

Symposium 20/21 January 2017

Mechanized Brains, Embodied Technologies, Restored Movements Philosophical and Ethical Implications of Neurotechnological Interventions

Cluster of Excellence BrainLinks-BrainTools, University of Freiburg (Germany)

Organizers: Julia S. Voigt, PD Dr. Oliver Müller, University of Freiburg

With the introduction of neurotechnology into Medicine, the treatment of neuro-degenerative illnesses, for example Parkinson's disease (PD), has gained a new philosophical dimension. The intervention in the human brain with electrodes, such as deep brain stimulation (DBS), has specific and highly discussed consequences for the perception of a person's identity.

The aim of our conference is to shed light on the specificity of these medical interventions in the human brain. We want to explore the respective ethical implications against the background of phenomenological approaches to human self-understanding, first and foremost in respect to the dimension of the embodied self.

In particular, we believe that the significance of movements for a person's identity has not yet been sufficiently reflected within the framework of medical evaluations. Therefore, we intend to address the effects of neurological illnesses on motor ability and secondly take a closer look at the possibilities that neurotechnology offers to restore movement control.

Body sensation and corporality play a key role for patients. Bodily movement – e.g. the ability to move in general, the fluidity of movement, the rhythm of movement, the radius of movement, as well as the nexus of movement and spatial orientation – have an impact on the identity of a person in a most elemental manner. To a certain respect, we are 'being' our 'selves' in the way in which we move. For people with motor disorders bodily expression is limited. We know from patients suffering from PD that they wish above all to move 'freely' again and that they address respective hopes to potential treatments with DBS. These patients wish further to resume their movements as an expression of themselves. Motor restrictions alter their self-conception, including the integration of 'the other' in their self-awareness and their involvement in their social milieu. Since different motor-impairing symptoms can be significantly decreased by DBS (esp. tremor and rigor), this neurotechnology can be understood as a means to allow a patient to be 'herself' or 'himself' again.

At the same time, stimulation technology has confronted patients with new forms of bodily experience. For instance, being 'switched on- and off' by DBS generates a situation in which they have to deal with two bodily states: from one moment to another, control over one's own movements can be lost – frequently to the benefit of other, i.e. cognitive abilities. This presents itself as a big challenge for patients. On the one hand they experience their ability of verbal expression as restored – but on the other hand lose their capability for bodily and gestural expression.

Against this background, the central task of the symposium is to systematically introduce philosophical considerations regarding the embodiment of a person to the neuro-ethical debate. We want to discuss in particular how the importance of movement and bodily perception for personal identity may be appropriately described. In addition, we want to ask whether normative propositions may be developed on the basis of inquiries in phenomenology, anthropology and philosophy of technology. In detail, we would like to build up from the following questions: How can we capture the specific value

that movement has for a person? To which extent is movement associated with a feeling of 'motor freedom'? How is the motor ability reflected in the assessments of the patients' quality of life?

Since it is usually cognitive abilities that play a central part in ethics and value formation processes, we wish to shift our attention towards the phenomenon of movement and identity, including the question whether phenomenology can describe substantive norms that could at the end contribute to an appropriate ethical evaluation of neurotechnology.

Session I

Ethics of Neurotechnology: Current Debates & Basic Questions

We will start our interdisciplinary exploration with mapping the field of current ethical topics and questions arising from the application of neurotechnology. Aside from the current ethical and legal framework for the assessment of neurotechnology we will also discuss relevant concepts, such as 'person', 'personality', 'self', 'embodiment', since their clarification is a premise for the ethical evaluation.

In addition, an outline from a medical perspective, specifying which current procedures and technologies are implemented in clinical practice, will be provided in this session. Regarding the growing possibilities in the development of man-machine interfaces, we also want to inquire whether we are dealing with entirely new phenomena or not. This is also important for the discussion of the need for new evaluation criteria. In this regard, we want to include reflections on new forms of 'amalgamation' of man and machine and their possible meaning for human self-understanding in the future.

Session II

Brain, Body, Self: Phenomenology, Embodiment and Technology

Based on the assumption that movement affects a person's identity in a most fundamental manner, this section should discuss different aspects of phenomenology and anthropology with regard to neurotechnological interventions. The distinction between 'objectively measurable' body ('Körper') and 'subjectively perceived' body ('Leib') forms the conceptual foundation, since this distinction allows to grasp aspects of PD patients' experience of the condition which have rarely been addressed on a systematic level. Most notably is the phenomenon that patients may 'switch on- and off' between states of motor control and loss of control by means of DHS. In the subjective assessment and evaluation of DHS, the recovery of control over one's own movement has a major significance.

In the light of current embodiment theories, we wish to re-investigate the well-known phenomenon that technology can be perceived as a part of one's own body. Although neurotechnology is 'merely' implanted in the brain, it has a fundamental influence on the entire body. In this regard, the conception of the brain as our 'central organ' should be discussed against the backdrop of current theories of the 'embodied, enacted, and enabled self'. Since the body shapes our mental processes, we have to understand how a 'mechanized brain' influences our bodily experiences and, in consequence, our mind too. Hence, we ask ourselves in this session: how can this specific kind of 'self-technique' be adequately described?

The embodiment approach is taking another aspect into account: the phenomenon of 'invisibility' of neural implants. The incorporation of neurotechnology, bodily experience and self-perception seem to have changed compared to 'classical' prostheses. It should be discussed that advanced implants, which are being developed, are barely or not at all perceived. Especially the 'closed loop systems', which purpose it is to make the technology less perceptible to patients. What effects does the invisibility of the implant have on its bodily acceptance and the self-image of the patients?

Session III

The Patient's Perspectives: Methodological and Normative Questions

Patients constitute a crucial reference point, they are experiencing deep brain stimulation in their own bodies. From an empirical point of view, there are two central qualitative methods available to gain access to these subjective experiences: narrative interviews and focus group discussions. The potential benefit for phenomenological descriptions, but also the limits of these methods, should be reflected upon and discussed in this section. In this context, we especially want to ask whether these interviews allow to identify normative attitudes which ultimately might contribute to the ethical evaluation of neurotechnology. In BrainLinks-BrainTools we conduct qualitative interviews with patients who are being treated with DBS. We wish to present our results within the conceptual framework of the symposium, and want to discuss them with regard to ethical questions.

Session IV

How the Body Shapes the Norms. From Embodiment to New Dimensions of Normativity

In the final session, we first want to address the question to which extent movement can be associated with a feeling of 'motor freedom'. Furthermore, is it allowed to speak of a 'motor freedom' as a necessary complement to cognition based concepts of free will? This will lead us to the closing section, where we intend to put the whole symposium's premises under critical examination: can we draw methodologically justified and normative conclusions from phenomenological descriptions and qualitative interviews? Are we allowed to speak of a 'motor freedom' and from a relationship between motor freedom and cognition based concepts of free will? Is it possible to develop substantive norms on the basis of phenomenological descriptions? And to which extent would it be possible to make conclusions from subjective experiences, such as motoric control on the one hand and loss of motor abilities on the other hand, to norms and values that could contribute to the assessment of neurotechnological interventions?