CROSSINGS

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Abstract
CROSSINGS is an interactive art installation that was part of the eMobilArt project. The game explores the relative perspectives of sacred texts. It emerged from believing the politics of world conflicts are fueled by religious intolerance and misunderstanding.

Introduction

I presented the concept of *Crossings* during our first workshop in Athens. Our team formed, with spatial ontology theorist Mauri Kaipainen, (Fin.) and the media artist and researcher, Pia Tikka (Fin.), during the second workshop in Lapland. We discussed how to implement exploring multiple perspectives in a database of sacred texts. The concept was to create an interactive art installation finding relative perspectives and importance that Old Testament, New Testament, Buddhist texts, Hindu texts, and The Quran articulate about topics. Participants are asked to choose words (topics) to explore, learning after exiting, from which religions their selected color-coded texts originated. The technology and installation design was negotiated continually due to the expertise of my collaborators, and also due to our attempts to come up with flexible, viable technologies suitable for a myriad of installation spaces. In this process, our needs expanded regarding software design and technology, leading us to partner with software designer Peter Koger (Au), and architect Barry Holden (USA) to coordinate the project.) The team then communicated intensively across three countries and two continents using Skype, Google Docs spreadsheets, and email, to consider many technology schemes. We found our innovation flourishing while exploring alternative technologies to deal with confronting unknown space limitations. After all, only a few days before installation, we found ourselves still scrambling to find a tracking technology that would work in the space that turned out to be much smaller than anticipated, with a low ceiling that made our tracking sensor solution useless.

In March 2009, I suggested we use Johnny Lee's infrared Wiimote and IR pen tracking system. [1] The tool allowed interactively exploring relative search perspectives of sacred texts in a tiny space. Peter Koger designed software for us to test Johnny Lees's Wiimote system. Barry Holden worked with Scott Fitzgerald, (NY.) tracking texts.

CROSSINGS: The Exhibition
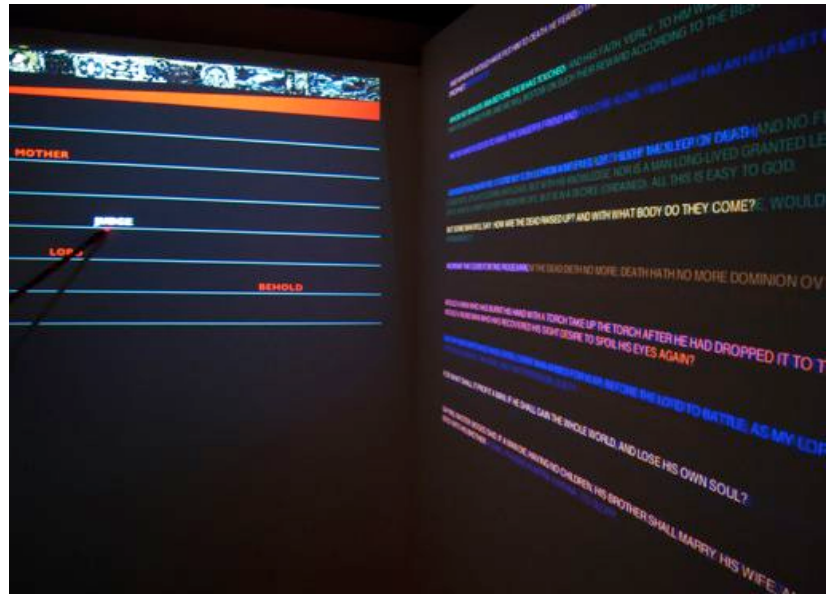
Fig.1. Participant with infrared wand at the Thessaloniki State Museum of Contemporary Art during the Art Biennale 2009 (Photo ©Barry Holden--Film clip Nina Yankowitz with Lujan Gorczynski)

A Projection of an abstracted Multifaith Cathedral rotates slowly on an exterior entry wall, while people enter a virtual religious space and walk on a mosaic floor projection composed with patterns used in cathedrals and temples around the world. They hear voices, from various cultures reading scriptures, electronically altered to sound like instruments playing sacred music.

Visitors prioritize the dimensions of scriptures and a wall reflects their most frequently found tagged keywords. They select a word from 88 possible choices on each of six lines, providing myriad possibilities of search perspectives to appear.

The participant selects words (topics) to explore with an infrared wand, moving them along lines on a whiteboard wall, made interactive by the Wiimote infrared tracking camera. Leaving words along six horizontal lines, each at location(s) from left (0%) to right (100%) assigns relative strength--weakness to selected topics, activating database perspectives. As words slide, Mauri Kaipainen's Ontospace search engine displays in real-time, relative importance that scriptures express, deriving data from vertical (top to bottom) relative placements of words. Searches are non-trivial, where every change to the positioning of words reflects a new order of perspectives. Every change in the perspective immediately reflects a new order of scriptures similar to each other. After exiting, participants can press the SAVE button and retrieve a copy of the color-coded perspectives at a dedicated website to learn from which religions the color-coded texts originated. They can option to print and autograph their text selections.

The software incorporates a database of over 4,500 keyword frequency tagged texts in the prototype. We used a Mac Mini computer, two video outputs, two video projectors, two DVD players, and a Wiimote infrared tracking camera [2].

Software designer Peter Koger explains that the *Crossings* application is based on the high level tool adobe director [3] which provides all necessary means to receive input information from the Wiimote whiteboard [4] application which gathers the data from Wiimote tracking and sends--converts it either to mouse position information (currently used) or TUIO/OSC [5] data. Implemented now, it may be used in new versions to allow simultaneous use of more than one input device, as well as display and animate texts. A php based server application is used to store participant's selection on request. The The algorithm to select and more precisely order texts according to participant's selection and weighting of keywords, is based on a spatial ontology (ontospace) [6] of keyword frequencies, precalculated and stored for each pair of keyword text. Each value is multiplied by weighting the value of participant's input, the more to the right words are moved, the higher the factor, using an

exponential input curve. The product calculation is used to order all texts.

The current version of *Crossings* only displays the first ten texts, but since the participant's selection is stored on the server, the order of texts may be recalculated for future exploration. This rendition was developed after we explored, then abandoned, the following alternate proposals.

Alternate Proposal: 1

Fig. 1 2008 Proposal 1. Texts in five rows with kiosk touch screen and projecting on wall. Drawing ©NinaYankowitz

Text would dynamically load into each of the five columns from one external XML file. The Flash based interactive presentation (elements-interface-items-controls) allows users to click and highlight a particular quote from five pre-tagged color coded words viewed in the middle of the screen--LOVE, DEATH, MAN, WOMAN, OBEDIENCE. Participant selections appear in the (sixth) empty column. Each text in the sixth column will retain the color of the original column from which it came. When finished, the user would be prompted to save the selections. When "SAVE" is selected, the final list of color-coded quotes will appear in the middle of the screen. Players can option to export text projections to a computer at a specific public location somewhere displaying their selections sited on interior walls, exterior facades, museums, or public buildings.

Mauri Kaipainen proposed his onto-space method, in which text excerpts are annotated with numerically expressed metadata referring to selected keyword frequencies. Using this method, the participants can interact with the text database, prioritizing her set of ontological dimensions to allow visualizations to be computed, applying weighted multi-dimensional scaling in real-time. Similarity map clusters group texts that are similar, appearing near each other, revealing hidden similarities between unrelated religious texts. Other functions can trigger related audio files when clicking on the touch screen, featuring text readings and artist's audio files. A projector sited on the exterior of the building, allows viewing of scrolling metadata on the plaza.
We discarded it in 2008 due to space limitations and continued work to reflect more complex search perspectives.

Alternate Proposal: 2

Participants enter a virtual cathedral, walk on a mosaic floor projection, and step into a cloak collar robe or hat. Scriptures are positioned floating in the space at a comfortable reading distance.

Mauri Kaipainen proposed that visitors would be asked to prioritize scripture content based on keyword annotations existing in the database, constituting what can be called a perspective to the space of religious scriptures. Every change of perspective will be immediately reflected as a new apparent order of scriptures in the virtual space, so scriptures similar to each other from selected perspectives will be positioned close to each other. They wear red-green stereo glasses. A positioning tracking system and video cameras, detect the participant's position, triggering an audio track of readings correlating from where visitors stand. Many people can interact together without headsets and hear voices, from various cultures, electronically altered to sound like instruments playing sacred music.

**Fig. 2. People read virtual texts floating in space. Drawing ©Nina Yankowitz**

We discarded it in 2008 due to space limitations and funding restrictions .

Alternate Proposal: 3

In Vienna, we developed a proposal using video tracking, and a kiosk at the entrance for visitors to choose a topic with tangible marker objects representing search keywords. A ceiling mounted video camera would track and project best matches on a wall, refreshing when responding to movements of other marker objects. Pia Tikka suggested designs to produce a graphic projection for displaying real-time text selections on the wall, and Barry Holden recorded audio files of scripture readings. Software designer, Peter Koger discussed how participants explore multiple perspectives from the database of texts when moving poles, assigning them relative weights, placing them closer (high weight) to the center, or to the periphery (low weight) of a circle's center fully weighted at 100%. Responding to each move, a search, from the database of excerpts displays real-time, top ten matches on the wall.

Fig. 3. Weighting Words By Pushing Poles Drawing ©Nina Yankowitz
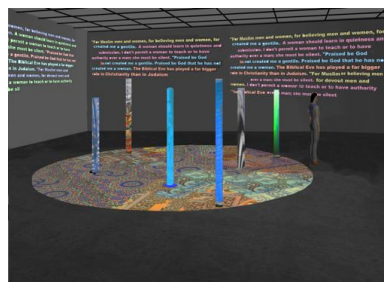
We discarded it because Tiny space allowed only one marker. The search would be trivial.

We look forward to exhibiting *Crossings* at a variety of venues, and also seek opportunities to create other installations that implement new technologies, as well as those chosen to explore in our **Alternate Proposals.**

References and Notes:

1. Johnny Lee, (2007) <http://johnnylee.net/projects/>, accessed February 1, 2009

2. Johnny Lee, (2007) <http://johnnylee.net/projects/>, accessed February 1, 2009

3. <http://www.adobe.com/products/director/> accessed February 1, 2009

4. Uwe Schmidt, <http://www.uweschmidt.org/-whiteboard> accessed February 1, 2009

5. <http://www.tuio.org/> accessed February 1, 2009

6. Mauri Kaipainen, *Soft Ontologies, Ontologies for Web 2.0 design*. Created spatial ontology keyword frequency data for search algorithm.

7. Score- EthnographicWeavings©1979 Scenario Sounds Nina Yankowitz

8. Multi-faith Cathedral design and wall projection, Mosaic floor projection, © 2005-09 Nina Yankowitz