Up-Close Experiences with Robots

Louis-Philippe Demers

School of Art, Design and Media, Nanyang Technological University

lpdemers@ntu.edu.sg

Abstract

This paper reports on singular encounters with robots in the context of artistic explorations. These artworks investigate the vast dimensions of the human-robot interaction: multiple layers of embodiments, mechanisms of identification and empathy, thaumaturgical and dramaturgical techniques and morphological computing. Several case studies are reported to explore their potential impact in Social Robotics and to develop alternate human-robot scenarios.

Introduction

This paper pinpoints a non-exhaustive list of concepts and perceptual observations about up-close experiences. A major common thread of all these robots is that they do not utilize human spoken language and rarely any facial expressions. The limitation of this non-verbal interaction means robot agency is located in the successful embodiment of intent and actions. Hence, the context of the scenario and mise-en-scène are key to the experience. In contrast to social robotics where researchers strive to define models for the functionality of a robot, I aim to bring together the real and the unreal, fact and fiction and as Jean Cocteau suggests something "not to be admired, but to be believed." In this sense, Up-Close Robots are about how to make unbelievable agents, believable. The most recent lineage of projects deal with what I would describe as more radical experiences and encounters, where the co-existence of the robot in the shared space with the human addresses intimate and uncomfortable body proxemics.

Projects

La Cour des Miracles (1997, 2012)

Staging robotic misery, the many layers of embodiment (from the physiological to the social) trigger viewers' own bodily reception and encourage them to consider these characters not as objects that mechanically reproduce signs of pain but as bodies that actually experience pain. [1]

Fig 1.

Devolution (2006), XLimbs (2017)

These projects engage the audience into imaginative alterations of our original body-schema. [2] In turn, these robotic wearables for stage performers lead to transformed motions and revised stage presence. Exploring empathic reactions, the viewers are gazing upon these unprecedented bodily sensations felt by the performers. Stemming from scientific research on supernumerary limbs and adapted to the dramaturgical needs of the performance, the machine extension becomes a variation of the object "human dancer." [3] Being corporeal, it becomes a factual variation of the body.

Fig 2. *XLimbs*, 2017, wearable robotics, © Demers.

The Blind Robot (2012)

This project empowers the qualia of being touched by a robot in what is for most participants the very first time. It enables the audience to take part in a sensual experience, as opposed to one of solving the intellectual, ontological issues of the quasi-living. This scenario incarnates the pivotal role of 'nascent movements' in our bodies and also deals with the perception of intentionality. My analysis of the Blind Robot demonstrates the suggestive power of the afflicted agent. [4]

Fig 3. *The Blind Robot*, 2012, robotic arms, © Demers.

Inferno (2015)

Inferno is a participative robotic performance project rooted in the ambiguity of control. Playfully framed as a representation of Hell, Inferno offers an intimate experience with exoskeleton technologies and highlights the contradictions found in humans becoming cyborg. Exoskeletons are retrofitted on untrained audience members cum performers. This select group of the public becomes an active part of the performance, giving a radical instance of immersive and participative experience. The human subject is simultaneously master and slave, agent and object, in this transgressive assemblage. A

paradoxical sense of pleasure emerges through this transformed corporeal experience of coerced movements. [5]
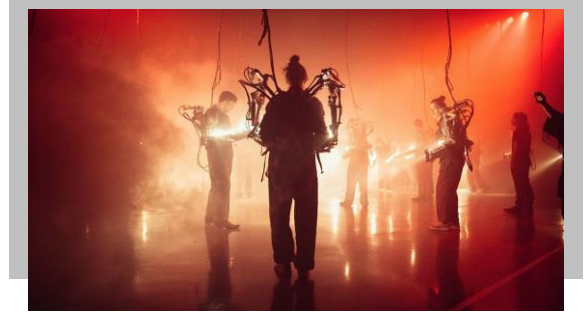

Fig 4. *Inferno*, 2015, Demers/Vorn, exoskeletons, © Gridspace.

I Like Robots, Robots Like Me (2018)

The radical alterity and the perceived 'humanness' of the animal serve as a platform to depart from the expected behaviours of (social) robots and the anthropocentric dialogue imposed on them. Central to this project is the parallel we can establish between the boundaries of human-machine and the human-animal. This process is imploding by simultaneous confusing and reasserting the human/non-human (species) boundaries. The visitors are tracked with physiological sensors. With this information, the robot knows if the visitor is afraid or at rest, asserts where to charge or to flee, or when to stop or stand still.

Fig 5. *I Like Robots, Robots Like Me,* 2018, UAV, © Demers

References

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Biography

Demers makes large-scale installations and performances that can be found in theatre, opera, subway stations, art museums, science museums, concerts and trade shows. He has built more than 375 machines and his works have been featured at major venues such as Theatre de la Ville, Lille 2004, Expo 1992 and 2000, Sonambiente, ISEA, Siggraph and Sonar. He received six mentions and one distinction at Ars Electronica, three prizes at VIDA, recommendations at JMAF and six prizes for Devolution including two Helpmann Awards. Demers was Professor of Scenography at the HfG Karlsruhe, affiliated to the renowned ZKM. Since 2006, he joined the newly founded School of Art, Design and Media at the Nanyang Technological University.