



## Recensión

### El cerebro del futuro

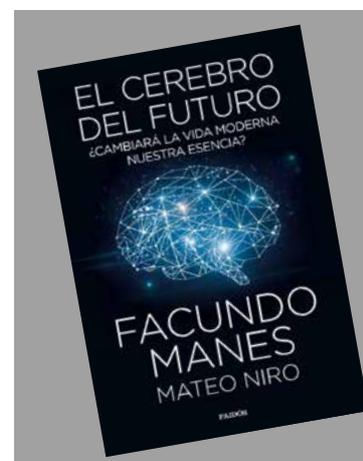
#### ¿Cambiará la vida moderna nuestra esencia?

Facundo Manes y Mateo Niro

Paidós

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In this review, I will summarize the contents of the book *El Cerebro del Futuro* (The Brain of the Future) and put them in the context of neurorights (see Ienca & Andorno, 2017; Columbia University, 2021a; Borbón et al., 2021; García-López et al., 2022).

The “dilemma of control,” also known as the “Collingridge dilemma,” states that

[...] attempting to control a technology is difficult, and not rarely impossible, because during its early stages, when it can be controlled, not enough can be known about its harmful social consequences to warrant controlling its development; but by the time these consequences are apparent, control has become costly and slow. (Collingridge, 1980, p. 19)

When applied to the case of the development of neurotechnology and artificial intelligence (AI), this dilemma is directly related to the following question: *Do we need neurorights*, that is, “ethical, legal, social or natural principles of freedom or entitlement related to a person’s cerebral and mental domain” (Ienca, 2021)? Although *El Cerebro del Futuro* (Manes & Niro, 2019) does not specifically deal with the issue of neurorights, it is an accessible way for the general public to become informed about current trends in neuroscience and, for this reason, to be aware of why such development could require the implementation of these rights.

Through the seven chapters of this book – the authors’ third book as coauthors after *Usar el Cerebro* (Using the Brain) (Manes & Niro, 2015) and *El Cerebro Argentino* (The Argentinian Brain) (Manes & Niro, 2016) – Manes and Niro cover various aspects related to current research in neuroscience, its applications in different fields, and its future perspectives. Chapter 2 and Chapter 3 are devoted to neurological, psychiatric, and psychological disorders, such as amnesia, Alzheimer’s disease, posterior cortical atrophy, alien hand syndrome, visual agnosia, synesthesia, Tourette’s syndrome, attention-deficit/hyperactivity disorder, schizophrenia, aphasia, addiction to gambling, multiple sclerosis, Parkinson’s disease, and epilepsy, among many others. Chapter 5 is about brain development in babies. Chapter 6 emphasizes how lifestyles, social interactions, and daily-life activities, including the use of emerging technologies, impact the health of our brain and our well-being. Chapter 7 focuses on several important issues with social and policy-making implications that can benefit from being informed by neuroscience, including poverty, language gap in children, terrorism, social isolation, and learning. Interestingly, a section of this chapter is dedicated to the relationship between neuroscience and law, i.e., neurolaw (see also Muñoz et al., 2020), in which the authors affirm that



[...] it is up to the law and justice to validate what discoveries of neurosciences and what inventions of the most groundbreaking technologies will have to be applied to society – and to what extent – always *taking into account the fundamental rights of people*<sup>1</sup>. (p. 293)

Nevertheless, Chapter 1 and Chapter 4 are the most interesting in neuroethical terms. These chapters are dedicated to the future perspectives of technological evolution in neuroscience, which are highly relevant for understanding the debates that are currently taking place in the field of neuroethics, including those related to neurorights. The following topics are explored in these chapters:

- AI vs. human intelligence
- Computational explanations of the human brain (and their limitations)
- Neuroethics and international brain initiatives
- Neurotechnological expansion of human capacities related to sensation and perception
- The so-called “mind reading” through the study of brain activity
- Brain-computer interfaces (BCIs) and brain-brain interfaces (BBIs)
- Digital immortality (i.e., transferring our minds to computers)
- Studies of dream content
- Pharmacological neuroenhancement
- Anatomical evolution of the human brain (e.g., in its size)
- Robotic exoskeletons for paraplegics
- Optogenetics
- Use of emerging technologies for early diagnosis and treatment of mental disorders
- Cutting-edge research on Alzheimer’s disease
- Use of brain imaging to communicate with patients in a vegetative state
- The gut-brain axis
- Brain activity underlying hypnotic states

A positive contribution of this book is that it avoids perpetuating the mereological fallacy and the reductionist approach to neuroscience in favor of a biopsychosocial approach. As the authors state: “Our brain is not isolated from the outside world; on the contrary, it is part of a body that develops and matures in a specific context, interacting with social beings and inanimate objects” (p. 39); for this reason, “psychology, philosophy, biology, physics, mathematics, social sciences, and medicine, among many other disciplines, have begun to collaborate in the study of the brain” (p. 17). Similarly, neurorights should not be interpreted as specific *rights for the human brain*, but as *rights for the human being* as a whole (although specifically related to the human brain).

As previously mentioned, although this book does not directly deal with neurorights, it contributes to deepening the understanding of its importance and eventual need. The book is subtitled: “Will modern life change our essence?” In part, that is precisely what neurorights care about. Because the first normative initiatives on neurorights were carried out in Spanish-speaking countries – i.e., Chile and Spain (see Columbia University,

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1 Italics are mine.



2021b, 2021c) – the fact that this book is originally written in Spanish will be of special interest to the citizens of these countries. As such, this book will help them understand the fundamentals and concerns underlying these pioneering legal steps.

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## References

- Borbón, D. A., Borbón, L. F. & León, M. A. (2021). Neuroderecho al acceso equitativo a tecnologías de mejora: Análisis desde el posthumanismo, el derecho y la bioética. *Revista Iberoamericana de Bioética*, (16), 1-15. <https://doi.org/10.14422/rib.i16.y2021.006>
- Collingridge, D. (1980). *The social control of technology*. Frances Pinter.
- Columbia University. (2021a). *NeuroRights Initiative*. <https://nri.ntc.columbia.edu/>
- Columbia University. (2021b). Chile, the NeuroRights international lab. *NeuroRights Initiative*. <https://nri.ntc.columbia.edu/news/chile-neurorights-international-lab-originally-spanish>
- Columbia University. (2021c). Artificial intelligence and “pseudonymity”: The Government presents the first version of the Digital Rights Charter. *NeuroRights Initiative*. <https://nri.ntc.columbia.edu/news/artificial-intelligence-and-pseudonymity-government-presents-first-version-digital-rights>
- García-López, E., Muñoz, J. M. & Andorno, R. (Eds.). (2022, forthcoming). Neurorights and mental freedom: Emerging challenges to debates on human dignity and neurotechnologies. *Frontiers*. <https://www.frontiersin.org/research-topics/14276/neurorights-and-mental-freedom-emerging-challenges-to-debates-on-human-dignity-and-neurotechnologies>
- Ienca, M. (2021, in press). On neurorights. *Frontiers in Human Neuroscience*. <https://doi.org/10.3389/fnhum.2021.701258>
- Ienca, M. & Andorno, R. (2017). Towards new human rights in the age of neuroscience and neurotechnology. *Life Sciences, Society and Policy*, (13), art.5. <https://doi.org/10.1186/s40504-017-0050-1>
- Manes, F. & Niro, M. (2019). *El cerebro del futuro*. Paidós.
- Manes, F. & Niro, M. (2016). *El cerebro argentino*. Planeta.
- Manes, F. & Niro, M. (2015). *Usar el cerebro*. Paidós.
- Muñoz, J. M., García-López, E. & Rusconi, E. (Eds.). (2020). Neurolaw: The call for adjusting theory based on scientific results. *Frontiers*. <https://doi.org/10.3389/978-2-88966-208-1>