

TRANSHUMANISM AND NEURORIGHTS: REDEFINING THE HUMAN PERSON IN THE AGE OF NEUROTECHNOLOGICAL CONVERGENCES

Loredana TEREC-VLAD *

Abstract

The present study undertakes a critical and interdisciplinary examination of the relationships between the transhumanist paradigm and the recent emergence of the legal category of neurorights, situated within a historical context marked by the accelerating convergence of neuroscience, artificial intelligence and biotechnology. Proceeding from the premise that transhumanism is not merely an intellectual movement concerned with the improvement of the human condition through the rational application of advanced technologies, but constitutes at the same time a normative philosophical program centered on the idea of self-evolution and the transcending of biological limits, our enquiry analyses the manner in which the promises of cognitive enhancement and brain-computer interfaces generate unprecedented challenges for the classical architecture of fundamental human rights. The analysis seeks to identify the conceptual foundations of the proposals advanced by the international scientific community concerning the necessity of instituting new rights with universal vocation — the right to mental identity, the right to cognitive liberty, the right to mental integrity, the right to the confidentiality of brain data and the right to equitable access to mental enhancement — as normative instruments designed to prevent the unintended consequences of technologies capable of accessing, decoding and modifying the neural processes underlying subjective experience. The study likewise examines the pioneering legal experiences of the Republic of Chile, of Spain and of the United States, alongside the 2025 UNESCO Recommendation on the Ethics of Neurotechnology, with the aim of capturing the tensions between the logic of transhumanism — which promotes individual autonomy over one's own body and brain — and the logic of human rights, which seeks the preservation of human dignity in the face of risks of instrumentalization. The conclusion argues that the legal reconfiguration of contemporary man, as a subject simultaneously of the right to cognitive self-determination and of the duty to protect his mental integrity against illegitimate neurotechnological intrusions, calls for a new paradigm of bioethics — one which transcends the classical dichotomy between permission and prohibition, proposing an approach grounded in responsibility, prudence and capabilities, capable of responding to the challenges of a reality in which the frontier between the human and the posthuman becomes progressively more porous and more difficult to delineate

Keywords: transhumanism, neurorights, cognitive liberty, mental integrity, neuroethics.

1. Introduction

Contemporary reflection upon human nature finds itself at a turning point unprecedented in the history of philosophical and legal thought. The rapid convergence of cognitive neuroscience, artificial intelligence and advanced biotechnology is reshaping both the self-understanding of the human species and the normative frameworks which have ensured, for nearly eight decades, a certain axiological stability in the international public sphere. It is precisely within this context that one ought to situate the encounter between the transhumanist project and the recent emergence of the legal category of neurorights, two intellectual realities which share a common preoccupation: that of articulating what it means to be human in an age in which the brain itself becomes a terrain of research, intervention and, eventually, augmentation. Transhumanism, understood as an international intellectual and cultural movement which postulates the necessity of improving the human condition through the rational application of converging technologies ¹ has its roots in Enlightenment humanism, whose idea of human perfectibility it decisively radicalizes, extending it beyond the traditional methods of culture and education to include direct technological interventions upon body and mind. Far from being a mere observation regarding technological advancement, transhumanism proposes a normative philosophical program

* Assistant Professor, PhD, Faculty of Law and Administrative Sciences, „Ștefan cel Mare” University of Suceava (e-mail: loredana.vlad@fdsa.usv.ro).

¹ Bostrom, N., In defense of posthuman dignity, *Bioethics* 19(3), 202–214, 2005. <https://doi.org/10.1111/j.1467-8519.2005.00437.x>

articulated around the idea of self-evolution, postulating that the human being possesses not merely the right but a certain moral duty to transcend his current biological limitations through recourse to converging technologies - bio, info, nano and cogno ². In parallel with this development of the philosophical discourse on human enhancement, the past decade has witnessed the emergence of a new legal category - neurorights - initially proposed in the specialized literature by Ienca and Andorno ³ and subsequently consolidated by the scientific community gathered around the Neurorights Foundation, under the leadership of Yuste, Genser and Herrmann⁴. This novel legal category seeks to respond to the specific challenges generated by neurotechnologies capable of accessing, recording, decoding and modifying brain activity, through the institution of normative guarantees designed to protect what was, until quite recently, regarded as the ultimate refuge of individual liberty: the mental space.

The present article proposes to examine, in a systematic manner, the relationships between these two intellectual and legal realities, seeking to identify both their points of convergence and the normative tensions which their coexistence generates within the contemporary axiological landscape. Our enquiry is structured into three chapters, organized according to a progressive logic: the first chapter presents the conceptual foundations of the transhumanist paradigm and its anthropological implications; the second chapter analyses the emergence and consolidation of the legal category of neurorights within the domestic and international legal order; the third chapter explores the structural tensions and possible convergences between the two registers, proposing an integrative reading. The hypothesis we advance - and which orients the entire enquiry - is that, far from finding themselves in irreducible opposition, transhumanism and neurorights engage in dialogue at the level of a common preoccupation concerning the ontological and legal status of the human person in the post-biological era, thereby opening a fertile horizon for contemporary bioethical and legal reflection. The methodology adopted is predominantly qualitative, of a hermeneutic and comparative nature, mobilizing sources from the fields of philosophy, neuroethics, comparative constitutional law and international human rights law. The enquiry draws both upon the foundational works of the theoreticians of transhumanism ⁵ and upon the recent contributions of specialists in neuroethics and neurolaw ^{6, 7, 8}. At the same time, pioneering normative experiences are examined - particularly the Chilean constitutional reform ^{9, 10} - together with the international instruments recently adopted, in particular the UNESCO Recommendation of November 2025 on the Ethics of Neurotechnology. The specificity of the proposed enquiry resides in the articulation of an integrative perspective which draws equally upon the analytical Anglo-Saxon tradition of contemporary bioethics and upon the phenomenological contributions of Continental thought, seeking to articulate a nuanced reading of the tensions and convergences between the two intellectual and normative registers under analysis.

2. Transhumanism as Anthropological Project: From Enlightenment Perfectibility to Cognitive Enhancement

An adequate understanding of the relationships between transhumanism and neurorights presupposes a reconstruction of the conceptual foundations of the transhumanist paradigm, since only in the light of the anthropological and axiological presuppositions which animate it can one correctly evaluate the normative challenges it raises for the classical architecture of human rights. Bostrom^{11, 12} defines transhumanism as an

² Sandu, A., & Terec-Vlad, L., A phenomenological perspective on transhumanism from the perspective of the spoken of being, *Postmodern Openings* 7(1), 67–76, 2016. <https://doi.org/10.18662/po/2016.0701.05>

³ Ienca, M., & Andorno, R., Towards new human rights in the age of neuroscience and neurotechnology, *Life Sciences, Society and Policy* 13(1), 5, 2017. <https://doi.org/10.1186/s40504-017-0050-1>

⁴ Yuste, R., Genser, J., & Herrmann, S., It's time for neuro-rights: New human rights for the age of neurotechnology, *Horizons, Journal of International Relations and Sustainable Development* 18, 154–165, 2021.

⁵ Bostrom, N., Human genetic enhancements: A transhumanist perspective, *Journal of Value Inquiry* 37(4), 493–506, 2003. <https://doi.org/10.1023/B:INQU.0000019037.67783.d5>

⁶ Bublitz, J. C., Novel neurorights: From nonsense to substance, *Neuroethics* 15(1), 7, 2022. <https://doi.org/10.1007/s12152-022-09481-3>.

⁷ Ienca, M., On neurorights, *Frontiers in Human Neuroscience* 15, 701258, 2021. <https://doi.org/10.3389/fnhum.2021.701258>.

⁸ Ligthart, S., Ienca, M., Meynen, G., et al., Minding rights: Mapping ethical and legal foundations of 'neurorights', *Cambridge Quarterly of Healthcare Ethics* 32(4), 461–481, 2023. <https://doi.org/10.1017/S0963180123000245>.

⁹ Fins, J. J., The unintended consequences of Chile's neurorights constitutional reform: Moving beyond negative rights to capabilities, *Neuroethics* 15, 26, 2022. <https://doi.org/10.1007/s12152-022-09504-z>.

¹⁰ Cornejo-Plaza, M. I., Cippitani, R., & Pasquino, V., Chilean Supreme Court ruling on the protection of brain activity: Neurorights, personal data protection, and neurodata, *Frontiers in Psychology* 15, 1330439, 2024. <https://doi.org/10.3389/fpsyg.2024.1330439>.

¹¹ Bostrom, (2003), op.cit.

¹² Bostrom, (2005), op.cit.

interdisciplinary orientation which proposes to evaluate the opportunities opened by technological progress for the improvement of the human organism and of the human condition in general, both through the extension of the duration and quality of life and through the amplification of cognitive, emotional and sensory capacities. What is significant within the Bostromian conceptual construction is, undoubtedly, the progressive shift of emphasis from a mere apology for technology towards the articulation of a genuine philosophical anthropology of a dynamic kind, in which the human being is conceived not as a given reality, definitively established within the biological coordinates of the species, but as a reality in continual process of self-transcendence, open to novel forms of existence - which the specialized literature has termed, depending on context, "transhuman" or "posthuman". It is precisely this perspective which opens the way ¹³ towards a radical reconfiguration of the problematic of personal identity, since there persists the legitimate question of the extent to which an individual subjected to multiple interventions of cognitive, genetic or cybernetic enhancement may still be considered the same person as that prior to such interventions. From this point of view, it must be recalled that the foundations of transhumanism rest upon Enlightenment humanism, whose idea of human perfectibility is decisively radicalized, transcending the traditional methods of culture and education to include direct technological interventions upon body and mind, designed to surmount the current biological limitations of man. This extension of perfectibility from the moral-cultural register towards the technological-biological register constitutes precisely the specific difference of transhumanism vis-à-vis the classical humanist tradition, marking an epistemological rupture with broad reverberations in the contemporary theory of human rights. Transhumanism, as anthropological project, articulates a series of normative theses which we may synthesize, following the specialized literature, in three assertions. The first holds that human enhancement technologies - be they of a genetic, pharmacological, cybernetic or neurotechnological nature - ought to be widely available to the population, transcending the traditional therapeutic paradigm; the second affirms that individuals ought to enjoy liberty in choosing the technologies they apply to their own person; while the third attributes to parents the right to choose, within reasonable limits, enhancements for the children to be born ¹⁴. This configuration places transhumanism in a relation of tension with the bio conservative positions represented, in the specialized literature, by thinkers such as Leon Kass, Francis Fukuyama or George Annas, for whom technological interventions upon human nature constitute an existential threat to the integrity of the species.

A special place within the transhumanist architecture is occupied by the problematic of cognitive enhancement through advanced neurotechnologies. Brain-computer interfaces (BCI), deep brain stimulation, transcranial direct-current stimulation and functional neuroimaging technologies raise a series of unprecedented questions, both from an ethical and from a legal point of view, since the interventions they permit transcend the traditionally accepted boundary between treatment and enhancement ¹⁵. Unlike classical pharmacological interventions, which act upon the central nervous system, invasive neurotechnologies permit a selective, focal and often irreversible intervention upon specific neural circuits, thus raising in an entirely novel manner the question of informed consent, of autonomy and of personal integrity. Within this conceptual context falls the fundamental controversy regarding the distinction between treatment and enhancement. Bostrom ¹⁶ advances an explicitly transhumanist position, according to which this distinction does not possess fundamental ethical importance, since both treatment and enhancement pursue the improvement of the functioning of the human organism. Bio conservative perspectives insist upon the decisive character of this distinction, maintaining that treatment restores a biological normality regarded as given, whilst enhancement transcends it, thereby entering into conflict with a certain idea of human nature as moral norm. This debate has direct consequences for the manner in which contemporary legal frameworks delineate that which is permitted, recommendable or prohibited within the field of neurotechnological interventions.

The transhumanist project confronts a series of serious challenges concerning the social and political implications of the democratization of enhancement technologies. There exists a definite risk that, in the absence of adequate public policies, differential access to advanced enhancement technologies might generate new forms of structural inequality, leading to the emergence of an upper class of "enhanced" individuals possessing

¹³ Sandu, A., & Vlad, L., Beyond technological singularity, the posthuman condition, *Postmodern Openings* 9(1), 91–108, 2018. <https://doi.org/10.18662/po/9.1/07>.

¹⁴ Bostrom, (2005), op.cit.

¹⁵ Gordon, E. C., & Seth, A. K., Ethical considerations for the use of brain-computer interfaces for cognitive enhancement, *PLOS Biology* 22(10), e3002899, 2024. <https://doi.org/10.1371/journal.pbio.3002899>.

¹⁶ Bostrom, (2003), op.cit.

a considerable advantage over those deprived of access to these technologies. This concern, assumed in a more or less explicit form by the entire specialized literature (Yuste et al., 2017), represents not merely a question of distributive equity, but also raises a problem regarding the very ontological cohesion of the human species, subjected to transformative pressures of unprecedented intensity. In order to respond to these concerns, the scientific community gathered around the American BRAIN Initiative and the European Human Brain Project has proposed the formulation of fundamental ethical principles for the responsible development of neurotechnologies^{17, 18}. These principles (which would underpin the subsequent proposal of neurorights) address four dimensions: privacy and consent, agency and identity, enhancement and equity in access, and the prevention of algorithmic biases. It must be observed that, although initially articulated in an ethical register, these principles have undergone progressive consolidation within the legal register, transforming themselves into a veritable program of reform of the architecture of fundamental human rights.

The symbolic dimension of the transhumanist project cannot be ignored either in this enquiry. Transhumanism constructs an entire system of symbols, myths and archetypes which articulate its collective imaginary: the symbol H+ - designating "Human Plus" or "Humanity Plus" - expresses graphically the idea of an enhanced human individual, capable of transcending his biological limitations through the integration of technology; the figure of the cyborg, with his augmented eye, embodies symbolically the indissoluble bond between organism and machine, while the spherical rings associated with these symbols evoke the global informational networks and the interconnectivity which transhumanist progress extends. These visual symbols function as veritable ideological declarations, expressing the hopes, ambitions and challenges of an intellectual current which proposes the reconfiguration of the human condition. Romanian phenomenological reflection has contributed, in turn, to the nuancing of this problem, proposing a reading concerning the dimension of self-comprehension of the human being in relation to its own technological self-transcendence. This perspective, profoundly anchored in the Continental phenomenological tradition, offers a fertile counterpoint to Anglo-Saxon reflection, which is predominantly analytical and consequence-oriented, ensuring a significant enrichment of the contemporary bioethical debate. Thus, the internal tensions of the transhumanist project - between the promise of the radical improvement of the human condition, on the one hand, and the risk of the instrumentalization of the human being or of the amplification of social inequities, on the other - have necessarily generated the emergence of a distinct legal register, capable of mediating between the permissive aspiration of transhumanism and the protective exigency of human rights. This transition, from the philosophical-normative register to the legal-positive register, constitutes the object of analysis of the following chapter.

3. The Emergence of Neurorights: A Legal Framework for the Protection of Mental Integrity

The legal category of neurorights designates, within the specialized literature, a body of fundamental rights proposed in order to protect the human being against the unintended or abusive consequences of advanced neurotechnologies. The genesis of this legal category may be reconstructed, in its essential lines, by reference to two foundational moments: on the one hand, the article by Ienca and Andorno¹⁹, published in the journal *Life Sciences, Society and Policy*, in which four new rights of universal character are identified - the right to cognitive liberty, the right to mental privacy, the right to mental integrity and the right to psychological continuity - and, on the other hand, the proposal formulated by Yuste, Gensler and Herrmann²⁰ in the journal *Horizons*, which articulates rights of constitutional value, among which we may mention: the right to identity, the right to mental privacy, the right to equitable access to mental enhancement and the right to protection against algorithmic biases.

The argument for these new categories of rights resides in the observation that the classical architecture of fundamental rights - as it was articulated in the Universal Declaration of Human Rights of 1948 and in the International Covenant on Civil and Political Rights of 1966 - was not conceived to respond to the specific challenges generated by the capacity to access, decode and modify brain activity. Ienca and Andorno²¹ maintain

¹⁷ Yuste, R., Goering, S., Bi, G., Carmona, J. M., Carter, A., Fins, J. J., et al., Four ethical priorities for neurotechnologies and AI, *Nature* 551, 159–163, 2017. <https://doi.org/10.1038/551159a>.

¹⁸ Goering, S., Klein, E., Specker Sullivan, L., et al., Recommendations for responsible development and application of neurotechnologies, *Neuroethics* 14, 365–386, 2021. <https://doi.org/10.1007/s12152-021-09468-6>

¹⁹ Ienca & Andorno, op.cit.

²⁰ Yuste et al., (2021), op.cit.

²¹ Ienca & Andorno, op.cit.

that, although a series of traditional rights - particularly the right to freedom of thought, the right to private life and the right to physical integrity - may offer a certain protection, they prove insufficient to cover the complete spectrum of threats specific to neurotechnologies, a fact which justifies the institution of new rights of express and autonomous character. The pivotal concept of the entire architecture of neurorights is, undoubtedly, that of cognitive liberty, developed systematically by Bublitz²² under the designation of mental self-determination. According to this concept, the individual possesses sovereignty over his own mind, which translates, on the one hand, into the liberty to have recourse to technologies which modify his mental states and, on the other hand, into the liberty to refuse any unsolicited or non-consented neurotechnological intervention.

Farahany²³, in her work *The Battle for Your Brain*, proposes a conceptualization of cognitive liberty, understanding it as a right of individual liberty for the digital era, capable of responding to the unprecedented challenges generated both by neurotechnologies and by artificial intelligence. The right to mental privacy - which refers to the protection of information extracted from the brain against illegitimate access - constitutes the most important of the proposed neurorights, being supported by the Neurorights Foundation²⁴. The argument is that brain data, or neurodata, possess a personal quality without equivalent among the other categories of personal data, since they offer direct access to the processes underlying subjective experience and personal identity. Hallinan, Schütz, Friedewald and De Hert²⁵ had argued, as early as 2014, that the classical architecture of personal data protection, articulated around the General Data Protection Regulation (GDPR), is not prepared to respond to the specific challenges generated by neurodata, which call for supplementary protections and, possibly, the constitution of a distinct legal category.

The right to mental integrity responds to a complementary preoccupation - namely, protection against neurotechnological interventions which might affect the cognitive functioning of the individual without his free and informed consent. In the articulation proposed by Ienca and Andorno²⁶, this right seeks to guarantee not only the access of persons with psychic disorders to appropriate psychiatric treatment, but also the protection of all individuals against any forms of "brain-hacking" - a term which designates the body of neurocriminal activities capable of directly influencing the neural processing of users of neurodevices in a manner analogous to the way in which computer systems are subjected to cyber-attack. This concern becomes all the more important inasmuch as consumer markets already offer, in an unregulated manner, EEG headset-type devices capable of collecting raw brain data, exposing users to a spectrum of risks which the current legal architecture cannot manage adequately²⁷.

The right to psychological continuity or right to identity addresses the protection of the person against neurotechnological interventions which might alter the essential traits of his identity - whether through the modification of memory, of personality or of profound beliefs. This right rests upon a philosophical theory of personal identity as temporal persistence, according to which a person recognizes himself as being the same person through the continuity of certain memories, dispositions and life narratives. Thus, technologies of memory engineering - capable of erasing, modifying or selectively adding memories - may affect the very identity of the person in a manner incompatible with the preservation of his essential characteristics²⁸. In the positive legal register, the most important initiative has been that of the Republic of Chile, which, through the constitutional reform of 2021 of Article 19 of the Constitution, became the first country in the world to insert express protection of brain activity and of the data extracted therefrom into the constitutional text. This legislative reform, accompanied by a specific draft law on neurorights, has generated a broad reaction both within the academic milieu and within Chilean jurisprudence²⁹.

In 2023, the Supreme Court of the Republic of Chile rendered a judgment in the case *Guido Girardi v. Emotiv Inc.*, recognizing the sensitive character of neurodata and ordering the company commercializing a consumer EEG device to delete the data collected from Senator Girardi, thus marking the first jurisprudential application of

²² Bublitz, J. C., Novel neurorights: From nonsense to substance, *Neuroethics* 15(1), 7, 2022. <https://doi.org/10.1007/s12152-022-09481-3>

²³ Farahany, N. A., *The battle for your brain: Defending the right to think freely in the age of neurotechnology*, St. Martin's Press, 2023.

²⁴ Yuste et al., (2021), op.cit.

²⁵ Hallinan, D., Schütz, P., Friedewald, M., & De Hert, P., Neurodata and neuroprivacy: Data protection outdated?, *Surveillance & Society* 12(1), 55-72, 2014. <https://doi.org/10.24908/ss.v12i1.4500>

²⁶ Ienca & Andorno, op.cit.

²⁷ Livanis, E., Voultsos, P., Vadiolias, K., Pantazakos, P., & Tsaroucha, A., Understanding the ethical issues of brain-computer interfaces (BCIs): A blessing or the beginning of a dystopian future?, *Cureus* 16(4), e58243, 2024. <https://doi.org/10.7759/cureus.58243>

²⁸ Ienca & Andorno, op.cit.

²⁹ Cornejo-Plaza et al., op.cit.

the new constitutional reform. Nevertheless, the Chilean reform has been criticized by part of the academic community. Fins³⁰ signals that it risks substituting itself for genuine scientific progress in the field of disorders of consciousness and that it ought to give way to an approach grounded in the capabilities paradigm, in the spirit of the works of Amartya Sen and Martha Nussbaum.

For his part, Bublitz³¹ maintains that the proposal of the Neurorights Foundation tends to encourage a "rights inflation", which is afflicted by neuro-exceptionalism and neuro-essentialism and does not satisfy the methodological rigors accepted within the field of human rights. This position has been subsequently developed by Gilbert and Russo³², who signal the speculative character of many concerns invoked in support of neurorights and plead for an empirical approach, grounded in the concrete evaluation of the real risks of existing neurotechnologies. Beyond the Chilean experience, the movement in favor of neurorights has gained visibility at the international level. Spain has integrated a section dedicated to digital rights, including neurorights, within the Charter of Digital Rights of 2021. At the American federal level, the states of Colorado and California have adopted, in the years 2024–2025, pioneering legislation concerning the protection of neurodata. At the global level, the UNESCO Recommendation on the Ethics of Neurotechnology, adopted by the General Conference in November 2025, institutes the first international reference framework in the field, articulating a set of principles grounded in human rights and in human dignity, which is to orient national legislation in the coming decades.

In the European register, it must be emphasized that Regulation (EU) 2024/1689 on artificial intelligence - the AI Act - contains provisions which prohibit certain practices of cognitive and emotional manipulation, including through the use of automated artificial intelligence systems for the detection of emotional states in the workplace or in educational environments. These provisions, although not explicitly formulated in the language of neurorights, reflect a concern for the protection of the mental integrity of the person against the encroachments of technologies. Thus there emerges a complementary European architecture for the protection of the mental sphere, which articulates the GDPR, the AI Act and the jurisprudence of the European Court of Human Rights within a normative framework susceptible of an evolutive reading attentive to the specificity of neurotechnological challenges³³.

In this context, the contribution of the specialized literature must be emphasized, which has sought to map the ethical and legal foundations of neurorights in a systematic and interdisciplinary manner. The work coordinated by Lighthart and colleagues³⁴ proposes a detailed analysis of the three pivotal concepts: mental integrity, mental privacy and cognitive liberty. The conclusion of this analysis opens a reflection upon the necessity of constructing a supple legal architecture, capable of mediating between these two registers.

It must be observed that the debate concerning neurorights is not lacking in methodological tensions which reflect profound differences of epistemological orientation. Whilst the European school inaugurated by Ienca and Andorno³⁵ tends to favor a conservative approach, seeking to adapt the existing framework of human rights through the evolutive reinterpretation of its provisions, the American school represented by the Neurorights Foundation pleads for a more radical approach, aimed at the express enshrinement of new rights within constitutional texts and within international instruments. This methodological divergence is not a purely technical one, but reflects different philosophical conceptions of the relationship between existing law and emerging technological challenges, having direct consequences upon the concrete strategies of regulation across the various jurisdictions.

4. Tensions and Convergences between the Transhumanist Project and the Protection of Neural Dignity

Reflection upon the relationships between transhumanism and neurorights cannot be complete without a systematic analysis of the structural tensions and the possible convergences between the two registers, since it is precisely within this space of mediation that there is being played out, today, the very meaning of the notion of human dignity in an age marked by unprecedented technological promises. The philosophical premises of the

³⁰ Fins, op.cit.

³¹ Bublitz, op.cit.

³² Gilbert, F., & Russo, I., Neurorights: The land of speculative ethics and alarming claims?, *AJOB Neuroscience* 15(2), 113–115, 2024.
<https://doi.org/10.1080/21507740.2024.2328244>

³³ Cornejo-Plaza et al., op.cit.

³⁴ Lighthart et al., op.cit.

³⁵ Ienca & Andorno, op.cit.

two orientations appear, on a first reading, irreconcilable: transhumanism postulates the radical self-determination of the individual over his own body and brain, pleading for a permissive order in which opportunities for enhancement are widely available; neurorights, on the contrary, articulate a protective logic, seeking to guarantee the mental integrity and the dignity of the person against abusive or non-consented neurotechnological intrusions. Nevertheless, a more attentive analysis reveals the existence of significant convergences which decisively nuance this apparent opposition. Both transhumanism and the neurorights movement share a commitment to individual autonomy and to informed consent as fundamental regulatory principles.

Bostrom ³⁶ emphasizes that any intervention pertaining to enhancement ought to remain a voluntary choice of the individual, in conformity with a personal set of values and aspirations. Cognitive liberty as formulated by Bublitz ³⁷ explicitly includes not only protection against non-consented interventions, but also the recognition of the liberty to have recourse to technologies for the enhancement of mental states. This dual valence (defensive and permissive) of cognitive liberty constitutes a junction between the two paradigms. A second zone of convergence concerns the question of equitable access to neural enhancement technologies. Both the transhumanist perspectives and the neurorights movement share the concern that the benefits of neurotechnologies might be monopolized by a restricted economic elite, thus generating novel forms of structural inequality.

Yuste et al. ³⁸ included the principle of equity in access to cognitive enhancement technologies, subsequently articulating it, within the proposal concerning neurorights, as the right to equitable access to mental enhancement. This convergence suggests that, far from opposing one another irreducibly, transhumanism and neurorights may engage in dialogue within a common framework grounded in the principles of distributive justice. At the same time, it is impossible not to observe also the structural tensions which subsist between the two paradigms: where radical transhumanism pleads for substantial cognitive transformations, neurorights raise objections concerning the risk of the dissolution of personal identity and of the fragmentation of the ontological cohesion of the person. This tension, beyond its apparently speculative aspect, has direct consequences for the manner in which irreversible interventions upon the brain will be regulated.

García-López, Muñoz and Andorno ³⁹ propose an integrative reading of these tensions, maintaining that the genuine challenge of neurorights does not consist in contesting individual autonomy, but in articulating a framework of responsibility which protects, at the same time, the person against himself, inasmuch as certain interventions might generate irreversible consequences for his capacity to exercise, subsequently, his autonomy. This reading opens a fertile horizon for contemporary bioethical reflection, since it invites the surmounting of the rigid dichotomy between autonomy and protection, proposing a paradigm grounded in temporal responsibility, which takes account of the fact that the person is not a punctual reality, but a diachronic reality, with interests which unfold across time.

This concern for the integrity of the person enters into dialogue with contemporary phenomenological reflection upon the lived body and upon subjective experience, developed within the Romanian literature ⁴⁰. The transcending of technological singularity cannot be conceived solely in quantitative terms - as an increase of cognitive capacities or as an extension of the duration of life - but imposes a qualitative reflection concerning the manner in which neurotechnological interventions transform the experience-of-self and the intersubjective relation. This phenomenological perspective, although less represented within the Anglo-Saxon debate concerning neurorights, offers conceptual instruments for articulating a complex theory of mental integrity, which is not reduced to its legal-formal dimension but includes also the phenomenological-existential dimension.

A particular case which illustrates the tensions between transhumanism and neurorights is that of brain-computer interfaces destined for cognitive enhancement. Gordon and Seth ⁴¹ examine the ethical, legal and scientific implications of these technologies, drawing attention to the fact that they raise fundamental questions concerning the nature of subjective consciousness, the frontiers of personal autonomy and the very meaning of

³⁶ Bostrom, (2005), op.cit.

³⁷ Bublitz, op.cit.

³⁸ Yuste et al., (2017), op.cit.

³⁹ García-López, E., Muñoz, J. M., & Andorno, R., Editorial: Neurorights and mental freedom: Emerging challenges to debates on human dignity and neurotechnologies, *Frontiers in Human Neuroscience* 15, 823570, 2021. <https://doi.org/10.3389/fnhum.2021.823570>

⁴⁰ Sandu & Vlad, op.cit.

⁴¹ Gordon & Seth, op.cit.

what it is to be human. The development of these technologies - whether for therapeutic purposes or for purposes of enhancement - calls for a rigorous prior ethical reflection, grounded in principles of prudence, transparency and responsibility distributed among the various categories of actors involved.

Examining the problematic of brain data, Susser and Cabrera ⁴² maintain that the efficacy of any regime of neurodata protection depends, in a decisive manner, on its capacity to integrate concerns regarding autonomy and dignity with those regarding distributive justice and equity in access. It is precisely for this reason that the purely defensive approach to neurorights is insufficient; it must be complemented by a positive dimension, capable of ensuring the broad access of the population to the legitimate benefits of neurotechnologies, under conditions of transparency, informed consent and effective public control over their development.

In this context, the UNESCO Recommendation on the Ethics of Neurotechnology, adopted in November 2025, offers an integrative conceptual model. The document articulates, on the one hand, a set of fundamental principles - human dignity, autonomy, justice, transparency, responsibility - and, on the other hand, a body of operational recommendations which address the complete life-cycle of neurotechnologies, from their research and development through to their withdrawal from the market. The integrative character of the Recommendation resides precisely in its capacity to mediate between the permissive logic of transhumanism - recognizing the transformative potential of neurotechnologies for the improvement of the human condition - and the protective logic of human rights, instituting procedural and substantive guarantees for the protection of mental integrity.

A particular aspect of this mediation concerns the question of the vulnerability of children and of future generations in relation to neurotechnologies, a question upon which both transhumanism and neurorights have formulated complex and, at times, contradictory positions. Whilst transhumanism maintains that parents ought to have, within reasonable limits, the right to choose enhancements for the children to be born ⁴³, the perspective of neurorights - as it is articulated particularly within the UNESCO Recommendation - insists upon the specific protection owed to the holistic development of the child and upon the limitation of the use of neurotechnologies to medical, therapeutic or other well-justified purposes. This tension reflects the differences of paradigm between the two registers and raises normative problems concerning the concrete regulation of these technologies at the level of public policies.

A third direction concerns the conceptualization of the mental space - as object of legal protection. The contemporary debate oscillates between an internalist perspective and an externalist perspective, grounded in the theory of the extended mind, which holds that cognitive processes unfold within the interaction between brain, body and the technological and social environment. This distinction has legal consequences, since a protection focused exclusively upon the brain risks missing the broader ensemble of practices and instruments with impact upon cognition - from everyday smart devices to the recommendation algorithms of digital platforms⁴⁴.

Consequently, a complete legal architecture will have to articulate the protection of neurodata with the general protection of the cognitive sphere, thereby avoiding both cerebral reductionism and the dilution of specific protections. From the ensemble of considerations presented above, it follows that the relationship between transhumanism and neurorights cannot be conceived in a purely disjunctive key, but imposes a reading capable of recognizing both the positions in which the two paradigms converge - around individual autonomy, informed consent and equity in access - and those in which they remain in tension - around mental integrity, psychological continuity and the ontological status of the posthuman person. This interpretation opens the perspective of a responsible posthumanist bioethics, capable of negotiating the relationship between the aspiration to the self-transcendence of the human being and the exigency of protecting dignity.

5. Conclusions

The enquiry proposed in the preceding pages has sought to examine the relationships between the transhumanist paradigm and the emergence of neurorights, within a historical context marked by the unprecedented acceleration of the convergence of neuroscience, biotechnology and artificial intelligence. Our

⁴² Susser, D., & Cabrera, L. Y., Brain data in context: Are new rights the way to mental and brain privacy?, *AJOB Neuroscience* 15(2), 122–133, 2024. <https://doi.org/10.1080/21507740.2023.2188275>

⁴³ Bostrom, (2005), *op.cit.*

⁴⁴ Susser & Cabrera, *op.cit.*

analysis has shown that, far from finding themselves in opposition, the two intellectual realities engage in dialogue at the level of a common preoccupation concerning the ontological and legal status of the human person in the post-biological era, opening a fertile horizon for contemporary bioethical and legal reflection.

The conclusion which emerges from our study is that the legal reconfiguration of contemporary man, as a subject simultaneously of the right to cognitive self-determination and of the duty to protect his mental integrity against illegitimate neurotechnological intrusions, calls for a new paradigm of bioethics — one which transcends the classical dichotomy between permission and prohibition, proposing an approach grounded in responsibility and prudence. This paradigm, founded upon the recognition of the human person as a diachronic reality whose interests unfold across time, offers conceptual instruments for mediating the tensions between the permissive logic of transhumanism and the protective logic of human rights. Legal experiences demonstrate that it is possible to articulate integrative normative frameworks, capable of recognizing both the transformative potential of neurotechnologies for the improvement of the human condition and the exigency of preserving the dignity and integrity of the person. Nevertheless, the criticisms formulated by specialists in neuroethics draw attention to the risks of rights inflation, of neuro-exceptionalism and of empirically unfounded ethical speculation, demonstrating that the road towards a balanced regulation of neurotechnologies still has considerable terrain to traverse.

Future research within the field will need, in our opinion, to concentrate upon three principal directions: in the first place, upon the elaboration of rigorous empirical methodologies for the concrete evaluation of the risks and benefits of existing and emerging neurotechnologies; in the second place, upon the articulation of national legal frameworks which transpose the recently adopted international principles in a manner adapted to the cultural, legal and institutional specificity of each jurisdiction; in the third place, upon the development of an integrative philosophical-anthropological reflection, which assumes the Romanian phenomenological contributions and places them in dialogue with the Anglo-Saxon tradition of bioethics and neuroethics, with a view to constructing a truly global interdisciplinary perspective. To these three directions there is added, of necessity, the question of the formation of professionals — both jurists and researchers in the field of neurosciences — capable of navigating with competence within this complex normative and ethical landscape, thereby ensuring the effective transposition of abstract principles into concrete institutional practices and into jurisprudential solutions appropriate to the emerging challenges of the neurotechnological age.

For the Romanian legal space, in particular, reflection upon neurorights represents a substantial challenge and, at the same time, a remarkable intellectual and institutional opportunity. Romania possesses, through its interdisciplinary philosophical tradition and through its European commitment, significant resources for contributing to the international debate concerning the responsible regulation of neurotechnologies, whether through participation in the transposition of the UNESCO Recommendation at the national level, or through the articulation of original doctrinal positions within legal and bioethical literature. It is precisely in this direction that the efforts of Romanian academic research ought to be oriented in the coming decade, since the stakes of the debate — namely, the very meaning of the human being and of his dignity in an age marked by unprecedented technological promises — extend far beyond the boundaries of a mere technical reflection, engaging the entire horizon of contemporary philosophical and legal thought.

In the final analysis, the present article invites the assumption of a responsible position in the face of neurotechnological challenges, one which recognizes both their transformative potential for the improvement of the human condition and the substantial risks they imply for the integrity of the person. Contemporary man finds himself, without the possibility of retreat, at an anthropological crossroads unprecedented in the history of the species, having to choose between an attitude of reactionary refusal of technological innovation, one of uncritical adherence to the promises of radical transhumanism, and one of prudent discernment, capable of selecting, in an informed and responsible manner, those neurotechnological applications which contribute effectively to human flourishing, eliminating those which imperil it. It is precisely this last path, that of prudent discernment, which appears to us to be the only one compatible with the classical exigency of the dignity of the human person — an exigency which neither the acceleration of the technological tempo nor the seduction of transhumanist promises can underline in a manner that exonerates it from its permanent actuality.

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