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**Ambedo: Immersive Storytelling through Augmented Reality**

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Ambedo: Immersive Storytelling through Augmented Reality

Cover Page Footnote
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Abstract: The territory of locative media, coupled with augmented reality, offers unique opportunities to excavate and unpack rich historic events, in immersive storytelling. In September of 1943, during World War II, approximately 5,200 Italian soldiers were massacred on the Greek island of Kefalonia by Nazi troops. This massacre is credited as one of the largest ever prisoner-of-war massacres, in recent history (Lamb, 1996) and left an indelible mark on the island of Kefalonia. In 2019, Configuring Kommos: Narrative, Event, Place and Memory, an interdisciplinary research project, began an investigation into the triangulation of narrative within the complexity of this tragic collection of events.

This paper presents the structural formation of the augmented reality app, Ambedo, currently under development as part of the broader project. Ambedo, principally reliant on geo-referencing for navigating the nuanced terrain of the island, serves as a counter monument to those martyred while seeking to facilitate access to the ontological formation of the event(s)

Keywords: Immersive storytelling, augmented reality, counter monument, memory, narrative, locative media, Acqui Division, Kefalonia
I. INTRODUCTION

Configuring Kommos: Narrative in event, place, and memory explores the tangible construction of narrative generated from the intangibility of an historic event, the Massacre of the Acqui Division in 1943 on the island of Kefalonia, Greece. In 1940 and 1941 Nazi and Italian armed forces commenced occupation of the island. Following the Italian surrender to Allied Forces, approximately 5,200 Italian soldiers were massacred by German Wehrmacht troops during a one-week period. This massacre is credited as one of the largest ever prisoner-of-war massacres in recent history (Lamb, 1996).

This research project seeks to investigate narrative threads of the Acqui Massacre in the requisite personal stories and event artefacts. Through the triangulation of mediated narrative formation, this project seeks to investigate subjectivity vs. objectivity, linearity vs. nonlinearity, and the tangible vs. intangible of an ‘event-oriented ontology’. Initial research includes archival material (artefacts, photographs and related historical texts), in-person interviews and testimonials, and location (geolocation and visual documentation). The material generated through this research will serve as digital content for an augmented reality app, a site-specific multimedia installation, and a catalogue of artifacts. In particular, the augmented reality app, Ambedo, will allow users to participate in a site-specific multi-sensory experience across the island.

Beginning in October 2019, interviews were conducted with community members of the Greek and Italian communities based in Kefalonia. Interviewees were both witnesses of the massacre with direct childhood experience and memory of the events that took place, or descendants of those involved who hold familial and collective memory passed down through generations. Very little has been documented. A grandson of a fallen soldier expressed,

For 20 years more or less, [my mother] didn’t know what happened to her father because officially, he was presumed missing in action, presumed dead, but there was no official statement. Even though her mother tried to go to the official army entities, they didn’t know, they didn’t want to talk about it [...] Everything was shrouded in mystery because it was shameful for everybody. (Anonymous, Facebook message to author, October 19, 2019)

One purpose of this project is to use augmented reality as a means to gather personal stories that are at risk of remaining hidden or lost, and to offer a way to preserve and share such stories that are vital to a community’s history.
Artefacts of the massacre have been collected by local organizations and are currently exhibited in the small Italian “Divisione Acqui” War Museum in the town Argostoli. Ranging from medals, photographs, newspaper clippings, clothing and military paraphernalia; the museum holds hundreds of objects. Additional artefacts, in the form of various personal effects have been uncovered by the project collaborators through the individual and group interviews. These artefacts, including objects such as jewelry, photographs and clothing, begin to allude to a meta-narrative stemming from the tragic events. By cataloguing these artefacts, we begin to unpack nuanced and entangled narrative threads that cross and tie national alliance and allegiance, community survival and intergenerational divide.

Massacre sites across the island are known within the Kefalonian community and are loosely documented in a leaflet produced by the “Divisione Acqui” museum. These sites of massacre exist on the island with no recognizable markers or physical indicators. They appear as banal fields, groves of olive trees, abandoned wells, ravines, and town squares. For example, outside of the village of Faraklata lies a massacre site of roughly 300 individuals (doctors, nurses, and wounded soldiers) at a field hospital. With no usable roads, a 45-minute walk through fields and brush leads to the unmarked site.

The absence of documentation for this complex event is substantial. There are no commemoration markers of massacre sites, no available documented interviews, and no markers of the mass grave sites. However, the event is deeply embedded in the island’s identity. In collaboration with the Ionian Center for Arts and Culture, this project aims to utilize augmented reality as a means to create an immersive, site-specific living museum across the island of Kefalonia.
II. APPLICATION OF IMMERSIVE TECHNOLOGY: AUGMENTED REALITY

The island of Kefalonia, located in Western Greece, has a diverse landscape spanning mountainous rocky terrain, fertile farmland, winding roadways, underground waterways, and pristine coastal beaches. This topography presents unique challenges and opportunities in developing and configuring an augmented reality app in order to create the necessary immersive experience, within the unique conditions of the island and the individual sites. Given the nature of the massacres and the number of sites relevant to them, it would be beyond the scope of this project application to attempt to include every known site for the massacre. The location of some sites on private land, their distance from the shore, their inaccessibility, and the sheer distance between all of them render it difficult to fully document for this purpose. Consequently, a select number of sites were considered for inclusion in Ambedo as proof of concept. Perhaps over time, additional sites can be documented and included in order to further expand the immersive experience of the events that took place in Kefalonia in 1943.

In the end, five sites were designated as representative of the event of the massacre and the information captured and employed in the augmented reality app consists of audio recordings of personal narratives coupled with photographic documentation of artifacts found both locally at the sites as well as from the Italian “Divisione Acqui” War Museum collection. The sites included are: Agia Barvara (The Church of St Barbara), Prokopata (the well), Poulata (the wall), Farao (‘Casa Rosa’), and Faraklata (the infirmary). Apart from the historic significance of these particular sites, they were also chosen because of how frequently they were referenced in the interviews, and their comparative nearness to each other on the island. While nothing is distant on the island, getting to the five sites by car can take the better part of the day.
Due to the site specificity of events on the island and their location, augmented reality through *Ambedo* will be employed as a means of mapping and embedding the intangible with the tangible while furthering the visitors process of exploring and experiencing the actual sites. Reliant on the media's ability to collate, catalogue, and archive materials in an accessible manner, the use of augmented reality allows visitors (end users) a site-specific engagement with the event. Visitors experience a non-linear narrative wherein they control the unfolding of events based upon or driven by the path they chose to pursue across sites on the island. While some sites are closer together than others, the nature of Kefalonia makes for the unfolding of the experience, something the end user must decide upon as they traverse the island. Digital content culled from the various points and artifacts help facilitate a multi-sensorial engagement for visitors both of an auditory and visual nature.

Narrative overlays capture first- and/or second-hand personal accounts that buttress imagery corresponding to artifacts attached to the individual sites. The purpose is to lend an air of immediacy to the presence of the viewer of the event they are connecting to via the app. Their presence on the site is the only way to access the information of the event as all data is coupled to the area via geolocation. Kefalonia becomes its own memorial by the active participation of the visitor—in effect an interactive museum that stands testament to the events of 1943.

There are several monuments documenting the events of the Acqui Massacre. This project is akin to them but can also be seen as the production of a counter *monument,* one founded upon narrative accounts with the intent of excavating the rich, nuanced personal histories associated with the experience. In granting access to the past in this way, the aim is to destabilize first impressions yet gain access to the personal experience of an event driven ontology predicated upon location and artifacts associated with events. The intent is to create an expanded experience but also one that preserves the locations in their present form without drawing attention to their mundane or forgotten nature.

**III. FUNCTIONALITY + END USER EXPERIENCE**

Serving as a counter monument to those martyred, the augmented reality environment provides access to the public in the form of a preserved historic record. While visitors listen to the rich personal stories, viewing the illuminating images and artifacts they are able to benefit from a sensorial experience of the actual location; feeling the warmth of the sun, the sound of ocean waves breaking on the island's shores, and the smell of local fauna. The location-based application of augmented reality allows visitors to the individual sites of massacre to access the triangulated narrative, in a dynamic, immersive experience.

The app (*Ambedo*), currently in development, employs geo-referencing as a principle instrument for visitors to access a location-based virtual, immersive environment through their personal smartphone.

Marker-based detection, such as 3D image recognition and tracking, allow visitors to detect 2D images within 3D spaces in order to trigger and access digital content. However, any alteration in the physical environment, such construction, can disrupt the image and limit a visitor's access. Geo-referencing
reliant on geolocated data mitigates potential issues arising from alterations in the physical landscape while maintaining a dynamic immersive experience. Additionally, the use of geo-referencing facilitates the opportunity for way-finding from site to site.

Cradled in the territory of locative media, Ambedo bridges story formation and reception in time and place. Positioning and geo-based technologies coupled with the layering of virtual information can traverse time anchored in a specific place. Locative media, originally used to characterize location-aware technologies, can heighten an awareness of the genealogy of a place through layers and impermeable traces of personal experience. Matt Ward and Anne Galloway (2006) liken the non-disciplinarily defined territory of locative media to Deleuze and Guattari’s mapping “The map is open, connectable in all its dimensions, and capable of being dismantled; it is reversible, and susceptible to constant modification. It can be torn, reversed, adapted to montages of every kind, taken in hand by an individual, a group or a social formation… Contrary to a tracing, which always returns to the ‘same’, a map has multiple entrances” (Deleuze and Guattari, 1983, P. 25-26). Bruce Sterling describes the way in which it unearths opportunities in space and place, stating:

The combination of mobile devices with positioning technologies is opening up a manifold of different ways in which geographical space can be encountered and drawn. It thereby presents a frame through which a wide range of spatial practices that have emerged since Walter Benjamin’s urban flaneur may be looked at anew. Or are Locative Media only a new site for old discussions about the relationship of consciousness to place and other people? In the early days of sea travel, it was only the navigator who held such awareness of his exact position on Earth. What would it mean for us to have as accurate an awareness of space as we have of time? In the same way that clocks and watches tell us the exact second, portable GPS devices help us pinpoint our exact location on Earth. (2007).

The end-user experience, facilitated by geo-referencing, can tap into the ontological formation of the event while mitigating navigational issues of the island terrain and creating an individual, dynamic experience. If and when the island’s landscape is altered by future developments – accessing the digital content will not be affected. Visitors will not be limited by 3-D image recognition and may access digital content entering into a site from multiple perspectives and literal paths.

IV. CONCLUSION

If memorials are built to monumentalize and commemorate events of our past, their existence roots us in our landscapes. The tragic events of the Acqui Division Massacre have indelibly etched themselves into the landscape of Kefalonia, Greece, but also in the minds of those witness to the events on the island then and their descendants now. Augmented reality affords us the opportunity to excavate memories and link them to our past in new and intriguing ways as we grapple with notions of place, time, and the events that transpire with life. As a triangulating nexus for these concepts, Ambedo attempts to access an event-oriented location, at a remove from the memorial and maudlin, yet inextricably tied to it. The intent is to craft an experience that helps to activate the landscape...
with narrative voices while evoking images that link the past with the present, the tangible with the intangible, the personal with the historical. Embedded in the landscape of Kefalonia is the memory of the massacre of 5200 Italian soldiers. *Ambedo* explores this experience and presents a living museum to their memory.
V. REFERENCES


VI. MEDIA

Fig. 1. Map of Kefalonia with identified sites https://drive.google.com/file/d/1eaz2m_jXlhCoN4Mt0jixABdj-b-bvFi2/view?usp=sharing

Fig. 2. Personal effects of soldier – canteen https://drive.google.com/file/d/1ee8y24wozBje-jwjKw9RtHf-jcZmhMLt/view?usp=sharing

Fig. 3. Personal effects of soldier – boots https://drive.google.com/file/d/1ei0_Ky6q0Qlc7C R2-cfVx3HgyQ-uykuD/view?usp=sharing

Fig. 4. Fig 4 Prokopata – the unmarked well https://drive.google.com/file/d/1ergomFZk5JaCO3lEkQb0UXT5NMQpLIm/view?usp=sharing