

# HUMAN DIGNITY AND NEURORIGHTS IN THE DIGITAL AGE

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## 1. INTRODUCTION

Some time ago, the expectation of mind invasion or manipulation of people by technological devices was only seen in movies and science fiction books. Examples included erasing people's memories in 'Men in Black,' modifying the behavior of criminals in 'Clockwork Orange,' and arresting people who are about to commit a crime in 'Minority Report,' all of which entertained and invited people to reflect on the future.

Today, the massive flow of data and advances in science, particularly in neurotechnologies and artificial intelligence, have made these concepts an emerging field that requires further study and regulation by the legal community. Neurorights are a new field of study, with a global research movement that has emerged and has been addressed in a pioneering way by scholars who study the intersection of Law and Neuroscience. Advanced technologies, such as brain-machine interfaces, wearable and implantable devices, and advanced algorithms, have made neurolaw an increasingly important field.

This article will define and classify neurorights to systematize the study of the theme, and these rights will be discussed in relation to the complex concept of human dignity. The first part will attempt to describe the evolution of studies and classifications of neurorights. The next topic will discuss existing and proposed regulations on neurorights, with a focus on the innovative Charter of Digital Rights underway in Spain. Lastly, this set of proposals will be discussed in relation to the concept of Human Dignity, which the authors argue is the foundation and guiding principle of neurorights. Overall, this article provides an introductory approach to the theme, with limitations, but aims to contribute to the ongoing discussion on neurorights.

## 2. EVOLUTION AND CLASSIFICATION OF THE NEURORIGHTS

Although neuroscience has been around for over 100 years, it has rapidly developed in the last two decades with the introduction of real-time brain imaging devices (GAZZANIGA, 2008). Today, the study of the brain and mind has resulted in several devices that have practical applications in medicine, marketing, and even law.

According to Francis X. Shen (SHEN, 2016), the relationship between Law and Neuroscience dates to that period. The article 'The Brain on the Stand,' published in 2007 in the New York Times Magazine (ROSEN, 2007), is a milestone for the area now known as Neurolaw in the USA. The article discussed the use of forensic evidence based on the proper functioning of the brain, a topic that is related to neuroscience.

Criminal Law appears to be the first and most explored point of contact between Neuroscience and Law, so much so that in 2009, Jan Christoph Bublitz and Reinhard Merkel, two German authors from the criminal area, presented a paper

in which they discussed improvements and interventions in the brain in the context of the right to autonomy and authenticity (BUBLITZ; MERKEL, 2009). They were concerned with both direct interventions, such as pharmaceuticals, and indirect interventions, such as hypnosis and subliminal advertising. They questioned the 'illegitimate influence' of third parties as a factor to be considered in trials, which led the researchers to also consider the rights of the person under influence and argue that their rights had been violated by external interventions.

Another important article from 2012 (FARAHANY, 2012) addressed the advances of neuroscience in the courts and discussed the need for a new taxonomy for the principle of non-self-incrimination. Nita Farahany, the author of the article, argued that the protection of this principle usually refers to the protection of what people say and suggested that 'a society interested in robust cognitive freedom would probably wish to protect its citizens from the unwarranted detection of automatic, memorialized, proffered evidence in the brain'. In this sense, Farahany questioned the risk of the judiciary misjudging the issue and suggested the need for a standard, a 'Neuroscience Information Technology Act,' that would protect mental privacy and cognitive freedom. This document was important in giving a name to these rights and served as a milestone for the emergence of a movement in favor of neuro-rights.

In 2014, Bublitz and Merkel, now well-known authors in the consolidating field of Neurolaw, innovated by discussing new issues and inquiring why:

*'[...] a multibillion-dollar industry with the sole and explicit purpose of studying and influencing decision-making proudly and successfully applies its findings to people, changing their desires, altering their behavior, inducing them to enter contracts while lying for the same purpose could land those doing it in prison?'* (BUBLITZ; MERKE, 2014)

This is an essential question for the article, which goes beyond criminal law to question the need to protect the rights of people who may be manipulated by industries that study and influence decision-making, as represented today by social media. The question demonstrates a new direction of research, which shifts the focus from the concern with the judicial system and the guarantees inherent to it to the person and their neurorights violated in everyday life.

Also in this 2014 paper, another neuro-right was outlined: 'the human right to mental self-determination', which, according to the authors, should protect the mind from psychic 'injury' just as the right to bodily injury already protects people's bodies. In the authors' words:

*'The scope of the right is twofold: in its negative dimension, it protects freedom from severe interference by the state and third parties by establishing a defensive wall against unwanted intrusions through factual interventions and normative obligations (e.g. legal provisions regulating what is going on or in your mind). It also grants what we can call positive rights, freedom to self-determine your inner realm, e.g. the content of your thoughts, consciousness, or any other mental phenomena. So, it affects, for example, current debates about neuro improvements. But here, we should leave the positive dimension aside and inquire about the freedom of factual interventions.'* (BUBLITZ; MERKE, 2014)

Another influential article on the topic was published in 2017 by Marcello Ienca and Roberto Andorno, with the name 'Towards new human rights in the age of neuroscience and neurotechnology' (IENCA; ANDORNO, 2017). This study describes new neural technologies and devices, such as advances in Human Electroencephalography (EEG), functional magnetic resonance imaging (fMRI), brain-computer interfaces (BCIs), and transcranial direct current stimulation (TDCS) devices, which are classified as generalized neurotechnology. The article also outlines some Neurorights, which can be systematized as follows:

- Cognitive Freedom or mental determination, as proposed by Bublitz and Merkel;
- Right to mental privacy, which would protect brain waves not only as data but also as data generators or information sources, whether consciously or not;
- Right to mental integrity, which refers to the unauthorized alteration of a person's neural computation that results in harm; and
- Right to psychological continuity, which tends to preserve personal identity and the coherence of an individual's behavior against non-consensual modification by third parties.

The legal goods that form the basis of these rights, namely privacy, free choice, and integrity, are important issues that are directly related to the dignity of the person. These assets are threatened today by a challenging technology with great potential for transformation: Artificial Intelligence (AI). As will be explained below, AI poses a significant risk to these rights.

The aforementioned article by Francis Shen, 'Law and Neuroscience 2.0,' also discussed this disagreement, highlighting it as one of the most important perspectives for studies relating to Neuroscience and Law. In fact, this topic is of interest to neurolaw scholars not only for the purpose of addressing the rights of people whose dignity is affected by artificial intelligence systems but also for discussing these systems as a form of intelligence and understanding the neural networks they form.

Rights related to the neuroscientific effects of AI are now a concern of Rafael Yuste and his group of scholars at Columbia University. Yuste is a neurobiologist who played a role in the creation of the Brain Research Through Advancing Innovative Neurotechnologies Initiative (BRAIN Initiative) in the United States in 2013, and he became known for the NeuroRights Initiative (NRI), which emerged in 2017 and published an influential article in the journal Nature that same year. In the article, titled 'Four ethical priorities for neurotechnologies and AI' (YUSTE; GOERING, 2017), Yuste and his more than 20 co-authors proposed the four priorities that led to the current development of neurorights.

The following priorities were indicated in the Article: (a) privacy and consent, (b) agency and identity, (c) augmentation, and (d) biases.

Privacy aims to protect the data and information generated by brain activity, which is commonly known as neural data. This data can be accessed through neurotechnology, including non-invasive methods such as the analysis of typing patterns. Neural data provides valuable information that, without proper regulation, could potentially be used for manipulation, such as targeted advertising or other interests.

It is important to note that the authors suggest that transparency is necessary in processing and using new techniques and technologies, such as blockchain, to manage neural data. This is because these technologies can provide a secure and transparent way to store and track data usage, ensuring that the data is being used appropriately and that the individuals' rights are being respected. By implementing these measures, the authors hope to ensure that individuals have greater control over their neural data and that it is being used in a way that is ethical and respects their privacy rights.

Agency, which refers to the ability to intentionally influence one's own functioning and life circumstances (Bandura, 2006), can be seen as the capacity for human action, which is constantly influenced by one's surroundings. This concept moves beyond old theories of free will, which ignore factors such as human interaction and the environment.

In his article, Albert Bandura discusses four components of human agency: intentionality, premeditation, autoreactivity (or self-regulation), and self-reflexivity. According to Bandura, people form intentions that include plans of action and strategies for carrying them out. They set goals and anticipate likely outcomes to guide and motivate their efforts, have the ability to construct appropriate courses of action, and reflect on themselves and the appropriateness of their thoughts and actions.

Today, neural technologies and devices can interfere with these characteristics. Artificial intelligence (AI) can also manipulate the agency capacity of large groups by processing neural data from a few people. AI can manipulate intentionality, hinder or distort the capacity for premeditation and self-reactivity, and distort the feedback and perceptions necessary for self-reflexivity.

The second ethical concern related to brain-machine interfaces is identity, as they can corrupt people's view of themselves. For example, selective bombardment by social networks and the use of food delivery apps based on data about people's behavior, desires, and intimacy can have this effect. Identity here assumes the same mental integrity as agency, which refers to cognitive freedom or mental self-determination mentioned by other authors.

To mitigate these risks, Rafael Yuste and his collaborators suggest an International Declaration on Neurorights and an International Convention with greater effectiveness. They criticize the current consent forms, which only address physical risks, and propose implementing education about the possible cognitive and emotional effects of neurotechnologies in a global document.

Neural enhancements are perhaps the most direct effect of neural equipment and devices. The questions raised above deal with the potentially harmful repercussions of the application of neuroscience, while the right to equitable access to neuro improvements deals with access to potentially positive effects. Some neural technologies are already used to treat serious diseases, and there is ongoing research for more everyday use. However, there is also the possibility that neural enhancements could create super soldiers, which may be seductive for some countries and even become necessary for the defense of others if the issue is not regulated in advance.

Yuste's article defends the idea that neurotechnologies will necessarily be used, either because cultural differences will allow a greater or lesser degree of privacy or because they could simply become clandestine if banned. Again, the proposal is to regulate the issue, preferably through a global proposal that respects the peculiarities of each country.

The last issue addressed in the famous Nature article is the biases caused by the processing of big data through artificial intelligence systems. The text highlights the risks of bias against historically minority groups, as well as distortions regarding gender and race. It cites examples of problems generated by algorithms used for hiring people, which reflected biases against women, and algorithms used in criminal justice cases that harmed black people.

Moreover, the article suggests that these biases can be included in neurotechnological devices that eventually use artificial intelligence. The existence of biases is a broad disavowal posed by new technologies that use massive data, especially artificial intelligence. This issue was already being addressed when the regulatory wave of AI and neurorights began.

In 2019, the Committee of Ministers of the Council of Europe captured well the riches of AI use by calling '[...] attention to the growing threat to the right of human beings to form opinions and make decisions independently of automated systems emanating from advanced digital technologies' (COMMITTEE OF MINISTERS OF THE COUNCIL OF EUROPE, 2019). According to the Committee:

*'Fine-grained, subconscious and personalized levels of algorithmic persuasion can have significant effects on individuals' cognitive autonomy and their right to form opinions and make independent decisions. These effects remain underexplored but cannot be underestimated.'* (COMMITTEE OF MINISTERS OF THE COUNCIL OF EUROPE, 2019)

It is important to note that AI, when used to influence decisions, becomes a non-invasive method of mind manipulation, which can be considered a threat to cognitive freedom and mental privacy. Some examples of this manipulation, which can occur both with the use of neural data and with the use of data that is typically collected in social networks, are described by Shiner and O'Callaghan in their 2021 article:

*'[...] This data can be analyzed by machine-learning tools, making it possible to infer detailed and potentially intimate information about individuals. This data can then be used to micro-direct and optimize processes to govern online user experiences that differ based on their evaluation of their data. The extraction of insights reveals the things that are on our minds, whether through our history on search engines, our engagement with certain news stories, or the interactions we have with other users on social media platforms.*

*Furthermore, our choices can be predicted, and our emotions, opinions and behaviors can be influenced by these media. From here, benign choice architecture can become coercive; consider, for example, the phenomenon of "hypernudging" which is a label for algorithmic decision-guiding techniques that channel user attention and decision-making in directions preferred by the digital "choice architect". The sheer amount of information available online can also make some knowledge inaccessible, depending on the ranking of information; think of YouTube's search and recommendation algorithms, which have become potential engines of misinformation. This not only becomes a barrier to accessing factual information, but also fuels misinformation and disinformation presented as reliable information. [...]*

*In addition to hypernudgism, which modulates our choices and decisions, there is an element of surveillance through large-scale data collection. The theory of "chilling effects" has emerged from assumptions that state (and non-state) actions can deter people from exercising their legal freedoms or engaging in legitimate activities. Internet users may refrain from engaging in certain legal activities online because they fear some sort of legal reprisal or feel social pressure to conform to avoid being labeled as deviant. Even if someone is not aware of being watched, but is aware of the possibility of being watched, the panopticon effect can arise, whereby behavior is inhibited for fear of being watched at any time. Here, then, the freedom to think online is curtailed, albeit by the self. The full exercise of autonomy is stifled, and thoughts are not even explored, much less expressed.'* (SHINER; O'CALLAGHAN, 2021)

The topics mentioned, such as hypernudging, the Chilling Effect, and the panopticon effect, are examples of new subjects at the frontier of the most established areas of law. Hypernudging is a version of nudging, a manipulation based on behavioral economics that is discussed in both Consumer Law and Constitutional Law, and also at the interface of Political Science and Law. Hypernudging adds the use of data and artificial intelligence to micro-direct people's actions, making it a novelty in the field and bringing it closer to the new discussion on neurolaw. The use of sophisticated mechanisms and methods to indirectly read minds infringes upon values such as cognitive freedom, mental privacy, mental integrity, psychological continuity, and identity.

The inhibiting effects of new technologies and technological surveillance also join this neuro-legal discussion. It is interesting to consider what defense people will have in this field if not for neurorights.

An evident issue in this field stems from profiling, as described by Büchi, Fosch-Villaronga, Lutz, Tamò-Larrieux, Velidi and Viljoen (2020). Profiling is the systematic and purposeful recording and classification of data related to individuals, which is compiled for the purpose of classification and clustering into categories. The authors highlight two consequences of this conduct, which are so common and normalized today that they demonstrate the infringement of proposed neurorights: customization of behavior and behavioral manipulation.

Customization is the result of indirect pressure for conformity to supposed standards of behavior. When the government draws up profiles, people may tend to fit one model or another, and the same can happen when category-based private rankings (such as insurance companies, banks, and health companies) push human beings into certain groups. This customization also occurs in politics and is a risk to democracy, as people may stop producing and seeking information that they would share if they were not being monitored due to concerns about being classified as too radical or too exempt.

Similar to customization are the effects of de-individualization and the creation of stereotypes. Schermer (2013) was already addressing these issues arising from profiling even before the expansion of Artificial Intelligence. Schermer explained that profiling can lead to the creation of stereotypes and de-individualization, which can have negative consequences for individuals and society.

*'In many cases, profiling is largely related to classification and therefore there is a risk that people will be judged based on group characteristics rather than their own individual characteristics and merits (Vedder 1999). Group profiles usually contain statistics, and therefore the characteristics of group profiles may be valid for the group and for individuals as members of that group, although not for individuals as such. For example, people who live in a particular neighborhood may have a 20% higher chance of defaulting than the average person. This characteristic holds for the group (i.e. people who live in that neighborhood), for the individuals as members of that group (i.e. randomly chosen people who live in the neighborhood), but not necessarily for the individuals as such (i.e. for John, Mary, and William who all live in the same neighborhood). When individuals are judged by group characteristics that they do not possess as individuals, this can affect them negatively. Not only can group profiling have direct negative effects on individuals, but it can also lead to stigmatization of group members. Furthermore, the division into groups can harm social cohesion. When group profiles, whether correct or not, become public knowledge, people may begin to treat each other accordingly.*

*For example, when people begin to believe that individuals from a certain neighborhood default on their loans more often, they may conclude that these individuals live in a "bad" neighborhood.*

*Closely related to the risk of deindividualization and stigmatization is stereotyping. A profile casts us based on predetermined categories (e.g. "valuable customer," "young urban professional", but also "security risk" or "dubious debtor"). For a profiling exercise to remain effective and efficient, there are a finite number of general categories. These profiles are, almost by definition, incapable of accurately reflecting all the nuances of our personality. As such, the profile we fit into will become a stereotype based on which we are judged. Furthermore, these profiles can also make it more difficult for a person to "escape" the stereotype.' (SCHERMER, 2013)*

The author also pointed out other problems of profiling, such as informational asymmetry, loss of accuracy, potential abuse (fraud), and discrimination. These issues are aggravated today by the explosion of big data and the widespread use of artificial intelligence that creates and uses clusters or groupings of profiles in proportions previously impossible. External management of people's identity can directly induce behaviors that adhere to very problematic behaviors within the 'communities' that identify themselves or are induced to identify themselves on social networks. A disturbing 2019 study indicates that exposure to self-harm on Instagram was associated with suicidal ideation, self-harm, and

emotional disturbance, even controlling for exposure to other sources with similar content (ARENDR; SCHERR; ROMER, 2019). This situation creates a ‘contagion in vulnerable users’ as behavior is standardized through shared images.

Behavioral manipulation differs from persuasion, which is explicit, and coercion, which explicitly confronts individual freedoms. Manipulation is a covert subversion of people’s decision-making power that exploits their cognitive or affective weaknesses. In the words of Büchi, Moritz et al (2020), quoting SUSSER (2019):

*‘Manipulation, in the digital world, not only has a technical component – namely, the ability to tailor content to individuals based on collected data traces through the use of advanced data analysis tools – but also a psychological component through the exploitation of psychological vulnerabilities.’ (BÜCHI, MORITZ ET AL; 2020)*

This manipulation is a subtle form of control that affects the ability to choose, or agency, as already mentioned. The expansion of social media, the use of big data, profiling, and AI creates an unprecedented level of digital mediation, and this medium – the data-driven, AI-managed electronic systems – is not neutral. Whether based on commercial, electoral, or even state domination interests, these systems can seek to subvert people’s behavior and their cognitive freedom.

In addition to these four ethical concerns, Rafael Yuste’s influential group included a new category dealing specifically with identity in the article ‘It’s time for neurorights.’ In this text, written in partnership with a leading human rights lawyer and a collaborator, an updated list of neurorights was created:

*‘The proposed neurorights include (1) the right to identity, or the ability to control both physical and mental integrity; (2) the right to act [agency], or the freedom of thought and free will to choose one’s own actions; (3) the right to mental privacy, or the ability to keep one’s thoughts protected from disclosure; (4) the right to fair access to mental enhancement, or the ability to ensure that the benefits of improvements in sensory and mental capacity through neurotechnology are fairly distributed in the population; and (5) the right to protection from algorithmic bias, or the ability to ensure that technologies do not introduce bias.’ (YUSTE; GENSER; HERRMANN, 2021)*

In the same, Marcello Ienca released an influential article describing a list of neurorights that are derived from four main categories: privacy, freedom of thought, mental integrity, and personhood. He then classified these neurorights into subcategories such as informational self-determination, mental privacy, cognitive liberty, and freedom from bias and discrimination. The proposed list aims to protect individual’s rights and values in the age of neuroscience and emerging neurotechnologies. The figure below, taken from the article, describes the author’s full classification:

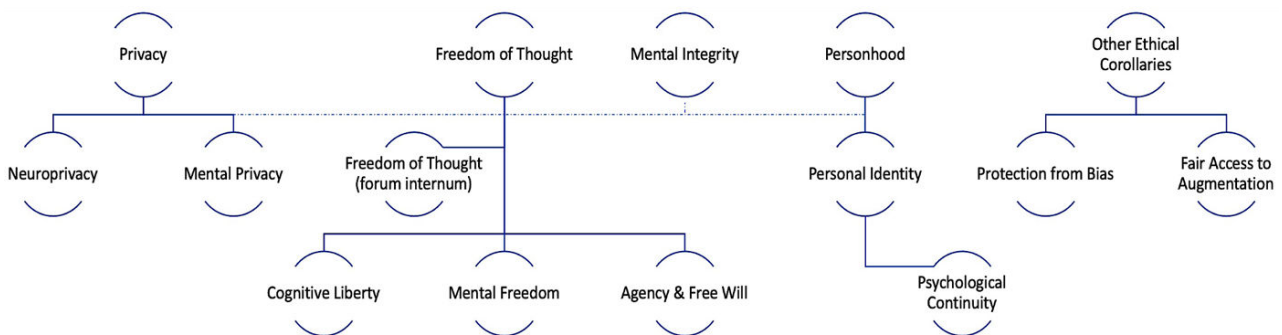


Figure 1: A taxonomy of neurorights. Source: IENCA, 2021

The well-consolidated list above highlights the importance of the right to protection against algorithmic biases. According to Ienca, the ‘candidate’ neurolaw has been and can be defended in domains unrelated to the mental and neurocognitive sphere, such as fintech, web applications, chatbots, and automation. This represents one of the new frontiers for neurorights, an emerging area where new rights like the right to reasonable inferences related to mental identity can be included.

This right to reasonable inferences, which goes beyond data protection, is well contextualized and described by Sandra Wachter and Brent Mittelstadt:

*‘To explain why this new right is essential, it is first necessary to establish the source of risks in Big Data analytics and algorithmic decision-making systems. Automated decision-making, profiling, and related machine learning techniques represent new opportunities for private decision-making-invasive, discriminatory, and biased decision-making based on inferential analysis. Modern data analytics has access to unprecedented volumes and varieties of interconnected data to assess the behaviors, preferences, and private lives of individuals. Inferences can be used to nudge and manipulate us. The range of potential victims of such harm is diversified by the focus in modern data analytics on finding small but meaningful connections between individuals, and building group profiles from personal, third party, and anonymized data’. (WACHTER; MITTELSTADT, 2019).*

Perhaps the most current of the neurorights, the right to reasonable inferences represents a new category that arises from the use of people’s data, which is already exposed voluntarily or involuntarily in their interactions with social, entertainment, and work networks, among others. Although the inferences obtained through new techniques are not the result of devices implanted in people’s brains, they have immense potential to interfere not only with identity but also, when added to marketing strategies, with the autonomy and agency of human beings.

Since 2007, neurorights have been consolidating as a new set of human rights, which today are already outlined and being implemented by some countries.

### **3. CHALLENGES AND PROPOSALS FOR THE IMPLEMENTATION OF THE NEURORIGHTS**

The Organization for Economic Cooperation and Development (OECD) summarized in a recommendation on the responsible use of neurotechnologies the context in which the initial ethical concerns, which have now become regulatory concerns, have given rise to the need for neurorights. According to the OECD:

*‘Neurotechnology is redefining what is possible in terms of monitoring and intervention in clinical and non-clinical settings, with great promise for improving mental health, well-being, and productivity. Led by major national and international initiatives in brain science and fueled by clear medical need, research in both the public and private sectors has made considerable advances. In particular, the convergence between neuroscience, engineering, digitization, and artificial intelligence (AI) is becoming a key driver of innovation and will disrupt existing practices as well as traditional boundaries between medical therapies and consumer markets.*

*At the same time, neurotechnology raises several unique ethical, legal, and social issues that potential commercial models will have to address. These issues include data (brain) privacy issues, the prospects for human enhancement, the regulation and commercialization of direct-to-consumer devices, the vulnerability of cognitive patterns to commercial or political manipulation, and other inequities in use and access. Governance issues around neurotechnology affect the entire innovation pipeline, from fundamental brain research, cognitive neuroscience, and other brain-inspired sciences to commercialization and marketing issues.’ (OECD, 2019)*

The ethical issues and rights classifications covered in the previous topic, especially the five neurorights proposed by the Columbia University research group, largely address the challenges described above. This article adds to the proposal the need to study not only biases but also manipulations and profiling, which directly interfere with people’s identity and agency in the 21st century. This proposal is, in fact, embedded in the group’s initial discussion in the Nature magazine article.

The combined use of personal data and AI creates bigger problems than just discriminatory biases. It is also characterized as a neuro-tool that affects privacy, the ability to choose, and the very identity of human beings exposed to social networks and other forms of mediation between person and the real world (such as advertising, government propaganda, and electoral propaganda). Therefore, the harmful effects of the use of AI and Big Data in the context of neurorights cannot be reduced only to biases and discrimination.

On the normative level, there are recent specific proposals, but it is important to note that other norms and principles historically deal with the defense of cognitive freedom, mental privacy, and freedom of action.

In Brazil, the principle of non-self-incrimination is an example of a theme that, despite having been dealt with for years in its own field of criminal law, could be analyzed in the light of neurorights. Discussions about the limits of habeas corpus have recently brought renewed attention to the subject. The decision of the Federal Supreme Court in the motion for clarification in HC 204422 exposed a gap in understanding what would be the rights of the deponent/accused and what would be the parameters to control excesses, such as the abusive use of non-auto incrimination, which hinders the truth-seeking process against third parties. In the decision, Justice Judge Luiz Fux stated:

*'[...] Indeed, the right against self-incrimination has a constitutional basis, establishing a subjective right to be exercised by any citizen, not to produce evidence against oneself. Obviously, the first judgment about the content of this right belongs to its own holder, who is responsible for the initial evaluation of the impacts of producing certain information on their own legal sphere. In this sense, the holder of the right is the one who expresses the first manifestation of will regarding the exercise of the right against self-incrimination. On the other hand, no fundamental right is absolute, and even less can it be exercised beyond its constitutional purposes. At this point, the Parliamentary Inquiry Commissions, as authorities invested with judicial powers, have the power and duty to analyze, in light of each specific case, the occurrence of an alleged abuse of the exercise of the right against self-incrimination. [...]' (SUPREME FEDERAL COURT, 2021)*

This description highlights how undefined the boundary of the zone of self-defense of the accused can be and how difficult it can be to detect possible abuses. However, the issue could be solved through the proposal presented in the article by Nita Farahany (2012), which focuses on the need for a clear definition of the deponent/accused's neurorights. In short, the discussion of non-self-incrimination must include mental privacy, even without considering neurotechnological apparatus, but already from the perspective of neurorights.

In consumer law, there is concern that the supplier can take advantage of psychological weaknesses in the consumer to benefit from the informational asymmetry. This manipulation is a kind of 'version 0.1' of the current algorithmic manipulation. Unfair terms are considered unfair because they exploit cognitive limitations, as does irregular advertising. Furthermore, in addition to informational asymmetry, Consumer Law has always been concerned with the psychological vulnerability of consumers.

More recently, the issue of bullying – as dealt with in Law 13.185/2015 – refers to 'physical or psychological violence in acts of intimidation, humiliation, or discrimination', i.e. systematic bullying. At that time, a concern with people's mental integrity could be observed, even when the bullying occurred in the online world (cyberbullying).

The 2021 legislation on over-indebtedness, Law 14.181/2021, which is also a consumerist issue, highlights another aspect of the violation of cognitive freedom. Art. 54-C, included in the Consumer Protection Code, prohibits credit advertising that may 'conceal or make it difficult to understand' for people, as well as advertising that 'harasses or pressures the consumer to contract'. In these cases, cognitive freedom, especially that of the most vulnerable, such as the sick and the elderly, is the actual protected legal right. The innovation was necessary because here there is no coercion in the classical sense or even explicit persuasion; instead, there is manipulation through advertising designed to subvert the power of choice.

This concern with the defense of psychological weaknesses is already close to the theory of neurorights, which are existing rights that could be considered as the first stage of concern for mental privacy (the principle of non-self-incrimination); for mental integrity (the anti-bullying rule); and for cognitive freedom (consumer law and against over-indebtedness). Perhaps they are the first generation of neurorights.

In the international order this concern also existed, in the Universal Declaration of Human Rights, two articles indicate the need for the protection of neurorights:

*'Article 18*

*Everyone has the right to freedom of thought, conscience, and religion; this right includes freedom to change his religion or belief, and freedom, either publicly or privately, to manifest his religion or belief in teaching, practice, or worship.  
[...]*

*Article 22*

*Everyone, as a member of society, has the right to social security, to the realization by national effort and by international cooperation and in accordance with the organization and resources of each State of the economic, social, and cultural rights indispensable for his dignity and the free development of his personality.'*



Freedom of conscience, dignity, and the free development of personality are some of the first-generation neurorights. However, more specific rights are now required. The phenomena identified in the OECD citation and this research paper, such as neural devices and technologies, artificial intelligence, and massive data collection, particularly on the internet and social media, require rights that directly protect psychic health, the mind, and neural data.

Protecting neural data and other personal data that could reveal weaknesses and aspects of individuals' behavior is necessary to safeguard mental or psychic integrity in this new scenario. In this sense, the Brazilian proposal for a contemporary and specific treatment of the subject, included in Bill 1.229/2021, initially deals with the protection of neural data within the General Law of Data Protection, systematizing the protection of people's digital body and mind.

The Brazilian proposal introduces some interesting concepts and proposes a basic definition for neural data: 'any information obtained, directly or indirectly, from the activity of the central nervous system, and whose access is gained through invasive or non-invasive brain-computer interfaces' (proposed for Art. 5, XX). Additionally, the proposal suggests that:

*'The request for consent for the processing of neural data must indicate, clearly and prominently, the possible physical, cognitive and emotional effects of its application, the rights of the holder and the duties of the controller and operator, the contraindications as well as the rules on privacy and the information security measures adopted.'* (Proposed Article 13-D)

The text is good, although it does not explicitly address the use of data extracted through web browsing. However, even without explicit rules, it is possible to extend the proposed text to AI systems and social network data, since 'non-invasive interfaces' and 'indirect' obtaining of data are covered. This way, the new rules would be appropriate to provide basic protection for even the most current neurorights.

An example of existing rules is the Spanish Digital Rights Charter, which included a chapter as follows:

*'XXVI*

*Digital rights in the use of neurotechnologies*

*1. The conditions, limits and safeguards for the implantation and use in humans of neurotechnologies shall be regulated by law, for the purpose of:*

- a) Preserving individual identity as a person's sense of self.*
- b) Guaranteeing individual self-determination, sovereignty, and freedom in decision-making.*
- c) Safeguarding the confidentiality and security of data obtained or regarding their brain processes, and full control over them.*
- d) Regulating the use of human-machine interfaces which could affect physical or psychological integrity.*
- e) Ensuring that decisions and processes based on neurotechnologies are not conditioned by the provision of data, programs, or information that are incomplete, undesired, unknown, or biased, or by interference with neuronal connections.*

*2. To guarantee the dignity of the person, equality, and non-discrimination, in accordance, when appropriate, with international treaties and conventions, the law shall regulate those situations and conditions for the use of neurotechnologies which, beyond their therapeutic application, are aimed at mental augmentation or the stimulation or enhancement of human capabilities.'*

This document, discussed since 2020, should enter into force by 2025 and contains, besides the explicit reference to neuro-rights, articles that deal specifically with digital identity and other related topics such as anonymity and equality. In addition, some rules about the use of artificial intelligence will be very relevant for the defense of neurorights related to the use of this tool. There are rules about non-discrimination, transparency, and the right not to be subjected to algorithmic decisions or to challenge them when they occur. Finally, the Spanish Charter for Digital Rights also addresses protection against manipulation, which is crucial for safeguarding neurorights:

*'XXIII*

*Rights as regards artificial intelligence*

*[...]*

*4. The use of AI systems aimed at psychologically manipulating or disturbing persons, in any aspect affecting fundamental rights, is prohibited.'*

All these proposals are balanced, today, between two legal approaches on the subject: one in the sense that it is enough to update already existing norms and the other, apparently more adequate, that proposes new human rights in the face of challenges to mental and psychic integrity, as well as to the identity and autonomy of individuals. About this debate, more specifically about mental self-determination, Nora Hertz explains that:

*‘The process of legal recognition of new human rights is complex, and the introduction of new human rights is not per se more advantageous than the interpretation of existing human rights. With regard to the human right to freedom of thought and the proposed human right to mental self-determination, it is more convincing to evolve the interpretation of the former, e.g. by a general comment, protocol or soft law document, than to introduce a new human right to mental self-determination. However, the introduction and evolution of human rights are intertwined, and the introduction of a new human right to mental self-determination, e.g. in a soft law declaration, would probably also evolve the interpretation of the right to freedom of thought.’ (HERTZ, 2023)*

Therefore, there are proposals to improve existing norms, ranging from renewed judicial interpretations to the creation of new, internationally recognized human rights. While it is necessary to identify the effects and discuss the actual possibility of implementing each suggestion, the clear goal should be to protect these new and updated rights, currently treated as neurorights.

#### **4. FINAL CONSIDERATIONS**

The dignified existence of the human being is a basic principle of many modern constitutions. To exist in a legally dignified way is, on the one hand, to always be a person and never an object of relationships and, on the other hand, to have minimum socioeconomic conditions for living.

Studies on neurorights point out that human dignity is being challenged by several new techniques, invasive or not, that may hinder the exercise of human autonomy and agency, reducing the person to an object, without desire or with externally induced desires. A robot from old movies, whose thoughts are mere unfolding’s of pre-programmed commands.

New knowledge and existing proposals for solutions are important tools to address these issues and even new challenges posed by technologies based on big data and artificial intelligence.

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