Play to Preserve the Past: Safeguarding Vietnamese Intangible Heritage through Augmented Reality Creative Practice

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Abstract

Intangible heritage, globally, is under threat from aggressive urbanization and globalization, particularly in developing nations like Vietnam. UNESCO defines intangible cultural heritage as encompassing oral traditions, social practices, rituals, festive events, traditional craft skills, childhood play, and food-making traditions. To safeguard this heritage, technology-driven solutions, such as augmented reality (AR), have emerged as potent tools. AR, initially a concept of fiction, has transformed into a prevalent medium that blends digital and physical environments, allowing digital objects to coexist with real-world elements. Using AR to digitize intangible heritage is a powerful application of modern science in cultural artifact protection. However, this trend poses questions about the appropriate use of these advanced tools and their impact on preserved content, necessitating further research. With a dedicated lens on the oral traditions and social rituals intrinsic to Vietnamese culture, this research undertakes a nuanced exploration of creative practice methodologies and considerations for crafting immersive Augmented Reality (AR) experiences. Central to this pursuit, the research endeavours to respond to a pivotal inquiry: "How can creative practitioners *harness* the potentials of AR for seamless transmission of intangible cultural heritage?"

Keywords

Intangible Cultural Heritage (ICH), Augmented Reality, Vietnamese cultural heritage, Digital Heritage, Creative Practice

Introduction

To answer the research question "How can creative practitioners *harness* the potentials of AR for seamless transmission of intangible cultural heritage?", we have embarked on a journey of crafting a series of progressive augmented reality mobile applications called: "Play to preserve the past". This research employs a problem-led practice-based research method, combined with reflective practice, and cultural context analysis based on the researcher's Vietnamese background.

The first project, Banh Chung AR, the subject is the tradition and social practice of making "Banh Chung", Vietnamese sticky rice cake, the traditional Lunar New Year's staple that brings family members together. This endeavour seeks to unveil the lesser-known facets of Vietnamese culture and present a contemporary image of Vietnamese tradition, concurrently reclaiming the country's narratives. Banh Chung AR, born out of the researcher's deep longing for home, worsened by the pandemic's physical distance, revealed AR's power to evoke a sense of belonging and bridge spatial gaps, drawing players nearer to their roots. The intent is not to replace real-life celebrations but to bridge physical gaps, turning the impossible into reality.

The second project, Moonlight AR, involves the social rituals of parading with lanterns while hearing the Moon Tale as part of Mid-Autumn Festival celebration. This application is a tribute to city-kid nostalgia, where crafting traditional animal lanterns and parading with them during the annual festival shaped many generations of Vietnamese's early childhood years. The moon tale story, a timeless gem, transcends generations and finds a new life within the app's engaging physical gameplay. In its essence, Moonlight AR is an effort to safeguard these cherished social rituals and oral traditions that have left an important mark on the researcher's identity.

The last project is Lost Folk AR, introducing the Folk Wisdom value system embedded in Vietnamese Dong Ho Folk Paintings. Traditional Vietnamese folk art is at risk of fading due to a lack of interest and appreciation. These arts contain the traditional values embed in our ancestor's system and hold its importance in societal discourse in the modern society, where old and new values sometimes collide and contradict each other. Lost Folk AR utilises augmented reality along with gamification to create an interactive and engaging way to learn about the cultural significance of folk wisdom and traditional values embedded in folk paintings.

Through the iterative design cycle, development processes, playtesting and play evaluation of each app, a set of key design considerations have emerged for the seamless transmission of ICH through AR creative practice. Moreover, a pressing need has come to light for innovative solutions that harmonise with the essence of cultural values, while prudently avoiding technological overreach. By immersing in this challenge and thoroughly exploring AR's application within the framework of Vietnamese culture, the research aims contribute to the broader discourse regarding AR's role in the preservation and transmission of cultural heritage.

Background

Defining Key Terms: "Intangible Cultural Heritage" and "Augmented Reality"

Intangible cultural heritage (ICH) has a wide range of expressions and can be identified as oral traditions (storytelling); social practices, rituals, and festive events (festivals); knowledge and skills used to produce traditional crafts (making lanterns); and other variants worth acknowledging like childhood play and food-making traditions (special cakes). [3] [4] [5]

"Cultural transmission" is the process that entails the acquisition and transference of knowledge to subsequent generations. [6] In the context of this project, the term encapsulates how cultural values, standards, and norms are passed on to succeeding generations via Augmented Reality.

Augmented Reality (AR) used to be a concept of fiction, before it became a popular medium in our time. According to Kipper and Rampolla (2012), AR superimposes digital and computer-generated objects onto the real world. [7] The authors also see AR as a 'middle ground' that blends the virtual and real worlds, allowing virtual objects to overlap and blend naturally with the real world. Gene Becker (2010) describes AR as a new medium for creative expression. [8] Other 3D techniques such as 3D scanning, modelling, visualisation can be combined with AR to generate better and compelling representation of the cultural artefacts (Bentkowska-Kafel and MacDonald 2009). [9]

Defining the Intersection: "Digital Heritage" and Beyond

In adopting 3D AR technologies to reconstruct cultural heritage, it is challenging to address accurate and precise phrases to portray this marriage. The term "digital heritage" has emerged as a fusion of digital technology and cultural heritage initiatives, encapsulating diverse practices such as augmented reality, 3D modelling, and interaction design**.** [10] This involves both the materials of the past and new digital content developed for representation and interpretation of cultural references. However, this term might inadvertently underscore technological shifts rather than the essence of heritage itself.

Evolving Cultural Heritage

During my literature review, the concept of evolving cultural heritage emerged, with modern art in Southeast Asia serving as a compelling case study. [11][12] Through the study, I have discovered a compelling parallel between past artistic resistance to colonisation through Western-inspired aesthetics and contemporary research practices that utilise advanced technologies to safeguard cultural identities. Both endeavours share a common purpose: the preservation of tradition and heritage. However, their commitment to this cause exists within the context of unstoppable technological progress, endowing them with an inherent "evolving" nature.

The insights gleaned from this historical analysis bolster the core direction of this research, mirroring a similar evolutionary process in the past. Central to this exploration is the concept of "evolving cultural heritage," wherein the researcher and practitioner undergo a transformative journey akin to artists adapting to historical, environmental, and social contexts. This study is thus not a detached academic pursuit, but an introspective voyage reflecting human advancement in an era dominated by technology.

AR as a Tool to Transform Engagement with Cultural Heritage

In the ever-evolving landscape of technology, augmented reality (AR) emerges as a powerful tool that has the potential to reshape our engagement with cultural heritage. As technology advances and becomes more integrated into our lives, the concept of AR has gained prominence, akin to the transformative impact of past technological innovations like computers and mobile phones.

It is imperative to view AR not as an end in itself, but as a means to unlock new dimensions of cultural heritage representation [13] To capture the profound impact of AR as a medium, we turn to McLuhan's notion that *"the medium"* is the *"message".* [14] Bolter and Grusin's concept of 'remediation further elucidates this transformational process, wherein cultural artifacts are reimagined through their virtual counterparts, giving birth to novel narratives. [15] Yehuda Kalay's notion of "new cultural heritage" captures this essence, signifying the "contemporary revitalisation of heritage and history through digital means". [16] Efrat and Casimiro extend this idea further by emphasising the process of "contemporary remediation and reproduction of heritage and history via digital means", which can "transform our perspective of the past" by offering new opposing narratives. [17]

Related Works

In this context, this related work section delves into contemporary practices that harness AR to breathe life into cultural heritage, transcending traditional boundaries and creating innovative narratives.

One of the most prominent examples is Pokémon Go. Emerged in 2016, the app turned real-world locations into virtual Pokémon playgrounds, captivating a diverse audience. Whilst it received criticism regarding having Japan's cultural odour (sic) purposefully removed to produce a globally digestible product (Iwabuchi 2004), not all of us know that the game's origin reveals a history of Japanese seasonal play practices [18] [19] Satoshi Tajiri's childhood experience collecting insects in Japan inspired the concept of capturing creatures in Pokémon, bringing a piece of Japanese tradition to the virtual world. This surfaces how the evolution and contemporary re-contextualisation of embedded cultural practices, alongside the evolution of

technology, might be the formula for a massively successful and widely adopted technology case.

In the world of research, esteemed researchers such as Huang and colleagues (2019) have ingeniously developed a prototype that facilitates a seamless and organic interaction between humans and the realm of folk intangible cultural heritage. [20] Meanwhile, Shih et al. (2020) have astutely harnessed the power of augmented reality and photogrammetry to meticulously reconstruct the Taiwanese Lantern Festival. [2] In a similar vein, Tong and Kim (2021) offer a visionary roadmap for both the preservation and advancement of intangible cultural heritage, with a specific focus on the timeless art of traditional shadow play. [1]

For marginalized communities, AR serves as a platform for cultural resurgence. The *Yalinguth App* stands as a testament to this, reviving Aboriginal and Torres Strait Islander oral traditions through location-based storytelling and interactive sound design. [21] This AR application bridges the past and present, fostering empathy, respect, and community connection while encouraging contemplation of historical narratives and identities.

These contemporary practices in the field collectively exemplify the innovative potential of augmented reality in redefining our interactions with intangible cultural heritage, signifying a growing interest for contributions in the field.

Methods

The research approach involves crafting a series of progressive AR mobile application prototypes called "Play to Preserve the Past." This method combines problem-led practice-based research, reflective practice, and cultural context analysis. The research design comprises three phases: examination of resources, iterative design, and evaluation, supported by ongoing reflection and documentation.

The first phase, *examination of resources,* involves identifying which specific aspect of intangible cultural heritage will form the subject of research. In this case, the culinary tradition of making Banh Chung, the social rituals of parading with lanterns and sharing the Moon Tale stories during the Mid-Autumn Festival, and the cultural significance of Vietnamese Dong Ho Folk Paintings, are examined. In the Preproduction phase, I apply the insights to design level gameplay system, flowcharts, visual style guides, and craft detailed teamwork plans with the developer.

The next phase, iterative design process, involves the digitisation of cultural assets through 3D modelling, texturing, animating. Interactive prototypes are developed through iterative cycles of design, observation and testing, and evaluation for further refinement.

The first prototype Banh Chung AR uses touchscreen interaction, allowing users to assemble their own space and tap to explore cultural artifacts through the device screen. Moonlight and Lost Folk AR feature interaction based on device movement, necessitating user's active engagement with space for exploration and learning. The frameworks that inform this design process are the MDA framework and Game-based approach for interaction design, Interactive Thematic Virtual environment for narrative construction, "Lived Space" in "The Production of Space", UX Principles for user interface design. Playtesting with peers and community members plays a critical role in refining the design based on user feedback and reflections.

Results and Discussion

The results of this research journey are reflected in the development of a critical approach to AR interaction design for engagement with intangible cultural heritage. From the easy-to-use touchscreen-based approach to the more immersive spatial interaction and storytelling approach, the three AR apps embody the shift from passive to active user roles and the impact this has on participants engagement with the cultural subject.

But this journey isn't just about changing interaction methods; it's also a personal evolution. It's connected to my shifting cultural identities, my growing awareness of my responsibilities as a Vietnamese individual living in Australia, and the role I play as a creative practitioner and researcher in the growing domain of digital heritage.

The three AR apps, Banh Chung AR, Moonlight AR, and Lost Folk AR, offer immersive cultural experiences that bridge spatial and generational gaps and introduce a contemporary image of Vietnamese tradition to international audiences, while reclaiming my country's narratives through lesser-known aspects of our heritage.

For the locals, Banh Chung AR evokes a sense of home and belonging, draw us closer to our roots, and revisit those cherished celebrations etched in memories. For Vietnamese youth growing up abroad, it serves as educational tools to reconnect them with their heritage. While not intended to replace real-life celebrations, the AR experiences provide an alternative where physical interactions become challenging, bridging these physical boundaries, turning the impossible into reality. In this case, AR's enchantment and warmth shine through.

Those who've engaged with Moonlight AR, both local and international, report a flood of nostalgia and a rekindling of childhood playfulness. Alan Nguyen shared his thoughts:

"After playing the game (Moonlight AR) I was reminded of a childhood memory of playing with the lanterns in the same festival. I grew up in Canberra and my parents brought me to a local Vietnamese community event so we could still celebrate, I remember joining a parade with other children and marching on stage for all of our parents. I spoke with my mum about it recently and apparently, I was swinging the lantern out in front of me and sort of… wiggling on stage to make my parents laugh."-Dr Alan Nguyen

Modernity has changed the way celebrate festivals over time, and in this digital era, when portable device becomes an integral part of our daily lives, this work asks a vital question: how can our cultural heritage evolve with these

augmented technologies, becoming a living heritage in its own right? To answer this, prototypes like Moonlight AR introduce a new form of physical gameplay, one that pays homage to traditional lantern play whilst integrating AR technology. The design considerations inspire practitioners to uphold cultural authenticity and essence while crafting augmented experiences. The app also introduces interactive storytelling as a contemporary representation of oral traditions, this exploration delves deeper into the power of narratives to foster resilience and reflects the essence of our cultural identity in a globalised world.

On another level, my research highlights the potential of AR to prompt reflections about the evolving landscape of our cultural beliefs and values. Lost Folk AR raises questions about which aspects of our culture deserve preservation, and which are outdated. As technology races forward, we must consider those facets that encapsulate our identity, and conversations about the shifting value system becomes an urgent need.

This journey, evident through these prototypes, has made it clear that a deeper investigation is needed to understand the complexities of cultural authenticity and technology usage in interaction design. These results lay the foundation for further in-depth inquiry and exploration about AR's role in heritage preservation. Instead of mere replication, can AR become a medium in which heritage can be viewed and celebrated within its original context?

Conclusion

In conclusion, this research responds to the growing and pressing need to safeguard cultural heritage by delving into the critical intersection of intangible cultural heritage preservation and the emerging field of AR technology. By focusing on the unique context of Vietnamese oral traditions and social rituals, my research provides valuable insights into how creative practitioners can effectively utilise AR to transmit intangible heritage seamlessly and create meaningful experiences that strives to balance cultural authenticity and technological intervention.

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Author Biography

Nhu Bui is a designer-researcher "living between cultures" with a deep sense of responsibility towards preserving and celebrating her heritage. She is born in Saigon (HCMC), Vietnam, and currently based in Naarm (Melbourne, Australia). Nhu was a research assistant at RMIT PlaceLab, a graduate of the Master of Animation, Games & Interactivity, and recently a PhD Student at

RMIT University. Her research focuses on *Safeguarding Vietnamese Intangible Heritage through Mixed-Reality Creative Practice.*

Nhu's journey commenced with the Bachelor of Digital Media at RMIT Vietnam, where her studies primarily focused on 2D Communication design. However, her transition to Australia for an exchange program marked the true blossoming of her passion for preserving and promoting Vietnamese cultural heritage, particularly through emerging 3D virtual reality practices.

Subsequently, Nhu worked as a UX/UI Designer for several creative agencies in Naarm (Melbourne). However, her deep passion led her to pursue a master's degree, where she embraced Augmented Reality to preserve Vietnamese intangible heritage. This is when Nhu realises an underlying sticky problem of technology overreach and challenges herself to explore how practitioners can uphold cultural authenticity while harnessing 3D advanced tools.

For Nhu, this journey is not just about exploring new interaction methods; it's also a personal evolution. It's connected to her shifting cultural identities, her growing awareness of her responsibilities as a Vietnamese individual living in Australia, and the role she plays as a creative practitioner and researcher in the expanding domain of digital heritage.

Nhu's research is taking a step forward as a PhD project under the supervision of experts in virtual and augmented reality research. Her series of apps is accessible on the AppStore and was showcased Mind & Machine Exhibition at Vietnam's Festival of Creativity and Design 2023, where she also hosted a workshop about 'Crafting augmented lanterns'. Additionally, she also mentored and collaborated in the 'Extended Heritage' Project/ Study program at RMIT Hanoi.