Can an artist be a creator of entertaining, technologically inspired, interactive creations that people line up to try, and be, at the same time, a somewhat macabre intellectual with a penchant for social criticism?

Based on the career of the Montreal-based, Mexico City-born artist Rafael Lozano-Hemmer, the answer is yes. Contradictions are built into the man and the work. Mr. Lozano-Hemmer, 50, is an upbeat, articulate sort whose whole worldview is based on connecting people via science and technology. He's quick with a smart observation, a follow-up email and a polite social inquiry.

But he also created “Vicious Circular Breathing” (2013), a sealed room filled with human exhalations. Inviting onlookers to enter it and breathe, it includes warnings about asphyxiation, panic and contagion. And he refuses to use it himself.

“It's absolutely disgusting,” Mr. Lozano-Hemmer said recently, not something frequently heard from, say, Picasso about his latest canvas.

The many sides of the artist will get their widest American exposure with “Rafael Lozano-Hemmer: Pulse,” at the Hirshhorn Museum and Sculpture Garden, in Washington, from Thursday through April 28.

The show is a greatest-hits of sorts, with just three supersize works, all with “Pulse” in the title. Mr. Lozano-Hemmer works grandly: The exhibition takes over the whole second floor of the museum.
“They are totally immersive, and I appreciate being able to work on this scale,” he said in an interview in the East Village over the summer, on one of his frequent trips to New York from Montreal.

All three of the works require participation to function: They are powered by the visitors.

“If nobody shows up at the Hirshhorn, there’s no show,” Mr. Lozano-Hemmer added. Based on the interest in his previous exhibitions, that’s not likely to be a problem.

“Pulse Index” (2010) records visitors’ fingerprints and heart rates, displaying the data of the last 765 participants on a large wall. It also has images of their fingers — creating a slightly creepy effect — and graphics that animate the biometric information.

“Pulse Tank” (2008) converts audience heart rates into waves in a water tank, which then set off a light show, and “Pulse Room” (2006) animates about 300 light bulbs with the same information, collected via a sensor.

Mr. Lozano-Hemmer’s talent is making philosophical ideas somehow literal — the abstract becomes weirdly real, or real with a surreal edge.

Museums, galleries and biennials have flocked to work with him for at least a decade, given that his projects have two levels of appeal: a gee-whiz, hands-on side that brings people in the door, and then a deeper, often darker meaning that can be apprehended by those who choose to linger.

“The idea of being in D.C. and making a project with biometrics — measuring the presence of people and how they are different from each other — seems very relevant now,” Mr. Lozano-Hemmer said.

In the era of “identity control,” he added, “these platforms are for connection and community.”

Surveillance has been an interest of Mr. Lozano-Hemmer’s for decades. In one of his early works, “Vectorial Elevation” (1999), each random internet user could create a light sculpture by controlling 18 searchlights trained on the Zócalo, Mexico City’s central square.
The theme of who is watching us, and how and why we allow it, is shared by many top artists, notably Trevor Paglen, who won a MacArthur Fellowship last year.

Mr. Paglen's exhibition “Sites Unseen,” at the Smithsonian American Art Museum, is concurrently on view just a few blocks away from the Hirshhorn, creating interesting echoes in the city that is the seat of American government.

Melissa Chiu, the Hirshhorn’s director, said that Mr. Lozano-Hemmer had “intellectual depth, and makes very complex ideas tangible and understandable.”

“That’s a great gift,” she added.

Ms. Chiu, who has led the institution since 2014, isn’t shying away from the political implications of the work, either.

“Here we are on the National Mall, with the moniker of being the national museum of modern art,” Ms. Chiu said. “The role of artists in society is to challenge us.”

Most museums have been looking for ways to bring in younger audiences, and Mr. Lozano-Hemmer’s work seems tailor-made to further that goal.

“You can approach it without any predetermined knowledge of art,” Ms. Chiu said. “And it’s true that a younger demographic leans into works where they have a role to play.”

Because of its size and complexity, Mr. Lozano-Hemmer’s art isn’t easy to collect, but that has not deterred Ella Cisneros-Fontanals, a Miami-based arts patron. She bought her first work by him about 15 years ago and has accumulated around 10 of them, including the multimedia piece “The Year's Midnight” (2011). She even put Mr. Lozano-Hemmer on the board of her art foundation.
“He opens worlds for us that we wouldn’t know about,” Ms. Cisneros-Fontanals said. She added that her favorite thing was to “watch other people looking at his work and interacting with it.”

Mr. Lozano-Hemmer grew up in a world of performance and boundary-pushing. His parents owned the Mexico City nightclub Los Infernos. “They were pioneers in transvestite shows,” he recalled.

An interest in science and technology led him to study chemistry at Concordia University in Montreal, and, after a long stint living in Madrid, he eventually settled back in Canada.

His far-flung biography may help explain why his art has appeal all over the world. This year he has had solo exhibitions in Seoul, South Korea, and in Switzerland, in addition to those in the United States, Mexico and Canada.

But “solo” is in some ways a mischaracterization for Mr. Lozano-Hemmer’s work because his Montreal studio has 14 co-workers.

“It’s a good place, full of nerds,” he said, laughing.

Half of them are engineers and programmers with an artistic bent, he said; the other half are artists and designers who also like technology.
“And I’m the director, but I credit them, as you would credit your composer and your lighting designer on a film,” he said.

Categorizing the studio’s output is tricky, but it’s the kind of topic the artist relishes.

“I work with technology, but I really detest the term ‘new media’ because I’m fully aware of experimentation in these fields that goes back 100 years,” Mr. Lozano-Hemmer said, citing the pioneering work of the Argentine artist and writer Marta Minujín, who was an early maker of Conceptual work with an interactive bent.

“To pretend what we’re doing is new is disingenuous.”

He cited a statistic that the average person spent at least eight hours a day in front of some kind of screen.

“Working with technology is normal, it’s natural,” he said. “If you’re living on this planet, and you want to reflect on what the concerns are, then you have to work with technology. It’s not something optional.”

From the beginning of his career, Mr. Lozano-Hemmer has been extremely prolific. Now he’s at work on securing funding for “Border Tuner,” a light-and-sound installation that will connect Ciudad Juárez, Mexico, and El Paso. That level of output, and the heady rush of his speech as he makes his points, suggests that he hears the clock ticking.

“Ultimately, all art that interests me is all about death,” he said. “Montaigne said that to philosophize is to learn how to die. I think art does the same. Why do we make art? Well, because we are concerned that we have a finite amount of time.”