Empathy and Human-Machine Interaction

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ABSTRACT

This paper presents the framework of the author’s practice and research exploring empathy and human-machine interaction in projects involving robotic art and video installations and performance. The works investigate emotions and embodiment, presence and absence, relationships and loss, and ways to implicate these ideas in encounters between technology-based artwork and the viewer.

Keywords: Contemporary Art, Emotions, Empathy, Human-Machine Interaction, Video-Installation

INTRODUCTION

In my research about the natural/artificial dialectic, I consider the approaches found in the electronic arts more successful than some of those developed in engineering. (Gouvrit & Quintero, 2005) Kismet (Figure 1) and The Senster (Figure 2) are examples of these different approaches. Kismet is a robotic head developed in the late 1990’s at the Massachusetts Institute of Technology that is intended to simulate human emotions through facial expressions. The Senster, often cited as the first computer-controlled work of art, was created by Edward Ihnatowicz and commissioned by Philips for Evoluon, a science and technology exhibit in Eindhoven, Holland, in 1970.

I think that there is a crucial difference between recognizing the emotions expressed and simulated in a robot, and recognizing a robot as a living creature, through its expressions and behavior. Kismet shows the expressions of a living creature; The Senster behaves like one.

The contrast between these two approaches is similar to that between the Bottom-Up and Top-Down approaches in Artificial Intelligence. In Bottom-Up design, a robot (or AI system) is programmed to do a final task that is the result of a process completely thought out and determined in advance. Top-Down design establishes conditions and allows the robot to make its own decisions within those conditions. A Bottom-Up robot acts like it thinks; a Top-Down robot tries to think. Kismet acts like it has an emotion, combining positions of eyebrows, ears, eyelids, and lips to replicate a human expression. The Senster reacts to environmental conditions. It would move toward sounds, but would shy away from loud sounds, or if you tried to touch it. It used four microphones and two radar horns to see and hear its surroundings. (Evoluon, n.d.). The Senster robot shows a behavior but doesn’t give us a full simulated expression. It is the viewer that completes the equation and assigns an emotion.

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Figure 1. Kismet project, MIT. (n.d) Retrieved from website. URL = http://www.ai.mit.edu/projects/humanoid-robotics-group/kismet/kismet.html

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