Waterbowls: moon~drop~sound~oil

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ABSTRACT
In this paper I describe an installation with water that involves three aspects of interactions: sensory utilizing technology, sensory with touch of actual water and the online aspect that feeds information to the physical interactive work. Two main conceptual challenges are discussed – how to create an interactive work that is at once aesthetically compelling and poetic while raising awareness about water pollution and how to design an online component that is at once independent and connected to the physical project. The approach is to develop a modular installation that allows for change depending on the physical context and the participation of audiences online.

Author Keywords
Interactive installation, water, senses, environment, installation, physical and virtual space.

ACM Classification Keywords
H5.m. Information interfaces and presentation (e.g., HCI): Miscellaneous.

INTRODUCTION
Philosophically, I have been interested in the global water crisis as a reflection of our collective state of mind. Although we as humans recognize water as the source of life and one of the most precious natural resources, we disregard it by polluting our rivers, lakes, and oceans. Subsequently, we are slowly but surely harming our planet to the point where organisms are dying at a very alarming rate. In addition to innocent organisms dying off, our drinking water has become greatly affected as is our ability to use water for recreational purposes. This subject has come up many times while collaborating with nano scientist James Gimzewski and we both became increasingly intrigued by the possibilities this new science offers in "seeing" beyond the eye into a drop of water. [1]

THE PROJECT
My biggest challenge was to conceptualize a piece that is at once aesthetically beautiful, interactive and thought provoking without becoming didactic. After much reflection and discussion with Gimzewski, I conceived of an installation piece that consists of four water bowls made of polycarbonate plastic. Because of its structure, this plastic it has wonderful, biological reflections when projected through and at the same time is not breakable or too heavy for transport.

The four water bowls reflect different aspects of water related to our collective, global human condition. Some of the most common metaphors of water such as the reflection of the moon, a drop of water, sound of water and oil and water are revisited using some of the latest scientific observations as the source. All bowls are half empty/full except for the oil bowl that is almost full. *Moon* is quiet with a hidden underwater microphone that amplifies sound when someone touches the water with a looped projection of water molecules cycling from heavily polluted state to clearing and back. [3] *Sound* is interactive locally with an underwater speaker and shaker that is activated with sensors by touching the water. The disturbance generates a reflection of sound/water waves on the wall and one actually feels the vibration of the sounds. These sounds are based on underwater pollution such as sonar frequencies, explosions and submarines as well as the classic whale sound and cell vibrations.

Drop and *Oil* are interactive both locally and remotely emphasizing the global connectivity of water/human systems, beyond borders. Audiences remotely release a copper coin into the bowl via a website that is connected to the project. This is projected on the oil and reflected on the wall in particles that dissolve. The greatest challenge with the remotely controlled bowls was to create an interface online that was equally compelling as the physical installation allowing remote audiences to participate. I decided it would be best to design it in way that would allow the online component to be at once directly connected to the project and completely self-sufficient and independent. Upon entrance to the site, participants would be asked to identify themselves with a body of water, ie. The Nile, Ganges, Danube, Pacific, Atlantic Ocean, the Mediterranean Sea and any that they input. Once they do so, they are allowed to add a drop from that place to the bowl. For the *Oil*, participants are asked to make a wish and

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drop a coin in the waterbowl with oil, but warned that their wish will be made public. In both cases their location is mapped by tracking the IP of their computer and pairing it with the body of water they identify with. The location of the online participant and the body of water they choose is projected in the physical space.

The installation is designed modularly with the possibility of changing the installation depending on the venue and the context. In some cases it will be shown with all four bowls, fully interactive with the net connection, while in others it may be running only locally. There are instances, such as the exhibition in Trento, where only one bowl will be shown in variation from the full installation. With the rich subject of water and the installation allowing for interaction and input from the audiences, change is inevitable and constant. [3]

NOTES:

1. James Gimzewski is a nano science pioneer and a collaborator on this project. We have had numerous discussions over the past years on the subject of water.
2. This animation is based on the research of Eric Hoek who develops creates reverse osmosis using nano-filtration systems being developed to treat non-traditional water sources such as seawater, agricultural drainage water and municipal wastewater. Eric is a member of the Water Technology Research (WaTeR) center at UCLA.
3. For more information about the project and access to the online component, see: http://vv.arts.ucla.edu/waterbowls