xCoAx 2016

4th Conference on Computation, Communication, Aesthetics & X

xCoAx: Proceedings of the Conference on Computation, Communication, Aesthetics and X.

xCoAx 2016, Bergamo

Edited by
Mario Verdicchio
Alison Clifford
André Rangel
Miguel Carvalhais

Published by
Universidade do Porto Praça Gomes Teixeira 4099-002 Porto, Portugal

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ISBN
978-989-746-094-4

October 2016

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University of Bergamo
(Conference Chair)

Miguel Carvalhais
ID+ / Faculty of Fine Arts,
University of Porto

Pedro Tudela
i2ADS / Faculty of Fine Arts,
University of Porto

AIDS QUILT TOUCH: THE DESIGN OF AN INTERACTIVE DIGITAL MEMORIAL

ANNE BALSAMO
University of Texas at Dallas, USA
anne.balsamo@UTDallas.edu

DALE MACDONALD
University of Texas at Dallas, USA
dale.macdonald@UTDallas.edu

JON WINET
The University of Iowa,
Iowa City, Iowa, USA
jon-winet@uiowa.edu

Keywords
Interactive memorials
Large artwork display
Poetics of interactivity
AIDS Quilt

This paper outlines the design considerations for the creation of three interactive experiences about the AIDS Memorial Quilt—an extremely fragile work of U.S. cultural heritage. The **AIDS Quilt Touch** project is a complex media system that includes not only interactive experiences, but also nuanced socio-technical practices to engage audiences in viewing, searching, and annotating the AIDS Quilt.

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Bergamo, Italy

1 VISUAL PROCESSING IN SERVICE OF CULTURAL HERITAGE

We began this project with a technocultural question: how might digital technologies augment the cultural significance of the AIDS Memorial Quilt? In 2013, Richard Kurin, a director at the Smithsonian Institutions, identified an AIDS Memorial Quilt panel as one of most significant 101 objects that defined the United States in the 20th century (Kurin, 2013). Yet in 2006, U.S. newspaper headlines told a different story. On the occasion of the 25th anniversary of the AIDS epidemic, The *Los Angeles Times* announced: "The Quilt Fades into Obscurity." Even though sections of the Quilt continue to circulate on a regular basis, public awareness, of the historical significance of this work of material cultural, is limited. The Quilt belongs to several intertwined histories (internationally as well as in the U.S.), including the history of art-based activism, the history of struggles for gay and lesbian rights, and the history of public health protests. Given that some of the first generation of panel makers are now entering their 80s and 90s, there is rising concern about the future of the development of the archive of Quilt stories. Our project was designed to address important questions as to how to archive and disseminate information about the Quilt. To do so, we created three interactive applications, each of which required the development of new approaches to visual processing, data display, and user experience design.

1. "Arduino", accessed December 28, 2015, https://www.arduino.cc/

2 AIDS QUILT TOUCH: A COMPLEX MEDIA SYSTEM

Under the stewardship of the non-profit organization The NAMES Project Foundation, (Atlanta, Georgia, USA), the Quilt now comprises 48,000 individual panels that commemorate more than 98,000 names [Figure 1]. This represents roughly 15% of the number of people who have died of HIV/AIDS in the U.S. The size of the Quilt is staggering. Each panel of the Quilt measures 3 feet by 6 feet; every panel is stitched into a 12-foot by 12-foot block [Figure 2]. If the Quilt were laid out for display it would cover more than 1.3 million square feet. If a person spent only 1 minute visiting each panel, it would take 33 days to view the Quilt in its entirety. The impact of the Quilt plays out at different scales; certainly its cultural significance is tied to its massive size, the quantity of names represented, and the spatial dimensions of its array. But its impact also plays out at the scale of individual panels, where the stories of tens of thousands of people—those who died and those who lovingly created the panels—are literally stitched into a historical material archive.

We created three digital applications, collectively called ***AIDS Quilt Touch (AQT)***, that enable viewers to interact with different kinds of information about the Quilt. Visitors can browse a Virtual Quilt, enter comments and reflections in a digital guest book, search for names, and read episodes about the development of the AIDS epidemic over time. These *AQT* experiences enact a "poetics of interactivity" designed to evoke an appreciation of the different scales of significance of the Quilt (Morse, 2003). Because the Quilt is a richly textured material artifact, our designs rely on the use of tactile modes of interactivity. Applications have been optimized for display on touch-enabled devices (interactive tabletops, large touch screens and mobile, hand-held devices) to provide an intimate, and body-based experience of viewing Quilt information.

Encountering the Quilt is always a moving experience. While Quilt blocks continue to serve as the focal point of community HIV/AIDS awareness events, the entire Quilt has been displayed only five times in its 35-year history. The first display took place in 1987 when the first 1,920 panels of the Quilt were laid out on the Mall of Washington—the expansive national public park that spans the grounds of the Lincoln Memorial to the United States Capital. This display was part of an historic event in the U.S.: the *National March on Washington for Lesbian and Gay Rights*. Subsequent displays of the Quilt unfolded on the Mall in 1988, 1992, and 1996; each time the Quilt tragically grew in size.

The most recent attempt to display the Quilt took place during the summer of 2012 when the Names Project Foundation sponsored a month-long event called *Quilt in the Capital*; during that

time the Quilt was also featured at the Smithsonian Institute's annual Folk life Festival. Although sections of the Quilt were displayed indoors during that month, inclement weather prohibited the entire Quilt from being laid out on the Mall. What we now realize it that the textile Quilt will never be laid out in its entirety again.

Working in collaboration with the NAMES Project Foundation, Balsamo, MacDonald and a distributed team of research-designers from the University of Iowa and Brown University, created *AIDS Quilt Touch* a media-based suite of digital experiences to augment the circulation of information about the Quilt at the *Quilt in the Capital* events. The following objectives guided the design of these experiences:[1]

- Use appropriate technologies that enhance and augment the personal and embodied experience of viewing the Quilt;
- Raise awareness about the stories of the Quilt panels;
- Assist people in viewing a specific panel using location aware technologies on mobile devices;
- Assist in the annotation of the Quilt through the creation of tags and the collection of additional descriptive materials;
- Raise awareness about the archiving needs for the Quilt;
- Communicate the cultural importance of this work of international cultural heritage;
- Raise awareness about the contemporary status of AIDS in an international context;
- Promote the Quilt as a living memorial.

The *AIDS Quilt Touch* project provides viewers with access to a digital archive of Quilt images as well as to stories about the creation of the Quilt and the rise of HIV/AIDS in the U.S. Like all memorials, the *AIDS Quilt Touch* interactives serve as the stage for the manifestation of a broad range of relationships among viewers and technologies. As a media system it includes elements that are simultaneously cultural and technological: material works as well as digital representations of Quilt panels, discursive descriptors (metadata tags) as well as textual accounts (stories, memories, recollections), and unique contributions from individual human agents (Quilt makers, activists, health care providers) as well as from social collectives (audiences, families). The media system also includes new practices and protocols, and emergent modes of interactivity.

Our challenge was this: how do we respect and maintain the cultures of the Quilt while developing a digital expression of its essential qualities. We began by asking how the intimacy of seeing the textile Quilt could be matched by digital applications. In designing these applications, we devised methods for visually representing Quilt data sets to enable new insights and the production of new knowledge. The design process drew insights

1. Funding for this project was provide by grants from the Office of the Digital Humanities of the U.S. National Endowment of the Humanities: "Design of an Interactive Tabletop Device for Humanities Exhibitions." Project Director: Anne Balsamo. The list of objectives and descriptions of interactive applications quoted from the project final report.

from the history of public art as well as the histories of public discourse about HIV/AIDS. As works of public art, these applications were created to evoke new perceptions through experiments with scale, mobility, and modes of human engagement in public spaces. As a mode of public communication, these public interactives were designed to engage people in conversation about the intimate impact of the AIDS epidemic, the richness of lives lost, and the contemporary status of AIDS/HIV infection in the United States. Balsamo uses the term "public interactives" to name the mode of interactivity in public spaces that incorporates computationally enabled responsive surfaces to serve as the stage for spontaneous social encounters (Balsamo, 2011). In creating these dynamic media experiences, we were especially interested in staging experiences to communicate with younger people who, having been born in the 1990s and 2000s, are growing up in a very different culture than that of the 1980s when the AIDS epidemic began. In this sense, the *AIDS Quilt Touch* experiences serve the broader cultural purpose to create a digital memorial and a contemporary context that can bridge generational interests.

2.1 INTERACTIVE EXPERIENCE #1: AIDS QUILT TOUCH VIRTUAL QUILT BROWSER

The first experience focuses on one of the most compelling aspects of the Quilt: its spatial expansiveness. The ***AQT: Virtual Quilt Browser*** is an interactive browser that enables visitors to view, zoom, and pan across a collection of digital images of 48,000 Quilt panels displayed on a multi-touch table display. Collaboration with the Computer Visualization Research Team (led by Andy Van Dam) at Brown University resulted in the creation of a customized gesture-based interactive mode optimized for a large-surface multi-touch table display. [2]

2. The Brown Team had already developed an application called LADS (Large Artwork Display on the Surface) that enables gesture-based interaction with large-scale art works. The AIDS Quilt project offered the Brown team an opportunity to work with a different kind and much larger work of art. Information about the LADS project can be found at: http://cs.brown.edu/research/lads/

Fig. 2. Eight panels that became the first block of the AIDS Quilt. Photo in public domain available from http://www.aidsquilt.org/view-the-quilt/search-the-quilt

The digital representation of the Quilt—what we refer to as the Virtual Quilt—is comprised of 5,900 individual digital images; each image depicts one Quilt block that measures 12 x 12 feet. The size of the image file of the Virtual Quilt is 28 billion pixels. Viewers are able to browse the Virtual Quilt from different viewing perspectives, ranging from a bird's eye view of the entire quilt (as if seen from the height of the top of the Washington Monument) to a close-up view of a single panel [Figure 3]. In research on mobile viewing experiences of visual data, one of the qualities that has been determined to contribute to a rewarding experience is the ability to zoom between levels of detail: to toggle between a focal area and a view of the context of an image [Allessandro, Dunser, Schmalstieg, 2010). By allowing for multiple viewing "distances," the ***AQT: Virtual Quilt Browser*** encourages users to engage with the scale of the Quilt, and to move from a consideration of its immensity and spatialized expanse, to a meditation on the affective details stitched into individual panels.

Fig. 3. Image of visitors using the AQT Virtual Quilt Browser

The physical size of the table (three feet by four feet), and its horizontal orientation enables multiple people to collaboratively browse the Virtual Quilt and interact with the image in a physical way through the use of touch. This mode of interactivity re-embodies the experience of exploring a digital archive to make it social and communal. Studies suggest that the use of horizontal displays is particularly teffective in supporting the collaborative viewing of visual data (Back, et. al. 2001; Harrison, Minneman, and Balsamo, 2001; Chiu, et. al., 2008; Tuddenham, Davies, Robinson, 2009). Horizontal tabletop displays have been also effective in enhancing collaborative storytelling in public spaces.[3]

3. In the early 2000s, Balsamo and MacDonald, with colleagues at Xerox PARC, were involved in research efforts to develop the Tilty Table, an interactive museum exhibit created as part of "XFR: eXperiments in the Future of Reading." This work represented a significant step towards the development of the AQT: Virtual Browser. For a description of the creation of the XFR exhibit, see: Balsamo, Designing Culture: The Technological Imagination at Work. Duke University Press, 2011. Other research that supports the observation that horizontal displays enables collaboration include: Rogers and Rodden, 2004; Mazalek, et. al., 2009.

In presenting a close-up view of individual panels, the use of the touch table showcases the media rich texture of panels. Many panels include photographs and other memorabilia. By enabling people to browse and read individual panels, the application promotes social engagement among multiple users who often collaborate on reading individual panels.

Fig. 4. Image of visitors taking digital photos of a block displayed on the AIDS Quilt Touch Table. Photograph by the author.

HCI researchers make the important point that tabletop computational surfaces actually involve both "interactive" user experiences and "non-interactive" experiences—where people gathered around a surface watch and view other people's actions (O'Hara, 2010). During the time that the AQT interactives were installed as part of the *Quilt in the Capital* events, we noted the emergence of an emergent "non-interacting" user behavior. These visitors sought to annotate their experience of viewing the Virtual Quilt by taking photographs of the digital images displayed on the tabletop [Figure 4]. Like creating a rubbing of an etching on a memorial wall or gravestone, photographing the digital image of a Quilt panel functioned as an emblem of witnessing. The desire, on the part of members of the public, to capture the act of "digital witnessing" is one of the unexpected outcomes we watched happen time and again.

2.2 INTERACTIVE #2: AIDS QUILT TOUCH TIMELINE

A second digital experience, the ***AIDS Quilt Touch: Timeline***, takes the form of an interactive timeline of the histories of AIDS and of the AIDS Quilt. To create this public interactive, the team collaborated with researchers who had created a beta version of a crowd-sourcing timeline creation application called ChronoZoom.[4] Displayed on a large touch display, the timeline enables visitors to browse a visual record of key events marking the 35-year history of the AIDS pandemic and the 30-year history of the creation of the AIDS Quilt [Figure 5].

4. More information about the Microsoft Research project ChronoZoom can be found at: www.chronozoomproject.org/

Fig. 5. Screenshot of the AIDS Quilt Touch Timeline created in ChronoZoom. Photograph by author.

The ***AQT: Timeline*** was designed to inspire people to engage in conversations about the broader social, political, and bio-medical events that are part of the multi-faceted history of AIDS and the Quilt in the U.S. In creating interactive content, we took account of the cultural critiques of the way in which AIDS and the understanding of HIV have been narrativized in the "official histories" of the epidemic. Many scholars and activists contest these histories for the pejorative bias that sneaks into descriptions and accounts. For example, the persistent reference to people who are infected with HIV as "AIDS victims" propagates identities that are not consonant with those promoted by activists and people living with HIV. The term "victim" implies a state of powerlessness. Drawing on the history of AIDS activism, this application presents key episodes that highlighted critical acts of social intervention—when, for example, activists confronted government officials and protested official policies. The interactive makes it possible to present multiple histories—both those that serve as official accounts and those that serve as counter-narratives.

2.3 INTERACTIVE #3: AIDS QUILT TOUCH RESPONSIVE WEB APP

The third interactive experience was developed by a team from the University of Iowa's Digital Studio for Public Arts & Humanities under the direction of Jon Winet. The team created a mobile web application called ***AIDS Quilt Touch: Responsive Web App*** that enables viewers (1) to search for a specific Quilt panel and view it in high resolution; (2) contribute commemorations and reflections to a digital guest book; and (3) locate the display of a specific panel when it was to be displayed on the National Mall [Figure 6]. Built using open-source tools, the app makes use of the most advanced protocols of responsive web design (RWD) to provide a platform-neutral viewing experience that enables users to navigate information with minimal efforts of resizing or scrolling of web pages. The ***AIDS Quilt Touch app*** resulted in the creation of an open-source platform that enables the dissemination, co-creation, and preservation of an extensive digital archive of Quilt materials.

Fig. 6. AIDS Quilt Touch mobile web app launches. Photograph by author.

3 CULTURAL IMPLICATIONS OF THE DESIGN OF AIDS QUILT TOUCH AS A DYNAMIC MEDIA SYSTEM

Beyond the evident concern for preservation, the primary benefit of the creation of these digital experiences is that they offer opportunities for increased accessibility and visibility of the AIDS Quilt as a living memorial. Given the sheer size of the Quilt and the logistical difficulties associated with displaying it, the AIDS Quilt is difficult to keep in the public eye. Online, global, multi-platform access can help keep the Quilt visible. The applications produce a kinesthetic intimacy with images of the Quilt. As the most broadly accessible experience, the *AQT app* introduces a new mode of annotating the Quilt, by allowing, via the online text-based submission system, for user-generated personal contributions. Enabling users to participate in the process of annotation addresses the public/private dynamic that is at the heart of the Quilt's commemorative and affective powers; these contributions add new layers of cultural significance to the Quilt archive.

Designing the *AQT* digital experiences raises methodological questions about working with large visual data sets. Our original aim was to computationally process the visual dataset of block images in order to identify cultural patterns that would extend our understanding of the significance of the Quilt. Through various experiments we determined that size and quality of the visual material is not amenable to algorithmic computer visual processing: images of individual panels are too indistinct and irregular to detect via through computational processes. We determined that it would be more efficient to engage people to do this visual processing. To this end, MacDonald created a "community

sourcing" application that enables viewers to assist in the identification of each block layout. In this application, users were asked to determine the location of a panel within a block image by clicking on the box closest to the center of each panel, which recorded the position of that panel within a block. In very little time, through the participation of a small community of coders, the original visual dataset has been annotated with the location of every panel on each of 5,900 blocks.[5]

The next phase of development will involve the creation of new "community sourcing" techniques to obtain information about materials, colors, symbols and text that appear on individual Quilt panels. We are designing strategies of public engagement through the creation of incentives and opportunities for "civic archiving." To engage panel makers, we have designed an application called ***AQT: Story Making Studio*** that easily enables them to record and upload media-rich contributions and stories about individual panels. The aim is to motivate members of an important "community of interest" to engage as a "community of participants" in archiving the Quilt. We seek to connect our current cultural moment with a cultural formation created in a different era. We remain humbled by the challenges of honoring the cultures of the Quilt, in light of the intransigence of code and programming environments, and the unique quality of these digital datasets. The intended outcome of this project is the creation of a digital memorial where the panels in their physical and virtual expression—and the heartfelt emotions embedded in each stitch—remain legible to all.

5. Discussion of the visual processing issues is explored in the article: Literati, I. and A. Balsamo. "Stitching the Future of the AIDS Quilt: The Cultural Work of Digital Memorials." Visual Communication Quarterly 21, 3 (2014): 138-149.

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