

# WHAT DO BRAIN COMPUTER INTERFACES MEAN FOR (HUMAN) AGENCY?

Connecting human minds with technological devices through BCIs creates new possibilities for human beings' interactions with the world. In this paper we explore what impact these new applications have for human agency. How do different theories of action relate to BCI-mediated forms of changing the world?

**Reference:** Steinert S., Bublitz C., Jox R., & Friedrich O. (2018) Doing Things with Thoughts: Brain-Computer Interfaces and Disembodied Agency. *Philosophy & Technology*. <http://doi.org/10.1007/s13347-018-0308-4>

## WHO SHOULD READ THIS?

Anybody with an interest in how human agency relates to computers and BCIs in our changing world. This could include engineers, professionals in biotechnology, philosophers, doctors, policy makers, or patients with conditions that limit their physical activities or mobility (i.e. potential BCI users).



## WHAT IS IT ABOUT?

BCIs are new technologies with applications in medicine and therapy, but can also be used in gaming or to track various mental states. BCI users can act in the world by means of the devices, controlling robotic arms, prosthetics or similar machines, using only thought. These novel forms of movement with BCIs have consequences for concepts of agency.

## WHAT DID THE RESEARCHERS DO?

We examined the question of human agency with BCIs in 3 ways: (1) the subjective experience of agency, (2) philosophical action theory, and (3) legal concepts of action. The aim is to understand if BCI-mediated events qualify as actions, according to the main concepts of action in philosophy and law.



## WHAT DID THE RESEARCHERS FIND?

The disembodied nature of BCI-mediated events conflicts with the standard legal account of action as bodily movement. However, philosophical theory provides alternatives. For instance, BCI-mediated events might be included in new definitions of action, with potential implications for the right to freedom of thought.

## WHAT NOW?

BCIs looks like a novel area in which technological interaction with as yet largely sealed-off domains of the human person may require adjustment. In particular our understanding of normative boundaries in personal and social spheres, in future contexts of BCI interactions, might be subject to change.

