DUKE LAW

NITA FARAHANY
ROBINSON O. EVERETT PROFESSOR OF LAW AND PHILOSOPHY
DIRECTOR, DUKE INITIATIVE FOR SCIENCE & SOCIETY
DUKE UNIVERSITY SCHOOL OF LAW
SCIENCE DRIVE AND TOWERVIEW ROAD
BOX 90360 • DURHAM, NC 27708–0360
TEL 919–613–8514 • FAX 919–613–7231
FARAHANY@DUKE.EDU

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Secretariat of the Advisory Committee
Human Rights Council
Palais des Nations
CH-1211 Geneva 10
Switzerland

Re: Submission to the Advisory Committee on the Questionnaire on "Neurotechnology and Human Rights"

Dear Secretariat:

As a legal and ethical scholar at the forefront of ethical innovation in neurotechnology, and the author of *The Battle for Your Brain: Defending the Right to Think Freely in the Age of Neurotechnology* (St. Martin's Press 2023), I submit this statement to the Advisory Committee in response to the questionnaire on "Neurotechnology and Human Rights," to provide input into the work of the Advisory committee in response to resolution 51/3 to prepare a study in "an accessible format, including an easy-to-read version, on the impact, opportunities and challenges of neurotechnology with regard to the promotion of human rights…" I appreciate the opportunity to share my views and inputs on this important and timely topic, and to contribute to the valuable work being done by other stakeholders, including the special procedures of the Human Rights Council, the treaty bodies, and the Office of the United Nations High Commissioner for Human Rights.

Neurotechnology and human rights are closely intertwined, as neurotechnology can both enhance and threaten the promotion and protection of all human rights. Neurotechnology is defined for the purposes of this study as "those devices and procedures used to access, monitor, investigate, assess, manipulate and/or emulate the structure and function of the neural systems of natural persons." They are meant to either record signals from the brain and "translate" them into technical control commands, or to manipulate brain activity by applying electrical or optical stimuli.

Neurotechnology can offer unprecedented opportunities for advancing self-determination by enhancing human dignity, well-being, health, education, communication, and social justice. Neurotechnology can enable people with disabilities, such as paralysis, blindness, or deafness, restore or augment their sensory and motor functions, and enable people to communicate through brain-computer interfaces. Neurotechnology can also facilitate learning, memory, creativity, and emotional regulation, or provide new forms of entertainment, art, and expression. Neurotechnology can also contribute to the prevention and treatment of neurological and mental disorders, such as Alzheimer's, Parkinson's, depression, or post-traumatic stress disorder, or to the detection and diagnosis of brain injuries, tumors, or infections.

Neurotechnology also poses significant risks to cognitive liberty and the bundle of rights it encompasses, by:

- Enabling more precise interference with the mental privacy of individuals by collecting, processing, or disclosing data about brains and mental experiences without consent, transparency, or accountability, or by using such data for purposes that are incompatible with human rights, such as discrimination, exploitation, or manipulation.
- Infringing freedom of thought by accessing, interfering, or penalizing one's thoughts, beliefs, or values without consent, transparency, or accountability, or by using neurotechnology for purposes that are incompatible with human rights, such as indoctrination, surveillance, or censorship.
- Undermining self-determination by preventing access to information about one's own brain or mental experiences, or prohibiting or restricting changes that could enhance or alter one's own brain or mental experiences, influencing, or coercing one's choices, preferences, or actions without consent, transparency, or accountability.

I offer detailed examples of these risks, and how some of those risks are already being realized in world-world examples in my book, *The Battle for Your Brain*. The risks that I describe here and there are exacerbated by the lack of adequate legal and ethical frameworks to regulate the use of these technologies, and by the power asymmetries between the state, corporations, and individuals that may affect the access, control, and accountability of these technologies.

Which is why I believe there is an urgent need to recognize a new human right to cognitive liberty, as a mandate to the international community, which would provide a framework and integrated approach to updating *existing* human rights that are impacted by cognitive liberty, which include the existing interpretations and applications of freedom of thought, self-determination, and privacy (to explicitly include mental privacy).

While the bundle of rights that cognitive liberty encompasses (privacy, self-determination, freedom of thought) are all recognized in existing human rights, there is important symbolic, strategic, legal and expressive value in recognizing cognitive liberty as a new human right, providing a framework and mandate for updating those rights. "Recognizing an international human right to cognitive liberty would make it a clear legal priority to protect our mental experiences as much as our other physical ones. Doing so would guide future conversations about the implementation of neurotechnology—whether used in healthcare, education, in the workplace, or by the military."

Cognitive liberty is the right to self-determination over one's own brain and mental experiences, and to be free from mental interference, manipulation, or coercion by others. It is derived from the inherent dignity and autonomy of every human being, and it is essential for the exercise and enjoyment of all other human rights and to enable human flourishing in the digital age.

Cognitive liberty is not explicitly mentioned in the current international human rights framework, but it is implicit in several existing human rights, such as the right to privacy, the right to freedom of opinion and expression, the right to freedom of thought, conscience and religion, the right to education, the right to health, and the right to participate in cultural life. However, these rights have not been adequately interpreted or applied to address the impact, opportunities and challenges of the digital age, and they need to be updated and clarified to reflect the new realities and risks posed by these technologies.

Importantly, cognitive liberty is an umbrella concept that addresses challenges from existing technologies, practices, and developing and emerging ones that threaten self-determination over our brains and mental experiences. Which is why cognitive liberty is an update to liberty in the digital age, applying broadly across emerging technologies and practices that interfere with our brains and mental experiences, be they from neurotechnology, social media platforms, generative AI, immersive technologies, or other means.

In support of your work, I offer several recommendations that I hope you may consider for your report:

- Propose that the Human Rights Council consider adopting a resolution to recognize the right to cognitive liberty as a new human right, and to request the Office of the United Nations High Commissioner for Human Rights to prepare a report on the scope, content, and implementation of this right, in consultation with relevant stakeholders, including Member States, international and regional organizations, the special procedures of the Human Rights Council, the treaty bodies, other relevant United Nations agencies, funds and programs, national human rights institutions, civil society, the private sector, medical and technical communities, academic institutions and other relevant stakeholders.
- Recommend that the General Assembly adopt a declaration to affirm the right to cognitive liberty as a new human right, and to call upon Member States to respect, protect, and fulfill this right in their national laws and policies, and to cooperate with each other and with the United Nations and other international and regional organizations to promote and protect this right at the global level.
- Recommend that treaty bodies should adopt general comments or recommendations to interpret and apply the right to cognitive liberty and its relationship to the existing human rights within their respective mandates, and to provide guidance to Member States on how to comply with their obligations under the relevant human rights treaties in relation to neurotechnology.
- Suggest that the special procedures of the Human Rights Council should address the issue of neurotechnology and human rights within their respective mandates, and to monitor, report, and advise on violations of cognitive liberty in different countries and regions, and to make recommendations to Member States and other actors on how to prevent and remedy any violations or abuses of human rights resulting from the use of neurotechnology.
- Propose that the United Nations Educational, Scientific and Cultural Organization (UNESCO) should update and revise the Universal Declaration on Bioethics and Human Rights and the International Declaration on Human Genetic Data to include the right to cognitive liberty and other related human rights in relation to neurotechnology, and to provide ethical principles and guidelines for the development, testing, and use of neurotechnology in accordance with human rights and human dignity.
- Focus on privacy of brain/neural data and suggest that organizations such as the International Telecommunication Union (ITU) develop and adopt global standards and best practices for the interoperability, security, and privacy of neurotechnology, as well as best practices for the protection of data and information that is generated, transmitted, and stored by neurotechnology, to respect cognitive liberty as also a right *from* interference with mental privacy and freedom of thought
- Direct the private sector, especially developers, manufacturers, and providers of neurotechnology, to integrate cognitive liberty by design into the development, testing, and commercialization of neurotechnology. That means designing for products that recognize that cognitive liberty includes the right *to* self-determination to access our own brain data and change our brains if we choose to do so. But also designing into product design and corporate practices respecting the mental privacy of users (by adopting, for example, data minimization practices, on-device storage of

data, privacy best-practices including user-level controls for multi-functional devices, implementing robust cybersecurity measures to safeguard against hacking of or interference with devices, focusing on interoperability between platforms to ensure long-term access and use of devices, etc.)

- Recommend that medical and technical communities, especially researchers, scientists, and engineers involved in neurotechnology, embed cognitive liberty into their research design, (including, for example, going beyond traditional bioethical principles to protect research participants and beneficiaries of research, to embed research questions into the research process itself, and to generate evidence-based findings to inform ethical innovation, such as querying whether classifiers trained on one individual can be used on another person to decode their neural data, whether countermeasures can be applied by individuals against unconsented interception of brain data, funding and researching cybersecurity and privacy safeguards that could safeguard the cognitive liberty of users of products developed through research).
- Suggest that academic institutions, especially universities, colleges, and schools involved in neurotechnology, adopt and implement strategies for the education, training, and awareness-raising about the ethical, legal, and social dimensions of neurotechnology.
- Encourage civil society, including human rights organizations, media, and the public, to monitor, report, and advocate on the right to self-determination over our brains and mental experiences, and to hold the state, the private sector, and other actors accountable for their actions and impacts on the right to cognitive liberty, and to participate in the democratic deliberation and decision-making on the development, testing, and use of neurotechnology. This could include, for example, encouraging civil society to report violations of cognitive liberty such as coercive use by law-enforcement of neurotechnology to interrogate individuals, development of technologies or applications that seek to weaponize neurotechnology, or any other attempts to use the technology to interfere with the freedom of thought of individuals to intercept, manipulate, or punish them for their thoughts and mental experiences.oioio

By recognizing a new human right to cognitive liberty and defining its contours, the international community can enjoy the benefits of neurotechnology while preserving a space for mental reprieve, individual choice, and democratic deliberation.

I appreciate the opportunity to share my views and would be happy to provide any further input or assistance in your important work on this topic. I have selected questions from the questionnaire to succinctly answer in an appendix that follows this letter.

Sincerely,

Nita Farahany

I. All stakeholders (core 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.

The United States has taken some policy actions and initiatives in relation to neurotechnology and human rights at the national level, mainly in the domains of research ethics, data privacy, and disability rights. Some examples are:

- The BRAIN Initiative (Brain Research through Advancing Innovative Neurotechnologies), launched in 2013 by President Obama, is a multi-agency effort to support and coordinate neuroscience research, including the development and application of novel neurotechnologies. The initiative has also established ethical guidelines and oversight mechanisms for the responsible conduct of neuroscientific research, such as the Neuroethics Division of the BRAIN Initiative Multi-Council Working Group (which I currently co-chair), which advises on ethical issues arising from the initiative's projects and goals, and the Neuroethics Roadmap, which provides a framework for addressing ethical challenges and opportunities in neurotechnology research and innovation.
- The 21st Century Cures Act, enacted in 2016, is a comprehensive law that aims to accelerate the discovery, development, and delivery of medical treatments and cures, including those involving neurotechnology. The law also includes provisions to enhance the protection and empowerment of patients and research participants, such as the establishment of the National Neurological Conditions Surveillance System, which collects and analyzes data on the prevalence and impact of neurological disorders in the US population, and the expansion of the NIH's Certificate of Confidentiality program, which protects the privacy of identifiable, sensitive information obtained from research participants.
- The Americans with Disabilities Act (ADA), enacted in 1990 and amended in 2008, is a landmark civil rights law that prohibits discrimination and ensures equal opportunity and access for people with disabilities, including those with neurological impairments or conditions. The law also covers the use and provision of assistive technologies, such as neuroprosthetics, brain-computer interfaces, and neurofeedback devices, that enable people with disabilities to perform major life activities and participate in society. The ADA is enforced by various federal agencies, such as the Department of Justice, the Equal Employment Opportunity Commission, and the Department of Education, and is subject to ongoing interpretation and implementation by courts and regulators.

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

There are many public and private sector developments in the United States – from public funding in research, private sector (neurotechnology-specific companies), and

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.

High

Impact, opportunities and challenges

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

Neurotechnologies, such as brain-computer interfaces, neuroimaging, neurostimulation, and neuroenhancement, have the potential to offer significant benefits for human health, well-being, and communication, but also pose serious challenges for human rights. Among the rights that will be mostly impacted by the development and use of neurotechnologies are:

- **Self-determination**: This right, which is enshrined in the Universal Declaration of Human Rights and other international instruments, implies that individuals have the freedom to pursue their own goals and interests, without undue interference or coercion from others. It also implies that individuals have the right to access and control their own personal information, including their brain data, which may reveal sensitive aspects of their identity, personality, preferences, emotions, and memories. Moreover, it implies that individuals have the right to modify or enhance their own brains, if they choose to do so, based on the principle of self-ownership and bodily integrity. However, neurotechnologies may threaten this right by exposing individuals to unauthorized or involuntary access, collection, or use of their brain data by third parties, such as governments, corporations, hackers, or researchers, or by creating pressures or incentives to conform to social or economic norms or expectations, or by creating dependencies or harms that may limit their autonomy or agency.
- **Privacy**: This right, which is also recognized in the Universal Declaration of Human Rights and other international instruments, entails that individuals have the right to be free from arbitrary or unlawful interference with their privacy, family, home, or correspondence, and to be protected against attacks on their honor and reputation. It also entails that individuals have the right to mental privacy, which means that they have the right to keep their thoughts, feelings, and inner states confidential, and to decide whether, when, how, and to whom to disclose them. However, neurotechnologies may threaten this right by enabling the possibility of reading, recording, or disclosing individuals' brain activity, without their consent or knowledge, or by exposing them to unwanted or intrusive stimuli, messages, or influences that may affect their mental states or processes.
- **Freedom of thought**: This right, which is also affirmed in the Universal Declaration of Human Rights and other international instruments, implies that individuals have the right to hold and express their own opinions, beliefs, and convictions, without fear of discrimination, persecution, or retaliation. It also implies that individuals have the right to cognitive liberty, which means that they have the right to think freely and independently, without being subject to interception, manipulation, or punishment for their thoughts. However, neurotechnologies may threaten this right by creating the potential of detecting, decoding, or influencing individuals' thoughts, beliefs, or intentions, without their consent or awareness, or by imposing sanctions or rewards based on their brain activity or patterns.

2. 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?

In *The Battle for Your Brain*, I argue that consumer-oriented neurotechnologies are becoming more accessible, affordable, and appealing to the public. Widespread use of neural interface is also likely as major technology companies move to integrate brain sensors into everyday, multi-functional devices, including ear buds, headphones, watches, AR/VR headsets, and other wearables, to make brain sensors a part of our everyday lives. While this opens up new possibilities for self-determination over our brains and mental experiences, these consumer-oriented neurotechnologies can also create new forms of surveillance, coercion, discrimination, or manipulation, and raise significant ethical and legal dilemmas, including consent, ownership, liability, or responsibility of brain data.

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?

Neurotechnology could enable individuals with disabilities, could significantly improve brain health and wellness, which there is a moral mandate to address, and could provide people with informational self-access, fundamental to introspection and empowerment. With a robust framework of cognitive liberty, I believe it is possible to balance the risks and benefits.

International framework

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

See letter submission

2. 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.

See letter submission

3. 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 letter submission