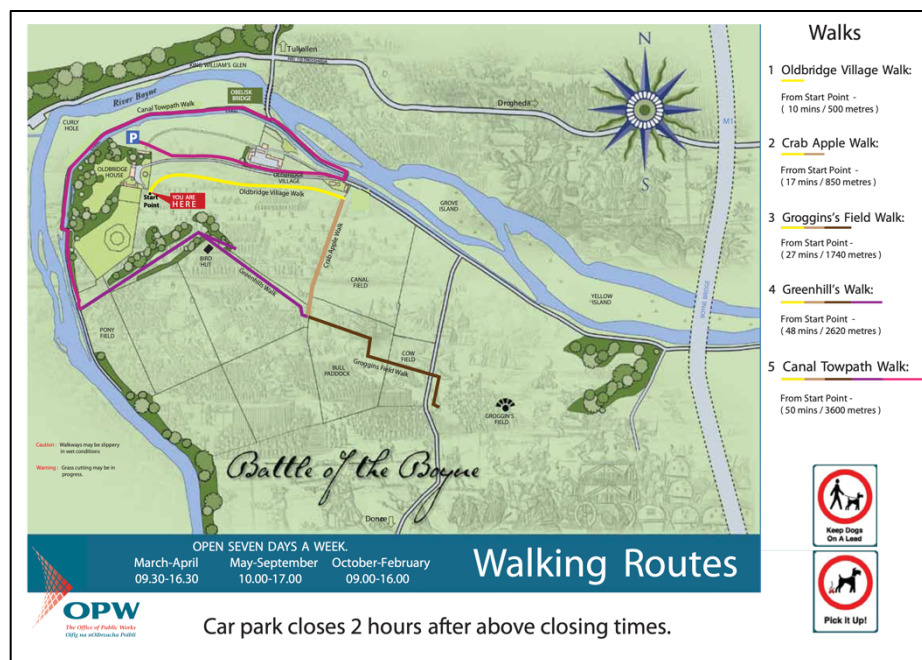


Figure 1: Map of the Battle of the Boyne heritage site and surrounding area with walking routes

The Battle of the Boyne took place on 1 July 1690 between the forces of the deposed King James II (25,000 men) and those of King William III (36,000 men). It was fought across the River Boyne and resulted in a victory for King William, whose victory marked a turning point in James's attempt to regain the British crown and ultimately aided in ensuring the

continued Protestant ascendancy in Ireland. The Battle of the Boyne remains a contested heritage today, where some Protestants remember it as the great victory over Catholics that resulted in the sovereignty of Parliament and the Protestant monarchy while some Irish Catholics mourn their greatest defeat. The temporal collisions, summarized in Table 1, can be used as storytelling and game design patterns in support of visitors' experiences of the site and tell the complex heritage associated with the Battle of the Boyne and its landscape.

### 3.1 The Potential of Historical Fiction and its Temporal Collisions

Despite the delicate and contested heritage brought about by the BotB events, one learning objective for the site's cultural operator is to educate visitors about life during and surrounding a late 17th-century battle. At the moment, the site makes use of living history sessions (see figure 4) where actors perform, equipped with time-appropriate uniforms and artefacts (muskets, grenades, surgical instruments, etc.) to paint an accurate picture of what people at that time would have experienced at the site. This performance, based on the historical fiction genre, provide an embodied history lesson,



Figure 2: Living History at Oldbridge's Battle of the Boyne Visitor Centre, Grenadier

This type of historical reenactment enables two types of temporal collisions: First, from past to present, with the actors embodying people from the past that live in the present moment (of the site's visitors), generating a sense of wonder as the past collides with the present. Second, from present to past, as present visitors feel transported to the past at times of battle. As they see the past reenacted, the whole surrounding area becomes a living history scene from the 17th century. This type of temporal collision can be brought about by live performances, locative and immersive media (audio and video delivered at specific location of the site, such as sounds from the battlefield delivered through mobile devices near the river side, or images of the battle delivered from the exact point of view where they were painted at the times. Locative media can take

advantage of the surroundings to strengthen transportation and immersion. In these situations, the temporal collision is not controlled by the visitor; it is happening beyond their control, except for choosing to visit the site and choosing when to leave (meta-level). For a game design based on time travel, this characteristic can also apply: By starting the game, the player decides to cause the temporal collision and enter the past, or let past characters come to life in the present and persists in it until the player decides to end the experience.

### **3.2 The Potential of Ghost Stories and the Temporal Collisions**

Ghost stories are of course promising to achieve the temporal collision. As shown in Table 1, ghost stories are simple in that the past offers a simple collision driven by the control of the ghost character(s), rather than the player. As discussed in section 2, this type of narrative structure has been used in many other projects and would apply equally well here. Both time travel and ghost stories resonate with ideas around Hauntology, as discussed by Derrida and Sterling who mention that for heritage to be active, it demands reinterpretation, critique and displacement as an active intervention, so that the reader or player transformation may take place. Looking at hauntology as a way of interacting with the past, specifically for heritage appears to be appropriate. “The notion of the hauntological captures a broad range of attitudes and approaches towards the past in the present that demonstrates the political and ethical charge of critical heritage practice” [20].

A game design incorporating temporal collisions as known from ghost stories could borrow from the many titles that have already explored this space, as discussed in section 2.2. A game design could be based on a “ghost hunt,” casting the players as paranormal investigators that are actively looking for ghosts. Such a game could involve fictional (but realistic) or historical characters who haunt the player until their mysteries have been solved. In the Battle of the Boyne context, many characters and mysteries can be plotted to haunt the players until their truth has been revealed (to the present) and hence restore the peace of the ghost (in the past). While the players would set out to find the ghosts (similarly to a reader opening a book containing a ghost story), the ghosts would come to haunt the player and hence in Botting’s words “transgress” [3] on the present. For historical sites, ghosts are wonderful narrative constructs simply because they serve as guiding threads for the visitors, and they will not go away until they have told their stories have been told – and their stories are always about the past.

### **3.3 The Potential of Time Travel Stories and their Temporal Collisions**

Moreover, similarly to the above collisions, living history and re-enactment strategies engage with the idea of time travel in which the visitors find themselves confronted with characters and objects from the late 17th century but are not participants in a story. In the case of the Battle of the Boyne re-enactments, the actors are clearly presented as characters from the past (i.e., not as ghosts), and the current experience therefore resonates well with the idea of traveling back in time. As discussed, a considerable aspect of time travel is that the genre convention typically gives the protagonist (here, the visitor; or the player of a digital cultural heritage experience) at least some control over the temporal collision. The idea of time travel therefore co-exists well with digital experiences (e.g., in the form of smartphone apps), which give the audience control over their chronological travels. Although there is a wider (e.g., European) context for the Battle of the Boyne, the core history associated with the site pertains to a single day. While time travel as a narrative device can be used to bring the visitor back to the 17th century (e.g., through a “time travel” app), the historical events all pertain to that single day. Nevertheless, for such a complex event, that had a complicated political background and such a profound effect on the future of the country, spanning more than a day could be a way to untangle the complexities of the pre and after math of that in fairness was not just a one-day event for the history of many populations.

A game design incorporating time-travel type temporal collisions could allow the player to explore the site's older history (predating the day of the battle itself) as well as the consequences of the main event for which the site is known. If the game allowed multiple time layers to co-exist and be traversed by the player (e.g., through a "time dial" or similar mechanic), both cultural and historical material pre- and post-1690 could be captured by the player visiting different time layers. For example, the River Boyne that runs through the Battle of the Boyne site is the mythical home of The Salmon of Knowledge, and the player could visit a "Celtic time layer" to experience this culturally significant story. A "modern time layer" could incorporate concerns, thoughts and experiences from contemporary Ireland and allow visitors to the site to learn how the Irish people today think about the site and the role it plays for them today. Each layer would have its own narrative but probably share the same (or at least, similar) game mechanics in order to make the experience straightforward to learn.

Perhaps the most ambitious approach would be to use time travel to play alternative histories, speculating on what ifs, and different scenarios, affirmative futures and critical and inclusive views on the events and the site's heritage. What if the battle had been won by King James, what histories could have taken place instead? Another option could be to let the players embody different characters and time travel to the same time layer to experience the event from different points of view (POVs). Although the technique of narrating synchronous multiple POVs on the same event does not necessarily require time travel, it combines well with the time travel construct, allowing the same player to time travel back and forth multiple times and can help them appreciate the complexity of the events that spanned only a single day.

### **3.4 The Potential of Fantasy Stories and the Temporal Collisions**

Of the four genres discussed, fantasy is the one that seems to offer less creative game design solutions regarding the Battle of the Boyne. The historical event of the battle carries significant political and historical weight, so the use of speculation and fantasy should be employed with extreme care and consideration of inclusion due to the site's controversial heritage, as well as its violent history and bloodshed. Nevertheless, the rich Irish mythology and folklore (e.g., fairies and leprechauns inhabiting fields, woodlands and the open countryside) could play a role, for example to encourage audience members to think about the local cultural lore and its role in the Irish culture and society where past, present and future collide. Moreover, the local lore is connected with the site preceding the events of the battle and somehow represent the cultural milieu in which the local soldiers were embedded at the time of the battle.

A game design incorporating temporal collisions of the type used in fantasy stories can employ an open-ended structure like the time travel stories, affording a variety of types of controls, from the meta level only, to little control, to considerable control. The fantasy content of the narrative or game could easily be viewed as its own layer – independent from the events of the battle itself but still set in the same locations. The mythological and folklore material could be expanded to serve as a backdrop for a story rather than a strict representation of the core myths themselves. Regarding game mechanics, fantasy stories have the same degree of flexibility that we observed in time travel stories. However, time travel stories (frequently incorporating science fiction and technology) are an excellent fit for games running on high-tech devices like smartphones, offering a smaller distance towards suspension of disbelief than a full-fledged fantasy setting

## **4 CONCLUSION**

In this paper, we have discussed how narrative techniques from genre fiction – specifically historical fiction, ghost stories, time travel and fantasy – can be used to achieve the temporal collisions necessary for framing story-driven locative cultural heritage experiences. We identified the nature of the main connections used by the different genres (including issues of narrative control), and we offered a tentative mapping to an actual historically charged and contested cultural heritage site.

Perhaps not surprisingly, time travel and ghost stories appear to offer the most straightforward means of achieving the temporal collisions. Hilary Mantel, in her Reith Lecture, remind us:

We chase the dead, shouting, ‘Come back!’ We may suspect that the voices we hear are an echo of our own, and the movement we see is our own shadow. But we sense the dead have a vital force still – they have something to tell us, something we need to understand. Using fiction and drama, we try to gain that understanding. I don’t claim we can hear the past or see it. But I say we can listen and look. There are techniques we can use. [12] (2017)

## 5 ACKNOWLEDGMENTS

LoGaCulture has received funding from the European Union’s Horizon Europe Framework Programme under grant agreement 101094036. Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union or the REA. Neither the European Union nor the granting authority can be held responsible for them.

## References

- [1] Ballagas, R., Borchers, J. O., & Walz, S. P.: REXplorer: A pervasive spell-casting game for tourists as social software (RWTH-CONV-184728). CHI 2006, Workshop on Mobile Social Software. Fachgruppe Informatik. (2006)
- [2] Bendix, R. S. & Galit, H.: A Companion to Folklore. Wiley-Blackwell. (2012)
- [3] Botting, F.: Gothic 2nd edn. Routledge & CRC Press., London
- [4] Byrne, D. R.: Heritage as social action. In G. J. Fairclough, R. Harrison, J. H. Jameson, & J. Schofield (Eds.), *The Heritage Reader* (pp. 149-173). (2008)
- [5] Christopher, D.: “The Doors of Perception: Horror Video Games and the Ideological Implications of Ludic Virtual Reality,” *Games and Culture*, volume 18, issue 3, 2022.
- [6] Falk, J.H.: Identity and the Museum Visitor Experience. Routledge, Walnut Creek, Calif., 2009
- [7] Falk, J.H., Dierking, L. D.: Learning from Museums: Visitor Experiences and the Making of Meaning. AltaMira Press. 2000
- [8] Haahr, M.: Reconciling Immersion and Presence: Locative Game Mechanics and Narrative Techniques for Cultural Heritage. *Virtual Creativity*, 8(1), 23–37. (2018)
- [9] Guidi, G., Frischer, B., Lucenti, I: Rome Reborn - Virtualizing the ancient imperial Rome. (2012)
- [10] Haahr, M., & Wiil, P. H.: A Lens to the Past: Using Site-Specific Augmented Reality for Historical Interpretation. In H. Söbke, P. Spangenberg, P. Müller, & S. Göbel (Eds.), *Serious Games* (Vol. 13476, pp. 259–265). Springer International Publishing. [https://doi.org/10.1007/978-3-031-15325-9\\_19](https://doi.org/10.1007/978-3-031-15325-9_19) (2022)
- [11] Herz, S. K.: Using Historical Fiction in the History Classroom, Curriculum Units by Fellows of the Yale-New Haven Teachers Institute, 1 1981 Volume cthistory: Connecticut History (1981)
- [12] Mantel, H.: Reith lectures of Hilary Mantel - “The day is for the living”, <https://www.bbc.co.uk/programmes/b08tcbpr>, last accessed 2024/07/12
- [13] Marchegiani, L., Nasta L., Pirolo L.: Adapting to the digital wave: tour guides’ role perception and technological integration in the cultural ecosystem, *European Journal of Cultural Management and Policy*, vol. 14, doi: 10.3389/ejcmp.2024.12846, (2024)
- [14] Mäyrä, F., & Lankoski, P.: Play in a Mixed Reality: Alternative Approaches into Game Design. *Digital Cityscapes: Merging Digital and Urban Playspaces*, 129–147. (2009)
- [15] Nisi, V., Oakley, D. I., & Haahr, D. M.: Inner City Locative Media: Design and Experience of a Location-Aware Mobile Narrative for the Dublin Liberties Neighborhood. (2006)
- [16] Nisi, V., Costanza, E., & Dionisio, M.: Placing Location-Based Narratives in Context Through a Narrator and Visual Markers. *Interacting with Computers*, iwc;iww020v1. <https://doi.org/10.1093/iwc/iww020> (2016)
- [17] Poole, S.: Ghosts in the Garden: Locative gameplay and historical interpretation from below. *International Journal of Heritage Studies*, 24(3), 300–314. <https://doi.org/10.1080/13527258.2017.1347887> (2018)
- [18] Reid, J., & Hull, R. (2011). What makes mediascapes compelling?: Insights from the Riot! 1831 case-study. In *The Mobile Audience* (pp. 193-204). Brill.
- [19] Spierling, U., Winzer, P., & Massarczyk, E.: Experiencing the Presence of Historical Stories with Location-Based Augmented Reality. In N. Nunes, I. Oakley, & V. Nisi (Eds.), *Interactive Storytelling* (Vol. 10690, pp. 49–62). Springer International Publishing. [https://doi.org/10.1007/978-3-319-71027-3\\_5](https://doi.org/10.1007/978-3-319-71027-3_5) (2017)

- [20] Sterling, C.: Becoming Hauntologists: A New Model for Critical-Creative Heritage Practice. *Heritage & Society*, 14(1), 67–86. <https://doi.org/10.1080/2159032X.2021.2016049> (2021)
- [21] Teo, H-M.: Historical fiction and fictions of history. *Rethinking History*. 15. 297-313. 10.1080/13642529.2011.570490. (2011)
- [22] Wani, S.A., Ali, A. and Ganaie, S.A.: "The digitally preserved old-aged art, culture and artists: An exploration of Google Arts and Culture", *PSU Research Review*, Vol. 3 No. 2, pp. 111-122. <https://doi.org/10.1108/PRR-08-2018-0026>, (2019)
- [23] 3/19/25 11:33:00 AM S. Brewster and L. Thurston, *The Routledge Handbook to the Ghost Story*. Routledge New York, NY, 2018.
- [24] Ghost story | Mystery, Supernatural & Horror | Britannica." Accessed: Jul. 14, 2024. [Online]. Available: <https://www.britannica.com/art/ghost-story>
- [25] Smith, A. (2013). *The ghost story 1840–1920: A cultural history*. Manchester University Press.
- [26] Propp, V. (1968). *Morphology of the Folktale*. University of Texas press.
- [27] Jameson, Fredric. 1991. *Postmodernism: Or, the Cultural Logic of Late Capitalism*. Durham, NC: Duke University Press.