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MINDS UNDER WATCH: PRIVACY IN THE AGE OF NEURAL AI SURVEILLANCE

AUTHORED BY - AARUSHI AGGARWAL
LLM, School of Law,
IILM University, Greater Noida, Uttar Pradesh

ABSTRACT

Recent advances in neural artificial intelligence (AI) and cognitive surveillance technologies are reshaping the relationship between human thought and digital monitoring. Tools such as brain computer interfaces (BCIs), neural signal analysis systems, emotion-recognition software, and predictive cognitive analytics offer significant benefits in healthcare, assistive technologies, security, and human–machine interaction. At the same time, these technologies raise serious concerns about mental privacy, personal autonomy, and human dignity. This paper examines the constitutional and legal implications of neural AI-enabled cognitive surveillance in India, with special reference to the right to privacy recognized in K.S. Puttaswamy v. Union of India[1]. It argues that neural data including brain signals, cognitive responses, and inferred mental states represents an extremely sensitive form of personal information that requires stronger legal protection.

The paper places neural AI within the broader evolution of surveillance practices, showing how monitoring has moved beyond physical and digital tracking toward technologies capable of interpreting thoughts, emotions, and behavioural patterns. Unlike traditional data collection, neural and cognitive surveillance may intrude into the inner realm of the human mind by revealing intentions, emotional reactions, or subconscious responses. This development challenges existing legal ideas of privacy and calls for an expanded legal framework that recognizes the protection of mental space. Through doctrinal analysis and comparative perspectives, the study evaluates whether current legal safeguards including constitutional privacy principles, data protection norms, and proportionality standards are sufficient to regulate the collection and use of neural data.

[1] Justice K.S. Puttaswamy (Retd.) v. Union of India, (2017) 10 SCC 1.

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Drawing from the constitutional principles affirmed in Puttaswamy, the paper explains how dignity, autonomy, and informational self-determination provide a foundation for protecting cognitive liberty. It analyses the legality, necessity, and proportionality requirements applicable to both state and private uses of neural AI technologies, highlighting risks such as compelled neuro-monitoring during criminal investigations, cognitive tracking in workplaces, behavioural profiling, and emotion-based surveillance. The discussion also explores implications for the right against self-incrimination, freedom of thought, and decisional autonomy, particularly where neural data extraction may occur without meaningful consent.

The paper also examines the growing global discourse on "neuro-rights," including mental privacy, cognitive freedom, psychological integrity, and protection against algorithmic manipulation. By reviewing emerging regulatory approaches and ethical frameworks, it identifies trends that may guide Indian policy. It argues that neural data governance must go beyond traditional data protection models and include strict purpose limitation, stronger consent requirements, algorithmic transparency, independent oversight, and restrictions on intrusive neuro-surveillance practices.

The paper concludes that neural AI represents a major shift in surveillance capability that requires proactive legal regulation and constitutional interpretation. Protecting privacy in the neural age requires recognizing the human mind as a protected sphere of personal liberty. It proposes a rights-based regulatory approach grounded in constitutional values, technological accountability, and human dignity to ensure that innovation advances societal welfare without undermining fundamental freedoms.

Keywords - Neural Artificial Intelligence, Cognitive Surveillance, Brain Computer Interfaces, Constitutional Law and Technology, Data Protection and Mental Privacy

INTRODUCTION

The boundaries of law and ethics have always been stretched to the limits by the challenges of technological innovation. In the new millennium, the combination of artificial intelligence technology and neurotechnology has produced a new dimension of surveillance—neural AI surveillance. Unlike other forms of surveillance, which are based on the observation of physical activities, neural surveillance aims to access, interpret, or predict human thoughts and intentions through the interpretation of neural data.

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The latest developments in brain-computer interfaces, neural sensors, and cognitive analytics using AI technology have made it possible to decode human neural signals with considerable accuracy[2]. The technology is already being used for medical rehabilitation, neurological studies, and assistive communication. But the same technology has also made it possible to invade the private domain of the human mind to an unprecedented extent[3].

The traditional understanding of the right to privacy has been the right to control personal information and to have autonomy over one's personal life. However, the introduction of neural surveillance technology has the potential to reveal an individual's thoughts, feelings, and intentions. This leads to the question of whether the current legal framework is adequate to protect the right to mental privacy in the face of neural AI technology.

This research aims to investigate the impact of neural surveillance technology on the right to privacy.

CONCEPT OF NEURAL AI SURVEILLANCE

Neural AI surveillance is defined as the use of sophisticated neurotechnology and AI systems to monitor, interpret, and analyse data resulting from human brain activity[4]. The use of neural sensing technology with AI systems enables the extraction of relevant information regarding human cognitive or emotional states. The concept of neural AI surveillance has significant implications for the protection of human rights.

Understanding Neural Surveillance: -

Neural surveillance can be described as the monitoring, gathering, and interpretation of brain signals or data through the application of sophisticated technological systems. Brain-computer interface technology has been developed, which has enabled the acquisition of brain signals and the translation of the same into a form of data that can be processed by a computer system. It has become possible to sense the electrical signals produced by the brain through the application of such technology, which may provide information on the state of mind of a given individual.

[2] Marcello Ienca & Roberto Andorno, "Towards New Human Rights in the Age of Neuroscience and Neurotechnology," 13 Life Sciences, Society and Policy 5 (2017).
[3] Nita A. Farahany, "The Battle for Your Brain: Defending the Right to Think Freely in the Age of Neurotechnology," St. Martin's Press (2023).
[4] OECD, "Recommendation on Responsible Innovation in Neurotechnology," OECD Legal Instruments (2019).

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Artificial intelligence is a fundamental factor that makes this process possible. This is because machine learning is able to scrutinize a complex data set regarding neural systems. Consequently, machine learning is able to identify patterns associated with particular mental processes or reactions. This means that machine learning is able to obtain an understanding of various aspects of human cognition. Once analytical systems, which are based on artificial intelligence, are linked to a larger surveillance network, there is a potential chance that neural data is able to be monitored. This means that a person's mental activities are potentially able to be observed. This has significant legal implications regarding an individual's mental sphere.

Technologies Enabling Neural Surveillance: -

There are several emerging technologies that are playing an important role in the development and further expansion of neural AI surveillance systems. These emerging technologies are useful in the detection, recording, and interpretation of brain activities, thus making brain data available for computation. Even though most of these emerging technologies were initially designed for medical and research purposes, their integration with artificial intelligence and digital surveillance systems poses several legal and ethical questions.

- **Brain–Computer Interfaces (BCIs):** Brain-Computer Interfaces are technology systems that provide a direct interface between the human brain and other digital systems through the use of technology[5]. BCIs have been important in helping individuals with severe physical disabilities to interact with the outside world through the ability to communicate with others. However, the ability of BCIs to read brain signals may pose a potential threat to the ability to read sensitive thought processes.

- **Neuroimaging Technologies such as EEG and FMRI**: Neuroimaging is a technology system used to observe the activity of the brain. It includes various techniques such as electroencephalography (EEG), which is used to record the electrical signals produced by the brain, and functional magnetic resonance imaging (fMRI), which is based on the detection of the flow of blood in various regions of the brain to identify the region associated with a specific thought[6]. These technology systems have greatly contributed to the understanding of the functioning of the human brain. However, the potential

[5] Jonathan R. Wolpaw & Elizabeth W. Wolpaw, Brain–Computer Interfaces: Principles and Practice (Oxford University Press, 2012).
[6] Russell A. Poldrack, "The Future of fMRI in Cognitive Neuroscience," 12 NeuroImage 1216 (2015).

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ability of neuroimaging technology to read brain signals may pose a potential threat to the ability to read sensitive thought processes.

- **AI-Based Cognitive Decoding Systems:** Artificial intelligence systems are also being employed to decode neural data using cognitive decoding. Machine learning-based models are used to process complex neural data to identify patterns associated with mental states, perceptions, or intentions. By processing large amounts of neural data, machine learning models can provide predictive insights into cognitive processes. Even though such systems have potential to enhance medical treatments or neurological research, the ability of these systems to decode mental information also raises concerns regarding mental privacy or surveillance.

- **Wearable Neural Sensors:** Wearable technology has also enabled researchers to develop compact sensors to monitor certain types of brain activity. These sensors can be embedded into headbands or helmets, making them compact enough to monitor brain activity over long periods. Wearable sensors are used to monitor various aspects of brain activity, including health, stress levels, or cognitive performance. However, if used without proper surveillance measures, these sensors can also enable long-term surveillance of an individual's mental state.

- **Neuro-Enhancement Devices:** Neuro-enhancement technology is a form of technology aimed at enhancing or controlling various cognitive processes such as memory, attention, or concentration. Brain-stimulating technology has been gaining attention for potential therapeutic applications, including the treatment of neurological disorders. However, such technology may pose a potential threat to the privacy of citizens if the data collected through such technology is accessed by other systems.

Although the potential of such technology is immense in various fields such as medicine, neuroscience, rehabilitation, etc., the potential for the misuse of such technology cannot be ignored. Such technology may enable the surveillance of the mental processes of citizens through the integration of such technology with other surveillance systems or data analytics systems. Hence, the rapid advancement of neural technology in the field of artificial intelligence cannot be ignored from a legal perspective to ensure the non-violation of the rights of citizens to privacy.

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PRIVACY AND THE HUMAN MIND

Generally, the concept of privacy is viewed as the protection of an individual's personal space from unauthorized invasion. However, the use of neurotechnology and data analysis techniques has led to a new dimension of privacy that involves the protection of the human mind. This is an indication of the need to protect the mind as a component of privacy within the current legal framework of privacy.

Traditional Concept of Privacy: -

Generally, the importance of privacy as a fundamental value in a democratic legal system has been acknowledged and appreciated. Privacy is regarded as a bulwark against arbitrary interference by the State, corporations, and other individuals into a person's personal sphere[7]. From a legal perspective, the concept of privacy is linked to the protection of human dignity and the freedom of individuals to decide on their lives without arbitrary interference. Privacy is regarded as an important aspect for the exercise of other freedoms such as freedom of expression and association.

Traditionally, the law of privacy has been concerned with the protection of identifiable personal information, bodily integrity, and confidentiality of communications. The legal regimes that regulate data protection and surveillance have traditionally been concerned with the regulation of personal information such as personal data, biometric data, communications data, and other personal information that may be sensitive in nature. The courts have also extended the scope of the right of privacy to include informational privacy and decisional autonomy. The right of privacy has been firmly established as a fundamental right under Article 21 of the Constitution in the judgment of the Supreme Court in the case of Justice K.S. Puttaswamy v. Union of India[8]. However, the development of neurotechnology has brought new challenges in the traditional understanding of the concept of privacy. Neural data can be distinguished as a unique form of personal information because it directly reflects the activity of the human brain. This form of personal information can potentially reveal aspects of the human mind that were previously unknown or inaccessible. Therefore, the collection and analysis of neural data have brought unique concerns for the law. The protection of neural data requires that the traditional understanding of the right to privacy be re-examined in order to meet the demands for the protection of the mental sphere of human beings.

[7] Samuel D. Warren & Louis D. Brandeis, "The Right to Privacy," 4 Harvard Law Review 193 (1890).
[8] Justice K.S. Puttaswamy (Retd.) v. Union of India, (2017) 10 SCC 1.

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Mental Privacy and Cognitive Liberty: -

The concept of mental privacy has been developed recently as an extension of the general right to privacy[9]. The right to mental privacy is concerned with the ability of an individual to control access to his or her mental processes and thoughts. The right to mental privacy aims to protect the inner world of the human mind from unauthorized observation, collection, or manipulation through technological means. As neurotechnology become more advanced in interpreting brain signals, mental privacy is an essential aspect to protect personal autonomy.

The concept of mental privacy is closely associated with another concept, which is referred to as cognitive liberty. Cognitive liberty is concerned with the freedom of an individual to think independently without any external interference. The concept of cognitive liberty includes the right of an individual to think, believe, or have opinions without any surveillance or manipulation using technological means. The protection of cognitive liberty is essential, especially regarding emerging technologies that can potentially influence or interpret brain signals.

The need to recognize cognitive liberty as a fundamental principle of law has been emphasized by many legal experts and policymakers, especially with the aim of mitigating the threats associated with advanced neurotechnology. This is mainly because of the increasing ability of artificial intelligence to process neural information, thereby allowing the deduction of thoughts or emotional states without the consent of the concerned individual. In such a context, the concept of cognitive liberty has the potential to become a vital protection against neural monitoring. It is, therefore, a possibility that the need to strengthen the law pertaining to mental privacy and cognitive liberty will arise to ensure that the development of technology does not compromise individual freedom, dignity, and autonomy.

NEURAL SURVEILLANCE AND HUMAN RIGHTS

The fast pace of development in neurotechnology and artificial intelligence poses new challenges to the protection of basic human rights. Technologies in neural surveillance have the potential to access and analyse brain activities, and there is a concern about privacy, freedom of thought, and personal autonomy. Since the protection of human rights was established before the development of such technologies, there is an increasing concern about the adequacy of the current legal protection of the mental sphere of individuals. Thus, the

[9] Marcello Ienca & Roberto Andorno, "Towards New Human Rights in the Age of Neuroscience and Neurotechnology," 13 Life Sciences, Society and Policy (2017).

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relationship between neural surveillance and human rights is a topic of interest in current legal scholarship.

1. **Right to Privacy:** The right to privacy is a widely recognized fundamental human right worldwide and is protected under international law. The right to privacy is important as it protects individuals from arbitrary and unlawful interference in their personal lives and communications. This is confirmed in various international and regional instruments on human rights protection, such as Article 12 of the Universal Declaration of Human Rights, which provides that no individual shall be subjected to arbitrary interference in their privacy, family, home, and correspondence[10]. In addition, Article 17 of the International Covenant on Civil and Political Rights provides that individuals must be protected from unlawful intrusions into their private lives and must be given legal protection from such violations[11]. These provisions provide a vital framework to protect personal privacy in contemporary societies. However, it is important to note that the provisions were established in an era when technology was not as advanced as it is today. The rapid advancement of neurotechnology and artificial intelligence has created a new form of data collection beyond the traditional scope of personal information. Neural surveillance has the potential to access data collected directly from the brain, which may include intimate aspects of a person's life. As such, there is a question of whether the existing legal framework is adequate to protect personal privacy in the face of emerging neurotechnological surveillance. As such, there is a growing debate on the need to modify the existing privacy law to incorporate the emerging forms of neurotechnological surveillance.

2. **Freedom of Thought:** The right to freedom of thought has been identified as one of the most important human rights, recognized under international law. It protects the internal sphere of the human consciousness, allowing the individual to freely think, believe, and conceive their opinions, ideas, and beliefs without any external pressure or interference. This right has been specifically recognized under Article 18 of the International Covenant on Civil and Political Rights, where it is provided that "Every individual has the right to freedom of thought, conscience, and religion[12]."

[10] Universal Declaration of Human Rights, 1948, Article 12.
[11] International Covenant on Civil and Political Rights, 1966, Article 17.
[12] International Covenant on Civil and Political Rights, 1966, Article 18.

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Unlike other rights, the right to freedom of thought has always been recognized as absolute, given the fact that it is related to the internal sphere of the human consciousness. It was believed that the government or any other authority had no way of intruding into the internal sphere of the human mind. However, the emergence of neural AI technologies has created new possibilities that challenge the absolute nature of the right to freedom of thought, given the fact that if these technologies are used, it is possible that the government or any other authority could have access to the thoughts of the individual, thus infringing the right to freedom of thought.

3. **Human Dignity and Autonomy**: Human dignity and autonomy are the foundational concepts of the human rights law. The freedom of the human mind to think independently, make choices, and retain autonomy over personal identity is the essence of human dignity. The law of every country around the globe has recognized the importance of respecting an individual's mental autonomy to retain the status of a free human being.

   The use of intrusive techniques of brain activity monitoring by means of neural surveillance technologies may also give rise to human dignity concerns. If the brain signals of an individual can be recorded, analysed, or interpreted without their consent, it may undermine the autonomy of the human mind. The use of neural AI surveillance may reduce the human to the status of a subject of technology rather than an autonomous human. The human rights concerns of the use of neural AI surveillance highlight the importance of providing appropriate legal support to the development of the technology. The importance of protecting the dignity of the human mind is an essential consideration of the law with regard to the use of neural AI surveillance.

CONSTITUTIONAL PERSPECTIVE IN INDIA

In India, the concept of the right to privacy has been firmly established as a fundamental right under Article 21 of the Constitution by the Supreme Court in its landmark judgment in the case of Justice K. S. Puttaswamy v. Union of India. In this case, it was held that the right to privacy is an integral part of the right to life and liberty. The emphasis was given to the fact that privacy is closely associated with human dignity, autonomy, and self-determination to decide one's own life without any unwarranted interference[13].

[13] Justice K.S. Puttaswamy (Retd.) v. Union of India, (2017) 10 SCC 1.

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The Court further explained that "privacy encompasses several dimensions, including bodily privacy, informational privacy, and decisional autonomy." Informational privacy, in this sense, "involves an individual's right to control the collection, storage, and use of personal information." In this sense, neural data, being directly extracted from brain activity, can be said to constitute an extremely sensitive form of personal information. As such, it "logically fits within the broad scope of constitutional protection afforded by the Supreme Court."

In spite of the constitutional recognition of the right to privacy, there is no specific legal framework in India governing neurotechnology or the use of personal data collected through such technology. Even though there are existing data protection laws and surveillance regulations, which cover the issue of personal data to a certain extent, it has to be noted that such regulations were formulated prior to the advent of sophisticated neurotechnology. It is therefore evident that the existing legal regulations may not adequately protect the right to privacy in the context of neural surveillance. This is a reflection of the need to engage in discussions on the regulation of emerging neurotechnology to ensure the effective enforcement of the constitutional right to privacy.

LEGAL CHALLENGES POSED BY NEURAL AI SURVEILLANCE

Neural AI surveillance technologies have given rise to a host of legal challenges to the current legal framework. Neural AI surveillance technologies refer to the collection and analysis of neural data, and as such, a number of complex issues have been raised regarding privacy and consent. Most legal frameworks were not designed to address the risks of monitoring and interpreting brain activities since most of them were designed before the emergence of advanced neurotechnology. As such, a number of legal and policy considerations have to be made to protect fundamental rights.

1. **Absence of Specific Regulation:** One of the major legal hurdles in the context of neural AI surveillance is the absence of specific regulation on the collection and use of neural data. Most data protection regulations have been established to protect traditional types of personal information, without specifically mentioning neural data as a separate type of sensitive information. In the future, the absence of specific regulation may lead to uncertainty about the use of brain data.

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2. **Risk of Government Surveillance:** The utilization of neural technology by government authorities for purposes of security, intelligence, and investigation may pose a problem of excessive government intervention. The utilization of neural technology by government authorities without appropriate legal protection may pose a danger of authorities accessing and analysing neural data in a manner that affects an individual's mental privacy. This poses pertinent constitutional and human rights questions in terms of proportionality and the protection of personal liberty.

3. **Corporate Exploitation of Neural Data:** Similarly, private technology companies developing devices and digital platforms involving neurotechnology may also have access to large amounts of neural data. In the absence of proper regulations, there is a potential for such data to be stored, analysed, or exploited for business use. Individuals may lose control over sensitive personal data pertaining to their mental or emotional status.

4. **Algorithmic Bias and Misinterpretation**: The artificial intelligence used for interpreting neural signals involves complex algorithms, and the training data used for these algorithms are often prone to misinterpretation, leading to incorrect conclusions about the intentions, behavior, or mental states of a person, which raises concerns about the fairness, accountability, and reliability of the results obtained through the artificial intelligence used for neural signal interpretation.

COMPARATIVE INTERNATIONAL PERSPECTIVE

A few nations, as well as international organizations, have begun to address the question of the lawfulness of new neurotechnology, along with the possible hazards of neural data collection. As new technologies are developed to read the human brain, it has been recognized by policymakers and scholars of law that it is important to create measures to safeguard mental privacy and cognitive autonomy. This is an extension of the attempt to improve human rights law to address new technologies that were never envisioned when the original privacy laws were created.

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COUNTRY/ ORGANISATION	LEGAL OR POLICY APPROACH	KEY FOCUS
Chile	Introduced constitutional protections for "neuro-rights" and enacted legislation regulating neurotechnology[14].	Protects brain activity, neural data, and mental integrity from misuse.
European Union	Ongoing regulatory discussions under AI governance frameworks addressing ethical use of emerging technologies.	Emphasis on fundamental rights, transparency, and responsible AI development.
United States	Neurotechnology regulation mainly addressed through existing privacy, medical research, and data protection laws.	Focus on research ethics, consent, and protection of sensitive data.
United Nations Educational, Scientific and Cultural Organization	Developing global ethical principles on artificial intelligence and neurotechnology.	Protection of human dignity, human rights, and ethical AI governance.
Organisation for Economic Co-operation and Development	Issued international principles for trustworthy artificial intelligence[15].	Promotes accountability, transparency, and respect for human rights in AI systems.

International developments such as these demonstrate the increasing awareness that neurotechnology need specific legal and ethical protection in order for such innovations not to undermine human rights such as privacy and mental autonomy.

NEED FOR NEURO-RIGHTS FRAMEWORK

With the rapid development of neurotechnology and artificial intelligence, there has been an increasing call by legal scholars and lawmakers to recognize the existence of a new class of rights, dubbed "neuro-rights[16]." The concept of neuro-rights is meant to safeguard an individual against potential harms resulting from the use of technology with the capability to access,

[14] Republic of Chile, Constitutional Reform on Neuro-Rights (Law No. 21,383), 2021.
[15] OECD, "OECD Principles on Artificial Intelligence," OECD Legal Instruments (2019).
[16] Rafael Yuste et al., "Four Ethical Priorities for Neurotechnologies and AI," 551 Nature 159 (2017).

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analyse, or manipulate human brain activities. The traditional frameworks of privacy and human rights were formulated at a time when the relevant technology was still unknown. The formulation of the concept of neuro-rights is thus aimed at ensuring that the advancement of technology is not at the expense of human freedom or the human mind.

A. **Right to Mental Privacy**: The right to mental privacy is a legal right that protects an individual's thoughts, emotions, and brain data from unauthorized access or surveillance. This is because, with the advent of neurotechnology that are able to detect or interpret brain signals, there is a threat that an individual's mental data or thoughts will be recorded or analysed without permission. The recognition of mental privacy as a legal right is essential to ensure that an individual has control over his or her brain data or neural data.

B. **Right to Cognitive Liberty:** Cognitive liberty is a legal right that allows an individual to think independently or to have control over his or her mental state. This includes the ability to think, believe, or have an opinion without any external influence or manipulation. The recognition of cognitive liberty as a legal right is essential to prevent a situation where an individual's mental state is monitored or controlled without his or her permission.

C. **Right to Mental Integrity**: The right to mental integrity is concerned with the prevention of interference with the functioning of the brain or the nervous system. There are neurotechnology that have the potential to stimulate the brain or the nervous system. The law on mental integrity would ensure that any form of technological interference with the brain is done with the appropriate level of regulatory control.

D. **Right to Psychological Continuity**: Psychological continuity is the preservation of personal identity, memory, and self. There are neurotechnology, such as those which have the potential to modify memory or cognitive patterns, which may pose a threat to personal identity. The law on the right to psychological continuity would ensure that the stability of the individual’s mental identity or personality is not threatened by technological advancements.

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E. **Right to Protection from Algorithmic Manipulation**: With the advancement of technology, it is now possible for artificial intelligence to analyse the neural data of an individual to predict the response of the human brain. In certain cases, it is possible to manipulate the decision of an individual or the response of an individual to a product. The right to protection from algorithmic manipulation would attempt to address the possibility of the use of such technology to manipulate the mental processes of an individual for the purpose of economic gain or political control.

The recognition of the neuro-rights would provide an important safeguard against the potential threats of the misuse of neural surveillance technology. By recognizing the importance of the mental privacy, cognitive freedom, and psychological integrity of an individual, the use of the technology would be ensured to be in line with the principles of human dignity.

RECOMMENDATIONS

In order to effectively guarantee the protection of mental privacy and overcome the legal issues associated with emerging neurotechnology, the implementation of the most suitable measures in the form of regulations and policies becomes essential. The following measures can prove helpful in the protection of cognitive autonomy and neural data:

1. **Legal Recognition of Neural Data:** One of the most crucial steps in the regulation of neural AI surveillance involves the legal recognition of neural data as a highly sensitive form of personal information. Neural data directly relates to the activities occurring in the human brain and can reveal highly personal aspects of the individual's cognitive and emotional status. Therefore, this form of data demands more rigorous protection than other forms of personal information. It becomes essential for the legislative bodies of the countries to amend or extend the data protection regulations and include neural data in the list of sensitive personal information.

2. **Regulation of Neurotechnology Companies:** Companies that are involved in the development and commercialization of neurotechnology devices, such as brain-computer interfaces and wearable neural sensors, should be subject to comprehensive regulatory standards. These companies have the potential to collect substantial amounts of neural data from their users while using their devices. There is a risk that these companies may store their collected data indefinitely, share it with other parties, and

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exploit it for business purposes without adequate transparency. It is recommended that regulatory standards should be applied to ensure that these companies are compliant with strict data protection policies.

3. **Ethical Oversight Mechanisms:** In addition to the role of law, the development of neurotechnology must also be accompanied by the development of ethical oversight mechanisms, where specialised bodies or ethics committees can assist in the assessment of the potential risks associated with new neurotechnology applications, before their large-scale development and implementation. Such bodies can oversee the compliance of neurotechnology with ethical standards, assess the research methods, and ensure that the development of neurotechnology is consistent with ethical principles such as human dignity, autonomy, and privacy, among others. Ethical oversight mechanisms can also assist in the building of public trust concerning the use of neurotechnology, for example, in healthcare, scientific research, or technological innovation.

4. **International Cooperation:** In light of the international character of the development of technology and the flow of information, international cooperation is important for the effective regulation of neural AI surveillance. This is because neurotechnology firms and research projects are often international, making it hard for a single country to deal with the problems associated with neural AI surveillance. It is, therefore, important for international bodies and countries to collaborate in the formulation of guidelines concerning the use of neurotechnology, as well as the protection of neural information, so that international standards are set concerning mental privacy and cognitive rights, thereby preventing the misuse of sensitive neural information.

CONCLUSION

Neural AI surveillance is undoubtedly one of the most important technological innovations that is likely to have a major impact on the privacy of individuals in the contemporary era. Technologies that are capable of recording and processing neural signals hold the promise of accessing information that is derived from the direct activities of the human brain. As such, such technologies are capable of breaching the traditional distinction between behaviour and the internal world of the human mind, which was traditionally not accessible to external observation.

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Neurotechnology is also a technology that is full of promise and is capable of making a major impact in fields such as medicine, neuroscience, and rehabilitation. For instance, brain-computer interfaces hold the promise of considerably enhancing the quality of life of individuals who are afflicted by neurological disorders, physical disabilities, and cognitive impairments. Nevertheless, the potential for abusing neural data is a major concern that raises critical questions regarding mental privacy and personal autonomy and dignity as a result of such data collection and processing without the individual's consent and control.

It has to be noted that the existing legal framework on the issue of privacy and surveillance was established prior to the advent of technology capable of decoding brain signals. As such, the existing legislation may not provide adequate coverage to the issue of the potential risks associated with the acquisition, storage, and utilization of such data. It is in light of the aforementioned issue that the need to adopt appropriate legal standards on the issue has come to the forefront.

In this regard, there has been a growing need to consider the importance of the recognition of concepts such as cognitive liberty and mental privacy in the existing legal framework. The importance of such a move would enable the individual to possess the liberty to think, believe, and have control over their own minds. As such, there is a need to work towards the establishment of appropriate regulatory frameworks to ensure the promotion of appropriate rights.

Ultimately, the future of privacy may depend on the capacity of the law to adequately respond to the challenges of new neurotechnology. By providing clear guidelines on the protection of neural data and mental autonomy, the law may play a crucial role in safeguarding what may be seen as the most basic aspect of human freedom—The Human Mind[17].

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