



Interview

SIDARTA RIBEIRO

Neuroscientist
and writer

Interviewers:
Otávio Morato
Laís Barreto



CAAP Journal



INTERVIEW WITH SIDARTA RIBEIRO

Otávio Morato de Andrade¹

Laís Barreto Barbosa²

Translation into english: Laís Barreto Barbosa

About Sidarta Ribeiro

Full Professor at the Federal University of Rio Grande do Norte (UFRN) and one of the founding members of the Brain Institute (Instituto do Cérebro), Sidarta Ribeiro, a native of Brasília (Brazil), is regarded as one of the most respected figures in Brazilian science. His academic background includes a Bachelor's degree in Biological Sciences from the University of Brasília (UnB), a Master's degree in Biophysics from the Federal University of Rio de Janeiro (UFRJ), a Ph.D. in Animal Behavior from Rockefeller University, and postdoctoral research in Neurophysiology at Duke University. Known for combining academic rigor with the ability to engage diverse audiences, Sidarta is a leading authority in Brazil and internationally on topics such as sleep, dreams, memory, and altered states of consciousness. In this exclusive interview with CAAP Journal, the researcher discusses, among other subjects, free will, lucid dreaming, the cyborgization brought about by Artificial Intelligence (AI), and the challenges faced by universities and academic research in the contemporary world.

¹ Ph.D. candidate in Law (UFMG/Université Libre de Bruxelles), with a research exchange period at the Université libre de Bruxelles – Belgium. Holds a Master's degree in Law (UFMG) and a postgraduate specialization in Civil Law (PUC-MG). Bachelor's degree in Law (UFMG), Business Administration (PUC-MG), and Accounting (PUC-MG). Editor-in-Chief of CAAP Journal. ORCID: <https://orcid.org/0000-0002-0541-7353>. E-mail: otaviomorato@gmail.com

² Master's student in Public Law at the Federal University of Minas Gerais (UFMG). Holds a postgraduate specialization in Constitutional Law (PUC-MG). Bachelor's degree in (UEMG). Chair of the Editorial Review Committee of CAAP Journal. ORCID: <https://orcid.org/0000-0002-3799-8113>. E-mail: laisbarretob8@gmail.com

1. A few decades ago, neuroscience reignited the debate on free will. Nowadays, algorithms are already capable of anticipating our wills and even producing desires, without us even realizing it. In the light of unconscious impulses and predictive algorithms, is there still room for genuine freedom, or are the epistemological foundations of free will under threat?

Free will is always present. There is always a choice, but it is limited and depends on a highly restricted repertoire of possibilities. The current era of screen addiction and constant audiovisual stimulation has been narrowing many dimensions of human experience, further narrowing the range of available options.

2. In your book *O Oráculo da Noite* (Companhia das Letras, 2019), you argue that dreams are essential not only for mental health, but also for the development of memory, creativity, and even historical awareness. However, we live in an era marked by chronic sleep deprivation. Are there social risks associated with this collective disconnection from the dream world?

Absolutely. This moment in our history when sleep is being reduced and dreams extinguished – at least as conscious memories (the dream still occurs, but the person is unaware of it upon waking) – creates an experience of social disintegration. This happens directly

through sleep deprivation, which diminishes empathy and increases interpersonal distance. But it also occurs through the destruction of a symbolic elaboration space and the erosion of the possibility of a rich inner world. This inner world is where relationships are processed, and fears and desires – both of the dreamer and of those who interact with the dreamer – are set in motion so that solutions and confluences can be found. These processes have been deeply disrupted, and this is undoubtedly connected to the profound sense of malaise that characterizes the 21st century.

3. One of your studies suggests that, following a new experience, certain memory-related genes are reactivated during REM (Rapid Eye Movement), the sleep stage in which we dream the most and that the brain is highly active. In the future, could we use sleep and dreams to treat trauma, heal illnesses, and enhance learning?

This is being done right now, just as it has been done in the past by various cultures, societies, and non-academic knowledge systems. Today, neuroscience has demonstrated mechanisms through which sleep induces metabolic changes (such as gene expression and the electrical reverberation of memories), and how these processes can be harnessed for healing trauma, resolving recurring nightmares, and even accelerating literacy and school learning. Although these practices are now

the subject of scientific research, they were already being carried out with similar aims. Not always consciously, but often intentionally, especially among Indigenous cultures such as the Xavante and Yanomami, as well as ancient civilizations across Afro-Eurasia, particularly the Egyptians and Greeks.

4. A lucid dream is one in which the dreamer is aware that they are dreaming – sometimes even able to control the dream’s plot. Its existence has been scientifically confirmed through experiments that identified neural patterns associated with lucidity during sleep. Are there any evidence-based techniques for inducing lucid dreams or improving dream recall?

Many techniques have been proposed. The most effective are: a) autosuggestion, in which the person tells themselves that they will have a lucid dream, asking themselves throughout the day: “am I having a lucid dream?” - a practice that helps establish a habit of reality-checking, which can eventually occur during the dream itself; (b) the use of devices that detect the onset of REM sleep and deliver subliminal stimuli – such as flashes of light or soft sounds – without waking the sleeper. Specialized sleep masks have already been developed for this purpose; and finally, (c) pharmacological approaches. It has been shown that the substance galantamine can induce lucid dreams.

5. Recently, AI-generated images in the style of “Studio Ghibli” went viral on social media. For many, this algorithmic ‘art’ evokes dreamlike qualities, emotional resonance, and the mystery of the collective unconscious. For others, it is merely a cheap pastiche of human imagination. Can generative AI access - or simulate - what we call the “imaginary” or the “(un)conscious”? Or is there something irreducibly human about the act of dreaming and creating images?

AI exists in our image and likeness. It performs recombinations and restructurings that closely resemble the dream process. It is an illusion to think that AI will not reach places where humans already go: after all, AI is our creation. It is being built from our cultural productions, our memories, and our ideas. There are no real boundaries to this kind of transposition. We are in an advanced stage of cyborgization. The AIs we have today are still in their infancy (they are like two- or three-year-old children), considering that their development began quietly, without public announcements or warnings. But they are still babies. Once they reach “adolescence,” we will witness profound shifts in how they are applied. That’s precisely why we need to support the idea of universal basic income, as advocated by [Eduardo] Suplicy, while there is still time. AI is advancing fast and will replace jobs on a large scale – including mine, as a professor and writer. That’s clearly on the horizon.

6. In your most recent book, *As Flores do Bem* (Fósforo, 2024) – a title that dialogues with *The Flowers of Evil* by Baudelaire, a poet who also explored the depths of consciousness – you describe how the guided use of cannabis enabled experiences of reconnection with the unconscious, and even symbolic encounters with loved ones. Is there an interface between these altered states of consciousness induced by psychoactive substances and the natural dream states experienced during sleep? Are they distinct gateways to the same psychic “place,” or are we dealing with qualitatively different experiences?

Both cannabis and psychedelics evoke dreamlike states, although they often reduce overall sleep or specifically diminish REM sleep duration – as is the case, for instance, with tetrahydrocannabinol (THC). However, individuals respond differently to the various compounds found in cannabis. Therefore, it is not possible to generalize and claim that cannabis reduces sleep or impairs access to dreams for everyone – although that is a common effect. For some people, the effect is quite the opposite. This depends on the plant’s genetics, the phenotype it expresses in a given environment, how it was handled and cured, and, crucially, on the individual’s own genetics, life history, and epigenetics. Broadly speaking, cannabis, psychedelics, and dreaming all involve changes in the connectivity within what is known as the default mode network, which refers to

brain regions highly active during dreaming and whose activity is also altered by cannabis.

7. You advocate for both the therapeutic and recreational use of cannabis and, in *As Flores do Bem*, you describe your efforts to obtain legal authorization to cultivate the plant. Given the scientific advances in this field and the prevailing conservatism in Brazil, how do you view the role of the law, and particularly the process of judicialization, in shaping fairer and more effective public policy for access to these therapeutic options?

Certainly, judicialization has played a key role in the fight for access to cannabis – whether through a habeas corpus petition for home cultivation, collective legal actions, or the establishment of associations. These associations, formed by patients and their families, have been the main agents of change in this landscape. Today, more than 100,000 people in Brazil have access to cannabis-based therapies. And this only became possible because these associations created irreversible facts on the ground: real treatment outcomes that could not easily be undone. This is something the judicial branch tends to acknowledge: once people are receiving effective treatment, it becomes difficult to reverse course. For sure, this entire process is deeply shaped by issues of class and race. It is much easier for a middle-class, white individual to gain access than it is for someone from the periphery, a Black

person from a favela, for example. Moreover, the level of violence associated with the war on drugs, which disproportionately targets the latter group, is extremely high in Brazil. Still, I believe judicialization remains a necessary path. At some point, this right, currently secured by some, must become a right for all. And we are moving in that direction, especially with recent rulings by the Brazilian Supreme Court (STF) regarding the drug law, even if, so far, these rulings have focused only on cannabis. In my view, this interpretation should be extended to all substances.

8. In 2025, Brazilian researchers published a study identifying genetic mutations associated with mediumship, an interpretation that sparked controversy within the scientific community. Do you find such an association plausible, or do you believe that studies like this tend to obscure rather than shed light on spiritual phenomena?

I don't believe this is an undesirable line of research. It's important to investigate such phenomena without falling into reductionism. The phenomenon of mediumship is undeniable. Whether it is a strictly psychic phenomenon (which is what I tend to believe) or whether it involves some metaphysical dimension, physics will eventually provide the answer. In the meantime, we know it is a real phenomenon, with a clear psychic

component, and very likely also a genetic, metabolic, physiological, and anatomical basis. Like any biological phenomenon, it involves all of these correlates. So, I don't think this is a study that shouldn't be done. On the contrary, these are precisely the kinds of studies that should be pursued by those who are genuinely interested in the subject.

9. Recently, the United States has been accused of censoring and boycotting researchers who do not align with the current administration's conservative agenda. This week, nearly 2,000 American scientists signed an open letter denouncing the dismantling of science under Trump. What does this persecution of scientists suggest about the future of research on sensitive topics such as AI, climate change, and public health?

They're shooting themselves in the foot. Just as China accelerates its efforts to surpass them, the United States has decided to hit the brakes. Scientists are being laid off, the CDC [Centers for Disease Control and Prevention] has been shut down, the NSF [National Science Foundation] and NIH [National Institutes of Health] are being dismantled, and universities are under attack. Mobility restrictions are tightening, making it harder for people to enter or leave the country, and foreign visitors are being discouraged for all sorts of reasons. It's a frightening scenario, very similar to what was attempted in Brazil, but

on a much larger scale. Here as well, we witnessed major attacks on universities and science, along with widespread denialism. But the United States is a global superpower, and its decline carries planetary consequences. I believe we are witnessing the decline of the American empire and the overtaking of the U.S. by China in several key areas – such as public health, well-being, and even climate policy, where China has made significant progress over the past decade. I view this decline with concern, because when a giant falls, it thrashes its arms and legs, and we Brazilians are often treated as its backyard. At the same time, I also see an opportunity: a chance for Brazil to strengthen itself institutionally and perhaps distance itself, even slightly, from the sphere of influence of this empire.

BIBLIOGRAPHY

CARDOSO, Renato César; ANDRADE, Otávio Morato de. Revisitando o experimento de Libet: contribuições atuais da neurociência para o problema do livre-arbítrio. **Kriterion**, v. 64, p. 437-457, 2023.

GATTAZ, Wagner; COSTA, Marianna; SALATINO-OLIVEIRA, Angélica; GONÇALVES, Daniel; TALIB, Leda; MOREIRA-ALMEIDA, Alexander. Candidate Genes Related to Spiritual Mediumship: A Whole Exome Sequencing Analysis of Highly Gifted Mediums. **Brazilian Journal of Psychiatry**, <https://www.bjp.org.br/details/3591/en-US>

RIBEIRO, Sidarta. **O Oráculo da Noite: A história e a ciência do sonho**. Companhia das Letras, 2019.

RIBEIRO, Sidarta. **As Flores do Bem: A ciência e a história da libertação da maconha**. Fósforo, 2024.

YAMASHITA, Marcelo; ORSI, Carlos. Genética da mediunidade é a nova Fada dos Dentes. **Questão de Ciência**, 19/02/2025, <https://www.questao-ciencia.com.br/artigo/2025/02/19/genetica-da-mediunidade-e-a-nova-fada-dos-dentes.html>.