

9 April 2025

Human Rights Council 58: Neurotechnology, Ethical Frontiers and Human Rights

By Daniel Uribe

The UN Human Rights Council's 58th session examined the impact of neurotechnology on human rights, with a particular focus on privacy. The Special Rapporteur guided discussions on the report on neurotechnology, which detailed risks to privacy, autonomy, and mental integrity, and proposed principles such as human dignity, informed consent, stringent security measures, rights-by-design, and precautionary approaches to the development of this technology. This *SouthViews* considers the Member States' discussion during the presentation of this report, taking into account the profound ethical challenges, the need for safeguards, equitable access (especially for developing nations), and international cooperation, while voicing concerns about potential misuse. The relevance of UNESCO's ongoing work on the ethics of neurotechnology is also considered. The session underscored the pressing need for a proactive, holistic, and ethically grounded governance framework for neurotechnology, emphasizing core human rights principles and international collaboration to ensure the responsible development and use of this technology.

La 58e session du Conseil des droits humains des Nations unies a débattu de l'impact des neurotechnologies sur les droits de l'homme, en particulier le droit à la protection de la vie privée. Le rapporteur spécial a orienté les discussions sur le rapport relatif à ces technologies, qui détaille les risques qui y sont liés s'agissant du respect de la vie privée, de l'autonomie et de l'intégrité mentale, et souligné la nécessité de s'appuyer sur des principes tels que la dignité humaine, le consentement éclairé, la reconnaissance de droits dès la conception et sur la mise en place de mesures de sécurité strictes et de mesures de précaution afin d'en encadrer le développement. Le présent document analyse les discussions tenues par les États membres lors de la présentation de ce rapport, qui ont mis en avant les importants défis qui se posent sur le plan éthique, la nécessité de mettre en place des garanties, de favoriser un accès équitable (en particulier pour les pays en développement) et la coopération internationale, et fait part de leur inquiétude sur la possibilité que ces technologies soient utilisées à des fins malveillantes. Il offre également un aperçu de la pertinence des travaux menés à l'UNESCO sur l'éthique des neurotechnologies. Les membres du Conseil ont souligné la nécessité, lors de cette session, de mettre en place un cadre de gouvernance solide fondé sur une approche proactive, holistique et éthique à même de garantir le respect des droits humains fondamentaux, de favoriser la collaboration internationale et de permettre un développement et une utilisation responsables de ces technologies.

La 58ª sesión del Consejo de Derechos Humanos de la ONU examinó el impacto de la neurotecnología en los derechos humanos, con especial atención a la privacidad. El Relator Especial dirigió los debates del informe sobre neurotecnología, en el que se detallaban los riesgos para la privacidad, la autonomía y la integridad mental, y se proponían principios como la dignidad humana, el consentimiento informado, medidas de seguridad estrictas, derechos por diseño y enfoques preventivos para el desarrollo de esta tecnología. Este SouthViews considera el debate de los Estados miembros durante la presentación de este informe, teniendo en cuenta los profundos desafíos éticos, la necesidad de salvaguardias, el acceso equitativo (especialmente para las naciones en desarrollo) y la cooperación internacional, al tiempo que expresa su preocupación por el posible uso indebido. También se examina la pertinencia de los trabajos en curso de la UNESCO sobre la ética de la neurotecnología. En la sesión se subrayó la acuciante necesidad de un marco de gobernanza proactivo, holístico y éticamente fundamentado para la neurotecnología, que haga hincapié en los principios básicos de los derechos humanos y en la colaboración internacional para garantizar el desarrollo y el uso responsables de esta tecnología.

The 58th session of the United Nations Human Rights Council (HRC) in Geneva considered one of the key points in the global discourse on emerging technologies: the advance in neurotechnology and its profound implications on human rights, particularly on the right to privacy. The HRC held an interactive dialogue with the Special Rapporteur (SR) on the Right to Privacy, Ms. Ana Brian Nougrères, who submitted her report "Foundations and principles for the regulation of neurotechnologies and the processing of neurodata from the perspective of the right to privacy".^[1] The report served as the basis for a dialogue on the need for robust human rights regulatory frameworks to cope with the increasing risks of the use of new technologies in neuroscience.

The discussion was not confined to the presentation of the SR report alone; it included parallel considerations on developments in nanotechnologies and a review of the United Nations Educational, Scientific and Cultural Organization (UNESCO)'s recommendations on the ethics of neurotechnology. This linkage highlighted a growing awareness of the interconnectedness of emerging technologies and the necessity for a holistic approach to their governance, and it highlighted the need to strengthen the HRC's role in promoting the full respect and protection of human rights as new advancement in science and technology poses new challenges.

The Special Rapporteur's Report: Navigating the Neurodata Landscape

The referred to report presented by the SR examined the unique challenges posed by the developments in neurotechnology and neurodata. It emphasised that, unlike traditional personal data, neurotechnology offers direct access to the human brain's intricate workings, raising profound ethical and human rights concerns, particularly concerning privacy, freedom of thought, mental integrity, and autonomy. The report highlighted the potential for neurodata to fundamentally alter the relationship between individuals and their own minds, potentially undermining autonomy and self-determination.

To address these challenges, the report outlined several principles for regulating neurotechnologies and neurodata processing. For the SR, these principles could be considered as ethical and legal bedrocks guiding the design, implementation of these technologies and processing of neurodata. The report considered that in addition to general principles governing privacy and data protection, specific principles should be tailored to neurotechnology. **Human dignity** is the core value inherent to all human beings and must be inviolable. Practices that contravene human dignity are unequivocally unacceptable. The report emphasises the need to guarantee equitable access to the advancements in neurotechnologies, with the dignity and rights of every individual respected throughout this process. In the design, development, implementation, commercialisation, evaluation, and use of neurotechnologies, States must actively promote an approach firmly rooted in the respect for human dignity as a fundamental human right.

Given the sensitive content of neural data, the Report recognised the need to **enhance privacy and security measures**. This implies that those responsible for processing and using neural data must adopt stringent safeguards, particularly limiting the application of decoding techniques that could identify or render individuals identifiable, especially when dealing with databases or datasets shared with third parties. In such cases, the Report encourages States to proactively promote measures to ensure the control, security, confidentiality, and integrity of neurodata. Additionally, neurotechnologies must respect privacy rights through appropriate personal data processing, thereby enabling individuals to live dignified lives and enjoy the fruits of scientific and technological progress. This principle implies that prior, free, informed, specific, and unequivocal consent from the data subject is a prerequisite for the collection and processing of neurodata, and this consent can be revoked at any time, except in cases where the neurodata has been irreversibly anonymised. Special protection measures are crucial for vulnerable groups such as children, persons with disabilities, older persons, or those deprived of liberty.

At the same time, the Report highlights that the development and use of neurotechnologies requires an **ethics and human rights-based approach** in their design and development. A comprehensive protection and respect for human rights is paramount throughout the neurotechnologies' lifecycle, which includes conception, design process, research, implementation, commercialisation, evaluation, and use stages. Human rights protections by design necessitate compliance with specific requirements, including conducting human rights impact assessments before neural studies, research projects, or developing neurotechnologies or neural products. These assessments must include a detailed description of neural data processing operations, including specific risks to individual rights and freedoms, preventive measures to mitigate these risks, and checks to verify the relevance, timeliness, and effectiveness of these measures.

The SR stressed that the **precautionary principle** is essential when elements associated with the research or use of neurotechnologies or neurodata might cause serious and irreversible damage to human beings or human dignity, even without scientific certainty of the causal effect. This principle is linked with the need to have **demonstrated accountability and safety** in neurodata processing, requiring the adoption and implementation of useful, timely, relevant, effective, and demonstrable measures for regulatory compliance, particularly to prevent unauthorised or improper access, distribution, supply, use, manipulation, or destruction of neurodata. Finally, the Report considers that neurodata and neurotechnologies must guarantee **non-discrimination** and avoid stigmatisation, or violation of individual rights and freedoms. States must, hence, guarantee mechanisms to effectively protect rights associated with neurodata processing, including access to legal remedies and full reparations for human rights violations.

Diverse Expectations and Concerns

The Human Rights Council session revealed a global consensus on the profound ethical and human rights implications of the development of and experimentation with neurotechnologies. It was clear that there is an imperative to establish robust safeguards for privacy and data protection, particularly concerning the uniquely sensitive data originating from the human

brain. Countries like Costa Rica, China, Vietnam, Cambodia, and Kenya advocated for stringent privacy standards and comprehensive data protection frameworks, recognising the potential for misuse and the necessity to uphold individuals' autonomy. Likewise, ethical considerations and preserving human dignity were paramount for some delegations, with countries such as Iraq, Chile, and Brazil emphasising ethical guidelines and practices to ensure responsible development and application. This included addressing concerns about artificial brain modification and its potential societal ramifications, as raised by Iran.

Moreover, the session underscored the critical importance of equity and accessibility. Pakistan, Brazil, and Kenya called for equitable access to neurotechnologies and the need to bridge the digital divide, especially for developing nations. This focus highlighted the commitment to ensuring that the benefits of neurotechnology are distributed fairly, preventing further marginalisation of vulnerable communities. Part of this discussion underscored the need to strengthen international cooperation, which reflected a shared understanding that the challenges posed by neurotechnologies transcend national boundaries, requiring a unified global response.

Concerns about potential human rights violations, including the weaponisation of neurotechnologies, were raised by Malawi and Palestine, while Kenya emphasised the precautionary principle and the need to prevent irreversible impacts. The convergence of neurotechnology with Artificial Intelligence (AI), as noted by India, and the need for stricter regulatory norms, as proposed by Costa Rica, illustrated the complex and interconnected nature of these issues. Finally, the session highlighted the necessity of addressing the challenges developing countries face, including under-resourced digital infrastructure, gaps in regulatory frameworks, and the potential for exploitation of neurodata by foreign private entities. The overall message was clear: the rapid advancement of neurotechnologies demands a proactive, collaborative, and ethically grounded approach, ensuring that these tools serve humanity while safeguarding fundamental rights and promoting equitable access.

UNESCO'S Recommendation on the Ethics of Neurotechnology

Several delegates recognised the work of UNESCO in the development and implementation of international standards, regulatory frameworks and ethical principles to govern the development and use of technologies.[2] It was emphasised that the work of the HRC Special Procedures should also consider and collaborate with UNESCO, particularly by considering UNESCO's current discussions on the draft recommendations on the ethics of neurotechnologies, which will be submitted to the 43rd Session of UNESCO General Conference in November 2025. These recommendations provide a framework for ethical governance, addressing risk assessment, public engagement, and equitable access to benefits. They emphasise respect for human rights, environmental protection, social justice, transparency, public engagement, and international cooperation. Integrating nanotechnologies with neurotechnologies, such as in brain-computer interfaces, further complicates the regulatory landscape, requiring a comprehensive and coordinated approach.[3]

UNESCO's work towards developing the Draft Recommendation also considered the current discussion on the need to recognise 'novel human rights' in the face of the development of new technologies and to consider whether the current existing legal frameworks will suffice. For UNESCO, discussing the need to establish the concept of 'neurorights' was part of the task to develop new recommendations. It identified the need for creating guidelines towards explicitly addressing the unique risks of neural data access and use. The recommendations could clarify how existing rights apply to neurotechnology, strengthening existing human rights principles towards complex and novel issues.[4]

Furthermore, the recommendations can address the concern that establishing new frameworks could lead to overregulation, potentially limiting beneficial neurotechnology research and medical advancements. The discussion highlights the need for a careful balance between protecting individuals and fostering innovation, emphasising the importance of thorough deliberation and expert consultation to establish strong governance frameworks in this rapidly evolving field.

Towards a Holistic and Proactive Governance Framework

In summary, the 58th session of the Human Rights Council, alongside UNESCO's ongoing work, helped to underscore the critical need for a robust and proactive governance framework for neurotechnologies. In this rapidly evolving field, principles such as informed consent, data minimisation, purpose limitation, strong security measures, and transparent accountability mechanisms are essential to safeguard human rights. The dialogue highlighted the necessity of a holistic approach, considering the interconnectedness of neurotechnologies with other emerging technologies like AI and nanotechnologies. The emphasis on human dignity, equitable access, and international cooperation, showcases the need for the HRC and UNESCO to ensure that neurotechnologies are developed and utilised ethically, serving humanity while protecting fundamental rights and preventing potential harms. The discussion also highlighted the need to take into account the situation and needs of developing countries, including regarding access to neurotechnologies.

The SR's report and the broader discussions emphasised the importance of a proactive and anticipatory approach and of responsible innovation, the interconnectedness of emerging technologies and the need for a comprehensive, future-oriented approach. Continuous dialogue and collaboration among governments, researchers and civil society organisations will be crucial in shaping the future of these technologies, ensuring they serve the best interests of humanity, while protecting human rights.

Endnotes:

[1] Foundations and principles for the regulation of neurotechnologies and the processing of neurodata from the perspective of the right to privacy, Report of the Special Rapporteur on the right to privacy, Ana Brian Nougrères, A/HRC/58/58, 16 January 2025. Available from <https://www.ohchr.org/en/documents/thematic-reports/ahrc5858-foundations-and-principles-regulation-neurotechnologies-and> (accessed 13.03.2025).

[2] UNESCO Strategy on Technological Innovation in Education (2021-2025) (211 EX/12, 2021).

[3] UNESCO, Recommendation on the Ethics of Nanotechnology (2015). (Refer to the most recent version of the document, as the consideration by the General Assembly is based on the most current version.)

[4] UNESCO, Towards a Draft Text of a Recommendation on the Ethics of Neurotechnology (SHS/BIO/AHEG-Neuro/2024/INF.4.REV, Paris, 17 April 2024). Available from https://unesdoc.unesco.org/in/documentViewer.xhtml?v=2.1.196&id=p::usmarcdef_0000389438&file=/in/rest/annotationSVC/DownloadWatermarkedAttachment/attach_import_946ba3ef-4b94-4108-b118-79e76dc780f6%3F%3D389438eng.pdf&locale=es&multi=true&ark=/ark:/48223/pf0000389438/PDF/389438eng.pdf#%5B%7B%22num%22%3A20%2C%22gen%22%3A0%7D%2C%7B%22name%22%3A%22XYZ%22%7D%2C68%2C771%2C0%5D (accessed 13.03.2025).

Author: Daniel Uribe is Lead Programme Officer of the Sustainable Development and Climate Change Programme (SDCC) of the South Centre.

Copyright © 2025 South Centre, All rights reserved.

SOUTHVIEWS is a service of the South Centre providing opinions and analysis of topical issues from a South perspective.

The views contained in this article are attributable to the author(s) and do not represent the institutional views of the South Centre or its Member States.

**For more information, please contact Anna Bernardo of the South Centre:
Email abernardo@southcentre.int, or telephone +41 22 791 8050.**