AI & Soc (2013) 28:147–156
DOI 10.1007/s00146-012-0404-4

25TH ANNIVERSARY VOLUME

A FAUSTIAN EXCHANGE: WHAT IS TO BE HUMAN IN THE ERA OF UBIQUITOUS TECHNOLOGY?

Art and robotics: sixty years of situated machines

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Received: 17 September 2011 / Accepted: 6 January 2012 / Published online: 15 March 2012

Abstract This paper pursues the intertwined tracks of robotics and art since the mid 20th century, taking a loose chronological approach that considers both the devices themselves and their discursive contexts. Relevant research has occurred in a variety of cultural locations, often outside of or prior to formalized robotics contexts. Research was even conducted under the aegis of art or cultural practices where robotics has been pursued for other than instrumental purposes. In hindsight, some of that work seems remarkably prescient of contemporary trends. The context of *cultural robotics* is a highly charged interdisciplinary test environment in which the theory and pragmatics of technical research confronts the phenomenological realities of physical and social being in the world, and the performative and processual practices of the arts. In this context, issues of embodiment, material instantiation, structural coupling, and machine sensing have provoked the reconsideration of notions of (machine) intelligence and cognitivist paradigms. The paradoxical condition of robotics vis-à-vis artificial intelligence is reflected upon. This paper discusses the possibility of a new embodied ontology of robotics that draws upon both cybernetics and post-cognitive approaches.

Keywords Robotics · Robotic art · Artificial intelligence · Cybernetics · Cognitivism · Situated cognition · Media art

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1 Overview and historical context

The purpose of this paper is threefold. First, to document and elucidate robotic art—a minor but stubbornly persistent strain in the history of computer automated cultural artifacts (CACA)—a strain that belatedly must be recognized for its prescient relevance. The second is to discuss some of the history of ideas related to robotics. And third, to explore some of the deeper tensions in the cognitivist worldview as they apply to robotics, to art, and to their combination.

Rather than synthesizing the skills of the programmer and the painter, robotic art integrates the sensibilities of the sculptor, installation artist, and performer with the computational systems equipped with both sensors and mechanical effectors. As such, these systems mirror the ongoing sensorimotor engagement of humans (and animals) in the world. This fundamentally interactive conception traces its roots to the pre-digital and pre-cognitivist cybernetic sensibilities of the mid 20th century, a movement that had substantial influence in the arts as well as in engineering and other sciences. Indeed, one might reasonably assert that the seemingly wildly disparate fields of control theory and performance art both have their roots in the ur-discipline of cybernetics. The argument for control theory is straightforward and uncontestable. The influence of cybernetics in the arts is less known and less celebrated but just as clear.

This confluence of arts sensibilities and technological development produced artifacts that exhibit and explore ongoing computational engagement with the real/material/social world, in a manner analogous to humans and animals. This quasi-biological condition was a key aspect of 1990s Artificial Life research. I argue here (as I have argued in the past) that this field of practice prophetically