



# Toward an integrated digital humanities: a deep reading

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Received: 8 July 2020 / Accepted: 30 March 2021 / Published online: 20 May 2021  
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## Abstract

Over the past decade, the term “digital humanities” has been used in academia extensively and somewhat indiscriminately, which has often led to some misguidance and exhaustion regarding the term itself. This study provides a more extensive and sustainable approach to practicing digital humanities by incorporating arts that bring imaginative and creative experiential encounters and, further, suggests a mode of deep reading. More specifically, this study explores *Digital Humanities City: Restoration of Soonsung* as an example of an integrated approach based on deep reading in the digital humanities. This project consisted of lectures, workshops, exhibitions, festivals, and, perhaps most importantly, the creation of an augmented reality (AR) mobile application that presented six different storytelling programs created by artists and researchers based on their collaborative research on the heritage site of Hanyang Dosung (Seoul City Wall) in Seoul. In this way, this study shows how AR can be used as an alternative research interface in digital humanities in providing phenomenological and embodied experiences for users by encouraging them to physically experience heritage sites equipped with historically and critically informed virtual information. Through this application, users are encouraged to visit and experience Hanyang Dosung firsthand while enjoying artistic and scholarly interpretations of the site. In facilitating such an embodied experience augmented by AR storytelling that straddles the boundary between the physical and virtual dimensions of the heritage site, this project addresses the fundamental question of how digitality can enhance and augment our *humanistic* experience, and not just reproduce humanities research in digital formats, by showcasing a mode of deep reading as an integrated approach in digital humanities.

**Keywords** Integrated digital humanities · Augmented reality (AR) storytelling · Site-specific art · Digital collaboration · Deep reading · Arts and humanities

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## 1 Introduction: toward an integrated digital humanities – a deep reading

What is “digital humanities”? Over the past decade, the notion of digital humanities has been found almost everywhere, including not only the United States, but also many Asian countries, such as South Korea and China. The great level of excitement surrounding this new field of academic research that has emerged throughout the world has not faded over time, as we have witnessed increasingly more hiring opportunities opening up for digital humanities scholars, almost as if every academic venture is an attempt to grab this golden goose. At the start, digital humanities seemed to be a great opportunity for those humanities departments that were arguably becoming remote islands to innovate and reframe themselves to better suit the contemporary needs of their students. While great attempts have been made to conceptualize and redefine the field among humanities scholars working with quantitative data sets and computing technologies, digital humanities is still a loose label for a series of methodological changes taking place in humanistic disciplines. Some people deploy the term to refer to all kinds of digital publications and reproductions (or “digital pastiches”) attributable to humanists’ research; others interpret the word to mean any studies on digital media. In the midst of uncertainty, the term has become an empty word; Franco Moretti, a literary theorist and digital humanities scholar, once remarked that “digital humanities’ means nothing” (Dinsman, 2016a). However, while some exhaustion due to the misguided nature of the concept is understandable, no one can deny that digital humanities opened up for us, the humanists, a new territory that can be further navigated and that can bring us a more fruitful harvest. In particular, if one starts looking at the practices associated with digital humanities, rather than digital humanities as a mere concept or genre, it becomes possible to identify two large movements that are constantly shaping the field. In his interview with Melissa Dinsman, Alexander Galloway identified these two different approaches in the digital humanities:

[One] aims to determine the specific nature of digitality, whereas [the other] aims to use digitality as a vehicle. The second approach does not really care about modernity’s fundamental question as to the condition of knowledge; what it cares about is the relative obscurity or transparency of letters and numbers. So if the first approach is essentially modern, then the second is, shall we say, medieval! (Dinsman, 2016b)

For Galloway, the first approach covers developments in media theory and archaeology that explore the fundamental characteristics of digital media; such efforts are aimed at understanding how this digitality shapes our ways of living. The second approach consists of the production of digital platforms for research; digital publishing and pedagogy; and augmented writing, reading, and other forms of reproduction. While Galloway seemed to place much more weight on the first approach, I argue that the second approach should not be underestimated, as it creates broader and more contemporary modes of participation and engagement

in humanities research; however, it needs to be reshaped and developed to address the more fundamental question of how digital media shapes all aspects of the humanities—which is itself a function of the first approach. Quite simply, we need a fresh and rather flexible start. What this means is that we do not need to ask what digital humanities is. Rather, we need to start with the following question to fully benefit from what the field has to offer: How do we create a digital platform of research, not as an end product of humanist research that allows for a distant form of reading, but as an ever-evolving interface that explores and provokes a deep understanding of humanity in the digital era? What we need is to make the medieval modern, and this can be accomplished through an integrated approach within the digital humanities. Rather than working with dualistic approaches in the digital humanities, such as distant reading versus close reading, digitality as a tool versus as a subject, or rejecting versus incorporating theory (Ross, 2014), I suggest we work toward an integrated approach, through which we may find that close reading is possible through distant reading, qualitative experiences can be found in the quantitative method, humanity can exist with technicity, and theory can still find its place in the act of untheorizing.

Questions may therefore emerge as to “how” this shift can be made possible. In this essay, I will explore my own digital humanities project, entitled *Digital Humanities City: Restoration of Soonsung*,<sup>1</sup> to suggest one of the ways in which we can realize an integrated approach in the digital humanities by incorporating artistic and imaginative narratives, or *deep reading*, in the digital reconstruction of a heritage site. Deep reading, as opposed to close reading that deconstructs elements of writing with close reflection, constructs elements of a story through the experiences of the readers. Rather than closing off interpretative actions through distant or close reading, deep reading opens up the virtual realms of the text, inviting continuous bodily engagement and imagination while incorporating artistic components. According to Tinberg, “deep reading—diving beneath the surface of a text to retrieve and construct a richly imagined set of experiences—produces a range of beneficial outcomes” (2019). Indeed, deep reading creates space for affective and imaginative projection. I suggest that *Restoration of Soonsung* exemplifies a mode of deep reading, as it speaks to what is invisible—makes the visible visible—and thus stimulates our imaginative engagements. Any meaning-making process is only possible through dynamic interactions between the visible (text as the signifier) and the invisible (the signified). While every meaning production engages with the virtual to some extent, as Brian Massumi argues, art plays precisely at the juncture between the invisible and the visible. In doing so, it reveals the virtual dimensions of forms or the diverse dimensions of things that are mostly invisible in our natural or habitual perceptions. According to Massumi, “[Art] is the technique of making vitality affect felt, of making an explicit experience of what otherwise slips behind the flow of action and is only implicitly felt. It is making the imperceptible appear” (2008). In deep reading, the virtual

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<sup>1</sup> Soonsung was a traditional play of the Joseon dynasty during which people would move along the Seoul City Wall, making wishes and admiring the scenery. Through this project, I wanted to restore the spirit of Soonsung, which makes the city wall an integral part of our lives and plays in the present day and not a stand-alone cultural heritage site.

dimensions of a text are continuously actualized in each reader's bodily participation, thus opening up numerous possibilities in terms of understanding the text.

*Restoration of Soonsung* was awarded Inmuncity (meaning "the city of humanities") funding and was sponsored by the National Research Foundation of Korea. Usually, such funding is awarded to academic institutions for the popularization of humanities research, with the award recipient offering different kinds of public lectures. However, I, along with the curatorial team (Hyun Ju Kim [ex-media] and JiYoon Chun) of *Restoration of Soonsung*,<sup>2</sup> wanted to approach this project in an entirely different way. First, by incorporating an artistic approach and inviting artists to collaborate with humanist scholars, the project provokes deep readings of a specific heritage site (Hanyang Dosung<sup>3</sup>) in Seoul. Second, by using mobile augmented reality (AR) technology, we encouraged users to phenomenologically experience the heritage of the site while engaging with deep readings. By interpreting the notion of space in a more productive sense, the project considers the heritage site not as a passive object or concept but as a dynamic architectural interface through which it was possible to merge humanistic research with everyday life experiences. In other words, rather than conceiving Hanyang Dosung as a mere subject of humanities research, this project rediscovers the site as an interface that brings virtual dimensions (actualized by humanities research) to users' firsthand experiences. At the same time, the project not only offers a digital reproduction of research, but it also functions as a form of humanities research itself by actively experimenting with the possibilities and limitations of digitality in our everyday experiences. Third, by designing a series of workshops and roundtables, participating artists and humanities scholars from across different fields were invited to be part of in-depth interactions and ongoing exchanges of dialogue that established a true sense of integration and research collaboration. In particular, through these collaborations and by including artistic interpretations of various cultural sources, such as folklore, fables, and folk paintings, in historical research, the entire process has contributed to reconstructing the conventional approach to such research; the focus has shifted from the history that has already been written and recorded to the history that is to be experienced and imagined.

## 2 Creative collaborations – the arts of historical research

*Restoration of Soonsung* promotes a mode of deep reading through two primary approaches. First, by incorporating artistic experimentation into humanities research, the project provokes users' imaginations to fill in what is invisible and hidden. Second, by rediscovering the creative dimensions of historical research through a reliance on alternative resources, such as folk paintings, folk tales, legends, and oral narratives born out of grassroots approaches, the project actualizes the virtual and imaginative dimensions of historical research in terms of users' experiences.

<sup>2</sup> As the principal investigator (PI) of the project in its inaugural year of 2018–2019, I laid the conceptual background for the project. Since I left Korea for other career opportunities in 2019, I have been participating in the project as the artistic director. The project is now being managed by Hyun Ju Kim (ex-media; PI), and the AR app is continuously being developed and expanded by JiYoon Chun (Co-PI).

<sup>3</sup> Hanyang Dosung is the original name of the Seoul City Wall.

For some, art is an exclusive practice of a limited group of people who produce “art” as the end products of their creativity. However, with the intervention of digital technology, this definition of the term has been called into question as art has become more processual, collaborative, and ephemeral.<sup>4</sup> Some might prefer to return to the original meaning of art as “skill as a result of learning or practice,” originating from the Old French term for *art*, or the Latin *artem*, meaning “practical skill or craft,” to open up the potentiality—or better, the adaptability—of art in general. However, this relatively basic original meaning lacks the most appreciated characteristics of art: creativity and imagination. By integrating art as an original imaginative force of human beings, it can maximize the potential of humanities research. In this sense, art becomes something that is “productive of” rather than “produced by” (Hawkins, 2014).<sup>5</sup> Art is not the product of a certain process but is instead a creative process itself that opens up different or potential (not yet actualized) experiential realms. Simon O’Sullivan’s definition of an “encounter,” as something that is fundamentally different from an object of recognition, comes into play here. O’Sullivan states, “An object of recognition is a representation of something that is always already in place ... our habitual way of being and acting in the world is reaffirmed and reinforced, and as a consequence no thought takes place. Indeed, we might say that representation precisely stymies thought.” (O’Sullivan, 2006) In contrast, “the encounters staged by art contain within them the possibilities to challenge our typical ways of being in the world; disrupting our systems of knowledge, we are, in effect, forced to (new) thought and actions” (Hawkins, 2014). Art is seen here not as an object, but as a process that calls for participation in generating creative situations and producing affects and differences when coupled with other bodies (including human bodies) and technologies.

This notion of art is realized in the process of designing *Restoration of Soon-sung*. In this account, art embodies the potential to enable new forms of experience; thus, the project was designed to provide novel and multi-dimensional *experiences* of humanities research with regard to the heritage site rather than representations of knowledge itself. By inviting this artistic encounter into humanities research, the project indeed marked an inevitable shift in the traditional coordinates of the historical research of Hanyang Dosung in Seoul. To facilitate creative collaborations, I, as the director of the project, invited six artists and six humanities scholars to participate in the project; they collaborated with each other by studying, deconstructing, and reconstructing the various cultural sources that were available, such as folk tales, legends, and folk paintings.

Nevertheless, history is also about making sense of the past based on facts. History in this sense is often the study of the past described in written documents left by human beings. The facts and written evidence, however, are often vast, fragmentary, and messy. As the historian Glen Cunningham rightly pointed out, history is

<sup>4</sup> One can think here about media performance, interactive art, and the real-time visualization of computing technology.

<sup>5</sup> Harriet Hawkins, a cultural geographer, suggests that it is necessary to rework the conventional approach based on an understanding of art that moves toward a sense of it as “productive of” rather than “produced by.” Hawkins considers art experiences as “creative encounters with transformative potential” (2014).

not bedrock but “quicksand, that bits of the story are yet untold, and that what has been told comes tainted by the conditions of what we are today” (2018). Indeed, historians and archaeologists have always had to be imaginative and creative storytellers by filling in missing parts, connecting dots, and making decisions about what to include and exclude, as well as in terms of deciding how to organize the story. By focusing on the imaginative and creative side of historical research, *Restoration of Soonsung* was designed to explore the unwritten and missing parts by implementing a grassroots approach. Rather than just providing another historical account or bedrock, the project is an attempt to reinvigorate the embodied memories of the people who built, lived, and left their marks on the site. These memories, in my understanding, are embodied in folk paintings, folk tales, legends, stories about the people, and seals on the walls of Hanyang Dosung, rather than in the written documents left by the elite. Thus, the project has shifted the central focus from the history of the documents and records described by those at the high end of the vertical structures of power to the experiences and testimonies of the people, thus highlighting the complexity of humanities discourse. The project has enlivened marginalized grassroots memories and reorganized them into the subjects of a new history by tracing not only historical facts but also narratives and folk tales coming down to us through oral traditions. Further, it has shared these democratized discourses with the public through the use of various interfaces, such as mobile AR content, lectures, workshops, exhibitions, and publications.

### 3 Conceptual backgrounds – spaces where memories are housed

According to Bachelard, space embodies memories and experiences (1994). Measurable structures, such as spatial knowledge or the written histories of certain spaces, are necessary but never sufficient for interpreting the spaces in which we live. Instead, imaginative space, including our lived bodies, provides the roundedness of being that is sufficient for our understanding of space. We experience space with regard to both its reality and virtuality by means of thoughts and dreams. While Bachelard recognized the influence of the spatial knowledge of the world on our spatial experiences, foremost in his account of internal space in relation to other spaces is the insight that we rely on virtual space (the creative and imaginative space) as much as conceived/perceived space. For him, space is where memories are housed, whereas time ceases to quicken memory. In other words, memories are activated in space rather than in time. Historicity dwells in the embodied being, and space embodies history through the depth of being. Inspired by his account, I suggest that we understand history not as a vertical line of time but instead by looking at the horizontal layers that constitute the depth of space. Then, the question emerges as to how this is possible. How do we access the essence of space, that is, the layers of embodied spatial memories that allow us to achieve an integrated understanding of space? How do we activate these memories? To answer these questions, I will first briefly introduce the importance of Hanyang Dosung and how it has served as a cornerstone that embodies the memories of the City of Seoul.

The history of Seoul (also known as Hanyang), the capital of South Korea, which was founded in the Han River area, began in around 1392 when the Joseon dynasty replaced Goryeo.<sup>6</sup> During the Joseon dynasty, the city was entirely surrounded by a circular stone wall with six gates (Hanyang Dosung) to provide its citizens with security against wild animals, thieves, and attacks. For 514 years, until 1910, the gates were opened and closed each day and accompanied by the ringing of the large bells of the Bosingak Belfry. While the city has grown beyond Hanyang Dosung, the structure still remains one of the longest and oldest fortress walls in the world (11.6 miles long) and the most well-preserved fortress walls surrounding a large city with more than 10 million inhabitants. The walls were built along a ridge around the city to minimize damage to the natural environment, reflecting the Korean tradition of respect for the natural world. The structure was augmented and rebuilt in 1422, 1704, and 1800, and different brick designs were used in its initial construction and subsequent reconstructions. Hanyang Dosung embodies architectural history in its form nowadays just as it did during the entire Joseon dynasty that lasted for 600 years.

Rather than looking at Hanyang Dosung as a symbol of the past,<sup>7</sup> *Restoration of Soonsung* was based on a consideration of the walls as a spatial interface that embodies the history of the city (Seoul) and the stories of its people by unraveling the hidden times and spaces behind them. Thus, the project has brought Hanyang Dosung back to life through the humanistic values of the literature, philosophy, history, and art spawned by the fortress walls for over 600 years; more specifically, it has broadened the public's access to such content by using a location-based mobile AR application that displays AR content at specific locations along the Hanyang Dosung. This project has expanded the range of visitors' real-time experiences of Hanyang Dosung by providing informational layers of humanities research while they are at the site. The site has thus become a physical interface of virtual information, and the Hanyang Dosung experience has been reinvigorated and augmented in real time.

*Restoration of Soonsung* had three specific goals:

1. The project uses a digital humanities approach to explore the intersection between information technology and humanities. It not only engages in the digital reproduction of humanities research, but it also tries to enhance human experiences

<sup>6</sup> Goryeo (고려; 高麗; Koryŏ; [ko.rjʌ]) was a Korean kingdom founded in 918 that unified and ruled the Korean Peninsula until 1392.

<sup>7</sup> Until recently, the study of Hanyang Dosung was not very well-supported even though the structure embodies such a significance through having endured the various changes and transformations of the City of Seoul (throughout the Joseon dynasty and the Republic of Korea to the present day). It was generally thought of as a symbol of the past or as a decorative artifact surrounding the city. People often went for walks along the wall but rarely saw its historical and cultural significance beyond its existence as a long stone wall. However, with the national effort to register Hanyang Dosung as a UNESCO Cultural Heritage Site in 2017, historians and literary scholars were convened to form a committee. While the application was not successful, the humanities discourses around Hanyang Dosung were eventually rediscovered and centralized. With the support of the Hanyang Dosung Dogam Department of the Seoul Metropolitan Government, our team was able to utilize all undocumented resources on Hanyang Dosung, as well as inviting a literary scholar (Kyung Jin Hur) and historian (Jeong Soo Han) to collaborate with the artists.

- of the city by incorporating different digital media technologies and providing integrated artistic interpretations of the historical site.
2. The project reconstructs humanities discourses by shifting the focus from written historical documents to artistic productions and human testimonials. More specifically, it is concerned with both historical facts and folk tales, and it reconstructs grassroots memories as subjects of history. This project functions as a platform for the bottom-to-top storytelling that had never before been shared in the recorded histories of Seoul that are expressed in the structure of Hanyang Dosung.
  3. The project restores the meaning of *Soonsung* in multiple ways. *Soonsung* can mean three distinct actions when we write the word in Chinese, but these sound the same in Korean. These Chinese characters are all pronounced as “soon-sung,” but they can be interpreted in three different ways.

### 3.1 *Soonsung* (巡城): playing around the fortress wall, admiring the scenery, and making wishes

During the modernization process of Seoul, Hanyang Dosung was physically damaged and was symbolically separated from the lives and plays of the people. It became a symbol of the past, although it still plays an important role in the lives of Seoul’s inhabitants, as it is located in the center of the city. This project’s aim was the humanistic reconstruction of Hanyang Dosung in ways that would enable the lives and plays of the people to be naturally combined with the wall’s function.

### 3.2 *Soonsung* (順性): original nature

The project restores the architecture of Hanyang Dosung in the form of AR. Six parts of Hanyang Dosung were damaged and disappeared during the Japanese colonial period and the modernization process. The Seoul Metropolitan Government recognized the importance of Hanyang Dosung and initially planned the physical reconstruction of the site, but historians and cultural heritage experts opposed this move and insisted that the physical reconstruction of the fortress wall would only undermine its authenticity. Thus, the government embedded six small copper plates inscribed with the words “Hanyang Dosung Soonsung Road” at the damaged sites. Through *Restoration of Soonsung*, it is possible to visualize the lost parts of the fortress through the AR program, and audiences can see the original appearance of the architecture through their mobile phones.

### 3.3 *Soonsung* (純性): pure nature

A city is a center of human life. However, a city can often become an empty concept that is separated from the lives of the people who make their homes within it. This project has used folklore, literature, and art as historical sources to provide a new perspective for understanding the city by incorporating grassroots memories into the research data. Through this process, *Restoration of Soonsung*



has reconstructed the pure nature of a city that is by the people, of the people, and for the people.

Punning on *soonsung*, *Restoration of Soonsung* tries to achieve the three different characteristics of *soonsung* by shifting the focus of historical research from the recorded and written to the lived and experienced. By uncovering stories that had not yet been told and by imagining and bridging the gaps between dots with creative minds, *Restoration of Soonsung* reveals the multiple layers of Hanyang Dosung, which embody the entire history of Seoul, spanning more than 600 years. These stories are now re-lived by people of the present day through the AR program.

#### 4 Technologies – Hanyang Dosung as both a physical and virtual interface

Unlike a virtual reality system, AR brings what Mark Weiser calls embodied reality to life. According to Weiser, who coined the term “ubiquitous computing,” virtual reality is only a map, not a territory, and it excludes the richness of the universe. In Weiser’s view, “Virtual reality focuses an enormous apparatus on simulating the world”; in contrast, embodied reality *invisibly* enhances “the world that already exists” (1991). Whereas a user’s body has to remain in front of a computer monitor or be equipped with a cumbersome head-mounted display (HMD) to engage in virtual reality, in AR, the body is brought back to the physical environment to which it belongs using a minimal interface. Moreover, in this case, the experience of being at the heritage site greatly differs from seeing mediated images or two-dimensional representations of it. The ambience and background atmosphere of the site facilitate quite different perceptions and thus quite different understandings of the site itself.

Using location-based AR technology in this project has further challenged the relationship between an interface, virtual information, and space that is presented in many other digital humanities research projects. Often, by using a computational interface, we gain access to the mediated images and information (or research outcomes) of certain heritage sites. However, in this project, the site has become the primary interface of virtual information. In this way, as Adrianna De Souza e Silva and Daniel Sutko rightly point out, this location-based AR technology creates a doubled perception of space (2011). The users simultaneously see their physical surroundings in a space and a representation of that space mapped on their mobile devices. This doubling of space creates an “augmented” view of reality, influencing communication and navigation in urban spaces. The boundary between informational space and physical space becomes blurred, as the physical space becomes the primary interface for accessing the digital space, and vice versa. More importantly, this practice puts the users’ bodies in direct dialogue with the environment—both literally and figuratively. Coupled with mobile and sensing technologies, users’ bodies activate and mediate this interchange. The site is thus constantly being restructured and represented by interchanges involving complex physical and social relations.

## 4.1 Program design

To effectively incorporate the integrated approach into digital humanities research, we invited six humanities researchers and six artists to collaborate with each other by focusing on specific disciplines, including Visual Art, Literature, Philosophy, History, Sociology, Urban Regeneration, and Aesthetic. During this collaboration, researchers were encouraged to provide their historical and cultural research on Hanyang Dosung to the artists, and the artists reinterpreted the research outcomes into visual and literary modes of expression. Each team was invited to explore the past and present of Hanyang Dosung by reinterpreting the historical artifacts through their own creative and specialized perspectives and by presenting the research outcomes through various interfaces, such as exhibitions, artist-humanist matching talks, workshops, and finally, AR content. The focus of the collaborations was on facilitating ongoing interchanges between humanists and artists. Annual exhibitions, matching talks, and workshops were designed to share the processual and ongoing dialogue between the collaborators with public audiences. Every event was live-streamed through social networking platforms, such as Facebook and Instagram, to engage a broader audience. Based on concrete research on the heritage site, this part of the project focused on the imaginative capacity of an artistic approach to discover what is beyond what is invisible (Fig. 1).

## 4.2 Augmented reality application design – the SOONSUNG Application

JiYoon Chun, one of the co-principal investigators of the project and a pioneering Korean AR artist, designed the AR program based on the integrated digital humanities approach. Chun was responsible for developing the structure of the AR mobile application that was implemented in coordination with the location-based AR works created by the six participating artists, including herself. In the following paragraphs, I will discuss the basic structure of the mobile application using Chun's artwork as an example.

Once a user opens the application on a mobile phone, a splash page appears for three seconds to provide information about the participating artists and researchers involved in the project, and then an introduction to the project is displayed. If the user touches the screen, the first question they are asked is if they are currently in Seoul (Fig. 2), as the available content will differ depending on their location.

If the user's answer is "no," then the application automatically loops back to the "Project Introduction" page; if the user's answer is "yes," then they can move onto a page that shows an interactive map of Hanyang Dosung in Seoul, with the user's location being shown as a blue dot surrounded by six flags, which indicate the artists' works. If the user answers "yes" while not in Seoul, they can still see the map without the interactive features. On the map, the user should see six white flags with embedded AR content located around Hanyang Dosung. If the user is not currently near Hanyang Dosung, they can still see the locations where they can experience the AR content; if a user is near those white flags, the flags turn green, allowing the user to move forward and experience the AR content. While this feature may limit the

Methodology	Artists + Humanists	Subject	Project Summary
Art History	A (Artist) B (Researcher)	Understanding Hanyang Dosung through folk paintings and old maps	<b>Rebuilding the Lost Memory</b> <ul style="list-style-type: none"> <li>Restoration of Hanyang Dosung with AR technology by incorporating artists' hand-drawn images of the walls</li> </ul>
Literature	A (Artist) B (Researcher)	Reading about Hanyang Dosung and the lives of the people through folk tales and literature	<b>An Untold Story: The Lives and Labor of the Grass Roots</b> <ul style="list-style-type: none"> <li>Interactive AR animated film about the lives and labor of people during the Joseon dynasty based on folk tales and literature</li> </ul>
Sociology	A (Artist) B (Researcher)	Exploring Hanyang Dosung as a social symbol and political paradigm	<b>Mt. Inwang and the Tiger Says ...</b> <ul style="list-style-type: none"> <li>AR movie that explores the relationship between architecture, geography, and political paradigms and their effects on people's lives</li> </ul>
Philosophy	A (Artist) B (Researcher)	Understanding the cycle of time embedded in Hanyang Dosung	<b>Four Gates, Doors to Time Travel</b> <ul style="list-style-type: none"> <li>Interactive AR content that features the eight gates of Hanyang Dosung as images of the past, present, and future of Seoul as they overlap and intersect</li> </ul>
Urban Regeneration	A (Artist) B (Researcher)	Comparing the life span of Hanyang Dosung and the life and death of human beings	<b>Soonsung Play of Ghosts</b> <ul style="list-style-type: none"> <li>An interactive virtual reality (VR) movie that provides a personified viewpoint of the process of Hanyang Dosung's destruction, restoration, and regeneration by comparing it to the life cycle and soul of a human being</li> </ul>
Aesthetic	A (Artist) B (Researcher)	Experiencing Hanyang Dosung through multiple senses	<b>Soundscape AR: Walking City</b> <ul style="list-style-type: none"> <li>Interactive AR content that allows users to listen to the background sounds of Hanyang Dosung at different times</li> </ul>

Fig. 1 Collaboration design of restoration of SOONSUNG

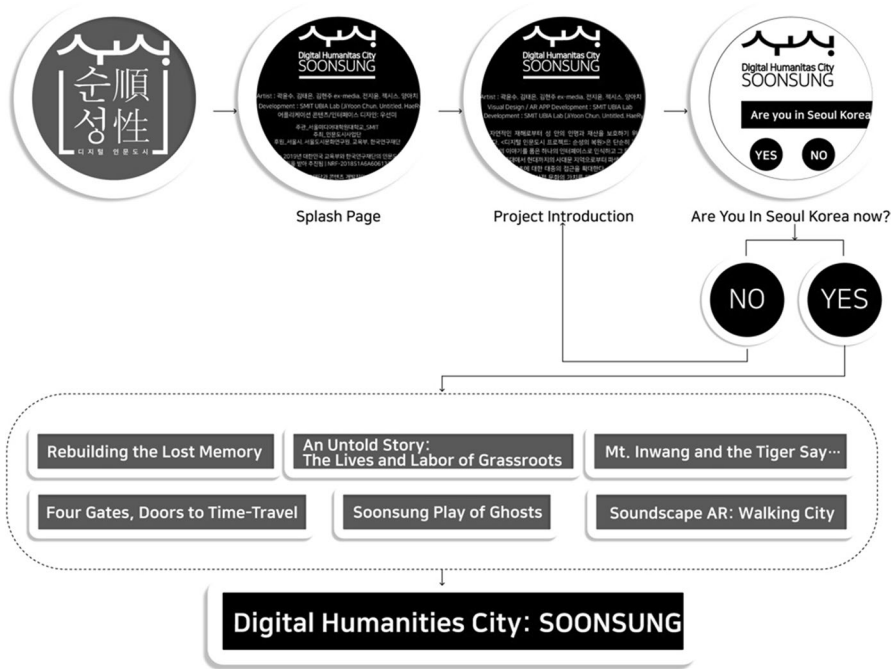


Fig. 2 Digital Humanities City: SOONSUNG application workflow (Beta Version of AR Application ©JiYoon Chun)

experience of users who are not currently at the location, the experiential priority is the firsthand experience of the heritage site, which is supported and enhanced by the digital technology (Fig. 3).

In the following paragraphs, I will discuss one of the programs designed by JiYoon Chun as an example. Her project entitled *Four Gates, Doors to Time Travel* explores the eight gates of Hanyang Dosung, including Sungnyemun, Souimun, Donuimun, Changuimun, Sukjeongmun, Hyehwamun, Heunginjimun, and



Fig. 3 Interactive map in Digital Humanities City: SOONSUNG application

Gwanghuimun,<sup>8</sup> and considers them as interfaces where the past, present, and future of Seoul overlap and intersect and through which users can travel to different times and spaces embodied in the history of Hanyang Dosung. The gates are where the closed wall of Hanyang Dosung opens and allows movements connecting the inside and the outside. Understanding the gates as a spatial interface where dynamic circulations happen, Chun has reimagined them as a place where different temporal zones co-emerge in users' AR experiences. Specifically, in one AR program titled "Phase Space," she explores Gyeongbok Palace and Gwanghwamun, where authoritative power resided during the Joseon dynasty, thus separating itself from the rest of the world around Hanyang Dosung.<sup>9</sup>

The geolocational "Phase Space" markers include Gwanghwamun, Hongryemun, Geunjeongjeon, Sajeongjeon, Gangnyeongjeon, Gyotaejeon, Amisan, the Queen's Garden, and Gyeonghoeru Pavilion. This sequencing of locations follows her understanding of the design of Gyeongbokgung as starting with the opening-up of space in the "welcoming place" to the closing-in of space in the "personal place." The entire program employs the technique of "image mating," which activates AR content. Once a user looks at Gwanghwamun on a mobile phone, the present-day image of the gate turns into the Gwanghwamun gate at different points in time, including during the Japanese colonial period. The spaces of the rest of the locations (Hongryemun, Geunjeongjeon, Sajeongjeon, Gangnyeongjeon, Gyotaejeon, Amisan, and Gyeonghoeru Pavilion) are expressed as a location-based AR soundscape that triggers the users' embodied memories as they navigate through the routes suggested by the artist. As users pass from one location to another, sounds overlap, resulting in a kind of orchestra of sounds. Users can also take different routes than the ones suggested, and they can compose their own sounds with their own bodily interactions within the space. By constantly moving across the images of the site in the past and by immersing themselves in the whole-body experience of the site in the present, users reimagine the temporal depth of the site. In this example, the artist used time-lapse photography, consisting of the playback of images taken at regular intervals at a normal speed. This allowed the artist to capture the constant movement around Gwanghwamun while the gate stands still, which further reinforces the dynamic understanding of how Gwanghwamun as a spatial interface embodies temporal depth (Fig. 4).

The workflow of "Phase Space" is as follows. First, when the user stands at the point at which the artist was looking at Gwanghwamun, the flag turns green. If a user touches the green flag, the smartphone camera opens and recognizes the target as Gwanghwamun. Upon recognition, the program detects the outlines of the target and matches the historical image of the site based on the user's perspective. Once the match happens, the time-lapse video created by the collaborative research is played on the screen (Fig. 5).

<sup>8</sup> In Korean, "mun" means gate.

<sup>9</sup> Gyeongbok Palace was the main royal palace during the Joseon dynasty when Hanyang Dosung was built and operated as the primary boundary of the city. The main royal palace, founded by Taejo Yi, Seong-gye in 1395, was destroyed during the Imjin War in 1592 and later rebuilt in 1867 during King Gojong's period. Most of the palaces were demolished during the Japanese occupation, and restoration projects began to take place in 1990.



Fig. 4 Overlap of the Past and Present of Gwanghwamun shown in “Phase Space”

The “Phase Space” work was created using the AR Kit provided by Apple. Since it is possible to recognize objects and analyze the surrounding environment with only smartphone sensors, including cameras, gyroscopes, and accelerations, the artist was able to implement mixed reality without special equipment. In “Phase Space,” Gwanghwamun has the following image-matching-based AR structure. First, feature points are extracted from marker images. By capturing a real object with a camera, the feature points of the object are extracted (Fig. 6).

The feature points of the captured image are then compared with the feature points of the marker image, and a marker image matching the feature points is found. AR is implemented by displaying the object corresponding to the marker image on the screen.

The SOONSUNG Application is continuously being developed by applying JiYoon Chun’s AR algorithms to all participating artists’ works. For example, another participating artist, Yangachi, used the same AR algorithm to create an AR video in which a mythical creature in Korean folklore, the Mt. Inwang Tiger, appears and tells stories as users wander around Mt. Inwang. The six AR programs will be available for public access in July 2021.



Fig. 5 SOONSUNG application: AR Work “Phase Space” (2020) by artist JiYoon Chun (Sound: zxis, Programming: ART08 [Untitled])



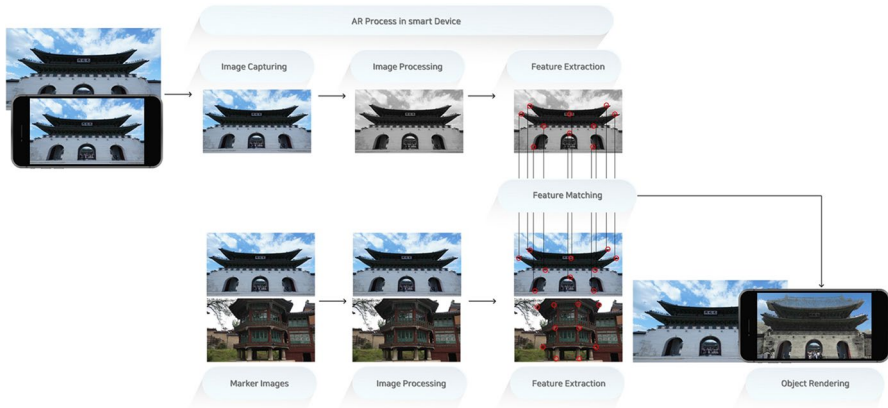


Fig. 6 SOONSUNG Application: AR Matching Process

## 5 Conclusion – rediscovering the experiential depths of a historical site

*Restoration of Soonsung* invites users to rediscover Hanyang Dosung and the City of Seoul by providing different levels of embodied experiences while also deepening users’ understanding of the site through the expression of humanistic research outcomes in artistic ways. Rather than providing humanist research outputs through traditional media, such as written texts, *Restoration of Soonsung* creates an experiential AR platform for humanist research by offering embodied experiences shared among users that allow them to imagine and relive the spatiotemporal depths of the heritage sites by actively dwelling and participating in them. As a mode of deep reading, *Restoration of Soonsung* incorporates art as “the medium of virtuality” that bridges the invisible and the visible, thereby revealing the virtual dimensions of historical understandings (Massumi, 2008). Deep reading as an integrated approach to digital humanities indeed alludes to how digital mobile technologies can make a historical site a double interface that facilitates access to humanistic knowledge as well as a firsthand experience of the site, and in doing so, it allows users to relive the humanistic knowledge in the present. In this way, different spatial and temporal layers of narratives are intertwined and reimagined in the users’ firsthand experiences of the heritage site. Thus, contemporary artistic interpretations of historical facts in the past are reclaimed in the embodied experiences of the users in the present. The site is learned, lived, and imagined.

To summarize, *Restoration of Soonsung* considers a historic site as neither a symbol of the past nor a mere subject of historical research but, instead, as an experiential interface for developing individual and creative interpretations of the historical site based on firsthand experiences augmented by humanities research outputs. In so doing, it becomes a field of lived experience that actively engages citizens’ lives and plays within their environment. This allows participants to realize that they are subjects who are building the history of the city together and to understand the intertwined relationship between the heritage site and their lives. This project also points to the potential of

an integrated approach, or a mode of deep reading in the digital humanities, by addressing histories of a city through transdisciplinary approaches and expanding the public's access to such content by incorporating interactive AR arts that again reshape the public's experiences of the city in real time. In this way, *Restoration of Soonsung* allows users to relive history in the present instead of simply remembering it.

**Funding** This work was supported by the National Research Foundation of Korea Grant funded by the Korean Government (NRF-2018S1A6A6061320).

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