NEURORIGHTS: A NEW GENERATION OF HUMAN RIGHTS IN THE AGE OF NEUROTECHNOLOGY

Popovich Terezia

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Annotation. The article investigates neurorights as a new generation of human rights emerging in response to the rapid advancement of neurotechnology. It is established that neurorights arose at the intersection of neuroethics and neurolaw as a response to the unprecedented capacity of neurotechnologies to measure and alter human brain activity. The concept of neurorights is defined as the ethical, legal, social or natural principles of freedom or entitlement related to a person's cerebral and mental domain. Two competing scholarly positions are analysed: proponents of a new generation of rights argue that existing law is insufficient to protect the mind, while opponents contend that established rights, freedom of thought, mental integrity, and privacy, should be developed instead. The main types of neurorights are systematised: cognitive liberty, mental privacy, mental integrity, and psychological continuity. The constitutional experience of Chile is examined as the first state to enshrine neurorights in its basic law in 2021. International legal initiatives are analysed, including OECD recommendations, regional declarations, UNESCO documents, and a UN Human Rights Council resolution. The article concludes that neurorights represent a necessary conceptual instrument for protecting mental autonomy and that a principled approach grounded in established human rights law is the most viable path forward.

Key words: neurorights; neurotechnology; cognitive liberty; mental privacy; human rights; mental integrity; neuroethics.

1. Introduction.

The rapid progress of neuroscience and neurotechnology has opened unprecedented possibilities for humanity: from restoring motor functions through brain-computer interfaces to decoding the attempted speech of patients with severe disabilities. At the same time, these technologies have generated threats that legal systems had never previously encountered, the capacity to read thoughts, manipulate memory, influence decision-making, and modify human personality. While thoughts were once considered fundamentally inaccessible to external observation, contemporary neuroimaging and brain-computer interface technologies are dismantling this presumption.

In this context, the question arose whether existing human rights law is capable of protecting persons from specifically neurotechnological threats. The debate surrounding this question gave rise to the concept of 'neurorights' - new or reconceptualised rights aimed at protecting the human brain and mental domain. Despite the relative novelty of the term, the conceptual basis of neurorights has developed rapidly: they have found expression in constitutional law (Chile, 2021), international recommendations (OECD, UNESCO, OAS), and a substantial body of scholarly literature.

For legal scholarship, neurorights pose challenges on multiple levels: theoretical (are they genuinely new rights or merely specifications of existing ones?), normative (which legal form is most appropriate?), and practical (how can effective enforcement be ensured?). The investigation of these questions is an urgent task for both international and constitutional law.

2. Recent Scholarship.

The most influential contribution to the conceptualisation of neurorights is the article by M. Ienca published in 2021, in which the author reconstructs the genesis of neurorights, proposes a systematic taxonomy, and defines them as 'the ethical, legal, social or natural principles of freedom or entitlement related to a person's cerebral and mental domain' [7]. In the same work, the author refers to the pioneering contributions of R. Boire and W. Sententia, who established the concept of 'cognitive liberty' as the right to control one's own consciousness [7].

A critical position is held by J. C. Bublitz in two significant works. In a 2022 paper, he argues that the proposed neurorights suffer from 'neuroexceptionalism' and 'neuroessentialism' and fail to satisfy quality criteria debated in rights theory; instead, existing rights should be developed further [1]. In a later work of 2024, however, the same author softens his critique, acknowledging that consciousness is a constitutive feature of legal personhood and that the rights to mental integrity and privacy require development to address neurotechnological threats [2]. In the same study, Bublitz identifies four dimensions of human dignity that neurotechnological interventions may violate: protection of the preconditions of legal personhood; self-determination and autonomy; core aspects of personality; and respect for subjectivity [2].

S. Ruiz and co-authors in 2024 examined the Chilean experience of constitutionally enshrining neurorights and investigated the connection between neurotechnology, ethics, and politics [11]. T. Istace in the same year analysed whether existing international law can protect the human mind from neurotechnological intrusions and concluded that it is incomplete but flexible [9]. J. M. Muñoz and J. Á. Marinaro in 2023 proposed the concept of 'reconceptualised human rights', arguing that neurorights are not entirely new rights but rather new normative responses to new technological challenges within the established rights system [10].

Ienca's article (2021) is a peer-reviewed publication in the leading international journal Frontiers in Human Neuroscience (EPFL / ETH Zürich), devoted to a comprehensive normative-ethical and conceptual analysis of neurorights – a new category of human rights designed to protect the brain and mind of an individual from the interference of neurotechnology. The author offers a systematic taxonomy of neurorights, encompassing derivatives of freedom of thought, the right to privacy, mental integrity and personal identity, and also analyzes current legislative initiatives in this area at the level of the OECD, the Council of Europe and individual states (in particular, Chile and Spain) [7].

3. The aim of this article is to provide a comprehensive examination of neurorights: their genesis and conceptual content, the scholarly debate over their necessity, the constitutional and international legal experience of their recognition, and the prospects for their development within the human rights system.

4. Main part.

The term 'neurorights' entered scholarly discourse relatively recently, yet its conceptual roots date to the early 2000s. M. Ienca in his 2021 work traces how the concept of 'cognitive liberty', developed by R. Boire and W. Sententia, became the starting point for the formation of neurorights [7]. Sententia defined cognitive liberty as 'the right and freedom to control one's own consciousness and electrochemical thought process', while J. C. Bublitz later qualified it as a 'basic human right' guaranteeing 'an individual's sovereignty over her mind' [7].

A turning point was the article by M. Ienca and R. Andorno in 2017, which for the first time proposed four concrete neurorights: the right to cognitive liberty, mental privacy, mental integrity, and psychological continuity [7]. This formulation became the basis for subsequent debates. Alongside this, the Neurorights Foundation led by neuroscientist R. Yuste proposed a slightly different list of five neurorights: the right to mental privacy, personal identity, free will, equitable access to mental augmentation, and protection from algorithmic bias [3].

M. Ienca provides a systematic taxonomy of neurorights, identifying at least five families depending on the normative principles from which they derive: derivatives of freedom of thought, of the right to privacy, of mental integrity, of personal identity, and other ethical corollaries [7]. This taxonomy is analytically valuable but simultaneously reveals the complexity of the interrelationships among neurorights and their potential overlap with existing rights.

It should be noted that from its very emergence, the concept of neurorights generated terminological controversy: J. C. Bublitz criticises the use of this term on grounds of inconsistency with established legal categories, and a number of authors prefer to speak of the 'reconceptualisation' of existing rights rather than new ones [1]. Nevertheless, the term 'neurorights' has become entrenched in scholarly and public discourse as a convenient designation for the set of normative claims relating to the protection of the brain and consciousness from technological interference.

The central theoretical question in the neurorights debate is whether genuinely new rights are needed or whether expanded interpretation and development of existing rights would suffice. This debate has fundamental practical significance, since the answer determines the strategy of norm-setting.

Proponents of a new generation of rights, primarily M. Ienca and R. Andorno, argue that neurotechnologies open qualitatively new vectors of threat for which existing legal categories are insufficient [7]. In the same work, the authors contend that 'the possibilities opened up by neurotechnological developments will force a reconceptualisation of certain human rights, or even the creation of new rights to protect people from potential harm' [7]. They ground this argument in the fact that thoughts were traditionally considered absolutely inaccessible to external interference, and neurotechnologies have for the first time made such interference possible.

J. C. Bublitz in his 2022 work consistently defends the opposing position: the proposed neurorights are conceptually flawed and prone to 'rights inflation' [1]. In the same work, the author demonstrates in detail that each of the four proposed neurorights either duplicates existing rights (freedom of thought, the right to privacy, the right to bodily integrity) or suffers from an excessive 'neuroexceptionalist' approach – that is, it unjustifiably insists on the specificity of neurotechnologies compared to other forms of interference with the mind [1].

In a 2024 work, however, J. C. Bublitz partially revises his position, acknowledging that certain aspects of the protection of the mental domain require normative development. The author proposes distinguishing between an absolutely protected 'core' of freedom of thought (no one can be obliged to hold or not hold particular thoughts) and qualified rights to mental integrity and privacy, interference with which is permissible only when justified and proportionate [2].

T. Istace in 2024 takes an intermediate position: existing law is incomplete but flexible, capable of adapting to new challenges through expansive interpretation [9]. In the same work, the author notes that key rights, mental integrity and freedom of thought, already exist in international law but require specification in the neurotechnological context [9]. J. M. Muñoz and J. Á. Marinaro in 2023 propose the compromise concept of 'reconceptualised rights': neurorights are not new de novo rights but new normative responses to new technological challenges within the established rights system [10].

In our view, the most productive approach combines both positions: it is necessary both to develop existing rights, in particular, to specify the content of freedom of thought and the right to privacy with respect to neurotechnologies, and to formulate new specific constructs where existing law is fundamentally insufficient.

The right to cognitive liberty is the starting point in the conceptual development of neurorights. J. C. Bublitz defines it as a right that 'guarantees an individual's sovereignty over her mind' and prohibits anyone from asserting claims over the right-holder's mental states [2]. The positive dimension of this right encompasses the freedom to alter one's own consciousness, including through technology, chemical substances, or meditation, without state interference. Accordingly, the right to cognitive liberty is simultaneously protective (against forced interventions) and liberal (permitting voluntary ones).

The right to mental privacy protects 'private or sensitive information in a person's mind from unauthorised collection, storage, use or even deletion' [7]. The particular complexity of this right arises from the specificity of neurotechnologies: they are capable of reading mental information that the person has not yet articulated or even consciously registered. This is why one study of mental privacy and mind reading argues that authentic safeguards for the mental realm require an expansion of protection beyond brain-targeted devices to encompass the full spectrum of 'mind-reading' applications, including digital methods [3].

The right to mental integrity protects against interventions that 'bypass rational reasoning and cause mental harm' [4]. V. Tesink and co-authors in 2024 analysed this right through the lens of the 'extended mind' thesis: if technological devices become part of a person's cognitive processes, legal protection must extend to them as well [12]. In the same study, the authors argue that the right to mental integrity should be conceptually distinguished from the rights to cognitive liberty, mental privacy, and psychological continuity, since each protects a distinct dimension of the mental domain [12].

The right to psychological continuity protects the stability of personality and identity from external manipulation. Deep brain stimulation, neuropharmacological substances, or exhaustive neuromarketing interventions could potentially alter a person's identity against their will. G. Cassinadri in a 2025 study proposes a multidimensional understanding of the right to mental integrity as simultaneously multidimensional (encompassing different aspects of the mind), multilayered (different levels of protection), and extended (applying to external cognitive devices) [4].

The four core neurorights thus cover distinct, though interconnected, dimensions of the protection of consciousness: the right not to be compelled to hold certain thoughts; the right to keep them private; the right not to have them forcibly altered; and the right to the stability of one's own identity. This internal differentiation underscores why a single right or a simple expansion of existing privacy protection cannot adequately address all neurotechnological risks.

The most resonant legislative step in the field of neurorights was the Chilean constitutional reform of 2021. S. Ruiz and co-authors in their 2024 study analyse this reform as the first precedent worldwide of constitutionally enshrining the protection of 'neural rights' [11]. The reform amended the Chilean Constitution with a provision protecting brain 'activity' and 'information' from unauthorised interference. In the same work, the authors identify a conceptual problem: the Chilean legislature did not draw a clear distinction between neurotechnologies that 'read' and those that 'stimulate' brain activity, which may complicate enforcement [11].

At the international level, the first significant document in the field of neurorights was the OECD Recommendation on Responsible Innovation in Neurotechnology of 2019, establishing principles for the responsible development of neurotechnologies. The Inter-American Juridical Committee (OAS) adopted recommendations in 2021 and 2023. UNESCO published a report entitled 'The Risks and Challenges of Neurotechnologies for Human Rights' in 2023 and a draft international instrument in 2024.

T. Istace in her 2024 work records that in 2022 the UN Human Rights Council adopted draft resolution A/HRC/51/L.3 on neurotechnology and human rights [9]. In the same work, the author notes that in 2025 the UN Special Rapporteur on the right to privacy called on all states to introduce specific regulatory regimes for neurotechnologies and neural data [9].

E. García-López, J. M. Muñoz, and R. Andorno in their 2021 editorial article outline the general context and formulate the key question: how can the therapeutic and diagnostic potential of neurotechnologies be utilised without jeopardising human dignity and human rights? [5]. In the same work, the authors emphasise the need for deeper theoretical elaboration as a prerequisite for effective norm-setting [5].

Thus, at both the constitutional and international legal levels, neurorights are gradually acquiring normative expression. However, this normative base remains fragmented: it lacks systematization and unified standards, which complicates effective application. The Chilean experience, while historically

significant as a first step, illustrates the dangers of premature codification without sufficient conceptual clarity.

The interaction of neurorights with established human rights operates at several levels.

The closest connection exists with freedom of thought, conscience, and religion, guaranteed by Art. 18 ICCPR and Art. 9 ECHR. J. C. Bublitz in 2022 argues that this freedom has an 'absolutely protected core': no one can be required to hold or not hold certain thoughts [1]. In the same work, however, the author stresses that neurotechnologies have for the first time made it technically possible to interfere with this core and it is precisely this fact that demands a normative response. A separate author in 2022 demonstrates that Art. 18 ICCPR can be interpreted as providing comprehensive protection of mental processes and brain data, serving as a normative basis for regulating neurotechnologies [6].

The right to privacy acquires a new dimension in the neurotechnological context. M. Ienca and G. Malgieri in 2022 analysed the protection of 'mental data' within the GDPR and established that the existing data protection regime is fundamentally important but not exhaustive [8]. Protection against 'mind reading' requires a broader normative basis than data protection, since mental information is more sensitive and its disclosure may have irreversible consequences.

The right to bodily integrity transforms into a right to mental integrity. The study by G. Cassinadri in 2025 proposes a multidimensional understanding of the right to mental integrity, simultaneously multidimensional, multilayered, and extended, which cannot simply be a 'translation' of the right to bodily integrity into the mental domain: it requires its own conceptual development [4].

J. M. Muñoz and J. Á. Marinaro in 2023 propose viewing neurorights as 'reconceptualised human rights': they do not conflict with the existing legal system, are not excessive, and do not give rise to rights inflation, but rather constitute new normative responses to new technological challenges within the established rights system [10]. In our view, this approach is the most methodologically persuasive: it combines respect for existing legal constructs with openness to conceptual renewal, avoiding both the conservatism of complete denial and the radicalism of wholesale rights creation.

5. Conclusions.

First, neurorights constitute a set of normative claims protecting the human brain and mental domain from the specific threats posed by neurotechnologies; their genesis is linked to the development of the concept of 'cognitive liberty' in neuroethics and neurolaw in the early 2000s.

Second, the debate between proponents of a new generation of rights and proponents of developing existing law is not mutually exclusive: the most productive approach combines expansive interpretation of freedom of thought and the right to privacy with the formulation of new specific constructs where existing law is fundamentally insufficient.

Third, the principal types of neurorights, cognitive liberty, mental privacy, mental integrity, and psychological continuity, each protect a distinct dimension of mental autonomy and are not mere duplications of existing rights; their internal differentiation reflects the multifaceted nature of the neurotechnological threat.

Fourth, the Chilean constitutional precedent of 2021 and international initiatives by the OECD, UNESCO, and the United Nations demonstrate that neurorights are gradually acquiring normative expression; however, this normative base remains fragmented and requires systematisation at the international level.

Fifth, neurorights do not represent rights inflation but rather a necessary conceptual response to a technological challenge that has, for the first time in history, made possible direct interference with the human mental domain – the 'inner citadel' of personality that had hitherto been considered inaccessible to external influence. The recognition of this challenge by leading international institutions and legal scholars

underscores the urgency of developing a coherent, principled framework for the legal protection of the human mind.

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Terezia Popovich,
Doctor of Law, Associate Professor,
Associate Professor of the Department of Theory and History of State and Law
Uzhgorod National University
ORCID: 0000-0002-8333-3921