

In a neuro-techno future, human rights laws will need to be revisited

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New human rights laws to prepare for advances in neurotechnology that put the 'freedom of the mind' at risk have been proposed today in the open access journal *Life Sciences, Society and Policy*.

The authors of the study suggest four new human rights laws could emerge in the near future to protect against exploitation and loss of privacy. The four laws are: the right to cognitive liberty, the right to mental privacy, the right to mental integrity and the right to psychological continuity.

Marcello Ienca, lead author and PhD student at the Institute for Biomedical Ethics at the University of Basel, said: "The mind is considered to be the last refuge of personal freedom and self-determination, but advances in neural engineering, brain imaging and [neurotechnology](#) put the freedom of the mind at risk. Our proposed laws would give people the right to refuse coercive and invasive neurotechnology, protect the privacy of data collected by neurotechnology, and protect the physical and psychological aspects of the mind from damage by the misuse of neurotechnology."

Advances in neurotechnology, such as sophisticated brain imaging and the development of brain-computer interfaces, have led to these technologies moving away from a clinical setting and into the consumer domain. While these advances may be beneficial for individuals and society, there is a risk that the technology could be misused and create unprecedented threats to personal freedom.

Professor Roberto Andorno, co-author of the research, explained: "Brain imaging technology has already reached a point where there is discussion over its legitimacy in criminal court, for example as a tool for assessing criminal responsibility or even the risk of reoffending. Consumer companies are using brain imaging for 'neuromarketing', to understand consumer behaviour and elicit desired responses from customers. There are also tools such as 'brain decoders' which can turn [brain imaging data](#) into images, text or sound. All of these could pose a threat to personal freedom which we sought to address with the development of four new human rights laws."

The authors explain that as neurotechnology improves and becomes commonplace, there is a risk that the technology could be hacked, allowing a third-party to 'eavesdrop' on someone's mind. In the future, a brain-computer interface used to control consumer technology could put the user at risk of physical and psychological damage caused by a third-party attack on the technology. There are also ethical and legal concerns over the protection of data generated by these devices that need to be considered.

International human rights laws make no specific mention to neuroscience, although advances in biomedicine have become intertwined with laws, such as those concerning human genetic data. Similar to the historical trajectory of the genetic revolution, the authors state that the on-going neurorevolution will force a reconceptualization of human rights laws and even the creation of new ones.

Marcello Ienca added: "Science-fiction can teach us a lot about the potential threat of technology. Neurotechnology featured in famous stories has in some cases already become a reality, while others are inching ever closer, or exist as military and commercial prototypes. We need to be prepared to deal with the impact these technologies will have on our personal freedom."

More information: Marcello Ienca et al, Towards new human rights in the age of neuroscience and neurotechnology, *Life Sciences, Society and Policy* (2017). [DOI: 10.1186/s40504-017-0050-1](https://doi.org/10.1186/s40504-017-0050-1)

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