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Requiem

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ABSTRACT The idea that a single death, followed or in conjunction with many deaths by the same cause, begins to diminish that tragedy, is in itself a tragedy. The increasing number of fatalities, the length of the conflict, and the controversial nature of the war diminish the importance of a single loss amongst people in the population at large. The statistics become so abstracted that sometimes it becomes difficult to grasp the content or the meaning of human loss. Thus, my intention was to transform the abstract data into something more tangible and perceivable in order to emphasize the impact of each single fatality. The War in Iraq is chosen as the subject of *Requiem*, an installation art piece, to illustrate the past, current, and ongoing ravages of war.

INTRODUCTION Requiem is an installation art piece that commemorates the souls of the war-departed. It serves as a bridge of awareness to connect public consciousness to the ongoing conflict in Iraq. The project title derives from one of the definitions of "requiem": an act or token of remembrance.

The motivation for this project derives from my personal loss. My grandfather died in 1945, in China, during World War II. He was away from his home and young family; he was twenty-seven years old, and my father was only three at the time. Therefore, my father did not recall much about his own father. I can only imagine what went through my grandfather's mind as he died, in a land far away, and I sympathize with the families that are going through the same experience today. My grandfather's body was never returned to his family.

A trip to Hiroshima and the *Hiroshima War Memorial* during my early school years also had a significant impact on my perspective on war. It was organized by the school and the visiting students created "Senbazuru", a group of one thousand origami paper cranes held together by strings, to donate to the memorial as the prayer for peace. We had an opportunity to listen to a story of a lady who was an atomic bomb victim. It taught me that the number of departed souls is not only an indication of human cost in war, but also extends to the surviving individuals, as well as remaining family members or loved ones.

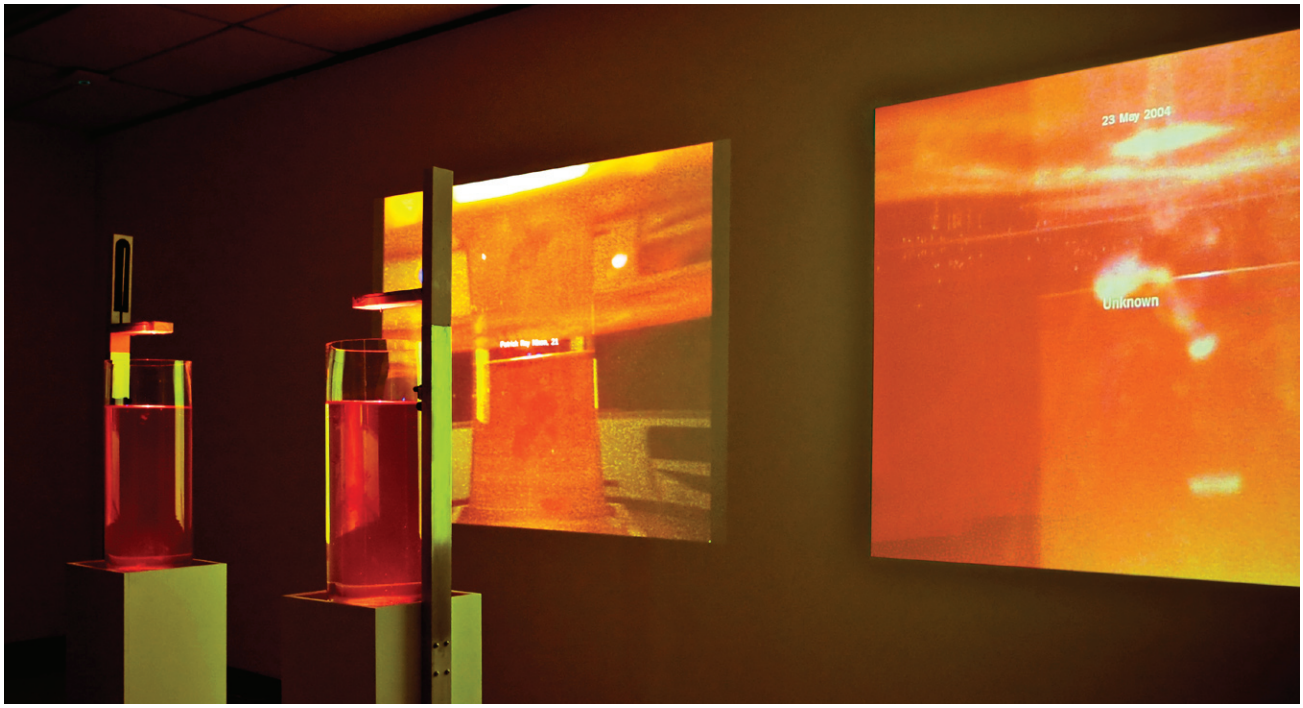


Image of installation (Photo by Conway Liao)

Family Picture: The author's grandparents, aunt, and father

As I began to investigate more on the subject, my motivation extended in respect to the personal loss of others. An article by Captain Rich Connaroe in *The Roanoke Times* is another inspiration for the project. The article describes a conversation between Captain Cannaroe and an Iraqi Soldier. The soldier was shocked to learn that Captain Connaroe would be unable to see his family for seven long months. Again, this article inspired me to think of my own grandfather's experience and the sacrifice these soldiers and their loved ones go through.

CONCEPT

The design questions that drive my sustained inquiry regarding the subject are:

- *What form of memorial could be created for an ongoing conflict for an ephemeral tragedy?*
- *How can a physical representation of statistical figures re-personalize loss?*
- *How best to represent this loss and separation?*
- *In what form can unknown individuals be personally memorialized?*

The installation conveys the information regarding both U.S. service members and civilians who have died in Iraq each day of the war. The name, age, and date of death of each individual is projected on the wall as dark red ink, representing the loss of life, from imagery shot of falling drips into an aquarium throughout day. First these ink droplets are recorded by cameras, then the recorded imagery is replayed over a longer duration—this amplifies the affect. (It also overcomes one statistical issue, turning a digital count [a number] back to an analog event [loss of life]). Furthermore, a screenshot of each ink drop is captured as part of the documentation process. To capture the ink drops, two aquariums are used. These two juxtaposed aquariums represent: one, armed service members, and two, civilians. The display begins with the first death after the declaration of the war, which occurred in March 19, 2003, and will continue, for as long as the war continues.

The goal of this to overcome the notion of a mere statistical figure. By emphasizing the individuals, while recognizing the gravity and pain of collective loss, participants are awakened to the impact of each single fatality through physical presence of abstract information. This addresses notions of memory while encouraging reflection and a respect for life.

DOMAINS AND PRECEDENTS

This project touches upon five domains: requiem, memorial, innumeracy, data visualization, and symbolism. The domains are particularly fruitful areas to explore in their overlapping regions. Each of the domains are discussed in the subsections below.

Requiem: "Requiem" originates from Latin, and means "rest" or "mass for the departed." The common theme of the requiem is "prayer for the salvation of the soul(s) of the departed, and it is used both at services immediately preceding a burial, and on occasions of more general remembrance."[1] Requiem also refers to the musical compositions used in such liturgical services. For this project, the subcategory of the war requiem is most salient, as it refers to the memory of people killed in wartime. Though the project is intentionally displayed in silence, the concept of prayer for the salvation of the souls of the departed is the salient aspect of my project.

Memorial: Memorials create an opportunity for the contemplation of loss; to honor sacrifice; to celebrate heroism and to consecrate a process of mourning that is ongoing and public.[2] *Requiem* fits into the subcategory of war memorials, though it also reflects my personal commentary relative to the cost of the ongoing conflict. The value lies in the recognition of death and suffering in the immediate—remembering the present and calling attention to the ongoing conflict. Furthermore, in the "Precedents" section, which follows, works that represent both *institutional* and *alternative* memorials will be discussed. Institutional memorials are defined as large-scale: buildings, monuments, statues or other edifices commissioned by the government or institutions. Alternative memorials are smaller in scale, even down to the personal level.

Innumeracy: "Innumeracy" is defined as an individual's inability to deal comfortably with numbers.[3] The term was coined by cognitive scientist Douglas Hofstadter in one of his *Metamagical Thema* columns for Scientific American

in the early 1980s. In 1988 a mathematician, John Allen Paulos, extended the idea and explained the effectiveness of thinking of statistical numbers in terms of physical presence to understand the meaning. This theory ensures the importance of the physical manifestation of statistics.

Data Visualization: In his book *Envisioning Information*, Edward Tufte describes one of the capabilities of data visualization as "it renders phenomena that are beyond the scale of human senses into something that is within our reach, something visible and tangible."[4]

Symbolism: How are the souls of the departed to be depicted in art as well as in memorials? What are conventional and contemporary representations of death? These question results in the investigation relative to the fifth domain: *Symbolism*. There are many images, objects, animals, religious symbols, and colors that have come to represent death. Such symbols of death, or things that are associated with loss or mourning, vary across the world.[5] Fallen or broken objects, such as a flower or glass, can be used to imply misfortune or loss. In war memorials, individuals are often represented through names, crosses, portraits, or figurative statues.

PRECEDENTS

***Vietnam Veterans Memorial* by Maya Lin:** This is an example of institutional memorial. It is recognized as one of the most powerful war memorials in the United States. The engraving of names of 58,000 dead soldiers displayed on the two 247-foot black walls yields a visual measure of what 58,000 means, as the letters of each name blur into a gray shape, cumulating into the final toll.[6] As viewers approach the wall, these shapes powerfully resolve into individual names. This memorial successfully communicates the notion of individual and accumulation through its physical manifestation. Through its physical presence, the memorial engages viewer's responses with not just sight, but with the full senses. It allows viewers to respond in their own way, as it makes no prepared statements about politics or American ideals. *Requiem*'s aim is to provide the participants' insight, understanding, reflection, or mourning in a similar not prefigured manner.

The U.S. Holocaust Museum: As a part of the re-creation of the "death camps," the museum has a room with a mound of 4,000 shoes left behind at the camp. The installation bears mute witness to those gassed there. The shoes were to be recycled to German families. The display communicates the notion of the individual as well as accumulation through its physical manifestation. Shoes are very personal objects and worn-out shoes add individuality to the objects, yet the totality of shoes illustrates the horrific scale of loss.

***Dead-In-Iraq* by Joseph DeLappe.** This is an exmaple of alternative memorial. In this project, the artist used an online game, *America's Army* as a platform to intervene the public and to communicate the situation of ongoing conflict in Iraq. DeLappe types in the name of soldiers using the game's text messaging system, but allows the entrant to be a "neutral visitor" thus leaving the avatar in the battle field until the soldier is killed by other player. The killing is not taking place in the virtual world, but in the reality. The artist's attempt to create a memorial for the ongoing conflict, and, intention to connect the public consciousness with intervention is closely related to my project.

***Faces of the Dead* by The New York Times:** A series of squares form a collage of deceased United States service members. Each square within the image represents an individual that has died in Iraq since the war began. Click on any of the squares and the image transforms to depict the picture of the particular individual. The interface also provides searchable demographic information of soldiers. This is a successful example of representation of micro and macro perspective, or individuals within a collective loss.

Die-In: Die-ins are a form of protest where participants simulate being dead.[7] In the simplest form of a die-in, protesters simply lie down on the ground and pretend to be dead, sometimes covering themselves with signs or banners. It was a popular form of protest around the world against the 2003 invasion of Iraq. This is another example of conveying effectiveness of physical manifestation as a way to communicate statistical figures, and create an impact of how the content is understood by the viewers. In this case one human being is an exact representation, so the issue of scale is precisely addressed.

METHODOLOGY

The driving force for this project was to turn statistical figures into meaningful, personalized, physical representations, as well as to emphasize the impact of individual loss.

In order to give physical presence to the abstract data regarding loss in Iraq, I began to investigate various sources to find if real-time data might be available. However, I found that there is no such real time data available to the public. According to the Department of

Defense website, detailed information of an individual is not available until 48 hours after death, despite the daily update of U.S. casualties. The reason for this is that the Army must give consideration to the family members of the departed. Likewise, the *Iraq Body Count*, one of several efforts to record civilian deaths, provides details about the individuals killed from approximately two weeks earlier. The is because of the organization's thorough crosscheck of multiple sources (from media reports, hospitals, morgues, NGOs, and the official figures).

After consideration of the available data, I decided to trace back the entire history of the conflict. This was, in turn, a better design solution than only using the current information anyway, as the entire war could then be observed from the beginning to the end. In addition, this logically followed my concern with every life being portrayed as the precious entity it was.

The data sources examined include: iCasualties.org, *Iraq Body Count*, Department of Defense website, AntiWar.com, "Faces of the Fallen" by *Washington Post*, and "Index of U.S. troop deaths in Iraq" by *USA Today*. Among these the first two, iCaualties.org and *Iraq Body Count,* were chosen as main data sources.

After an investigation, the difference between the available information about listed individuals became apparent. The U.S. military service members have: name, age, title, date of death, home town, and cause of death indicated. On the other hand, many of civilians killed are not even identified. If they are available, an individual's name, personal identifier, age, gender, occupation, nationality, date of death, and/or cause might be listed. Therefore, in order to treat the individuals as equally as possible, it was necessary to use only the very basic information: name, age, and date of death.

MATERIALS AND COMPONENTS

Various material experiments were conducted during the search to represent fallen individuals in a metaphorical way. Some of the materials tested included: ink and water, oil, acrylic, paper, and sound.

Through these experiments it became obvious that ink and water provided the most effective visual and technical results. When viweres were shown various methods during the tests most were intrigued by the imagery rendered by ink and water as compared to other results. (Some of the responses from the audience included: mesmerizing, poetic, beautiful, and sad.) Several observers commented that when ink contacts the surface and starts to dissolve into the water it was reminiscent of an explosion, an association of smoke in the after-effect of gun fire and bombs.

One technical challenge is that water becomes saturated with color rapidly, so the process cannot be used for a long-term installation. (It was considered as an option to let the water become so saturated in order to illustrate the intensity of war.) One solution to maintain the clarity of water is to use a filter. However, this raised the question of: what it conceptually means to "clean" the water? (Does it imply an individual's life memory being filtered away?)

I used aquariums in order to mix ink and water. Prior to this, other schemes were tried to provide a visual context for ink droplets. One example included the use of the map of Iraq to indicate the connection between the installation and ongoing conflict in Iraq. However, this idea was not implemented because it was too literal. In addition, the possibility of incorporating audio was also considered. However, this was not included in the current model due to negative feedback from the audience during user testing. (There were comments that it would distract from the visuals and thus diminish the intensity and sacredness of the visual experience.)

After deciding upon aquariums, different shapes and scales were considered, such as cylindrical, rectangular, short, tall, wide, narrow, small, large, and so forth. Rectangular containers were used for the early prototypes and tall, cylindrical aquariums were used to emphasize the process of cascading ink.

Initially different colors of ink were used for each of the two categories. Ultimately, the same color of ink was employed within the cylindrical aquariums, each placed upon a separate podium. The reason is to emphasize the equality of individuals regardless of nationalities. Furthermore, the benefit of having two separated containers is that comparison is possible between them. This also minimizes the problem of the water becoming uncomparatively saturated.

NOTES ON USER STUDY

User study was one of the most crucial steps in the process. Having interviews with individuals who have been directly or indirectly involved with the conditions of war helped me to immerse myself with the topic as well as to develop the project in more meaningful manner. I had the honor of interviewing with: Ben Chase, Perry O'Brien, and a currently serving U.S. army captain.

Ben Chase is a MFA Design and Technology (Parsons The New School for Design) graduate, and a U.S. Army veteran. Perry O'Brien is the former President and the current Secretary at the New York chapter of *Iraq Veterans Against the War.* He was deployed to Afghanistan in 2003 as an army medic.

Though their perspectives on the War in Iraq vary one from the other, they are all concerned with the civilian casualties. They also have experienced separation between their families and loved ones.

One of my major concerns was use of ink and water as metaphor of loss of life. How would active members and veterans perceive such a representation? When I conveyed the details about my project, they were all interested in the concept and form.

One of the suggestions was that personal stories would add significant interest. For example, why does an individual join the army, what is the backgoround of the individual, what are their profiles, and so forth. This comment suggested that I pursue a more narrative oriented representation. The other insight was that the comparison between the number of deaths among U.S. Army service members and civilians would illustrate the complexity of the situation. It was suggested that this might be provocative and controversial—but controversial in an engaged, not a conflicting way.

My intended interaction experience for users is one of introspection. The project elicits a communication between the installation and a viewer creating a conversation within the viewer's mind. In the beginning my intention was to evoke an emotional reaction of a viewer. However, I come to the realization that it would be difficult to predict what kind of emotion the viewer would experience or internally surpress. This is my personal gesture for the souls of the departed, and if, even for a moment, I could connect a viewer with those individuals who lost their lives far away from home and their loved ones, it fulfills my goal. Therefore, introspection is more critical than extroversion, or protest, of any kind.

IMPLEMENTATION

This section describes the process of design development, technology, configuration, and solutions regarding the visual interfaces and physical settings.

INSTALLATION

Requiem was installed at 65 Fifth Avenue on May 2 and May 3, 2009 as a part of the Parsons MFA Design and Technology Thesis Symposium.

Podium: Podiums are constructed with medium-density fiberboard (MDF), aluminum bar, and 3D print. The MDF boards were cut to the specification and assembled. Inside the podium there is a light underneath the top shelf to illuminate the glass container from the bottom. The aluminum bars hold the 3D printer which holds ink dispenser and ink supply. Furthermore, holes were drilled on the bars to run wires and cables for hardwares.

3D Model: Many paper models were constructed to determine the ultimate shape of the holder for ink dispenser and ink supply. The ink supply had to be above the ink dispenser to have enough air pressure to run pigment to the fluid controller. Once the paper models were finalized, accurate measurements were taken. These measurements were then used to construct a 3D computer model. Then the information was sent to a 3D printer to physically "print-out" the model.

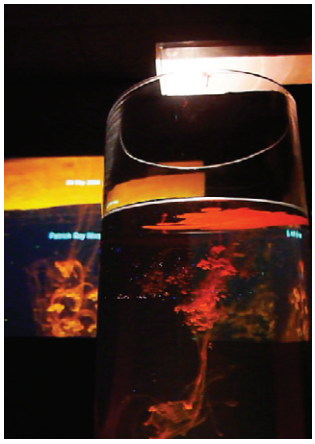
Software: The brain of the system is *openFrameworks*, an open source C++ library for designers and artists developed by Zachary Lieberman and Theo Watson. It provides its users a "simplified interface to powerful libraries for media, hardware and communication for creative, artistic expression."[8] OpenFrameworks was chosen for developing the project because of it's capacity to handle all the hardwares and achieve the effects I intended to.

The base code for the project is the openFrameworks class *ofFirmata*, which provides a wrapper for Firmata. *Firmata* is a protocol for communicating with the Arduino from software on a host computer in a simple, direct manner. Once communication between Arduino and openFrameworks is established, it enables me to talk to ink dispenser. In other words, *Arduino* serves as a translator between openFrameworks and the ink dispenser, so that when and how much ink to release can be controlled precisely.

OpenFrameworks is also powerful enough to handle the camera and projector in real-time. The software was written to control the start of live video recording, how long to record, the display of information about individuals, and the duration of replayed video.

For the current version the list of casualties were organized manually, but the software is also capable of reading to extract data automatically from text files. Furthermore, as a documentation of individual death, it takes screenshots during the video recording of ink droplets and stores the images in a local folder.

Arduino: Arduino is an "open-source electronics prototyping platform based on flexible, easy-to-use hardware and software."[9] It is widely used by artists, designers, and other individuals to create interactive objects or environments. Arduino has capability to: receive input from an environment through a variety of sensors; and to affect its surroundings by controlling lights, motors, and other



actuators. For my project the microcontroller on the board is programmed using the openFrameworks. In essence, Arduino is used to control the ink dispenser. It serves as a messenger between openFrameworks and an ink dispenser.

Ink Dispenser: I purchased an ink dispenser by the Lee Company, specialized in miniature fluid control components for aerospace, machine tools, medical and scientific instrumentation, and ink-jet printing. The advantage of this particular company's ink dispenser is its precision. My intention was to release only one ink drop at once to represent individuals thus having a precise fluid control component was crucial.

The code is written in openFrameworks to control when ink is released. The openFrameworks tells Arduino to send signal to the ink dispenser when and how much ink to release. The ink dispenser receives a signal from Arduino. The number of ink drop is determined by the how long that valve is open.

Camera and Projector: A PlayStation 3 Camera is used to record the ink drops. The camera has capability to take 60 fps and has a great tracking resolution, which suits well my purpose.

CONCLUSION

Through this thesis project I have pursued the conceptual and tangible aspects of memorization, symbolism, and data visualization. Hopefully, the result of the efforts can be further developed into beneficial tools that enable an audience to experience the emotion and manifestation of statistics.

BIOGRAPHY

Sayoko Yoshida is a New York based multidisciplinary designer with a solid graphic design background. She earned her MFA from Parsons The New School for Design in 2009 while working as a Senior Information Designer at Parsons Institute for Information Mapping (PIIM). Sayokois constantly seeking possibilities to explore new interactive technologies and visualization techniques.

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I would like to dedicate this project to my family, *Hiroko Usui*, and *Dr. Thomas Campion.*

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