LEGAL LIABILITIES OF USERS OF BRAIN-COMPUTER INTERFACES: RESPONSIBILITY GAPS AT THE INTERSECTION OF MIND AND MACHINE?

A common question about agency mediated by brain-computer-interfaces (**BCIs**) concerns liability for harmful outcomes: Who is responsible for failures or movements that harm others? The person, the machine, neither or both? This paper provides answers based on legal principles.

WHO SHOULD READ THIS?

Anyone interested in questions of responsibility and potential gaps in relation to novel forms of human–machine agency or machine learning algorithms. Legal scholars, policy makers, engineers, applied ethicists, economists.

WHAT IS IT ABOUT?

The paper addresses challenges in the allocation of responsibility for negative outcomes resulting from BCIs. It highlights novel problems, especially an epistemic gap that arises at the intersection of mind and machine because it remains opaque whether a particular movement was initiated by the person or the BCI. It also addresses standards of negligence for therapeutic and restorative BCIs.

WHAT DID THE RESEARCHERS DO?

We applied legal principles (esp. of the European civil law tradition) on the allocation of liability to typical scenarios of BCI use. We also infused the discussion with a human rights perspective, especially by the UN Convention on the Rights of Persons with Disabilities. Finally, we identified open challenges for regulators and policy makers.

WHAT DID THE RESEARCHERS FIND?

We found that general principles of criminal and tort law can provide answers in most scenarios. BCI-users will usually be responsible, even if a computer is controlling the harmful event, and even if the machine output relied on self-learning algorithms. For negligence or recklessness, it suffices that users deploy a machine which may foreseeably produce unforeseeable consequences. In tort law, strict liability seems the right standard in such cases.

WHAT NOW?

BCI researchers, engineers and physicians are encouraged to develop standards that define permissible uses and risks. Such standards emerging from within a field may serve as references in legal proceedings and regulatory frameworks. We also suggest reconsidering negligence liability for harms resulting from BCIs for restorative uses.