International Conference
Philosophy of Science in the 21st century – Challenges and Tasks
4-6 December 2013 | Lisbon | Portugal

S5

4th of December 2013 | 14h50-16h50 | Room C1.3

"Science" and "Control" in the 21st century. Critical approaches towards techniques, technologies and "enhancements" of the mind

Organized by Alexander Gerner (CFCUL, Portugal)

Introduction

"Science" and "Control" in the 21st century. Critical approaches towards techniques, technologies and "enhancements" of the mind questions the fundamental role the concept of *control* has in science in the 21st century, especially in the mind sciences.

The importance of the concept of *control* in techniques and technologies seem obvious since the introduction of the science of *cybernetics*, in which a controller navigates by manipulating the inputs to a system to obtain the desired effect on the output of the system changing within a feedback loop, be it a machine or a living system (Von Neumann, Wiener, Shanon). In the beginning of the 21st century we seem far away from a *science of self-governance* as proposed in Plato's Alchibiades influenced today by continually evolving information and communication technologies (ICTs) that seem to invade nearly every aspect of our contemporary human practices, political and social innovations, thus making explicit the importance of cybernetic issues of control. The classic enlightenment ideal how to apply science and technology to enable us to live a better or even an enhanced experience of life for the good of society, nowadays seems to change in direction to the following issue: How does science and technology give *a few* a better control/grip or more security of government at hand over *the many* in situations such as illnesses, accidents, war/aggression; political or financial crisis. The art of securing efficient and economic operations applied to all human endeavors poses the following questions:

- Until which limit can or should science and technology help us control the unexpected, exclude the undesired, or control the 'other'?
- Is the cybernetic control paradigm of the 20th century actually desired inside the social and individual human realm in the 21st century?
- On which technological level of complexity is "control" actually achievable?
- What is the relation of 'uncertainty' and 'control' in mind technologies and scientific "enhancements" in the 21century?
- What consequence does an amplified and intensified cybernetic control concept have on the production of subjectivity, and its social, political legal consequences?

- Should we enhance artificial agent's intelligence (beyond human (intelligent) control?
- What should we expect from the relation of 'wisdom' and 'control' in the mind-sciences in the 21century?
- How does science and technology lead to control mechanisms that do/don´t empower self-autonomy or enhance the desired richness of our experience as by training (Sloterdik 2013) leading for instance to the "hyperproletarization" of the majority (Stiegler) rather than to an general "enhanced" species?

In a pilot study in 2013 at the University of Washington in which the "direct communication" of one brain to another is tested, the challenge was how the "brain of the other" can be controlled. In which sense are these inter-brain computational "communication" studies (Rajesh/Rao 2013), not simply remote control studies that question fundamentally individual personhood, autonomy and justice? What is their military purpose?

Bibliography:

Agamben, G. (2013). The Highest Poverty: Monastic Rules and Form-of-Life, and Opus Dei: An Archeology of Duty. Stanford: Stanford UP

Angar, N. (2010). Humanity´s End. Why we should reject Radical Enhancement. MIT Press

Blank, R. (2013). Interventions in the Brain. Politics, Policy and Ethics. MIT Press

Chatterjee, A. Farah, M. (2013). Neuoethics in Practice. Medicine, Mind and Society. Oxford: Oxford University Press

Deleuze, G.(1992[1990])Postscript on the Societies of Control. In: October, Vol 59, 3-7 https://files.nyu.edu/dnm232/public/deleuze_postcript.pdf

Hays, S. et al (2013). Nanotechnology, the Brain and the future. Springer

Lemmens, P. (2011). "This System does not produce anymore". An Interview with Bernard Stiegler, Krisis Journal for Philosophy 2011, Issue 1 online: http://www.krisis.eu/content/2011-1/krisis-2011-1-05-lemmens.pdf

Lazzarato, M. (2012). The Making of the Indebted Man. Essay on the Neoliberal Condition. Translated by Joshua David Jordan. Cambridge: MIT Press

Lenk, Ch. (2011). Enhancement vor dem Hintergrund verschiedener Konzepte von Gesundheit und Krankheit. Willy Viehöver, Peter Wehling (Eds.). Entgrenzung der Medizin. Von der Heilkunst zur Verbesserung des Menschen?. Bielefeld: transcript, 67-88

Li et al. (2012). "Optogenetic Stimulation of a hippocampal engram activates fear memory recall. Nature 484, 381-385

Martins, H. (2011). Experimentum Humanum. Relógio d´Àgua. Lisboa

Müller, O.; Clausen, J, Maio, G. (Eds.)(2009). Das technisierte Gehirn. Neurotechnologien als Herausforderung für Ethik und Anthropologie. Padaborn: Mentis

Persson & Savulescu (Eds.) (2012). Unfit for the future. Oxford: Oxford University Press

Savulescu, J. Meulen, R. Kahane, G. (2011). Enhancing Human Capacities. Willey-Blackwell

Shannon, C.E. (1993). Collected Papers. Ed. by N.J.A. Slone, Aron D. Wyner: New York: IEEE Press
Sloterdijk, P. (2013{2009}). You must change your life. Polity Press
Stiegler, B. (2010). For a New Critique of Political Economy. Cambridge and Malden MA: Polity
Rajesh, Rao, N. (2013) Brain- Computer Interfacing. An Introduction. Oxford: Oxford University Press
Ramirez, S. et al (2013). "Creating a False Memory in the Hippocampus" Science Vol 341, 26 July 2013, 387-391
Wiener, N. (1954). The human use of human beings: Cybernetics and society. Boston: Houghton Mifflin
Wiener, N.(1965) Cybernetics, Second Edition: or the Control and Communication in the Animal and the Machine
Von Neumann, J. (1948). The Computer and the Brain. New Haven and London: Yale University Press

Program

14:50-15:00 **Welcome and introductory remarks**
Alexander Gerner (CFCUL, Portugal)

15:00-15:30 **Eternal Sunshine in 'spotted minds'? On the enhancement of forgetting and optogenetic control mechanisms**
Alexander Gerner (CFCUL, Portugal)

15:30-16:00 **Minds of Our Own. Exploring the final boundaries of privacy**
Sean A. Hays (Centre for the Study of the Sciences and the Humanities, University of Bergen, Norway)

16:00-16:30 **Technics of Debt as Control Mechanism. New forms of the production of subjectivity by economic politics.**
Nuno Nabais (CFCUL, Portugal)

16:30-16:50 **Discussion and closing remarks**

Abstracts

"Eternal Sunshine in 'spotted minds'? On the enhancement of forgetting and optogenetic control mechanisms"

Alexander Gerner, PhD, Post Doc
CFCUL
University of Lisbon
amgerner@fc.ul.pt
http://cognitiveenhancement.weebly.com/

Abstract: Will we have a *right to forget* by the end of the 21st century as part of a value of *cognitive liberty* (Boire 2000; Sententia 2004; Bublitz 2013) based on a mind science & braintechnologies of technically enhanced forgetting?

What is cognitive liberty other than the right to mental self determination that is to obtain control over one´s own consciousness, the right to think for her/himself in a not interfered way, choosing what I myself want to belief, to choose what to think and what not to think, to direct one´s own brain´s underlying mental processes or capacities as I wish- if not harming others as in *crimes against minds (Bubitz/Merkel 2012)*- to attend to and to reason about and to remember, and equally important: to *change one´s mind* (Bublitz 2013) including to delete what I decide to discard, to forget. In the biocybernetics and "brain politics"(Blank 2013) of the 21st century should we consider as well a right to forget, the right to step outside of pre-controlled feedback loops? May one of our future values be the possibility and mental liberty of even becoming a *mnemonic "idiot"*, disconnected from memory/storage?

In the debate on storage and big data we come across arguments on why to store information about x means to have power over x, to control or use x, and that we thus should be able to restrict this power of interfering parties over personal private data storage: but what about the idea depicted in Michel Gondry' s movie "Eternal Sunshine of the spotless mind" in which two people that have had a difficult love relation, decide to call for professional technological help in order to forget one the other while all their friends get the notification of erasure.*"Clementine Kruczynski has had Joel Barish erased from her memory. Please never mention their relationship to her again. Thank you."* Should we, if we could, grant this will -in mutual consent(?)- in making one another forget each other?

This science fiction plot seems less fiction than we might think it is: The possibility of a mind science and technology of forgetting seems announced by a 21century neuroscientific interventive technology: Optogenetics.

"*Optogenetic technology combines genetic targeting of specific neurons or proteins with optical technology for imaging or control of the targets within intact, living neural circuits*."(Deisseroth et al 2006). Optogenetic methods are a powerful toolkit not just for „*performing causal studies on the roles of specific genes and cells within functioning neural circuitry*"(ibid). They are as well therapeutically "*explored as components of prototype neural control prosthetics capable of correcting neural circuit computations that have gone awry in brain disorders*"(Boyden 2011).-Even

beyond these two applications of optogenetics as in basic neuroscientific research or medical treatment- optogenetic methods may be candidates to be used for the manipulation and enhancement of certain brain mechanisms, functions or individual´s capacities such as memory or forgetting. Thus neurotechnologies in relation to a variety of brain interventions (Müller/Clausen/Maio 2009) in our case optogenetics (Boyden 2011) can be seen as technically induced enhancement tools, that have been already tested in relation to memory /forgetting (Liu 2012) and even the implantation of artificial "fear memories" in mice (Ramirez 2013). This talk will critically survey optogenetic control mechanisms, in which neural activity is "*driven or silenced by light*" (Boyden 2011) and ask: What consequences would an amplified and intensified application of optogenetic control tools in the human realm have on the future production of subjectivity, and its social, political or legal consequences, specially in relation to an technologically induced "enhancement of forgetting"?

Bibliography:

Boire, R. G. (2000). "On Cognitive Liberty, part I. J.Cogn Lib 1: 7-13

Boyden, E. (2011) "A history of optogenetics: the development of tools for controlling brain circuits with light" F1000 Biology Reports 2011, 3:11 (doi:10.3410/B3-11)

Blank, R. (2013). Interventions in the Brain. Politics, Policy and Ethics. MIT Press

Bublitz, J.C., Merkel, R (2012). "Crimes against Minds. On Mental Manipulations, harms and a human right to mental self determination". Crim Law Philosophy Aug 2012 doi: 10.1007/s11572-012-9172-y

Bublitz, J.C. (2013). "My mind is mine!? Cognitive Liberty as a Legal Concept". In: Hildt, E., Franke . A. (Eds.). Cognitive Enhancement, an interdisciplinary perspective, 233-264

Deisseroth, K, et al (2006). "Next generation optical technologies for illuminating genetically targeted brain circuits." The Journal of Neuroscience, 11 October 2006, 26(41): 10380-10386; doi:10.1523/JNEUROSCI.3863-06.2006

Müller, O.; Clausen, J, Maio, G. (Eds.)(2009). Das technisierte Gehirn. Neurotechnologien als Herausforderung für Ethik und Anthropologie. Padaborn: Mentis

Sententia W. (2004). "Neuroethical considerations: Cognitive liberty and converging technologies for improving human cognition." Ann N Y Acad Sci 2004/1013, 221 – 228.

Liu, X. et al (2012). "Optogenetic Stimulation of a hippocampal engram activates fear memory recall. Nature 484, 381-385

Ramirez, S. et al (2013). "Creating a False Memory in the Hippocampus" Science Vol 341, 26 july 2013, 387-391

"**Minds of Our Own. Exploring the final boundaries of privacy"**

Sean A. Hays, PhD
Post-doc
Centre for the Study of the Sciences and the Humanities
University of Bergen
Email: sean.hays@svt.uib.no

Abstract: This paper explores recent development in brain-machine communication, and brain-to-brain communication. The exemplary research projects analyzed are all DARPA funded for military use. It takes up the issue of privacy and security in what remains, for now, the last truly secure data storage site, the human brain**.**

Technics of Debt as Control Mechanism. New forms of the production of subjectivity by economic politics.

Nuno Nabais, PhD
CFCUL
University of Lisbon
nunocastronabais@gmail.com

Abstract: As M.Lazzarato underlines "debt represents an economic relationship inseparable from the production of the debtor subject and his "morality." The debt economy combines "work on the self" and labor, in its classical sense, such that "ethics" and economics function conjointly." (Lazzarato, 2012) . In what extend is the economic technology of debt the primordial ground for all technological production of the self? This is the biggest opposition between two actual traditions in reading Nietzsche's understanding of anthropotechnics: the biopolitical (Sloterdijk and Agamben) and the economic political (Negri and Stiegler). The first tradition approaches the "work on the self" analyzing those humans who engage expressly in practice that embody their mode of existence by training plans and peak performances, exercises that are necessary to become, and remain, a human being. The second one is inspired by the second essay from Nietzsche's Genealogy of Morals, where the origin of the self is discovered in a debt relationship. We want to clarify those two traditions, in order to understand the nature of technological control in economy.