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Synthetic Biology in Art & Design: Reframing life in current artistic practices and design approaches

In the last three decades the incorporation of biological material, like cells, bacteria, tissue cultures, and scientific technologies, into the arts went hand in hand with debates about the aesthetic value and ethical and ontological consequences of introducing cutting edge science into the arts. With the emergence of BioArt, biotechnology became part of the art world, raising questions about the aesthetic and ethical status of manipulating the genetic make-up of living organisms. This encounter with living materials has opened up new avenues of artistic expression, and by bringing biotechnology and genetic engineering closer to the public sphere art has provoked wider reflection about the ethics of turning biology into technology.

Lately artists and designers turned their attention to the emerging field of synthetic biology, a new approach to engineering biology that will soon turn into an important agent of the transformation of our economy into a bioscience-based economy. While passing through the gates of academic institutions to go ‘hands-on’ in a laboratory was a challenging encounter in the early days of BioArt, the field of synthetic biology virtually seems to welcome artists and designers. Only five years after the first iGEM competition did take place at MIT in 2004 a new category was added: *art and design*. By applying engineering principles to life - to build in the long run new complex living systems, scientists and engineers are making biology also a new material for design. This shift makes it necessary for artists and designers to get acquainted with the new epistemologies of synthetic biology and the logic of the techno-scientific regime, which governs the re-framing of life within this new setting: a setting that is ruled by patents, the flow of global capital and government based strategic plans for a new bioscience-based economy: In February 2016 the UK-Minister for Life Sciences announced the UK Synthetic Biology Strategic Plan 2016 with a most promising title *Biodesign for the Bioeconomy*.

In my paper I will examine a number of case studies of art’s encounter with synthetic biology to develop a critical understanding of the role of art in the twenty-first century.

Suggested readings:

Ingeborg Reichle, Synthetische Biologie und biologisches Design in Kunst und Wissenschaft. In: Sonja Kießling, Heike Catherina Mertens (eds.), *Evolution in Menschenhand? Synthetische Biologie aus Labor und Atelier*, Freiburg i. Br. 2016, Herder, pp. 77-92

Kristin Hagen, Margret Engelhard, Georg Toepfer (eds.), *Ambivalences of Creating Life. Societal and Philosophical Dimensions of Synthetic Biology. Ethics of Science and Technology Assessment*, Vol. 45, Cham, Springer International Publishing, 2016

Further readings:

Jenny Boulboulé, ‘*In Touch With Life. Investigating Epistemic Practices in the Life Sciences from a hands-on Perspective*’ in *Bio Art, Descartes as a hands-on Practitioner, Molecular Genetics Laboratories*; Diss, University of Maastricht, 2012

Robert H. Carlson, *Biology Is Technology. The Promise, Peril, and New Business of Engineering Life*, Cambridge, MA, Harvard University Press, 2011

Alexandra Daisy Ginsberg et al. (eds), *Synthetic Aesthetics. Investigating Synthetic Biology's Designs on Nature*, Cambridge, MA, London, MIT Press 2014

William Myers, *Bio Design. Nature, Science, Creativity*. Foreword by Paola Antonelli, The Museum of Modern Art, New York, London, Thames & Hudson, 2012

MARÍA ANTONIA GONZÁLEZ VALERIO

Professor, PhD, Faculty of Philosophy and Literature, National Autonomous University of Mexico

Repositioning Biotech Arts in Mexico. The project of Art&Science at the National University of Mexico

What are the aims of a research group and an art collective that reunite scholars, artists, scientists, and students inside a huge university that shelters almost any research field that is being studied in the country?

What are the possibilities of working in the intertwining of art, science, technology and humanities in Mexico City and which ones could be the topics that should be addressed from a local point of view? And why local?

In this talk I will address these questions and present the recent projects that we have developed in Mexico City in the intertwining of arts, science and philosophy that deal with biotechnology, transgenic corn, bioartificiality and animality.

María Antonia González Valerio is a philosopher working in the fields of aesthetics and ontology, with a focus on biotechnologies and the arts. She is full professor at the Faculty of Philosophy, National Autonomous University of Mexico (UNAM). She is the author of three books: *Cabe los límites. Escritos sobre filosofía natural desde la ontología estética* (México, Herder, 2016), *Un tratado de ficción. Ontología de la mimesis* (Herder, 2010) and *El arte develado* (Herder, 2005). She is editor of five books, the most recent: *Pròs Bion: Reflexiones naturales desde el arte, la ciencia y la filosofía* (UNAM, 2014). She is the head of the interdisciplinary research group Art+Science based at the UNAM and the coordinator of the arts collective BIOS Ex machinA (workshop for the fabrication of the human and the non-human). She has also worked as curator in Mexico.