Invisible: A Critical Digital Artwork as Performance

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Abstract

This paper demonstrates *Invisible,* a critical digital artwork as performance in a conceptual framework derived from performance studies. *Invisible* exemplifies how digital art can reflect and influence critical thinking by focusing on three key features of performance studies: constitutive, epistemic, and critical. This intersects with Human-Computer Interaction (HCI) in a digital art context, which addresses inspirational roles of digital art.

Author Keywords

Critical thoughts; digital art; performance; physical interfaces

ACM Classification Keywords

H.5.m. Information interfaces and presentation (e.g., HCI): Miscellaneous.

Introduction

The human-computer interaction (HCI) community has embraced digital art as an intersection of experimental art and innovative devices. Digital artwork has been exhibited not only in art galleries and museums, but also in annual art festivals such as FILE, ISEA and Prix Ars Electronica. Digital Art also has been pervasively demonstrated at conferences such as ACM SIGGRAPH, TEI, and CHI. At the 2014 CHI Conference, the chairs

of the art and interaction spotlight emphasized the blurred boundaries among digital artists, HCI researchers, and design practitioners, stating that "digital arts intersect with traditional CHI topics such as screen-based interactions, embodied interaction, virtual and augmented environments, games, and data visualization. The digital arts have been consistently represented in the CHI program for the past decade."[1] They highlighted the persistently growing interest of digital art and its potential to promote new directions in the HCI community, as the boundaries of HCI and digital art are being intertwined. Similarly, at the 2016 Prix Ars Electronica festival, the theme of *Radical Atoms and the alchemists of our time* illustrated how art venues can influence the HCI community. At the festival, digital art examined future social interactions between computational systems and people.

Frequently, those digital artworks conceptually and practically push the boundaries of digital interfaces. They can challenge tradition and suggest new directions. In doing so, they foster active collaboration in the interdisciplinary fields among digital art, HCI research, and design practice while exchanging thoughts and insights. With these expanding boundaries, this paper focuses on how *Invisible* demonstrates a critical digital artwork as performance facilitating alternative directions in the HCI community.

Digital Art
Digital art essentially uses digital technologies as a tool and/or a medium. The influence for digital art is drawn

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[1] http://chi2014.acm.org/communities-spotlights/art-interaction interaction

back to Fluxus, Surrealism, Dadaism, and conceptualism movements. Most often, they emphasized the process, experiment, or radical thought rather than the final art product [5, 7].

Art critic Paul summarizes the name changes for technological art forms; it has been called 'computer art' and then 'multimedia art'; recently it was referred to as 'digital art' under the umbrella term 'new media art' [7]. Ongoing dialogue surrounding art and technology with these evolving names reflect the overlapping boundaries among art, HCI and design. Digital art is turning from final artworks toward process-based practices as a fundamental impact on art. Similarly, Simanowski claims the importance of active viewers' role in digital art, insisting, "the viewer become some part of the work of art" [11]. Prominently, these definitions tend to already suggest a performative direction.

'As' Performance
Performance scholar Schechner introduced the original notion of interaction "as performance." He stated that a "performance studies scholar examines texts, architecture, visual arts, or any other item or artifact of art or culture not in themselves, but as players in ongoing relationships, that is, 'as' performances" [8]. Since the term performance in this paper is not limited to a theatrical stage, but can also be applied to an art-related venue, the scope of performance should embrace activities that we can acknowledge *as* performance and that can overlap with HCI.

Nam et al. [6] previously developed the initial theoretical framework of interactive installations from performance studies focusing on the constitutive,

epistemic, and critical features. As interactive installations serve as some of the most important examples of digital art, the framework provides a theoretical background for *Invisible* as well—with the realization of *Invisible*, this paper demonstrates a critical digital artwork as performance.

Theoretical Framework

Constitutive
Through the meaning of constitutive, digital art can influence viewers as a reflexive medium and persuade them to act upon it. Constitutive digital art uses both process and product to constitute identity and culture. Among slight differences between reflexivity and reflectivity, Turner defines reflexivity as "the way in which a group tries to scrutinize, portray, understand, and then act on itself" [12]. The meaning of reflexivity implies critical thinking as an active level of participation compared to one of reflectivity, which is imitating of replicating elements. Digital art as a conversational tool facilitates the connections between the viewer who interacts with digital artwork and the interface, which is the corresponding representation. Through the responsive and interactive process, digital art not only reflects viewers' experiences but also influences their fundamental ideological perspectives.

Epistemic
HCI scholars and practitioners have already mentioned the importance of embodied and phenomenological action as Dourish notes "[a]ction both produces and draws upon meaning; meaning both gives rise to and arises from action" [4]. Dourish adapts phenomenological perspectives and develops embodied interactions. Viewers can create their own interpretation and meaning through interaction with the

computational system instead of understanding a fixed notion embedded within the system. His statement describes how viewers' physical and corresponding mental involvement can influence their active meaning-making processes as performance in digital art.

Critical
Digital art can be a social and political form similar to HCI. However, those connections in digital art have taken a different direction than third wave HCI perspectives for larger environments and culture differences in design. Regarding critical digital art as performance, German playwright and theatre director Brecht places the theater as a political venue and emphasizes the critical aspect of the audience. Unlike immersed audience members in an Aristotelian way, he argues audience should remain as an analytical investigator of the play on stage [3]. Through this alienation effect (distancing effect), audience members become self-conscious and self-aware individuals.

In a political perspective, contrasted to Brecht's alienation effect separating audience and performer, Brazilian theatre director and politician Boal provides "the theater of the oppressed" [2], which promotes active participation while discussing political actions and social changes. By turning into performers, audiences can relate to their life in the rehearsal theater. They can address the identified challenges by the context of their performance. Boal's term, "spect-actor" (which combines "spectator" and "actor") captures the dual roles that audience members play. They become observers and performers at the same time, acting upon the performance's dialogue and fostering critical thinking toward engagement. In his

theory, critical thinking and active participation lead audiences to transform into the "spect-actor" role.

Increased participation through performative means has already been discussed in HCI fields [1, 9, 10], but these previous approaches mostly focus on increased engagement and lack a critical perspective. With the critical role in audience's mind, this paper claims audiences do not simply perceive the meaning of digital art. Due to the inherently interactive and performative characteristics of digital art, audiences continually communicate, question, and criticize meaning. They reconfigure the bigger picture and digest it to their own meaning based on their social and cultural situations.

Realization

Background
Invisible enacts such societal reflection by exploring the political implications of how freely discrimination is expressed online, where these discriminations can easily be hidden from view. At the same time, *Invisible* is not limited to representing discrimination, but also reveals a lack of conversation as well as voices representing individual feelings of the victims of derogatory words.

Interaction
Invisible prints recent postings ("tweets") from Twitter users that include any derogatory racial term representing discrimination of African Americans, Asians, Hispanics, and Caucasians on papers from the thermal printer. Every one minute a message is routinely printed, after which a mechanical robotic part cuts (Fig. 1) the individual paper, leaving a small scrap with a tweet on it. The individual paper is

timestamped, and includes the content of the tweet as well as the user's ID.
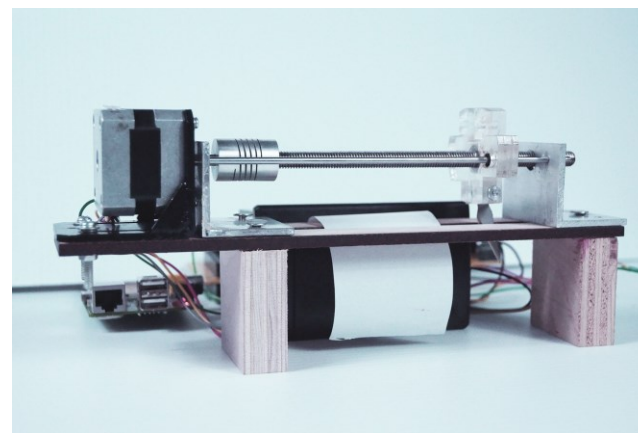

Figure 1: Interface

After the messages are printed, the paper scraps pile on ground. As the scraps pile higher and higher, the audience members can pick up the scraps to read, take, or throw away the messages.

Hardware
Invisible incorporates a thermal printer, an Arduino mega microcontroller, motors, an array of motor drivers mounted on a custom-made PCB, and a Raspberry PI microcomputer (see Fig.2). The system searches, downloads, and prints the tweets from online platforms in real time.
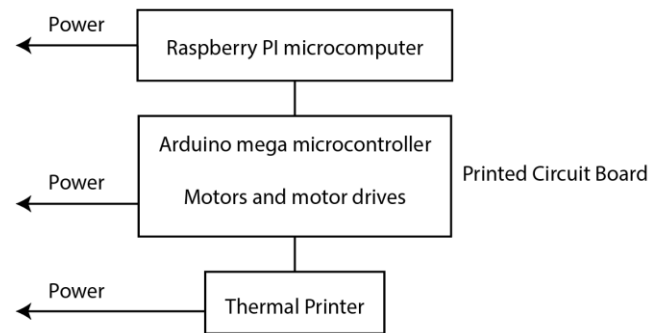
Figure 2: Hardware diagram

Critical Installation

Invisible uses a computational system to evoke understanding and a discussion of current racial stereotype issues (Fig. 3). Amongst the piles of hurtful messages, one can find examples that seek to educate the readers to the injured feelings and sensitivities of the races. The most important purpose of *Invisible* is to raise the aforementioned discussions, and not for audiences to remain in frustration. By demonstrating a critical digital artwork that inherited negative aspects from humanity, the artwork can encourage controversial questions about the origins and functions of the transmission and lineage of prejudice.

Invisible manages to position the audience in a critical stance as Brecht or Boal intended in their performance studies. Audiences sometimes separate themselves from *Invisible* to analyze the social issues from the third person perspective, or they can immerse themselves in the situation since it is an on-going and unfortunately familiar discussion. Audience members' engagement and interaction, such as picking, selecting and reading messages, can cause a physical and

psychological involvement that initializes and provokes critical thoughts. Overall, through their interactions with *Invisible,* audiences are led along a path that can result in gathering crucial new epistemic knowledge, resonating with the critical voices in their everyday lives.
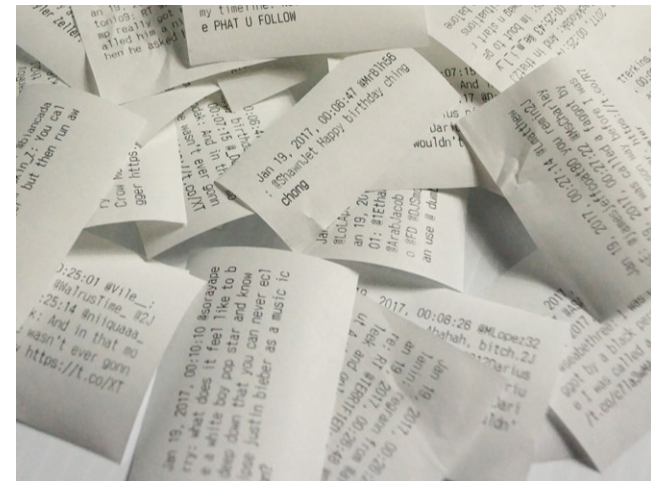
Figure 3: Printed messages

Conclusion

Invisible has been exhibited at the Glassell Gallery in Baton Rouge, United States in 2016. Observations of interactions illustrate that participants spend several minutes reading messages, expressing surprising emotions, and sometimes sharing their thoughts with others. Audience members take some of the messages from the pile during the interaction, and some of them leave them at the installation. After the interactions, many participants express their appreciation. They feel as if they learned from previously hidden information while they interact with the artwork as a critical action.

Audience members also indicate that they do not simply perceive the involvement as a passive art observation, but as an active form of provoking critical thoughts.

Artist Bio

Hye Yeon Nam is a digital media artist working on interactive installations and performance. She foregrounds the complexity of social relationships by making the familiar strange, and interpreting everyday behaviors in performative ways. Hye Yeon's art has been showcased in The Smithsonian National Portrait Gallery in Washington D.C, Times Square, the art gallery Eyebeam and The Tank, the conflux, the D.U.M.B.O. Art Festival in New York, FILE, SIGGRAPH, CHI, ISEA, E3 Expo, the Lab in San Francisco, and several festivals in China, Istanbul, Ireland, the UK, Germany, Australia, Denmark, and Switzerland. Her work has been broadcast on *the Discovery Channel* (Canada) and LIVE TV show *Good Day Sacramento*, published in *Leonardo Journal* and featured in *Wired*, *We Make Money Not Art*, *Makezine*, *BusinessInsider*, *Slashdot*, *Engadget* among other publications.

Acknowledgements

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