communications biology

Q&A

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Crafting visual worlds: scientist-artist Nicolas Decat's vision for science storytelling

Nicolas Decat is a PhD student in neuroscience at the Paris Brain Institute. By day, he investigates what goes through people's minds as they drift off to sleep. When they're sleeping, he works on ways to turn science into visual stories that inspire.

Credit: Nicolas Decat

What does your research focus on?

I am studying how consciousness fluctuates during the transition from wakefulness to sleep. It is such a unique state, filled with diverse mental experiences, including drifting thoughts, fleeting images and sounds, and fragments of dreams. By recording brain activity during this period, I aim to uncover how thoughts and dreams take shape in the brain. Understanding this transitional state could also reveal how these experiences support processes like creativity. On top of that, there are promising clinical implications for conditions like insomnia, because it can help us better characterize the onset of sleep.

As a scientist and an artist, what came first—your love for science or art?

What came first is probably my drive for exploration. Growing up, I wanted to be an astronaut, a cartographer, and an ethologist. There's something electric about venturing into the unknown; you might discover something entirely new that challenges your perspective. I think reality isn't necessarily what we believe it to be. If you peel back some of its layers, you may find hidden patterns that change how you perceive the world around you.

Exploration is the essence of scientific research, which drew me to my current PhD work in the neuroscience of sleep and consciousness. These topics are especially exciting as we know so little about them. Sleep shapes our waking lives in so many ways but the complexity behind it is mind-boggling. Consciousness emerges from neural activity but we barely grasp the what, how and why. Those are fun worlds to explore.

Art, too, is fundamentally about exploration. Just like science, it seeks to reach the new and push the boundaries. It requires experimenting and embracing trial and error. Ultimately, what comes out of paintbrushes or algorithms makes you interpret the world differently. So I naturally developed my creative side, especially in recent years, and I've been integrating it into my scientific work.

What kind of creative work do you do?

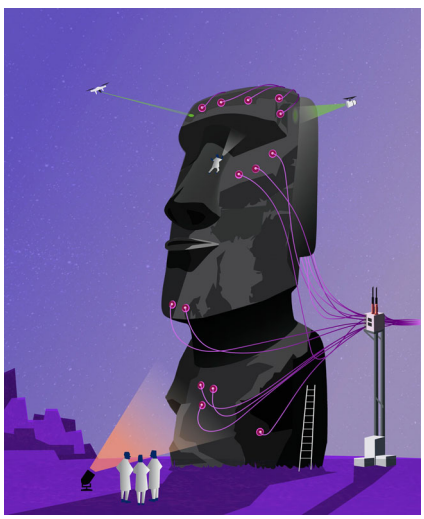
I primarily make illustrations for journal covers and press releases. I like these formats because they're a point of entry to the world of science for the general public. My aim is to make the illustrations so intriguing that anyone who sees it, regardless of their scientific background, is drawn to them.

Looking ahead, I want to focus on creating more immersive, narrative-driven pieces—visual stories that transport the viewer. A number of digital artists inspire me in this regard, with their seamless blend of storytelling and visual style that pulls you into the subject matter. So, I'm also exploring more dynamic formats, like animations and slideshow posts, to create more captivating content.

Can you walk us through your process of creating scientific covers?

To me, a key question guides the entire process: What do I want the viewer to feel when they come across the visual? From there, I throw a bunch of images on a digital artboard and interact with them. It's like gathering a bunch of seeds, playing with them, trying to find the one that has the best potential to grow. When inspiration strikes and the direction is clear, I begin drafting, refining each version until I create the right universe with the right story.

The idea for the illustration below, initially designed for Nature Medicine, hit me unexpectedly. I had been searching for a way to visually represent disorders of consciousness, the focus of the study. I found myself thinking about the Moai statues of Easter Island. They have such an enigmatic stillness, gazing into the distance. I thought this was a powerful analogy for patients in a vegetative state. Like the Moai, they are grounded in the physical world yet they seem locked in a silent, impenetrable space that science seeks to understand. To amplify the sense of mystery, I chose a purple, dream-like palette that evokes a surreal atmosphere, and I incorporated elements that directly relate to the study.



Credit: Nicolas Decat

What is your vision for science communication, and how do you plan to advance your project in this field?

I'm not interested in making science pretty or easier to understand. I want to turn science into something that visually stuns and deeply resonates with people. I'd like to display science in ways that inspire, using awe as a catalyst for change—a change in how people perceive the world and themselves. So, it's not just about inviting people to learn about science, it's about creating an experience that makes them shift perspective in a meaningful way. I'm currently building a team of scientific advisors, narrative designers, graph designers and producers to bring this vision to life.

What is your main challenge in the process of making engaging science-based content?
I'll admit, I have short spans of attention. So, as soon as something feels even slightly dry or too familiar, I tune out. It's a shame because there are so many topics—the vastness of space, the complexity of the brain, the surreal nature of quantum physics—that are truly mind-bending, but they're often presented in a similar manner. We may not always appreciate their true wonder. So, my main challenge is to break away from the way things are usually presented and offer something entirely fresh that really connects with people. I try to approach my project with a "beginner's mind"; by deconstructing everything I know. I'd ask myself: if there were no standards, no assumptions or accepted rules, what would I create to empower people through scientific content? How can I leave them in awe? Those aren't easy questions, but I think true innovation comes from reflecting on them.

Lastly, do you have any advice for aspiring scientist-artists?
"If we're aiming to create works that are exceptional, most rules don't apply. Average is nothing to aspire to". I keep in mind this quote from Rick Rubin, from his book The Creative Act: A Way of Being. My advice to scientists looking to leverage their creativity is to find what makes them unique and to amplify their singularity in their work, whether it's writing, drawing, designing animations, or public speaking. Find the right balance between drawing inspiration from other's work and exploring your own artistic style. The latter is very important to make your work stand out and deliver something truly unprecedented.

This interview was conducted by Associate Editor Jasmine Pan.

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