Response to the Human Rights Council Advisory Committee Questionnaire on "Neurotechnology and human rights"

Submission by Dr. Sjors Ligthart, Prof. dr. Antoine Buyse, Dr. Emma Dore-Horgan, Vera Tesink MA, MSc, Naomi van de Pol LLM and Prof. dr. Gerben Meynen.

Collaborative effort within the research project Law and Ethics of Neurotechnology in Criminal Justice.

Contact: s.l.t.j.ligthart@tilburguniversity.edu.

Introduction

- We are academics from the universities of Utrecht, Tilburg, Amsterdam, the Netherlands, and Oxford, UK, collaborating in a 5-year interdisciplinary research project on the Law and Ethics of Neurotechnology in Criminal Justice, funded by the Dutch Research Council (VI.C.201.067).

  This submission addresses the first 16 core questions posed to all stakeholders, with a focus on the questions about international and regional human rights, which is our main concern in academic research. Insofar as country-specific information is included, our submission relates to the situation in the Netherlands, where the International Covenant on Civil and Political Rights and European Convention on Human Rights are binding. In addition, the Netherlands has ratified other relevant human rights instruments including the European Convention for the Prevention of Torture and Inhuman or Degrading Treatment or Punishment and the European Social Charter.

- **Summary of our conclusions**

  A. The existing framework of human rights appears, by and large, to be well-equipped in principle to offer adequate legal protection in relation to the use and misuse of emerging neurotechnologies that could "read" and/or "change" the brain and mental faculties. Formulated differently: so far, no clear lacunas have been shown in the human rights protection; existing norms can be applied to these technologies. Most relevant are the existing rights to privacy, physical and mental integrity, and the right to freedom of thought and freedom of expression.

B. However, many of the notions and concepts related to these rights remain ill-defined and underexplored. For example, from the present body of literature and the case law of treaty bodies and human rights courts, it is unclear:
    - which "thoughts" are protected by the right to freedom of thought;
    - how a right to *mental* integrity relates to the right to *bodily* integrity;
    - how the protection of mental privacy should be grounded in existing human rights;
    - whether the protection of mental privacy should have an absolute core and, if so, how human rights law should distinguish between absolute and qualified mental privacy protection.

C. Current regulatory efforts relating to neurotechnology in other fields of law, beyond human rights, pose both an opportunity and a risk. Human rights treaties (and constitutions) are not the only appropriate legal instrument to protect people's interests against emerging neurotechnologies. Other legal instruments also hold promise, especially because they can regulate the acts and omissions of private actors (e.g., tech companies) who play a leading role in the development and use of neurotechnologies. For example, one might think of a "Neurotechnology Act", similar to the "Artificial Intelligence Act" that is currently being developed by the European Commission. However, the risk is that in such other fields of policy, law and regulation, basic issues of human rights protection could be overlooked or neglected. For such other regulatory instruments, it thus is crucial that human rights are fully integrated into their development, design and application. And subsequently, at the more applied level, the practice of human rights impact assessments can usefully be deployed also in the field of neurotechnology. All of this is key to ensure effective protection of human rights in this field.

In short, we do not think that recognising new human rights related to neurotechnology is a priority. However, two other matters are crucial. Firstly, the *interpretation* of current human rights law in the light of neurotechnologies. This could be done both pro-actively and in a general way by UN treaty-based bodies issuing general comments on the matter or by way of a resolution of the UN Human Rights Council. In parallel, this can also be done by way of (quasi-)judicial adjudication in individual cases by both UN treaty bodies and regional human rights (and other) courts. Secondly, human rights guarantees could be integrated, from the outset, in the development of regulation relating to neurotechnologies throughout other fields of law and policy.

Answers to questions

General

1. *Has your country taken any policy action or initiative in relation to neurotechnology and human rights at the national level? If so, please share any relevant information.*

No, it has not.

2. *Is there any actor in the public or private sector developing this kind of technology in your country? Please provide information, if possible.*

Philips is a large international company in the Netherlands working on neurotechnology like brain-computer-interfaces, in collaboration with Emotive.

3. *Indicate your level of awareness (high/medium/low) in relation to the state of development of neurotechnologies and preparedness to tackle the challenges posed by the early commercialization of these technologies.*

As academics working in the field of human rights and neurotechnology, our level of awareness is high. Meanwhile, our awareness primarily concerns the fundamental rights issues – legal as well as ethical – pertaining to these technologies, rather than detailed technological aspects.

Impact, opportunities and challenges

4. *What human rights will be mostly impacted by the development and use of neurotechnologies? Identify the three rights most impacted and briefly explain why.*

In general, the increased use of neurotechnologies risks the possibility of other people gaining access to our brains and mental states, either for the purpose of acquiring information about these mental states or in order to change our mental states, capacities and, ultimately, behaviour. In our view, such potential future forms of "brain-reading" and "brain-writing" will mostly impact upon our understanding of the existing human rights to (1) **privacy**, (2) **physical and mental integrity**, and (3) the **freedom of thought/freedom of opinion**. These rights aim to protect exactly what neurotechnology could interfere with and what most of the proposed novel "neurorights" would aim to protect. That is:

(1) the secrecy of what we think, feel, want, desire, dream of, et cetera (the right to privacy, the right to freedom of thought, and the right to freedom of expression),[1]

[1] Ligthart 2023; Ligthart 2022; Ligthart, Douglas, Bublitz, Kooijmans & Meynen 2021; Bublitz 2022.

(2) our autonomy and self-determination over our neural and mental functioning (the right to physical and mental integrity),[2] and
(3) our freedom to think and develop our own thoughts, without unwanted interference by others (freedom of thought/freedom of opinion).[3]

5. *What are the biggest challenges and risks that the development, test and use of neurotechnologies pose to human rights? Will such risks be amplified by the development of consumer-oriented neurotechnologies?*

The biggest challenge or risk concerns the possibility that the established framework of human rights falls short regarding emerging neurotechnologies. To ensure that we are sufficiently protected, different scholars have proposed to develop new human rights, often referred to as "neurorights". Even though we understand the worry, and agree on the importance of human rights protection, we believe that, to date, it has not been convincingly shown that the existing human rights framework falls short in the protection against the use and misuse of emerging neurotechnologies. However, many of the notions and concepts related to the relevant existing human rights are still ill-defined and underexplored. Consequently, there is an urgent need to clarify these concepts, and, relatedly, there may be a need to reinterpret some human rights in view of recent developments in neuroscientific research, neurotechnology and artificial intelligence.[4] Thus, it is not so much that new human rights norms are needed, but rather that these norms are clarified and applied to the use of neurotechnologies. The key task then is to raise awareness amongst legislators, policymakers, courts and supervisory bodies that existing human rights should be part and parcel of any regulation of neurotechnologies.

In our view, the biggest challenge in this regard, is not only to systematically clarify existing notions and concepts central to the human rights protection of the mind, such as "mental integrity" and freedom of "thought" and "opinion", but also to determine how different human rights *relate to each other in their protection against unconsented interferences with people's brains and mental states*. More specifically,

1) how the absolute right to freedom of thought relates to the qualified rights to (mental) privacy and freedom of expression,[5] and
2) how the right to *mental* integrity relates to the right to *bodily* integrity.[6]

[2] Ligthart, Kooijmans, Douglas & Meynen 2021; Michalowski 2020.
[3] Ligthart, Bublitz, Douglas, Forsberg & Meynen 2022; Blitz & Bublitz 2022; Alegre 2022; Hertz 2023.
[4] Ligthart 2022; Ligthart, Douglas, Bublitz, Kooijmans & Meynen 2021; Bublitz 2022; Hertz 2023; Alegre 2022; Michalowski 2020; Submission by Sjors Ligthart, Towards a Human Right to Psychological Continuity?
[5] Ligthart 2023; Ligthart, Bublitz, Douglas, Forsberg & Meynen 2022.
[6] Bublitz 2020; Biber & Capasso 2022.

A second challenge relates to the *enforceability* of human rights protection of the mind. The established human rights framework (international and regional human rights treaties) pertains mostly still to the vertical relation between states and citizens. However, a considerable part of the emerging threats to human rights, such as the right to mental privacy and mental integrity, comes from potential use and abuse of digital and neurotechnologies by *non-state* actors.[7] Think of psychologically-tailored advertising through subliminal stimuli, misuse by private companies of direct interfaces between consumers' brains and their computers or smartphones, or the possibility of 'brain hacking'.[8] Considering emerging threats to our minds by non-state actors is particularly relevant given the global use of services and products provided by 'big tech', and the enormous resources available to companies like *Microsoft* and *Neuralink* to develop neurotechnologies for the consumer market. In addition, there is a close dependency of most states on the private sector, ranging from dealing with citizens' data to the potential application of neurotechnologies in the criminal justice system. In this field, the acts and omissions of states and the private sector are thus closely intertwined. This raises the question: since human rights typically pertain to the vertical relationship between states and individuals, how should human rights protection in this context best be enforced vis-à-vis non-state actors? The development of concrete positive obligations for states to protect human rights in this domain is thus crucial.

A third challenge is that, currently, regulatory efforts are being envisaged or have already been developed relating to neurotechnology in other fields of law, from commercial to competition law.[9] This poses both an opportunity and a risk. Clearly, human rights treaties and constitutions are not the only appropriate legal instrument to protect people's interests against emerging neurotechnologies. Thus other legal instruments could also hold promise. For example, one might think of a "Neurotechnology Act", similar to the "Artificial Intelligence Act" that is currently being developed by the European Commission.[10] However, the risk is that in such other fields of policy, law, and regulation, basic issues of human rights protection could be overlooked or neglected. For such other regulatory instruments, it is thus crucial that human rights are fully integrated in their development, design and application. And, subsequently, at the more applied level, the practice of human rights impact assessments can usefully be deployed also in the field of neurotechnology. All of this is key to ensure effective protection of human rights in this field.

[7] Farahany 2023; Alegre 2022.
[8] Ienca & Haselager 2016.
[9] For example, through the recently revised Regulation on medical devices from the European Parliment.
[10] https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=celex%3A52021PC0206

6. *What groups are more vulnerable or at risk? Please, identify three and explain why.*

In our research we focus on 3 (partially overlapping) vulnerable groups of people:

1. Defendants in criminal procedures.

2. Convicted offenders.

3. People with mental illness.

Several types of vulnerability have been distinguished in the literature, perhaps most notably, *situational* and *pathogenic* vulnerability. The first type is relevant to those who are prosecuted by the state, or those who are in detention: their *situation* is one of vulnerability because these persons are dependent on the State, who can, under certain circumstances, act without a person's consent and jeopardise one's human rights. A similar situation may occur to psychiatric patients who may receive involuntary care (such as psychotropic medication, but perhaps also other 'neuro'-interventions). In addition, people with a *mental illness* may also have pathogenic vulnerability, based on which it may be more difficult for them to make well-informed and free choices. Those in forensic psychiatric care may face both types of vulnerability at the same time.

See also our recent publication on vulnerability of those in criminal justice with regard to neurotechnology: The Various Faces of Vulnerability: Offering Neurointerventions to Offenders', *Journal of Law and the Biosciences* 2023.

7. What methods can be used to identify and assess the potential risks and impact of these technologies on human rights, in particular the human rights of persons with disabilities and other groups in vulnerable situations? Will such risks be amplified by the development of consumer-oriented neurotechnologies?

Apart from the important legal and ethical research currently carried out by several research groups worldwide, we are convinced that for this purpose, it is essential to include the opinions and perspectives of the people whose human rights might potentially be violated by emerging neurotechnology, in particular vulnerable groups. For example, much important work has been done on the legal and moral implications of offering or enforcing neuroimaging and neurointerventions to suspects and convicted offenders in the context of criminal justice.[11] However, these analyses rarely include the opinions of the suspects and convicted offenders themselves who could potentially be subjected to neurotechnology in the context of their criminal investigation or criminal sanction.[12] The same holds for other vulnerable groups, such as persons with disabilities and even consumers of present and future

[11] Ryberg 2020; Birks & Douglas 2017; Dore-Horgan 2023; Ligthart 2022.
[12] One of the few examples: Knack, Chandler & Fedoroff 2020.

neurotechnologies. Without taking due account of their – the right holders' – views on the potential risks and impact of neurotechnology on their human rights, any assessment of these risks and challenges bears the risk of being one-sided and, potentially, facilitate paternalistic conclusions.[13]

8. *From a human rights perspective, what opportunities could the use of neurotechnologies bring? Can these opportunities be balanced against the identified risks and impact?*

One important opportunity the use of neurotechnologies might bring is the *restoration* of mental capacities. This could be especially valuable in the context of mental health care, as neurotechnologies could improve or restore abilities required for competent decision-making and human flourishing, thereby enhancing individuals' autonomy. There could be similar opportunities in terms of autonomy in the context of criminal justice, where neurotechnologies may be used to reduce or eliminate certain behaviours in criminal offenders that would otherwise impede their rehabilitation and re-entering into society. Also, while neurotechnologies are often considered to threaten cognitive liberty and freedom of thought, they might also facilitate the capacities necessary for the flourishing of these rights, by enhancing cognitive capacities in individuals—potentially allowing for more self-determination regarding mental processes and abilities. Some applications of neurotechnologies could thus increase the enjoyment of specific human rights.

How such opportunities should be balanced against the risks of neurotechnologies will depend on the specific circumstances of the use of neurotechnology. For instance, when neurotechnology is used to restore mental capacities, the expected benefits in terms of increased enjoyment of certain human rights (e.g., self-determination) might outweigh the potential risks for other rights (e.g., mental integrity). However, in cases where the human rights benefits of using neurotechnology would be less significant, the risks may plausibly outweigh them. Here, we want to stress again the importance of (re)interpreting human rights in light of neurotechnologies, as some human rights—such as self-determination, mental integrity and freedom of thought—could both be threatened *and* strengthened by neurotechnologies in different contexts.

National framework

9. *Is the national legal framework adequate to face the challenges that the development, test and use of neurotechnologies pose to human rights? Please explain briefly and indicate the relevant pieces of legislation and whether there are plans to develop any (or further) legislation.*

[13] Ligthart, Dore-Horgan & Meynen 2023.

To a considerable extent, yes, but there is as of yet no national regulation that applies specifically to emerging neurotechnologies in different non-medical contexts. Furthermore, the Dutch Constitution does not recognise a right to freedom of thought, a right to mental integrity, nor a right to personal identity. However, the Dutch Constitution does prescribe that "provisions of treaties and of resolutions by international institutions which may be binding on all persons by virtue of their contents shall become binding after they have been published" (Article 93). Moreover, it states that "statutory regulations in force within the Dutch Kingdom shall not be applicable if such application is in conflict with provisions of treaties or of resolutions by international institutions that are binding on all persons" (Article 94). Accordingly, human rights treaties – such as pre-eminently the ECHR and ICCPR – have a direct and strong binding force in the national legal framework of the Netherlands. The same goes for the fundamental rights aspects of European Union law—through its direct effect. As we believe that current human rights instruments are, in general, adequate to face the challenges posed by emerging neurotechnologies, it is crucial that the norms in those treaties are integrated from the outset in laws and policies related to neurotechnology. Put differently, the human rights tools are there, but they need to be used and applied.

10. *Does national legislation on privacy and data protection cover mental privacy and/or personal brain data? Please explain.*

Not explicitly. However, the GDPR does, for example, apply in The Netherlands, which is able to address a considerable part of the challenges neurotechnology poses to the specific protection of personal brain data and mental privacy.[14]

11. *From a human rights-protection perspective, what are the main domestic regulatory gaps that can be identified? What legal (or other) measures are necessary to avoid human rights violations arising from the use of neurotechnologies in your opinion?*

As mentioned above (point 9), the gaps we could mention are: 1) there is no regulation that applies specifically to emerging neurotechnologies in different non-medical contexts,[15] and 2) the Dutch Constitution does not recognise a right to freedom of thought, a right to mental integrity, nor a right to personal identity (however, several international human rights framework that recognize such rights and are binding for The Netherlands). In our view, clarification of the international human rights frameworks would be key, as well as integration of human rights guarantees, in the development of specific neuro-techno norms and policies from the outset (see point 5).

[14] Rainey et al. 2020; Ienca & Malgieri 2022.
[15] Apart from the Regulation on medical devices from the European Parliment.

12. *Is your national institutional framework for human rights well-equipped to address the new challenges posed by neurotechnologies?*

Partially in its overall normative framework (see our answer to question 9), but much will also depend on its application in practice through national and EU policies and regulation, and the interpretation of human rights norms by courts.

13. *What national entity would be best placed to exercise scrutiny and oversight to prevent potential abuses or misuses derived from the use of neurotechnologies? Is there any procedure in place to that effect*?

The Human Rights Board, which is the independent human rights institute of the Netherlands that aims to highlight, protect and promote human rights in the European and Caribbean Netherlands.

International framework

14. *What are the main international regulatory and governance gaps that you have identified as regards neurotechnology and human rights?*

In our view, so far, no clear gaps in human rights law as such have been established. As we have recently shown with a group of interdisciplinary scholars from the Minding Rights Network, much of the proposed neurorights find their legal foundations in existing human rights.[16] In the present submission, we would like to stress that, in our view, many of the existing human rights are, as it appears, perfectly able to apply to and protect against the challenges posed by neurotechnology. Yet, everything hinges on these rights being clarified and interpreted in light of the new technologies. Depending on their precise interpretation, established human rights appear to be well-equipped to offer holistic protection to the human brain and mind, also in view of emerging digital and neurotechnologies. These rights include:

- The right to privacy.[17]
- The right to bodily and mental integrity.[18]
- The right to personal identity.[19]

[16] Ligthart, Ienca, Meynen, Molnar-Gabor, Andorno, Bublitz, Catley, Claydon, Douglas, Farahany, Fins, Goering, Haselager, Jotterand, Lavazza, McCay, Wajnerman Paz, Rainey, Ryberg and Kellmeyer 2023.
[17] Artt. 17 ICCPR, 8 ECHR, 11 ACHR. See Ligthart 2023; Ligthart 2022; Ligthart, Douglas, Bublitz, Kooijmans & Meynen 2021; Bublitz 2022.
[18] Article 17 of the UN Convention on the Rights of Persons with Disabilities; Article 3 of the Charter of Fundamental Rights of the European Union; Article 5(1) ACHR; Article 3 and 8 ECHR. See Michalowski 2020; Submission by Sjors Ligthart, Towards a Human Right to Psychological Continuity?.
[19] Article. 22 UDHR; Article 9 ICCPR; Article 8 of the UN Convention on the Rights of the Child; Article 11 ACHR; Article 1 of the Oviedo Convention; Article 8 ECHR. See Submission by Sjors Ligthart, Towards a Human Right to Psychological Continuity?

- The right to freedom of thought.[20]
- The right to freedom of (non)expression.[21]
- The right to individual self-determination.[22]
- The prohibition of torture, inhuman and degrading treatment.[23]

We consider that many of the concepts and notions in human rights law that are central to the human rights protection of the brain and mind, are *still ill-defined and underexplored*. For example,

- What exactly constitutes a "thought" in the sense of the right to freedom of thought?[24]
- What types of identity are protected by the right to personal identity?[25]
- How does the right to *mental* integrity relate to the right to *bodily* integrity and to the right to freedom of *thought*?[26]
- Should the right to mental privacy have an absolute core and, if so, how should human rights law differentiate between qualified and absolute mental privacy protection?[27]

Answering these questions will be essential in order for human rights law to offer clear and adequate protection in relation to emerging neurotechnologies that could enter and alter people's brains and mental faculties.

15. *What actions would you advocate for to address these gaps and potential human rights impact at the international level? Please elaborate on specific normative or institutional measures you would propose and assess the feasibility of their implementation.*

Following from our observations above, we do not think that *new* human rights related to neurotechnology would be useful. However, three other matters are crucial. Firstly, the *interpretation* of current human rights law in the light of neurotechnologies. This could be done both pro-actively and in a general way by UN treaty-based bodies issuing general comments on the matter or by way of a resolution of the UN Human Rights Council. In parallel,

---

[20] Artt. 18 ICCPR, 9 ECHR, 13 ACHR. See Ligthart, Bublitz, Douglas, Forsberg & Meynen 2022; Blitz & Bublitz 2022; Alegre 2022; Hertz 2023.
[21] Artt. 19 ICCPR, 10 ECHR, 13 ACHR. See Ligthart 2023; Ligthart 2022; Ligthart, Douglas, Bublitz, Kooijmans & Meynen 2021.
[22] Article 8 ECHR. See Michalowski 2020; Submission by Sjors Ligthart, Towards a Human Right to Psychological Continuity?
[23] Artt. 7 ICCPR, 3 ECHR, 5(2) ACHR; UN Convention against Torture and Other Cruel, Inhuman or Degrading Treatment or Punishment. See Kirchmair 2019; Ligthart 2022; UN Special Rapporteur on Torture and Cruel, Inhuman or Degrading Treatment or Punishment, Report on psychological torture and ill-treatment, UN Doc. A/HRC/43/49 (2020), at par 32; Submission by Sjors Ligthart, Towards a Human Right to Psychological Continuity?.
[24] Ligthart, Bublitz, Douglas, Forsberg & Meynen 2022.
[25] Submission by Sjors Ligthart, Towards a Human Right to Psychological Continuity?.
[26] Lavazza 2018 ; Bublitz 2020; Douglas & Forsberg 2021; Ligthart, Bublitz, Douglas, Forsberg & Meynen 2022.
[27] Ligthart 2023.

it can also be done by way of (quasi-)judicial adjudication in individual cases by both UN treaty bodies and regional human rights (and other) courts.

Secondly, the *integration* of human rights guarantees from the outset in the development of regulation relating to neurotechnologies through other fields of law and policy.

Third, we believe it is also essential to, before turning to the (re)interpretation of human rights and their implementation, lay the groundwork for these measures in *conversations with stakeholders*—which should importantly include those groups that are either most vulnerable, or may be most susceptible to neurotechnology use due to, for instance, their occupation (e.g., military personnel). Including the input from these groups in establishing the risks and opportunities of neurotechnologies in light of human rights will ensure exhaustive assessments that also take into account the views of individuals that will be the actual subjects of neurotechnology use.

16. *What international organization, bodies, or agencies would be in your opinion best placed to oversee and prevent potential abuses or misuses resulting from the use of neurotechnologies?*

See the bodies mentioned under point 15. We also see this as an important role for the European Parliament and the Council of Europe.