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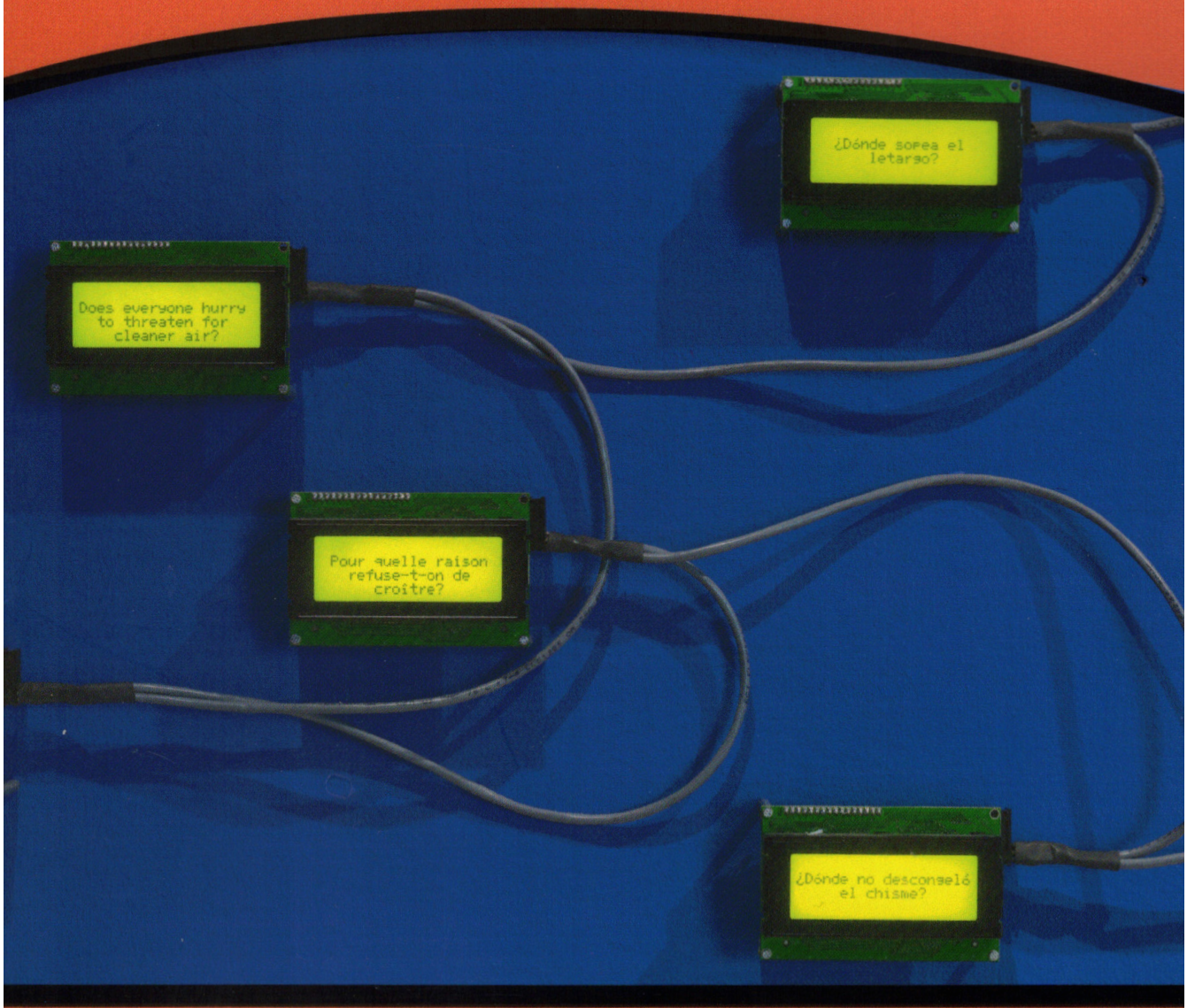

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Rafael Lozano-Hemmer's Computer-Assisted Connections

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Mexican Canadian artist Rafael Lozano-Hemmer, who represented Mexico in the 2007 Venice Biennale, is known internationally for his new media works that deploy digital technologies to build what he describes as "platforms of participation where the public may establish relationships with each other, with the built environment, or with certain curated contexts" (32). Lozano-Hemmer works at the intersection of architecture and performance art, using diverse materials including biometrics, robotics, and telematics. Inspired by phantasmagoria, carnival traditions, and animatronics, his light and shadow installations have been featured in prominent exhibitions in Cuenca, Havana, Istanbul, Kochi, Liverpool, Melbourne, Moscow, New Orleans, New York, Seoul, Seville, Shanghai, Singapore, Sydney, Wuzhen, and elsewhere.

We have chosen to feature a cluster of Lozano-Hemmer's installations in this special issue because his work captures the symbiosis of human and machine underlying each of the Latinx DH projects described in these pages. Further, though his pieces are executed on a grand scale and to much acclaim, Lozano-Hemmer's praxis exemplifies the sly and playful *rasquachismo*—the making do and making new with what's at hand—that characterizes Latinx DH. Finally, Lozano-Hemmer's work, like each project described in this special issue, stakes bold political claims and asserts art as an indispensable tool, as necessary as science, for building a better world.

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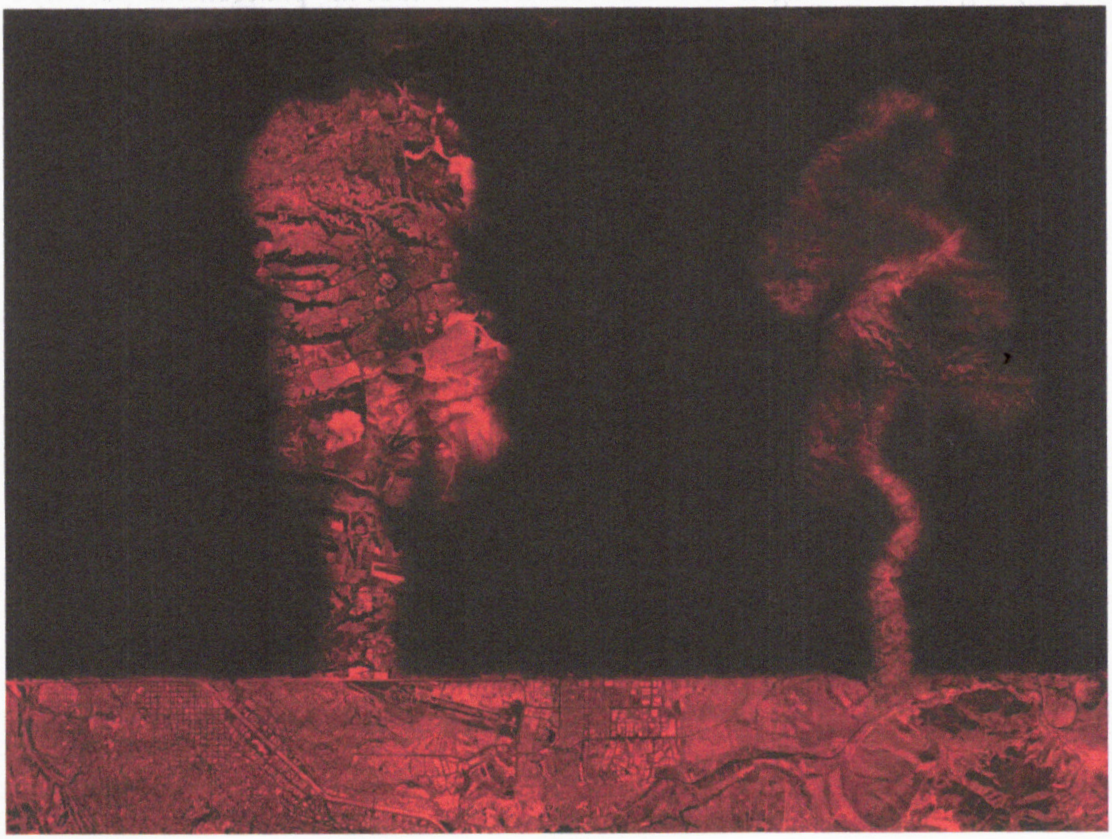

Figure 1. *Navier-Stokes* (2009). Credit: Rafael Lozano-Hemmer.

Navier-Stokes (2009) illustrates this union of art and science perfectly. It is a series of computer-controlled lightboxes displaying satellite images of economically disparate, conflict-ridden, or heavily trafficked borders. Pictured here is the Tijuana–San Diego border, with Mexico illuminated in red and the US in darkness. Connected to the internet, the piece searches news sites for the words "Tijuana San Diego," the frequency of which allows plumes of red light to spread into the US. Once both sides of the border are fully illuminated, the process restarts.

Figure 2. *Collider* (2023). Credit: Rafael Lozano-Hemmer.

Navier-Stokes uses light to assert the precarity of seeing as a precondition for believing. Words might be powerful enough to create worlds, but if we can only see things about which we are able to speak (and, consequently, believe that which is spoken), then vast worlds lie beneath the surface of language, shrouded in darkness. Similarly, the performance piece *Collider* (2023) uses light, but rather than emphasize human behavior and language, its hundreds of pencil-beam robotic searchlights create a glimmering curtain that makes visible chemical forces in the universe over which humans have no control but that nevertheless condition our lives. The lights dynamically respond to cosmic radiation from stars and black holes. Cosmic rays, consisting of protons and alpha particles, collide with our atmosphere to produce less harmful muons. *Collider* detects these muons using adapted Geiger counters, which determine their arrival angles. This data is then visualized through the wall of light stretching from earth to sky, juxtaposing the boundless universe with the limits of the human body. This piece is a reminder of our connection to and dependency on the natural world, and of the enormity of existence beyond the human experience.

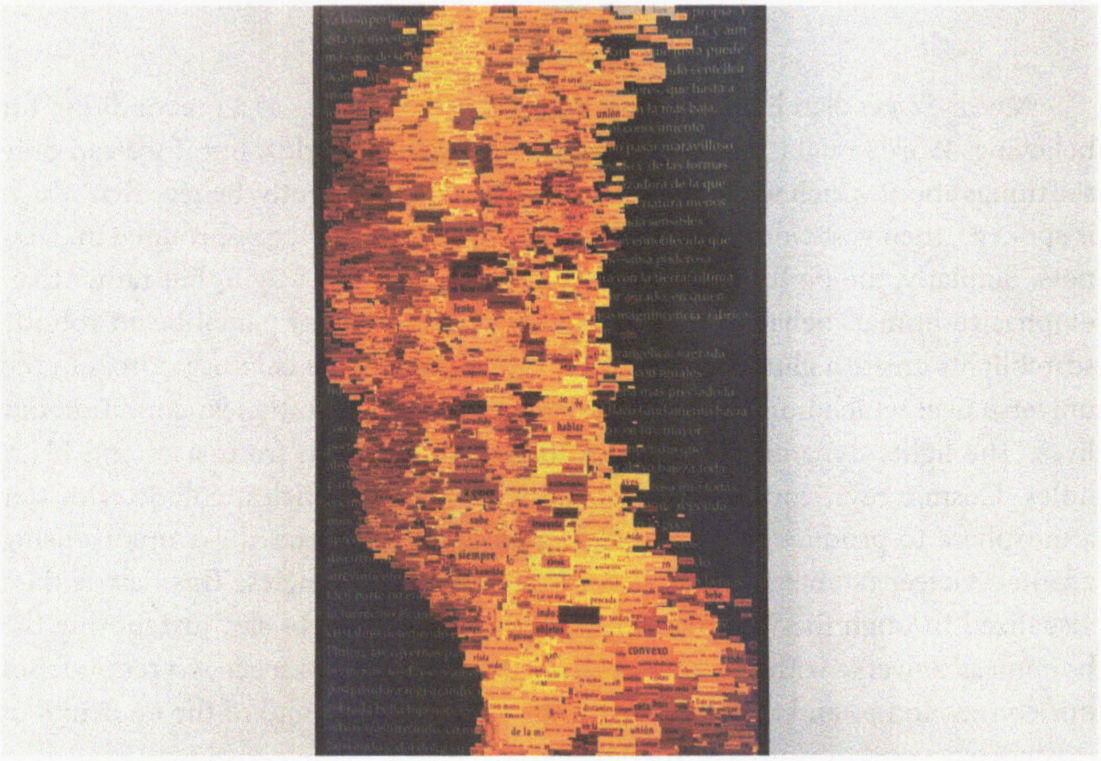

Figure 3. *Recurrent First Dream* (Primero Sueño Recurrente, 2023). Credit: Rafael Lozano-Hemmer, "Recurrent First Dream," 2023.

Recurrent First Dream (Primero Sueño Recurrente, 2023), similarly, visualizes the ensuing conflict when the human imagination confronts the physical limits of the human body. This algorithmic animation is based on "Primero sueño," the germinal work of Mexican poet Sor Juana Inés de la Cruz, written in 1692. In the poem, the speaker, having fallen asleep, is freed from the prison of her body and able to explore the natural world. She almost reaches the pinnacle of human understanding before awakening and returning to the confines of her body. Though the speaker never explicitly refers to herself as a woman, she does use feminine adjectival forms in the original Spanish. The poem is thus widely understood as a feminist ode addressing human transcendence, knowledge, and deductive reasoning. Lozano-Hemmer recreates the speaker's experience for the viewer of this piece using layers of language: Sor Juana's poem below and golden "streamers" above, moving with fluid dynamics to create a slow-motion flame. An ascending vortex of words on an elongated screen gradually reveals the visionary thinker's transcendental work just as the workings of the universe are revealed to the poem's speaker.

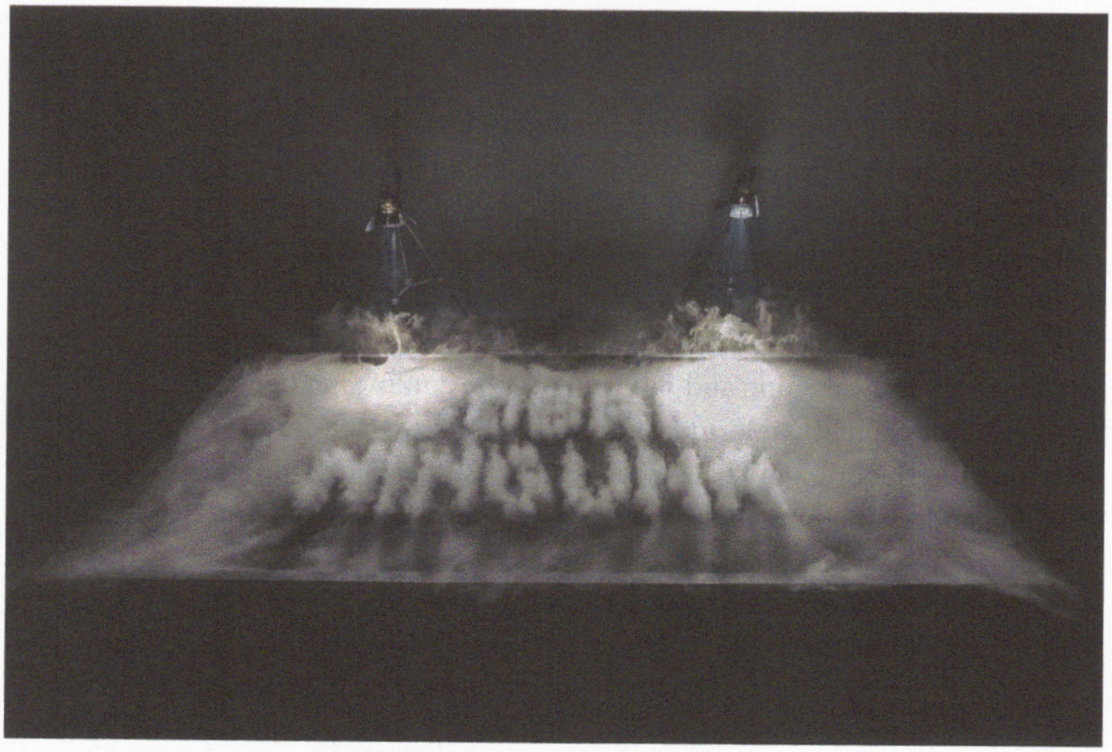

Figure 4. *Call on Water* (2016). Credit: Rafael Lozano-Hemmer.

Call on Water (2016) likewise plays with the porous triangulation of language, the material world, and the human body made visible through digital technologies. The piece consists of a fountain, powered by hundreds of ultrasonic atomizers producing plumes of vapor that coalesce into words. The vocabulary of the piece is drawn from dozens of poems by Mexican writer Octavio Paz describing readable air and the transformation of written words into the atmosphere. Computers transform language into mist that circulates through viewers' bodies before becoming part of the ambient air that is once again transformed into vaporous words. Language is thus shown to be not merely indexical but agential, as much part of our bodies as it is of the world.

Figure 5. *Level of Confidence* (2015). Credit: Rafael Lozano-Hemmer.

In *Level of Confidence* (2015) this kind of computer-assisted connection between all things has a decidedly political purpose. The project commemorates the mass kidnapping—on September 26, 2014—of forty-three students from the Ayotzinapa Normalista school in Iguala, Guerrero, Mexico. Released on March 26, 2015, six months after the kidnapping, it features facial-recognition software trained to search for the missing students. As viewers stand before the camera, the system uses algorithms to identify which missing student they most resemble, displaying its confidence as a percentage. Typically used by military and police to identify suspects, here the Eigen, Fisher, and LBPH algorithms search for victims instead, flipping technologies of surveillance into instruments of hope. Though only three of the kidnapped students have been confirmed dead, none have been found alive, and the likelihood they ever will be is slim to none. *Level of Confidence* never makes a 100 percent positive match, but it seeks continuously, emphasizing the ongoing search for answers as well as the fundamental connection between all people.

By using computers to aestheticize the imbrication of humanity, language, and the natural world, Lozano-Hemmer typifies a point made in the introduction to this special issue. In the phrase "digital humanities," the emphasis is always on humanity. The word "digital" describes tools. The magic and revelation of DH comes from human ingenuity, creativity, and spark. Latinx DH leverages that energy to uncover and elevate myriad aspects of latinidad that have heretofore been shrouded in darkness like the landscapes in *Navier-Stokes*, the muons in *Collider*, or the students in *Level of Confidence*, whom, the work asserts, we must recognize as our other selves. Our humanity depends on it.

Work Cited

Lozano-Hemmer, Rafael. "Digital Art & The Platforms for Participation." *Aesthetica*, no. 36 (September 2010): 30–33.

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