Chapter 3

Cells, Organisms, and the Living Brain as New Media for Art: A Pursuit in Art Research

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ABSTRACT

Throughout art history numerous artists have explored connections to science. In the society of today, the relationship between art and biology has been acquiring special visibility. Moreover, the current importance given to science and technology by today's public opinion directly drives an increased awareness about the relationship between art and science. The public eagerly follows any breakthroughs of scientific research that reach the public sphere, with mixed feelings: simultaneously awe, hope, and fear for potential misuse. Such awareness about biological sciences and biotechnology has been having an increasing influence over artists, with a strong emphasis on the biological sciences. Nowadays, the position of artists as mere interpreters and observers is obsolete, and is reminiscent of a time before the term “science” was created. Now the artist is no longer a passive observer of the scientific research, but does not quite fit the current definition of a basic science researcher. The artist is, rather, an art researcher. This particular position, has been developed within the academic environment and within a growing and trendy artscience community. It has led to the development of strategies to promote the exploration of research possibilities deriving from a cross-talk between artists and scientists. While art and science seems to be establishing itself as a new art practice, as a research field it has been rooted on the timeless investigation strategy of science (as interpreted by artists) in order to develop its own new methods of practice, new media and installation strategies, and new ways to manipulate the materials for artistic expression. Art and Science (and especially art and biology) is itself, in my view, a great example for the setting of brackets to the field of art research.

DOI: 10.4018/978-1-5225-0510-5.ch003
INTRODUCTION

In today's society it can be argued that biology has replaced the physical sciences – physics in particular – in becoming the scientific discipline with greater impact in the public opinion. In the first two-thirds of the twentieth century advances in nuclear physics and quantum dynamics represented for the society the most visible science in respect to fear of misuse (nuclear catastrophe) and also the promise of great benefits (such as clean and cheap nuclear energy, or space-exploration). However, the molecular revolution of biological sciences – made to a great extent by physicists like Delbruck or Pauling – led to landmark discoveries that placed biology and biotechnology in the centre stage of public visibility (Hudson, Horace & Maddox 1979). It is therefore no surprise that art has also developed a strong relation with the biological sciences, regardless of the breadth of the field.

In the frame of this context of Biology and Art, we can find several works, developed in recent and not so recent years, which represent this paradigm (Bulatov 2004). Any analysis of those works will necessarily lead to the conclusion that what is usually described as: “art and biology” (Pandilovski 2008) or “bio-art” (Bulatov 2004; Kac 2007; Pandilovski 2008) is a very heterogeneous group of very different approaches and outcomes. As it has been clear to me from the beginning of my research, it becomes an extremely difficult and lengthy endeavor to attempt the inclusion of all strategies of both parts of the artistic practice (research and production) in the same analysis in the perspective of artistic research. I will therefore focus on my own methods and experiments, with some examples from other practitioners, to provide contrast and/or reinforcement of a point. Through this approach I will explain my position in this vast field of research and, most importantly, I will present the argument for the connection between art research and knowledge production in art practice.

I am aware, as a practitioner, that the process I use in my research and art practice, in the field of art and biology, is influenced by the way scientists conduct their own research. My research, and its similarities and differences from the scientific research (frequently both occurring in a shared laboratory, or outside it in the studio or even in the field) is a crucial point in the outcome of my projects and their formalization. I believe this attitude and strategy is also an important issue in the engagement of my fellow scientific collaborators or art colleagues and in our personal relationship to eventually create the artwork itself.

Neurons, Representation and Knowledge

In my research and practice I not only try to make some sense of the concepts I use and develop for my artworks, but I also aim to experiment with new material, live, pulsing, changing material to express these concepts. This aspect is fundamental to what I do as an artist. It is my conviction that both aspects of my strategy in the studio/laboratory on the development of the research for an artwork and the way I adapt and tackle the ideas and questions in the conceptualization of the artwork’s production, present new explorations and new knowledge in the art research field, with the added point of exploring a living material. In the project Tree of Knowledge I decided to explore interactions between art and science by using novel cell imaging and tissue culture technologies in order to create live sculptures. When creating a sculpture, the choice of medium is critical as it directly has an effect on how the sculpture is experienced. For example, the same object made of wood, stone or steel can have a different meaning, and can drive a different response in the beholder. When considering what would be the most adequate medium to represent the 3D structure of neurons, I concluded that I ought to use neurons themselves. By covering