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Neurorights: Safeguarding Mental Autonomy in a Digital Era

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ABSTRACT

It was widely held that no one, not even the devil, could discover a man's intentions because the human brain, which contains intentions and thoughts, is an impenetrable fortress. But thanks to the development of neurotechnology, it might now be able to read someone's mind and ideas. While a large portion of technology has been created for use in hospitals for the diagnosis or treatment of patients with neurological, psychiatric, and neurodevelopmental disorders, some products, like brain stimulators that promise to improve mental performance or brainwave monitoring devices that let users play video games with their minds, are starting to appear in stores. Massive amounts of intricate brain data gathered via neuroimaging techniques are a great fit for artificial intelligence algorithms to process. We discuss how AI helps in developing neuroscience and vice versa. We will further discuss neurorights, protection against mind hacking and brain data theft. New human rights that protect an individual's autonomy over their ideas and mental processes would be a broader definition of neurorights. And regulations and policies enacted by numerous nations and conventions, such as the EU and the Republic of Chile. Numerous neurologists, philosophers, jurists, and other specialists have expressed varying views regarding the rights and scope of protection over time due to the interdisciplinary nature of the neurorights debate. The five Neurorights that the Neurorights Foundation promotes are the right to mental privacy, personal identification, free choice, fair access to mental augmentation, and immunity from bias.

Keywords: Neurotechnology, Artificial Intelligence, mind reading, mental privacy, neurorights.

1. BACKGROUND

The advancement of technology is reshaping human existence and changing the role of humans in society. Specifically, neurotechnology, which involves recording, interpreting, and altering brain activity, has the potential to significantly change the essence of being human. The brain is not simply another organ, but the one responsible for generating all of our mental and cognitive functions. Our thoughts, perceptions, imagination, memories, decisions, and emotions are all produced by the coordinated firing of neural circuits in our brains. We are now at a point in history where there is a real possibility of decoding or manipulating human thoughts using technology. While neurotechnology offers important opportunities for scientific and medical progress and will create a vast new field for economic growth, it also brings about unprecedented human rights implications. Corporations and governments are creating devices that could enable individuals to communicate through thoughts, interpret others' thoughts by analysing their brain data, and access the full range of the internet's databases and capabilities within their minds. Furthermore, scientists worldwide are working on neurotechnology that has the potential to bring about new treatments for mental disorders and neurological conditions such as Alzheimer’s, schizophrenia, stroke, post-

traumatic stress disorder, depression, and addiction.[1] The principal investigator of the BRAIN project, neuroscientist Rafael Yuste, director of Columbia University's Centre for Neurotechnology (USA), published an experiment in 2019 showing that he could make rats see objects that weren't there by implanting electrodes in their brains. To put it another way, the researchers were able to regulate their brain activity. Additionally, Neuralink—owned by Elon Musk—announced that it is working on an implantable wireless device that will connect human minds to computers in order to enhance human cognition through artificial intelligence (AI). One effort by Facebook, "Brain to Text," for instance, began in 2017 and aims to develop a non-invasive BCI that can transcribe human ideas on a computer screen at a rate of 100 words per minute.[2] For an estimated $1 billion, Facebook purchased CTRL-Labs in 2019 because the company had created a wristband that might be the first consumer product to harness neurological activity to convert gestures, intentions, and actions into computer control or the movements of a robotic avatar. The "KernelFlow" helmet, developed by company Kernel, was unveiled in the fall of 2020 and is capable of mapping brain activity with previously unheard-of precision and clarity. There are numerous different portable, non-invasive BCIs being developed that can capture brain activity images. Due to its direct interactions and effects on the brain, neurotechnology presents particular ethical questions. Recent media stories have only partially revealed the various applications of neurotechnology that may violate human rights in different parts of the world. For example, footage from Chinese primary schools that mandate kids wear headsets to track their concentration levels has been displayed in publications. Without the child's permission, this brain data is shared with parents after being saved on the teacher's computer. Neurotechnology has the potential to make learned activities and sensitive information dangerously accessible in the near future because the brain stores these things. As neurotechnology will likely expand beyond medicine and into sectors including education, gaming, entertainment, transportation, law, research, and the military, it is critical to ensure its ethical application and accessibility.

2. Literature Review

16 July 2024, Ingrid Russo, Frederic Gilbert

AI mind-reading powers are a far away from science fiction stories about accessing secret thoughts. These stories imagine brain scanners being installed at borders to identify people who are lying about their intentions, like carrying out terrorist attacks. Much of the academic discussion has focused on whether or not fMRI can be used as a mind-reading technique for lying detection. An important part of the ethical evaluation of these technologies is the emphasis these now-deleted claims placed on the individual's control or consent in revealing the contents of their private and secret thoughts.[3]

03 Apr 2024, Frederic Gilbert and Ingrid Russo

"Thought Decoders" will alter your thoughts rather than merely read them. A person's deepest ideas and beliefs may be monitored and controlled to varied degrees if their neurological data can be read or interpreted, with or without their express consent. We urgently need neurorights to preserve mental privacy

[1] It's Time for Neuro - Right, Rafael Yuste, Jared Genser, Stephanie Herrmann. Available at: It's Time for Neuro - Rights - CIRSD

[2] It's Time for Neuro - Right, Rafael Yuste, Jared Genser, Stephanie Herrmann. Available at: It's Time for Neuro - Rights - CIRSD

[3]Frederic Gilbert · Ingrid Russo, Mind-reading in AI and neurotechnology: evaluating claims, hype, and ethical implications for neurorights, AI and Ethics (2024) 4:855–872

because if AI can decipher visual perceptions from the brain, it may soon be able to read concealed thoughts![4]

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Utilised fMRI technology to forecast the patients' stream of consciousness, motor preparation choices, and—surprisingly—even abstract goals. Data theft, unapproved access to gathered data by third parties, and inadvertent release of private information. Haselager proposed that when BMI control is largely dependent on an intelligent algorithmic component, it could be challenging to determine if a particular behavioural output is actually the consequence of a user action or not. The so-called uncertainty principle is made available by BMI interference. It should be mentioned that while BMI optimised by Al may, overall, greatly improve users' performance in a certain context, Al may also impede some individual characteristics of personal identity. This is especially true for individuals who have severe motor disability. First, there is the unresolved issue of whether neurorights are new laws or if they are just evolving interpretations of existing human rights.[5]

WINTER 2023

How can one reconcile the various, frequently conflicting interests involved? Which normative tool should be used to address these issues out of the several possibilities (soft law, regulations, and charts of rights)? Republic of Chile, as well as the authorised modification to Article 19 of the Constitution that aims to safeguard brain activity and the data derived from it. A further example is the United Nations' endeavour to revise the Human Rights Charter. Four categories of neurorights exist. Al, robotics, surveillance technologies, and the metaverse are examples of technology that can be regulated within a broader framework to account for all potential unexpected bad impacts as well as ethical and societal repercussions. Although some academics have proposed that the digital society should be constitutionalised by establishing a completely new set of rights, others believe that the existing legal principles should be adequate to address the issues raised by this novel environment. [6]

2021, Sara Berger, Francesca Rossi

Neural data is becoming more and more integrated with digital technology, and our neurological systems, related skills, and psychology are becoming more and more dependent on them. This is the extension of the neural into the digital. Concerns about data security, transparency, and overall well-being are where AI ethics and neuroethics mainly agree. Since most signals from our nervous system are unconscious and outside of our awareness or control, it can be difficult to determine what kind of neurodata we voluntarily disclose. It can also be technically challenging to identify the precise types of data that neurotech initially gathers, processes, or modifies. The fact that some neurotech is able to write data into the nervous system and change ongoing neural activity in real-time—a capability not shared by any other technology—raises fresh concerns about how to safeguard and preserve bodily autonomy and the ability to make decisions.[7]

[4]Frederic Gilbert & Ingrid Russo (2024) Neurorights: The Land of Speculative Ethics and Alarming Claims?, AJOB Neuroscience, 15:2, 113-115, DOI: 10.1080/21507740.2024.2328244

[5]Fabio Ratto Trabucco, Neurorights between ethical and legal implications, Cuadernos de Derecho Transnacional (Marzo 2023), Vol. 15, Nº 1, pp. 750-757 750

[6]30 Ind. J. Global Legal Stud. 15 (2023), Rafael Yuste and Tomás De La Quadra-Salcedo', Neuro-Rights and New Charts of Digital Rights: A Dialogue beyond the Limits of the Law

[7]Sara Berger, Francesca Rossi, The Future of AI Ethics and the Role of Neurotechnology, IBM T.J. Watson Research Lab, IBM Research, USA

3. Research Problem

The legal and regulatory framework for protecting neuro rights in other countries and in India, particularly in relation to mental privacy and cognitive freedom.

4. Objective of the Study

AI and neurorights research is critical due to the substantial effects that artificial intelligence (AI) and neurotechnology have on human cognition, behaviour, and society. Both domains have enormous potential to improve human skills, but they also pose substantial threats if allowed unchecked. AI and neurorights research is critical for protecting individual liberties, assuring ethical growth, and building a legal and regulatory climate that encourages innovation while protecting fundamental human rights.

5. Research Methodology

This paper follows a doctrinal research methodology. It examines the idea of neurorights that is currently included in a number of international laws, though they are not specifically stated.

6. Research Method

This study considers the possibility of adding new rights or incorporating neurodata—information gathered by AI and neurotechnology about an individual's thoughts—into the current legal framework. For this reason, number of literatures about AI, human rights, and the moral and legal ramifications of neurotechnology have been cited.

7. Research Question

How can the legal and regulatory framework in India be strengthened to protect neuro rights, particularly concerning mental privacy and cognitive freedom?

8. How AI and Neurotechnology Works

AI and neuroscience are interdependent. The developments in these two disciplines are mutually beneficial. Neuroscience provides validation for current AI-based models. Computer scientists have created algorithms for reinforcement learning in artificial systems as a result of studying how humans and animals learn complicated tactics without explicit guidance. This type of learning aids in the development of sophisticated applications, such as driverless cars, gaming apps, voice recognition, intelligent traffic management and robot-based surgery. Neuroscientists can test their theories with the use of large-scale AI-based simulations.

An artificial intelligence (AI) system can extract brain signals and commands generated based on those signals by means of a brain-computer interface. These commands are input into machinery, like a robotic arm, to assist with moving paralyzed limbs or other human parts. AI can analyse neuroimaging data in a variety of ways, which can lighten radiologists' workloads. Early identification and detection of neurological illnesses are made possible by the study of neuroscience. Similarly, AI is a useful tool for predicting and identifying neurological conditions. People with neuromuscular problems, such as cerebral palsy or spinal cord injuries, can already benefit from a number of AI-assisted brain computer/ machine interface (BCI) technologies. Additionally, as evidenced by BrainGate, an implant that gives users control over limb motions, artificial intelligence has been widely applied to prosthetic control.

Because meningitis and other CNS illnesses have so many different symptoms, diagnosing them can be

difficult. However, meningitis type could be accurately predicted by AI-based methods combining many predictor variables, including neutrophils, lymphocytes, and neutrophil-to-lymphocyte ratio (NLR) in cerebrospinal fluid (CSF). When used in neuro-oncology, artificial intelligence (AI) has been linked to a number of advantages, including the ability to offer accurate preliminary diagnosis and treatment alternatives.

9. Consequences of Neurotechnology

Neural interfaces are a promising field of technology that could benefit millions of people with specific neurological disorders globally. Electronic devices known as interfaces work in conjunction with the nervous system to record and/or trigger certain actions. They are currently being utilised in non-invasive brain stimulation techniques to improve memory and focus, improve sound through cochlear implants, assist in stroke recovery, improve visual acuity in individuals with age-related macular degeneration (AMD), and improve retinal prosthesis. Disability claimants may be able to resume employment or perform daily tasks that were previously challenging, if not impossible, with the use of such devices.

Neurotech devices have a continuously growing number of commercial and management uses. Companies all over the world have begun to incorporate neural interfaces into watches, headphones, earbuds, hard hats, caps, and VR headsets for use in the workplace to monitor fatigue, track attention, increase productivity, improve safety, reduce stress, and create a more responsive work environment. This is fresh and uncharted ground, full of both opportunity and risk for both firms and employees. Neurotech gadgets allow companies to improve their employees' well-being and productivity, resulting in healthier, more successful enterprises.

Given that these new Neurotechnology can both read from and write into the brain, the idea of "brain hacking," or the manipulation or even weaponization of people and their behaviours, thoughts, and feelings, is another plausible scenario that will call for strict governance regulations.

Neural interfaces known as brain-machine interfaces, or BMIs, let the brain speak with a machine directly. Elon Musk co-founded Neuralink, a neurotechnology start-up that is now working on creating an implantable chip that records electrical signals in the brain. Electrodes are incorporated into the brain via micron-sized threads that are attached to an implant known as the Link. The Neuralink app on a mobile device receives data from the Link, which gathers electrical impulses, over Bluetooth. The goal of the technology is to provide users direct control over gadgets like computers and smartphones with simple mental commands.

With the use of real-time brain activity analysis, neuroadaptive systems can adjust to an operator's mentality using a method called Human Machine Teaming (HUMAT). This could result in colleagues quickly adjusting to one another's intents and cognitive processes. These are currently developing technology; thus human clinical studies are not yet possible. In addition, data privacy is a moral concern for technology that works with the brain, thus any device that collects medical data needs to be handled cautiously.

Data privacy is not a new problem, and the complex challenges of ensuring data privacy, data security and data sharing have stimulated new approaches for data protection within the banking, national security, health and clinical research fields. Indeed, data encryption is already used to protect data privacy.

Every time that data is shared or processed, the possibility of the data being aggregated with other personal information increases, thereby increasing the risk of the data becoming identifiable.

BMI is vulnerable to three primary privacy risks: data theft, illegal third-party access to acquired data, and

unintentional disclosure of sensitive information.[8] As is generally known, various forms of data are also susceptible to these dangers, particularly data that is part of the digital ecosystem.

In order to maximise BMI's performance, machine learning techniques and artificial intelligence in general are being used more and more. This has ramifications for the concepts of action and accountability. It may be challenging to determine whether a particular behavioural outcome is actually the consequence of a user activity when control over BMI is largely dependent on an intelligent algorithmic component, according to Haselager. As a result, cognitive processes involving BMIs are susceptible to the so-called uncertainty principle, which deals with the conceptualization of an action (or intention) before its execution. This makes it difficult to hold the person who carried out the deed accountable. Consequently, the uncertainty principle may cast doubt on the idea of personal responsibility, which would have clear consequences for the criminal justice system and insurance.

10. Neurorights

We are attempting to include five particular Neuro-Rights that have been found to be particularly important into national and international legal and regulatory frameworks, ethical standards, and human rights legislation.

Psychological Privacy

Neuro data should be kept private, because it measures neurological activity. One of the two main strategies that the subject can adopt is the right to relinquish data by providing the other party with explicit consent. On the other hand, the person who is storing the data must make sure that it isn't exploited for commercial purposes.[9] Nonetheless, such information is utilized for charitable causes. "Mental privacy" is a general concept that is not all-inclusive.[10] These include Article 8(1) of the European Convention on Human Rights, which states that everyone has the "right to respect for private life,"[11] Article 9 of the ECHR, which protects the "rights to freedom of thoughts,"[12] Article 8 of the European Charter for Fundamental Rights (ECFR), which states that everyone has the "right to the protection of personal data," Article 10 of the ECFR, which includes the "right to mental integrity," and Article 18 of the Universal Declaration of Human Rights (UDHR)[13], which declares that everyone has it.

Other domestic laws are thought to be the proper defenses against mental intrusion occurring within the state, such as the US Fourth and Fifth Amendments, the American Convention on Human Rights, Canada's

[8] For a detailed analysis see M. IENCA, P. HASELAGER, "Hacking the brain: brain-computer interfacing technology and the ethics of neurosecurity", Ethics and Information Technology, 2016, vol. 18, n° 2, pp. 117-129.

[9] Ruiz Sergio, Valera Luca, Ramos Paulina and Sitaram Ranganatha 2024 Neurorights in the Constitution: from neurotechnology to ethics and politicsPhil. Trans. R. Soc. *B*37920230098

[10] Wajnerman Paz A. (2021). Is mental privacy a component of personal identity? Front. Hum. Neurosci. 15:773441. doi: 10.3389/fnhum.2021.773441

[11] Ligthart S, Ienca M, Meynen G, Molnar-Gabor F, Andorno R, Bublitz C, Catley P, Claydon L, Douglas T, Farahany N, Fins J. J, Goering S, Haselager P, Jotterand F, Lavazza A, McCay A, Wajnerman Paz A, Rainey S, Ryberg J and Kellmeyer P (2023). Minding Rights: Mapping Ethical and Legal Foundations of 'Neurorights'. Cambridge Quarterly of Healthcare Ethics 32: 461–481, doi:10.1017/S0963180123000245

[12] Council of Europe, European Convention for the Protection of Human Rights and Fundamental Freedoms, adopted 4 November 1950 (entry into force 3 September 1953)

[13] International Covenant on Civil and Political Rights adopted by GA. Res. 2200A (XXI), 16 December 1966, entered into force 23 March 1976, 999 U.N.T.S. 171 (entry into force 23 March 1976).

Personal Information Protection and Electronic Documents Act (PIPEDA), Germany's Federal Data Protection Act (BDSG), and the Australian Privacy Act.

External headsets, like the one allegedly worn by Chinese students and workers, offer some rather simple types of stimulation or data decoding. The implants are the most powerful and precise kind of neurotechnology instruments, yet they are by no means capable of reading someone's mind or forcing them to do something against their will.

Personal Identity

To stop technology from undermining a person's sense of self, boundaries must be established. The distinction between a person's consciousness and outside technological inputs may become more hazy when neurotechnology links people to digital networks.[14] Forbidding technology from changing these individual characteristics could mean forbidding neurotechnologies altogether, depending on how one defines self, identity, and authenticity. Because mind reading and deep brain stimulation can alter and alter one's self-concept, it is also commonly known that they can pose a threat to one's personal identity.

In a 2016 study, a man who had been receiving brain stimulation therapy for depression for seven years expressed uncertainty about whether his interactions with others were affected by the device, saying, "It blurs to the point where I'm not sure... frankly, who I am."

"The human brain functions similarly to that of a mouse, so anything we can do to one today, we can do to the other tomorrow," Yuste said.

The argument becomes more complex due to competing notions of "personal identity." Preserving and promoting the freedom of the human mind involves prohibiting brain manipulation, while some see the right to use neurotechnology as an expression of personal identity.

Individual Choice

The final say should belong to the individual, free from unidentified influence from outside neurotechnologies when making decisions.

The notion of free will is subject to cultural variation, and it is suggested that neurorights should incorporate a "minimal definition" of free will that is founded on a shared understanding of the pertinent concept.

It has been demonstrated using a Libet-style experiment that unconscious brain activity occurs for at least 100 milliseconds before a conscious decision to act. Since acts are not predetermined or predicted, the idea of free will must be indeterminate. Empirical studies have been carried out in the United States, India, Hong Kong, and Colombia to establish that people struggle to make decisions.

Furthermore, a neuroscientific understanding of human behaviour could make neurorights to free will impossible. Libet-style experiments have demonstrated that non-conscious brain activity lasts for at least a hundred milliseconds prior to a conscious intention to act. Certainly, there are a lot of people who disagree with the claim that this purported fact undermines free will.

For instance, it has been argued that free will exists independently of consciousness and that free will is defined by the distal intention to participate in experiments rather than the proximal intention, which occurs within a few hundred milliseconds.

Consequently, the metaphysical and neuroscientific problems surrounding free will are not always avoided by moving away from "philosophical reflections" and towards cross-cultural circumstances, as Herrera-

[14] Borbón D, Borbón L. A Critical Perspective on NeuroRights: Comments Regarding Ethics and Law. Front Hum Neurosci. 2021 Oct 25;15:703121. doi: 10.3389/fnhum.2021.703121. PMID: 34759805; PMCID: PMC8573066.

Ferrá et al. suggested. Instead, it might bring those concerns back, depending on how the idea of free will converges in various cultural contexts.

The relevant non-conscious brain activity that makes up free will, these efforts can be seen as a conceptual engineering project when viewed in a larger context.

Fair Access to Mental Augmentation

International and national regulations governing the use of neurotechnologies for mental enhancement should be put in place. These rules ought to be founded on the idea of justice and ensure that everyone has equal access.

In order to improve the user's cognitive abilities in a range of tasks, neurotechnological research is currently being done in this field.

Concerns are raised that a "right to mental augmentation" would incorporate contentious transhumanist objectives and impose coercive social norms that could force people to undergo neurointerventions against their will.

Inadequate limitations on Neuroright to enhancement could suggest that the State should take on additional financial responsibility for supplying and subsidising these kinds of technologies to citizens who are most in need of them.

The State shouldn't be taking on this additional responsibility to ensure improvement with public resources, given that the majority of public health systems only fund therapeutic interventions. According to the text of article 10 of the "Neuroprotection Bill," supported by the Neurorights Initiative, "The State will guarantee the promotion and equitable access to advances in neurotechnology and neuroscience." This appears to be the case in Chile.

Protection from Bias

Algorithms in neurotechnology should come with countermeasures to prevent bias. User groups' feedback should be incorporated into algorithm design in order to fundamentally address bias and make sure that the algorithms and AI used in neurotechnologies don't support prejudice or discrimination.

This keeps people from being treated unfairly because of anything that can be learnt through the use of neurotechnologies, including the ability to think.

11. Legal Implications

One example of regulatory ambiguity in this area would be the so-called right to mental integrity, which is safeguarded by Article 3 of the European Union's Charter of Fundamental Rights[15], which states that "everyone has the right to respect for his or her physical and mental integrity." Free and informed consent, the non-commercialization of human materials, and the prohibition of eugenics and human reproductive cloning methods are the three prerequisites for the right to mental integrity, which is cited with the right to physical integrity. Practices pertaining to inappropriate use of neurotechnology are not specifically mentioned, nevertheless. Potential violations of the right to mental integrity, for instance, resulting from the manipulation of BMI and/or neurostimulation devices like deep brain stimulation (DBS), are not mentioned. The possibility that malevolent actors could hack such neurotechnologies to steal data and take over the neurodevices has been demonstrated experimentally. This attack mode may cause the targeted victims to suffer from unapproved mental information extraction, lose conscious control over their robotic

[15] Fabio Ratto Trabucco, Neurorights between ethical and legal implications, Cuadernos de Derecho Transnacional (Marzo 2023), Vol. 15, Nº 1, pp. 750-757 750

limbs, or even suffer severe physical and psychological harm as a result of the deliberate intensification of the neurostimulation.

The Organization for Economic Co-operation and Development (OECD) created the first worldwide standards in 2019 to address the moral, legal, and societal issues surrounding neurotechnology. Guidelines for putting safety, inclusivity, and trust in neurotechnology first are provided by the OECD's Recommendation on Responsible Innovation in Neurotechnology.

A new clause being added to the current national treaties has piqued the interest of the UN. The organisation and its current Secretary General, Antonio Guterres, who stated that updating the Human Rights Charter on this issue was one of his primary goals following his re-election last year, are working along with the Neurorights Foundation. It seems that the UN will prioritise recognizing human rights in the context of technology over the next six years.

A bill to modify the constitution to safeguard "neuro rights," or brain rights, was adopted by the Chilean senate in 2021. It was the first of its type in the world. Because of this, Chile became the first nation in the world to include neurorights in its constitution.

Neurorights safeguards are also introduced in Spain's Charter of Digital Rights, Article XXIV.[16]

The General Data Protection Regulation (GDPR) of Europe forbids the processing of health data unless one of ten approved uses—such as obtaining express consent or using the data to provide health services—applies. Lastly, neurodata can still be re-identified even after it has been de-identified. Regardless of whether the data is processed for identifying purposes or not, it may be the case that neurodata should automatically be protected by sensitive data laws.

There is a widespread perception that the information we have access to lacks adequate assurances of accuracy and quality. We have no idea who is telling us. Nobody is accountable for the information they send. There are significant issues with this. The Digital Services Act, the Digital Market Act, and the Digital Governance Act are some of the regulations that the EU has implemented in an effort to mitigate this problem.

A regulatory framework for public and private enterprises is provided by laws like the California Consumer Privacy Act, the European Union's General Data Privacy Regulation, and the Health Information Portability and Accountability Act. These laws are bolstered by data-sharing initiatives that support patient privacy, like the Observational Health Data Sciences and Informatics.

12. India

To protect, preserve, and uphold the human mind and brain, India's neuro rights laws demand precise limits and normative guidelines. Indeed, the right to privacy ruling was established in the seminal case of K. S. Puttaswamy v. Union of India provides sufficient legal support for this issue even though there is no formal Indian jurisprudence on the subject.

The Indian Constitution's protection of individual liberty and freedom of thinking makes cognitive liberty and information privacy essential. According to the Indian judiciary, any technology that tampers with one's thinking is a violation of the constitutional protection of freedom of mind. An ethical aspect of human dignity, the right to informational privacy is linked to the right to self-determination under Article 21, which safeguards independent individuals with free choice.

[16] Hertz, N. Neurorights – Do we Need New Human Rights? A Reconsideration of the Right to Freedom of Thought. Neuroethics 16, 5 (2023).

When it comes to neuro rights and laws, it is essential to have them in place because the use of neurotechnology and its potential impact on humans can result in violations of our basic rights. The foremost concern is the violation of our Right to Privacy, which is a fundamental right protected under Article 21[3] of the Indian Constitution – Right to Life and Personal Liberty.

The successful extraction and decoding of human memories may enable them to be used as neuro-evidence in legal proceedings. Then, this might have a major effect on our Article 20(3) right against self-incrimination.

There have been attempts to create "brainwave interferences" and "infrasound weapons," which can disrupt brain tissue and influence thought and decision-making.

These aim to alter the individual's independent thought through their technology, which is a blatant violation of Article 19(1) (a) on the freedom of thought.

Although such instances have not yet happened, the neurotech also offers the possibility of manipulating people's neuro and cognitive abilities, which could lead to agreement that is not free but rather required by Section 14 of the Indian Contract Act, 1872. For instance, a person's cognitive processes may be influenced by transcranial magnetic stimulation, which may result in conclusions they otherwise would not have made.

13. Recommendations

Digital Personal Data Protection Act, 2023

The definition of "personal data" is covered in Section 2(n) of the Digital Personal Data Protection Act, 2023[17], which mainly addresses data privacy and protection. Neurorights are becoming increasingly important in discussions about personal data, particularly in the context of neural data and brain-computer interfaces.

Neurorights seek to safeguard individuals' cognitive freedoms, mental privacy, and personal autonomy, especially concerning data produced by neural activity. With regard to the Digital Personal Data Protection Act, this could imply that any data originating from an individual's neural processes should be considered personal data, ensuring that individuals have control over this sensitive information.

Section 33 of the Digital Personal Data Protection Act of 2023 focuses on the consequences for noncompliance with data protection duties. It states that any entity that fails to protect personal data or violates the Act's provisions would face financial consequences. When it comes to neurodata, which is data created by brain activity, neural interfaces, or cognitive processes, Section 33 may be important in terms of sanctions for mishandling or unauthorised use of this sensitive information. While the Act does not explicitly mention neurodata or address specific concerns about emerging neurotechnologies, the Act's general data protection principles may apply to any type of personal data, including neurodata, if such information is collected or processed by an entity.

Information Technology Act 2000

Section 14 of the Information Technology Act 2000[18] deals with securing electronic records. In the case of Neurorights, it is indirectly related to preservation of one’s mental conscience and personhood. Such records of Neurorights will be scrutinised under the eye of law when there is a case of breach of contract.

[17] The Digital Personal Data Protection Act, 2023 (No. 22 Of 2023), Ministry of Law And Justice (Legislative Department), 11th August, 2023.

[18] The Information Technology Act, 2000 (No. 21 Of 2000), Ministry of Law, Justice And Company Affairs (Legislative Department), 9th June, 2000

Section 43A of the Information Technology Act 2000 deals with compensating for the failure to safeguard sensitive personal data. Organizations involved in neurotechnology, which often focuses on brain activity and cognitive processes, must establish adequate security measures. In the event of a breach, organizations may be held accountable and required to compensate affected individuals for any damages. Compliance obligations encompass strong cybersecurity measures, regular audits, and transparency regarding data handling practices. The ethical considerations pertain to the use, storage, and sharing of cognitive data.
Section 69 of the Information Technology Act 2000 deals with power of interception of state and central government in the regards of monitoring, decryption of any information through computer resources. The neural database will be included in these aspects. These data with regard to the national sovereignty or integrity, nation's defence or the security of the state will be bound to dissemination.
Section 72 of the Information Technology Act 2000 can be relevant in terms of maintaining the confidentiality and privacy of neural data, which refers to the rights that protect individuals from potential abuses resulting from neurotechnology and brain data. As neurotechnology advances, the protection of personal neurological information becomes increasingly important, and Section 72 can serve as a legal framework to prevent unauthorised access or misuse of such sensitive data.

14. Conclusion

To summarise, neurorights—rights focused at safeguarding the brain and cognitive processes from exploitation, manipulation, or harm—can be a valuable supplement to existing laws. These rights are consistent with existing frameworks of privacy, consent, and individual autonomy, but they add levels of protection, especially in the age of neurotechnology. Pre-existing laws governing privacy (e.g., data protection regulations), consent (e.g., medical consent legislation), and human rights (e.g., freedom of opinion and expression) provide a solid foundation for protecting personal liberties. Emerging neurotechnologies, such as brain-computer interfaces (BCIs), neuroimaging, and neurostimulation, provide distinct ethical and legal concerns that pre-existing regulations may not adequately address. Neurorights are not a replacement for current laws, but rather a required expansion to address the issues brought by increasing neurotechnologies.

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