6

SURVEILLANCE

In today's data-driven world, your heartbeat, that vital sign that accompanies you everywhere, is more than just a biomedical sign or a metaphor for life; it can be (mis)used for identification and classification as a control tool. The heart's technoscience is immersed in a complex materiality and socioethical relationship to technological power. This is because cardiac rates, like faces and profiles, have now evolved into records and datasets with dramatically new meanings—they are lines that can tell of a person's inner and outer lives, as well as their biological and physical activities. This gives heartbeats not only meaning but also a sociopolitical dimension, as they have become a tool for the management of life or "biopolitics."

Biometrics, which literally means "life measurement," is the statistical analysis of biological data (heartbeats, fingerprints, voice, or facial patterns) to confirm an individual's identity. Although the use of bodily features for recognition purposes is not new, as evidenced by the use of fingerprints as identifying marks in ancient China (246 BCE), and more than a millennium later in Europe and North America by the Bertillon system, biometrics has grown into a multibillion-dollar industry with the development of computers and recognition systems in the second half of the twentieth century. This growth was accelerated as part of national security measures in the United States and Europe in the twenty-first century, prompted by increased fears of terrorist attacks after 9/11, and rising anxieties about immigration.

Today, biometrics are creating a tyranny of identity by a persistent intrusion into the body. This system is often in service to surveillance by the state as our heartbeats "become inscribed with identities shaped by long standing social and political inequalities."[1] Governments use AI, heartbeats, and other biodata to identify, classify, control, and discriminate against people in the management of their borders, immigration policies, and health-care systems. Private enterprises, such as private health-care providers and banks, have been swift to follow. As many scholars have noted, biometrics operates as a triple-pronged strategy of biologization, informatization, and digitalization.[2] By these processes, identity, movement, citizenship, and access are managed through the automated use and manipulation of our bodies. As a result, these bodies have devolved into informational flows and patterns.[3] So, the ontology of the body, of the heartbeat, relies here on its informational character.

This chapter explores artworks that expose how the heartbeat has evolved into an informational input in our modern era of monitoring and how artists have exposed or counteracted the use of the body as a system of identification and as a subject of surveillance. I start by analyzing the work of Peruvian artist Teresa Burga. She shows us how the heartbeat can be inserted into bureaucratic systems of classification and monitoring by creating a portrait of herself through IDs, cardiac recordings, and other medical data that depict her as information. I then examine the work of British-Palestinian artist Mona Hatoum, which addresses how surveillance has entered into our private lives and even inside our bodies through medical surveillance systems and biomedical technologies. Finally, Mexican-Canadian Rafael Lozano-Hemmer employs biometrics in a variety of artworks to counterpoint the use of biometrics as an alienating and categorization tool by creating aestheticized, connective, and collective experiences.

BODY INFORMATION: TERESA BURGA

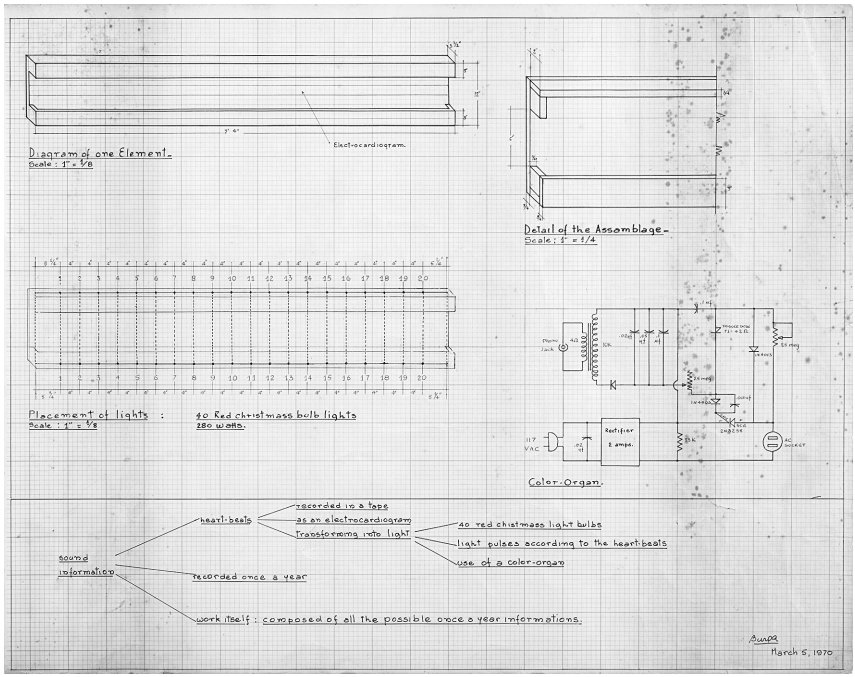
Upon entering a gallery, you find a series of large black-and-white photographs of a serious-looking young female, side view and front view, and a series of works on paper lining the walls. All these works are displayed

on noticeboards. The mysterious woman in the photographs is Teresa Burga, who has expanded her depiction of herself in *Self-Portrait. Structure. Report. 9.6.1972* from an identity card, mugshots, diagrams, blood tests, cardiograms, and phonocardiograms.

Burga, who was born in 1935 in the port city of Iquitos, is an important figure in Latin American art and a pioneer in technology-based art in Peru. She was part of the group Arte Nuevo (1966–1967), which was instrumental in introducing pop art, op art and happenings to the Peruvian art scene in the 1960s. She studied architecture for two years but abandoned her training to study at the School of Art at the National University of Peru. In 1968, she moved to the United States for two years after obtaining a Fulbright scholarship for postgraduate study at the Art Institute of Chicago. There, influenced by conceptual practices and the arts and technology movement, she started to develop a number of works that engaged with cardiac rhythms that are not only related to systems of representation and dematerialization but to the gradual sociopolitical framing of subjects as objects.

Burga's heartbeat works are all independent but interconnected pieces, with their genesis in *Sin título (Heartbeat Recording and Light)* (1970; figure 6.1). This meticulous drawing in ink on graph paper shows the plans of a sculptural machine on a scale of 1:8. The piece, which demonstrates the artist's knowledge of architectural drawing and her interest in science and mechanics, was created while she was a student in Chicago in the 1970s. At this time, interest in the use of electronic and electromechanical technologies was at its peak, with numerous exhibitions centered on the subject (many of which didn't include women) and with art schools offering classes with a greater technical focus.[4] In an interview I conducted with the artist a few years before her death in 2021, Burga traced the origin of *Sin título (Heartbeat Recording and Light)* to one such program:

> During the Fulbright scholarship, I took some courses on machine assembly, with transistors, circuits, and all that stuff. In that course [in 1970], I drew and assembled a machine that transformed the electricity and sound of my heart and made little light bulbs pulse according to the rhythm of my heart. I materialized that machine a few years later.[5]



6.1

Teresa Burga, *Sin título (Heartbeat Recording and Light)*, 1970. Courtesy Estate of Teresa Burga and Galerie Barbara Thumm, Berlin.

Heart Beating Machine (1970–1972) is the realization of the machine outlined in *Sin título (Heartbeat Recording and Light)*. This minimalist-looking sculptural piece is an audio-visual representation of the mechanistic condition of the heart and the body as a communications network. Consisting of two white rectangular structures, the interior of the object displays a cardiograph and a series of pulsating red Christmas lights whose blinking is guided by a heartbeat sound. The box becomes a life container in which the ceaseless heartbeats of the artist dwell, extending her presence wherever the piece is displayed. When she returned to Peru, the artist reconstructed her machine and expanded it with other images that animated her self-portrait.

> I already had the *Heart Beating Machine*, so I decided to do some blood tests, took some photos of myself, and I did a series of medical studies on a single date to make a representation of myself.[6]

Self-Portrait. Structure. Report. 9.6.1972 (figure 6.2) is one of Burga's most complex works: an anthropometric and interoceptive representation. Comprising medical reports, IDs, photographs, heartbeat sounds, objects, and diagrams that detail the artist's physiological features, it shows a new visualization of the artist. Burga's topological study of herself exposes in detail her physical features and graphic delineations, including the shapes and contours of her face, her bodily structures, the angles of her cardiograms, and many other structural relationships. The documents and objects that comprise the work are her body itself because, as Jean-Luc Nancy notes, the corpus "is immaterial. It's a drawing, a contour, an idea"[7] and "a collection of pieces, bits, members, zones, states, [and] functions."[8] Furthermore, the heartbeat patterns and her other bodily features are the representation of herself or her identity. The piece exposes the intricate relationship between body, identity, materiality, and information.

A hand-drawn diagram introduces and details the three parts comprising the work. "Facial Report" consists of a series of mugshot-like photographs of the artist and facial scans that measure in detail all of her features. "Blood Report" contains a detailed clinical biochemical analysis of the artist's vital fluid. Lastly, "Heart Report" presents the previously

described *Heart Beating Machine* alongside electrocardiograms and phonocardiograms mounted in rows of one or two columns, depending on the space.

Self-Portrait was influenced by Burga's time in the United States, where many social movements were challenging the status quo: student protests were raising awareness of social inequalities through the civil rights movement; there was major resistance to the Vietnam War; demonstrations by feminists for sexual liberation were on the rise.[9] Groundbreaking books, such as *Our Bodies, Ourselves* (1970), empowered women to know and celebrate their bodies and each of their body parts. All these developments together inspired the counterculture and the development of new forms of expression and experimentation. For many artists in this decade, the body became a site for social re-signification. Inspired by these new approaches,

6.2

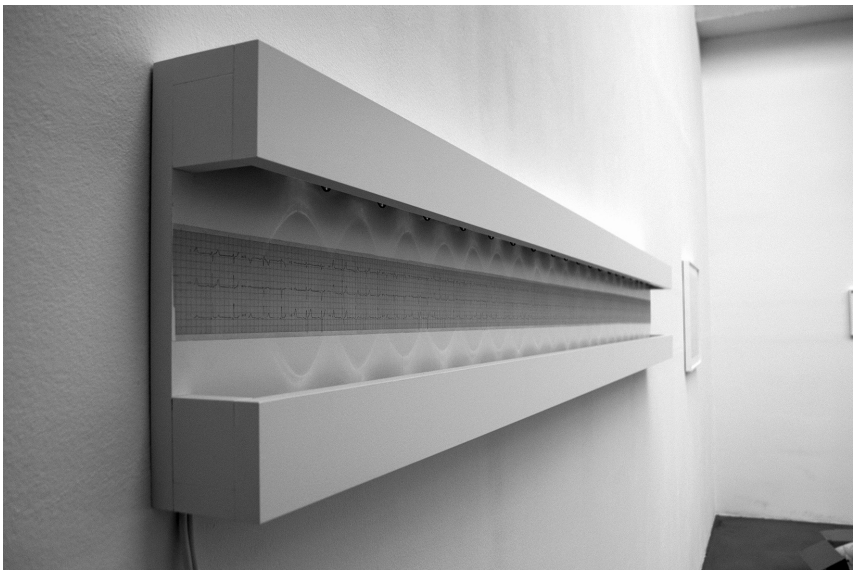
Teresa Burga, *Self-Portrait. Structure. Report. 9.6.1972*, 1972. Courtesy Estate of Teresa Burga and Galerie Barbara Thumm, Berlin.

as well as conceptual practices and the use of new technologies and science in the arts, Burga developed her own personal conceptual language. Critical but subtle, it did not fit well into the Peruvian art scene that she found upon her return in 1972. The country was now under the authoritarian military government of General Juan Velasco Alvarado, although the regime itself was not a major logistic obstacle to her. During this period, for example, she was still able to access recordings of her heartbeats and other medical data with the assistance of her father's friends, who were on the medical staff at the navy hospital. Such material was not easily accessible at that time, but they were able to give her a detailed analysis of the medical tests that she had undertaken on June 9, 1972, to enable her to capture a representation of herself over the course of a single day. What did become an obstacle for the artist, though, was the local arts community that despised her practice because it was "not Peruvian enough."[10]

Disconnected from traditional media and considered to be under the influence of American trends, Burga's work was contrary to the surreal and expressionist mainstream in Peru and the indigenous nationalistic aesthetics fostered by the regime. Such artistic tastes had replaced the experimental practices of the 1960s in which Burga had played an active role. Nevertheless, in 1972, she did manage to exhibit her heartbeat *Self-Portrait. Structure. Report. 9.6.1972* (figure 6.3) in a two-week eponymously titled exhibition at the gallery of the Instituto Cultural Peruano-Norteamericano (ICPNA) in Lima. At the opening, Burga was subjected to misogynistic and hostile comments that questioned her ability to create such a complex work merging science and technology:

> They thought I was fooling them! But . . . as soon as engineers and some artists saw that indeed it was a real and rigorous topographic rendering, they shut up, because they were about to say that I had falsified it all.[11]

Obscured by her male counterparts and a conservative Peruvian art scene, after that exhibition, Burga's portrait remained in boxes for twenty-five years, waiting for someone to bring it back to life. It was not until the 2000s that Peruvian curators began investigating Burga's art production. After decades of oblivion, in 2010, Burga's heartbeat pieces revived in her first retrospective exhibition, *Teresa Burga. Informes. Esquemas. Intervalos.*



17.9.10, at the ICPNA. This show later traveled to the Württembergischer Kunstverein Stuttgart in Germany, and since then, her oeuvre has begun to be included in major international collections and exhibitions.

While Burga's *Self-Portrait* was very inventive for the time, she was not the only Latin American artist using cardiac graphs and sounds to refer to life cycles or as a form of representation. As mentioned earlier in relation to Diana Domingues, Latin American artists in the 1970s were increasingly drawn to new trends in the arts, and they were starting to experiment with medical technologies. The Chilean artist Juan Downey produced diagrams and schemes of *Inflatable Chairs* (1970) that beat in sync with

6.3

Teresa Burga, *Self-Portrait. Structure. Report. 9.6.1972*, 1972. Detail. Courtesy Estate of Teresa Burga and Galerie Barbara Thumm, Berlin.

the sitters' cardiac and respiratory rhythms. In 1974, the Mexican painter José Luis Cuevas, driven by hypochondria and his fear of death, created a self-portrait using an electrocardiograph. Colombian artist Sandra Llano-Mejía was creating various portrait works with cardiographs like *In Pulso* (1978). In this video, the artist recorded her cardiac oscillations on long sheets of paper. And while European artists like Heinz Mack and Brian O'Doherty had already been using cardiographs as an index and a form of representation, and Boyle and Hills were performing heartbeats and other bodily functions of the body, Burga's *Self-Portrait* broke new ground as one of the earliest and most innovative works not only from Latin America but globally. Her inch-by-inch deconstruction of the body's interiority and exteriority gave a complete topographic render of a person's existence through their biological statistics.

For *Self-Portrait*, Burga's conceptual strategies, such as the use of instructions and diagrams, created an art that intimately related to her life, and, like many feminist conceptualists of that time, she did it using mass-reproducible techniques. These included biological data, photography, text-based media, and Xerox. Relating her art to her working life, Burga appropriated the aesthetics of bureaucracy and exhibited the three physiognomic reports that comprise *Self-Portrait* like the evidence boards of a detective. Burga was very familiar with this style. When she could not find an arts-related job on her return to Lima, she began working for national customs services. She went on to take charge of creating a data classification system that helped manage the customs regulations system by generating reports and charts. Her software was "one of the first successful local implementations for information management systems in the country."[12]

Burga was comfortable with structured analysis as is reflected in her working life, as well as in her artistic life, and in particular in her *Self-Portrait*. Here, data is extracted, classified, and arranged to assist visual analysis. The piece was a reflection not only on identity and information but also on time: on the one hand, it was created during a period when "there was a lot of control,"[13] owing to the political situation both in Peru and elsewhere. On the other, "it was a way of representing the states of the body at a given time," Burga said. "The heart was not going to be the same one beating a year later, my face was going to change."[14]

Burga's diagrammatic project was concurrent with the concerns of the mapping and measurement of the body, which was part of the international discussion around processes of dematerialization within the arts. In the 1960s and 1970s in the United States, as Lucy Lippard describes, "lists, diagrams, measurements, neutral descriptions, and much counting were the most common vehicles for the preoccupation with repetition, the introduction of daily life and work routines."[15] Many artists were using their body measurements as a form of representation. For example, Mel Bochner's *Actual Size (Hand and Face)* (1968) is a photographic work in which the artist explores different ways of self-representation, using measurements of his body parts depicted at full scale. Eleanor Antin's *Carving: A Traditional Sculpture* (1972) also combined pictures and proportions in a grid formed by hundreds of black-and-white photographs of back, front, and side profiles of the artist's naked body. Each registered the day, time, and the artist's weight. Antin, like Burga, objectified her female body, not as a fetish but as information and as a mass to be subjected to critical analysis.

The connection of the female body with medical and biological information was a topical theme in the late 1960s and 1970s. An important example is Martha Rosler's *Bicillin or Medical Treatment II* (1966), a photographic collage of a voluptuous naked woman on an examining table that depicts the female body both as an object and as a subject of medical observation and commercialization. Also, *Vital Statistics of a Citizen, Simply Obtained* (1974–1977), created two years after Burga's *Self-Portrait*, is a performance in which Rosler undresses at the command of medical practitioners who take detailed measurements of her body. Like Burga, Rosler was referring to medical monitoring and the standardization of women in bureaucratic societies.

With its use of mugshots, identity cards, and meticulous physical measurements marked with pen on paper, Burga's piece brings to mind the procedures of Alphonse Bertillon's anthropometries (as discussed in chapter 1) and the later developments made by Argentinian Juan Vucetich in fingerprinting classification. Underlining the connection, Burga's invitation to her 1972 exhibition of *Self-Portrait* was an ID card complete with her photo and personal details. Printed on an IBM 80-column punch card, it directly referenced the serialization of individuals in labor and bureaucratic systems.[16] These mechanisms of examination, administration,

and control of people were articulated by philosopher Michel Foucault in 1975, when he asserted they were tools of biopower, imposing bodily discipline and using the body as a document for identification.[17] He observed that human identification scientific studies involved the surveillance and control of the body-self.

As noted by the philosopher Roberto Esposito, years later, this power developed into the "politicization of life and the biologization of politics."[18] Burga's piece demonstrated how the body's ontology had been transformed into informational flows, patterns, and other biocentric data—such as heartbeats, DNA, and facial features. This process blurred any distinctions between the material body and the informational body, transforming them into the same thing.[19] The use of cards and body data prompted the art journal *Correo* to title an interview with the artist "Teresa Burga: An Artist or Computer?" following the opening of her show in 1972.[20]

Besides her *Self-Portrait*, which was created the same year as the seventh and most detailed census in Peru, Burga produced other works related to systems of categorization and control. *Identification* (1978) consisted of a forensic-like text-based piece in which the artist refers to two forms of data evidence of an individual: one direct, through the measurement of the body and the collection of voice tones, finger-, foot- and palm prints; and another indirect, based on eyewitness's descriptions of a person's face, voice, and size. *Profile of the Peruvian Woman* (1980–1981), as its title suggests, presents a complete anthropometric profile (physiognomic, psychological, cultural, emotional, etc.) of the Peruvian woman based on data obtained in surveys conducted on young women.

While Burga's heartbeat work is strongly influenced by conceptual practice, science and technology are at the core of her work:

> [In] *Self-portrait. Structure. Report. 9.6.1972* . . . I specifically asked the doctor to not leave any element out . . . to make a larger and more detailed report . . . Entering a dialogue with medicine and science, affords you something different, particularly to steer away from the mere traditional art. That is what I'm interested in: to interrelate artistic thought and the different sciences.[21]

While *Self-Portrait* explores alternative narratives of self-representation, it is also an identity map and a sort of proto-biometric artwork constructed

through the tracing of bioinformation. Burga was responding to the times during which scrutiny of the body was becoming more technologized and more actively sponsored by governments. It was during the second half of the 1960s that computational scientists, like Woodrow Wilson Bledsoe and Mitchell Trauring, were commissioned by intelligence agencies to develop automated machines for facial recognition and fingerprint identification.[22] Face recognition systems, like those used in Burga's "Facial Report," dealt with geometrical anatomical landmarks in the measures of lengths, distances, and ratios of the nose, eyes, ears, and mouth to classify individuals.

Heart recordings and the analysis of blood in Burga's portrayal of herself are largely free of any poetic connotations. They stress instead the use of such body reports as medical data also for the purposes of identification. Blood was commonly used to derive forensic evidence and for identification beginning at the start of the twentieth century with the discovery of different blood types until the 1980s when it was replaced by more accurate systems of DNA recognition.

Burga's "Heart Report" was created months before the first heart transplant was performed in Peru in 1972. At this time, the development of computer technologies, industrializing systems of the classification of individuals, and medicine saw the rise of cardiac monitoring.[23] Burga's portrayal of herself suggests that electrocardiograms can be perceived not only as medical information or as a line that traces a life but also as a pragmatic means of identification, classification, and monitoring. As Donna Haraway noted, information is a "quantifiable element which allows universal translation, and so unhindered instrumental power."[24]

Heart rhythms, along with other body rhythms, have historically been a site of social and political discussions. As Michael Golston has shown in *Rhythm and Race in Modernist Poetry and Science*, between 1890 and 1940, the rhythmic nature of the heart fascinated not only modern writers like Ezra Pound and W. B. Yeats but also European and American scientists in fields ranging from biology, psychology, and eugenics. Some of these specialists, such as Thaddeus Bolton or Christian Ruckmick, were aligned with racist, fascist ideologies and considered rhythm not only as a physical process but also as having social and psychological dimensions that could be put to political use. Some of their studies asserted that heart

rates were determined not by their organic nature but by ethnicity.[25] Following this, non-European populations' heart rates and breaths were used to demonstrate the inferiority of non-Europeans in Peru in the nineteenth century and when eugenics spread in the twentieth century.[26]

Burga's *Self-Portrait. Structure. Report. 9.6.1972* is important within the history of heartbeat works because it is one of the first to use heart rates as an information system, anticipating the use of heartbeats in today's surveillance culture. Burga's work highlights that the body is not only flesh, bones, organs, and physiological processes but also information. Heartbeats in Burga's works offer unintentional signatures that can become the image of a person, an image that can be used for the classification and control of individuals because it reveals not only agents but also their actions. This turns an apparently simple and innocent line from a cardiogram into something that contains a living and sociopolitical subject.

INTRUSIONS: MONA HATOUM

A video mapping the innards of a body, stretching from the esophagus to the colon, is projected on the gallery floor inside a confined space. The visuals, accompanied by the persistent ticking of a heart, make you feel uneasy. *Corps étranger* (1994) is one of Mona Hatoums's best-known works. It connects with Teresa Burga's full-length self-portrait in its use of heart rhythms, medical reports, and information systems, as well as with Mark Boyle and Joan Hills's *Son et Lumiere* in the showing of bodily fluids and functions as a way to make us aware of the inner parts and mechanisms of our bodies. Hatoum's works, however, aim to explicitly highlight how medical systems have intruded inside our bodies, invading our personal and private spaces, including our most intimate orifices and vital organs.

Hatoum, who was born in Beirut in 1952 to Palestinian Christian parents, settled in London after civil war broke out in Lebanon in 1975 while she was on a short visit to Britain. In the 1980s, like many artists of her generation, she started working with performance and later moved to video works that use the human body to confront both cultural conventions and power structures. She uses the human body, focusing on its fragmentations, dislocations, and appearances from a first-person point

of view. Her work, as Catherine Grenier has observed, "is like the human body, an indivisible unit inhabited by countless forces, both positive and negative, that mold the visible form."[27] Over her career, Hatoum has created two time-based works that are sonically related in their use of moving images and the sound of heartbeats. More than a century after Laennec's stethoscope sparked anxiety about being used as a spy device, *Look No Body!* (1981; figure 6.4) and *Corps étranger* (1994; figure 6.5) are both works in which the artist disembodies heartbeats and other intimate parts of her anatomy in order to reveal another kind of body: the interiors of surveillance systems, including those of the medical sphere.

Created while still a student at the Slade School of Fine Art in London, *Look No Body!* (1981) is the first work in which Hatoum used heartbeats to explore the body through its fluids and functions. During this forty-minute performance work, Hatoum repeatedly drank water before urinating in a nearby toilet, where she had placed a closed-circuit television camera that was connected to a monitor in the exhibition space. The action was accompanied by a recording that combined the artist's heartbeats, a medical description of the micturition process, and her reasons for creating the work: "It's just that I often wonder where my body ends. . . . I mean what my boundaries are . . . whether it's the skin . . . what about things like hair and nails, and you know, things that come out of the body in the form of urine, faeces, blood . . . where does it actually end?"[28]

These questions as to the limits of the body corresponded with an era when disembodiment and dematerialization in aesthetics and culture were being debated. The mood of the time was captured in Donna J. Haraway's well-known "A Cyborg Manifesto," published a few years after Hatoum's piece in 1985, in which Haraway also questioned the skin as a border of the body. *Look No Body!* was a response to Hatoum's observations of Western culture's estrangement from the body, a shift that the artist considered to have been exacerbated by the 1980s HIV/AIDS epidemic:

> Working with bodily fluids [and heartbeats] was a reaction to this feeling that people around me were so disembodied, they were just like walking intellects that didn't pay any attention to their body and the fact that our body is part of our existence. . . . I wanted to make work that would appeal directly to your senses, that would somehow touch you physically.[29]

By the disembodying heartbeats and revealing usually concealed private bodily fluids, *Look No Body!* asked audiences to reconsider their bodies: Where does their interior end and their exterior begin? For this purpose, Hatoum used a closed-circuit camera to show us through the walls what is hidden. The device reveals her in an intimate place and moment, urinating in the bathroom. Her intention was to refer to the boundaries being breached by sociopolitical systems of intrusion and control that had begun to spread throughout the United Kingdom and the United States in the 1980s. Thus, the heartbeat sound gives the artist presence in her absence and serves to locate her body in different rooms and situations.

6.4

Mona Hatoum, *Look No Body!*, 1981. Performed at The Basement Gallery, Newcastle-upon-Tyne, 28 March 1981, forty minutes. © Mona Hatoum / Locus+ Archive. Photo by John Kippin.

6.5

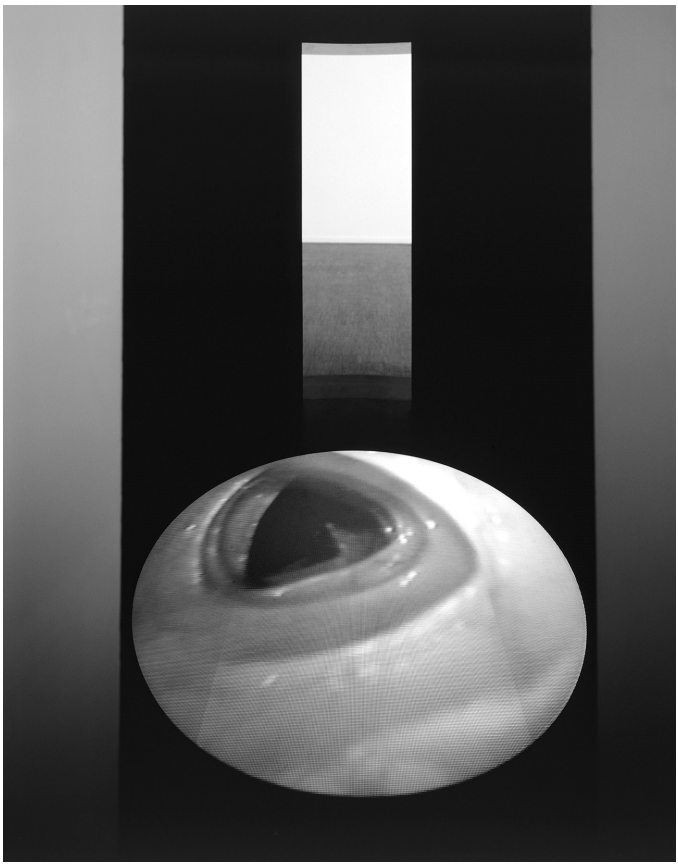
Mona Hatoum, *Corps étranger*, 1994.
© Centre Pompidou, MNAM-CCI, Dist.
RMN-Grand Palais / Philippe Migeat.

More importantly, though, they are also a reminder of how the heart rate is calm when at rest but noticeably agitated when subjected to situations of stress, shyness, and vigilant external observation.

Heartbeats, medical procedures, and the blurring of boundaries between internal/external, organic/technological, private/public, guarded/intimate are themes that are also present in the works of other artists of Hatoum's generation. Take, for example, Bill Viola's *Science of the Heart* (1982) installation. In a dimly lit room containing a double bed, a pounding and viscous heart being surgically dissected is projected on a screen.[30] The heart, in plain sight, can be linked with life, disease, excitement, or death. The bed, too, is a polysemic object with its deep connections to birth, sex, sleep, illness, and death. Here Viola creates a physical and mental landscape that evokes the various phases of the life cycle through the image and sounds of the heart.

Like Hatoum, Viola uses the video camera and its intrusive lens to set up spaces for confrontation, but Hatoum takes it further. While her works share the peculiarity with Viola of producing in the viewer a sense of trespassing into a very personal space, she puts her own body at stake. There is no place more intimate and vulnerable than everything that is inside our skin, especially for women, whose bodies have historically been objectified, exposed, and condemned at the same time. As Lynda Birke has pointed out, "Self-examination was, is, a radical act in enabling women to see what was hitherto hidden; it thus challenges medical power."[31]

Accompanied by the persistent sound of heartbeats, *Corps étranger* (1994; figure 6.6) is an endoscopic journey to the interior of the artist's body that exposes its organs, tissues, cavities, and inner workings to the viewer's gaze. Consisting of a cylindrical structure that hosts video images shot with an endoscopic camera and projected in a circle on the floor, the video starts with an image of the artist's eye and goes on to enter her mouth, from where the camera initiates a painstaking mapping of Hatoum's internal viscous, fleshy, and pulsating tracts. Recorded with the help of a doctor, using the latest visualization technologies that reveal the inner structures and workings of the body, this invasive procedure traverses the artist's most intimate and secret territories. As Hatoum's heart continues to beat strongly, permeating the dark, enclosed viewing space, anxiety rises in the visitor. "Sometimes people can't take it," the



6.6

Mona Hatoum, *Corps étranger*, 1994.
© Centre Pompidou, MNAM-CCI, Dist.
RMN-Grand Palais/Philippe Migeat.

artist remarked, and "it's usually men who are uncomfortable."[32] It is this foreignness with the body that is highlighted in the title of the piece:

> I called it *Corps étranger*, which means "foreign body," because the camera is in a sense this alien device introduced from the outside. Also, it is about how we are closest to our body, and yet it is a foreign territory, which could, for instance, be consumed by disease long before we become aware of it. The "foreign body" also refers literally to the body of a foreigner. It is a complex work. It is both fascinating to follow the journey of the camera and quite disturbing. On one hand you have the body of a woman projected onto the floor. You can walk all over it. It's debased, deconstructed, objectified. On the other hand, it's the fearsome body of the woman as constructed by society.[33]

Corps étranger alludes to how women's bodies have always been objects for another's gaze, as well as subjects of control, expectations, scrutiny, and fear (as demonstrated in beat 1). In the piece, the sound of heartbeats makes an unsettling awareness that heightens the (im)material reality not only of Hatoum's body but also of our own bodies. Hatoum explained in an interview how she had obtained the heartbeat recording from the university's teaching hospital opposite her art school:

> As a student at the Slade, I thought I was entitled to hassle the doctors at the University College Hospital across the road. They wouldn't do the endoscopy on me, but I managed to get the sound recording of my heartbeat and stomach rumbles, which I used in *Look No Body!* And eventually in *Corps étranger*. A piece that I had shelved because nobody would take me seriously. It only became possible to make this work when the Centre Pompidou commissioned me to produce it. Without their influence and financial support, I would never have been able to make it. So *Corps étranger* was a very old idea, but there are a lot of ideas that keep coming in different ways. There are different strands of my work that develop over a long period of time and keep coming in and out of focus.[34]

Ideas also have their own systolic and diastolic cycle and, like blood, can circulate in circles. When *Corps étranger* was finally realized, it culminated in a beautiful, haunting piece. Hatoum made a portrait of her inner structure in order to have a full picture of herself, of her own unknown body,

while also displaying the throbbing, humid, and scarlet inside that is shared by all bodies, regardless of age or ethnicity. By presenting bodily images generated with medical technologies, which are usually only presented and interpreted by doctors when we are ill, Hatoum said she "was implying that surveillance can even penetrate inside you. There's no place that remains unturned or unobserved."[35] By turning this "penetrating gaze" to the mysterious body's insides and to our intimate heartbeats, the artist referred to both the medical gaze and the intimidating vigilance of surveillance systems. In sum, to that "all-seeing" force that, as Michel Foucault pointed out, applies both to hospitals and to prison systems.[36] Today, medical surveillance has expanded by the use of body visualization technologies to become a "technobiopower" that, as noted by Haraway, pertains to health and disease, flesh, and film.[37]

Confronting us with the organic and the technological, Hatoum undergoes a medical examination in which she cannot identify herself as a person, as a woman, because viewers see and hear bodily matter and heartbeat sounds. As Judith Butler and Luce Irigaray have demonstrated, "matter" is intricately woven into power relations that surround racism, gender, and sexuality.[38] These heteronormative categorizations are fundamental to surveillance systems. Today, surveillance medicine governs healthy bodies through technology that, as shown in Hatoum's work, projects them as observable and self-observable clinical subjects rather than as persons.

A remarkable feature of Hatoum's work is that it also suggests how "hospital medicine" turned the body into a "three-dimensional object" that could be mapped through heartbeat inspections and other laboratory analyses. Heart monitoring is surveillance equipment for care, control, and management. An echography, endoscopy, and coloscopy are fundamental elements in *Corps étranger*, and they were performed on the artist at her own request. According to David Armstrong, "surveillance medicine," which implies a reorganization and "a fundamental remapping of the spaces of illness," is now dominant.[39] This is because the "medical gaze" has extended from the body out into social spaces and lifestyles.[40] The medical profession has come to consider individuals's daily activities, as well as their cultural and social lives, to be legitimately within the scope of medical intervention. Above all, the focus is on the

participation of each person in the "self-surveillance" of their own bodies and health practices. In this bodily discipline, we must take care of our hearts to prevent cardiovascular diseases, the leading cause of death globally—a situation that can be exacerbated by climate change–induced extreme weather, pollution, and fires, all which impose additional stress on our cardiovascular systems. [41]

"Surveillance medicine" addresses each of us through careful observation and data collection by doctors, hospitals, and surveys. As Kate Crawford and Irma van der Ploeg have demonstrated, the widespread use of digital medical records means that medical and body information is monitored by governments and companies that use it to define everything from health insurance rates to medical access.[42] Access to cardiovascular health, for instance, is now determined not only by health providers but also by AI algorithms that assess medical information and can operate with a racial bias, disfavoring women and minority groups.[43] Also, following the current anti-abortion "heartbeat bill" in the United States, heartbeats are also being used as a biopolitical tool to control women's lives and reproductive rights. As we don't know who can access our "digital bodies," the interior of the body is a space vulnerable to control and intrusive observation, as Hatoum clearly anticipated. Furthermore, as noted by Armstrong and depicted in Hatoum's piece, bodies in today's surveillance medicine are as passive as those in a penitentiary system

> The prisoner in the Panopticon and the patient at the end of the stethoscope, both remain silent as the techniques of surveillance sweep over them. They know they are being monitored but they remain unaware of what has been seen or what has been heard [and how it will be used].[44]

The medical and penitentiary systems of vigilance are present in Hatoum's installation. The cylinder cell is a container that makes observers the prisoners of the interior of the body, while viscous images, in combination with the incessant sound of heartbeats, generate sensations of attraction and repulsion to a monitored mysterious body. The cardiac rhythms highlight an awareness of the disconnection between the healthy and the sick, the private and the public, the familiar and the foreign, the visible and the invisible, the inside and the outside in relation

to our bodies. With its voyages through the artist's most intimate and secret territories, *Corps étranger* is an unusual, throbbing, and slimy self-portrait that is as intimidating as the intrusions of medical devices and surveillance medicine systems that reveal the status of our familiar but relatively unknown bodies.

BIOMETRICS: RAFAEL LOZANO-HEMMER

An immersive landscape made of thousands of bulbs suspended at different heights creates pleasing oscillating hills that blink to the rhythm of your heart. *Pulse Topology* (2022) is one of Rafael Lozano-Hemmer's most recent biometric works, in which the artist presents a crowd-attracting spectacle of the heart's revolutions as a blinking geography. Born in Mexico City in 1967 and currently based in Montreal, Lozano-Hemmer has created, in collaboration with his Antimodular Research team of engineers and designers, more than ten interactive installations that require the input of heartbeats from participants.[45] Showing how a source has multiple possibilities, all works use a similar interface but achieve very different results. Lozano-Hemmer's work has earned widespread international attention for its spectacular and participatory use of technology.

First presented at the festival *Plataforma* in Puebla, Mexico, and later at the Mexican Pavilion in the Venice Biennale in 2007, *Pulse Room* (2006; figure 6.7) was the first of a series of his biometric works that gave heartbeats the leading role.[46] The installation consisted of hundreds of incandescent light bulbs hung symmetrically by DMX cables at a height of three meters. An interface in a metal structure with two handgrip sensors was located on one side of the space. The sensors were connected wirelessly via a USB plug from a Go!Link adapter to a Mac Mini running Windows XP Pro. This controlled the lights. The artwork is activated when a participant touches the sensors, and the computer senses his or her heartbeats. As visitors grab the interface, their pulse causes one single bulb that is suspended lower than the others, near the handles, to glow. Once the participants loosen their grip on the sensors, there is a blackout in the room, and their biometric rhythms are translated as pulses of light and transmitted to the first bulb in the grid; this displaces the previous

participant's rhythm from that bulb, which is then shifted to the next bulb in the grid, and so on.

The resulting projection of these light rays is a process of reembodiment of the participant's body through vision and pulsation. "We measure 10 variables from the sensor, things like systolic and diastolic activity, and then we convert that into the way the light gets activated. The attack on the tungsten filament is different for each person, so you can see that your heartbeat is quite unique," Lozano-Hemmer explained.[47] The installation, however, dispenses with the notion of the individual since each visitor's rhythms merge into a community of pulses, leaving no trace nor memory. *Pulse Room* evokes a life cycle and serves as a *memento mori* because, just as in life, one existence follows another, pulse

6.7

Rafael Lozano-Hemmer, *Pulse Room*, 2006. Hirshhorn Museum and Sculpture Garden, Washington, DC, United States, 2018. Photo by Miguel Legault. Courtesy of the artist.

after pulse, new registers displacing the old ones. This feeds into a trope about the continuum of life, but it also conveys the inevitability of death and the disappearance of the memory.

The primary inspiration for Lozano-Hemmer's pulse pieces came from a personal experience:

> When my wife was pregnant with twins, I learned that the ultrasound machine can let you hear the heart of the fetus. So, being a nerd, I asked for two ultrasound machines so I could listen simultaneously to the heart of the boy and the heart of the girl. They created this kind of syncopated beat—they would come in and out of sync, kind of like minimalist music. . . . This experience inspired the piece, which shows hundreds of heartbeats all together in a room.[48]

A further source of inspiration was the Mexican film *Macario* (1960; figure 6.8), based on the novel *The Three Guests* by German writer B. Traven and directed by Roberto Gavaldón. *Macario* narrates the story of an indigenous Mexican man who encounters Death and is given the ability to cure the sick. The specific scene that struck Lozano-Hemmer depicts the protagonist who, guided by Death, has a phantasmagoric vision or hallucination in a grotto filled with millions of candles. Each candle represented a human life: the flickering ones stood for people who were alive, the unlit ones for people who had died. The scene presents, on the one hand, the Mexican culture's vision of life where Death's dominant role is evident and, on the other hand, the metaphysics of Judeo-Christian traditions. These place light as the source and origin of the world, leading to the conception of souls as "being-as-light" and life as "being-a-spark."[49] In the film, as well as in Lozano-Hemmer's pulse-based works, the collective nature of life is visualized based on the sharing of space and the understanding of life's ephemerality. Further, the concepts of light and life are clearly related; we see light in the eyes as a sign of life, and in some languages, such as Spanish, the act of giving birth is also called "alumbrar" or "dar a luz," which also means to light up. Furthermore, the *memento mori* in both Lozano-Hemmer's *Pulse Room* and *Pulse Topology* (which recalls Macario's cave) is cheerful, entertaining, and pleasantly accepted as a never-ending succession of light-dark, life-death cycles, and therefore is more related to the Mexican folk vision of Death.

Although Lozano-Hemmer is often considered to be a digital artist working with cutting-edge technologies, he resists interpreting his work as something new:

> So for me it's interesting to separate myself from this idea of new media. . . . I really dislike this term because there's nothing new about what I am doing. . . . I find it way more interesting to make connections to the past and see ways in which my work can be related to other experiments that have already been taking place for almost 100 years, than to pretend that what I'm doing is new. . . . My contribution has to do more with the traditions of experimentation.[50]

Lozano-Hemmer's work relates to the history of science and technological experiments in electrical phenomena from the eighteenth century, as

6.8

Still from the film *Macario* (1960), directed by Roberto Gavaldón. Photography by Gabriel Figueroa.

discussed in chapter 1. Particularly relevant to Lozano-Hemmer's work is the apparatus created in the 1740s by the French physicist abbé Jean-Antoine Nollet, one of the most significant physicists of his time. Nollet toured cities and towns across Europe with his apparatus inventions, using darkened salons to show his spectacle of sparks along with electrical body attractions and reactions that kept audiences entertained and impressed. Both Nollet and Lozano-Hemmer created community spectacular performances. In both cases, these performances made electrical phenomena visible via aesthetic devices or instruments linked to bodies. While scientific and technological experiments in electrical phenomena during the eighteenth century opened a space for the culture of performance, spectacle, and education, Lozano-Hemmer's works create a space where technology functions as the interface for the encounter of art, self, spectacle, and collectiveness.

Lozano-Hemmer follows in the footsteps of many artists who have incorporated heartbeats and light. They include Jean Dupuy, and Mark Boyle and Joan Hills, as well as others who have created compelling works. There is Stelarc's *Amplified Body* (1985), a mechanistic performance in which the artist extended his heartbeats and other bodily functions using sensors and light beams. Jonathan Borofsky's *Heartlight* (1991), a tripod lamp that beats and sounds in time with the artist's heartbeat. *Light Blaster: Immaterial Membrane* (1993), by Christian Moeller, which allows visitors to control a membrane of light with the frequency of their heartbeat. Vadim Fishkin's *Lighthouse* (1996) is a work in which the artist live-transmitted his heartbeat to a beacon positioned in the copula of Vienna's Secession Building for many days. Another example is Noriyuki Fujimura's *Heartbeats* (2003), an interactive collective public art performance in which participants literally illuminate the streets with their heartbeats by carrying balloons equipped with bulbs and heart rate sensors. And finally, Christian Boltanski's *Le Coeur* (2005), which is a translation of the artist's heartbeat into a palpitating bulb (see chapter 7).[51]

Although Lozano-Hemmer's heartbeat works have poetic connotations with their references to the finitude of life, the artist is more interested in subverting the use of biometrics as surveillance technology and light as a tool of control or what he calls "violent light." This term

encompasses all types of light used for surveillance, interrogation, and forms of human intimidation:

> I am not so much interested in the materiality of light, but the space of light. My interest in light, however, is in the light used by American border choppers to find Mexicans. The light of interrogations. . . . My parents were nightclub owners in Mexico City. To me light is artificiality.[52]

More than a century after artificial light was used for the first time to provide a panoptic view, and Étienne Jules-Marey's polygraph was used for the first time by Italian criminologist Cesare Lombroso to assess a criminal suspect's blood pressure during an interrogation in 1890, artist Lozano-Hemmer creates aesthetic, collective, and connective experiences with heartbeat and lighting technologies.[53] Custom software, searchlights, sensors, scanners and other technologies play a major role in his biometric works. Here the ambivalence of technologies is explored; heartbeats are not simply a sign of life but signs with political connotations. And the ambiguities of surveillance are put in a balance that leans more toward care than control.

The use of artificial light for policing and military purposes has always fascinated Lozano-Hemmer, and he has articulated this with the deployment of surveillance technologies. Searchlights, a material often used in Lozano-Hemmer's pulse pieces, have historically been used in many contexts. They have illuminated the movements of people and military transport during war; they have blinded enemies with their brilliance; they have also prevented or controlled the transit of people, whether migrants and asylum seekers at borders or prisoners in jails. In addition to their military purposes to illuminate the enemy, searchlights have also been implemented for aesthetic and commercial purposes. [54] *Pulse Front: Relational Architecture 12* (2007), displayed over Toronto's Harbourfront, is one of Lozano-Hemmer's first pulse works, merging such surveillance and spectacular use of searchlights. The piece, like Abu Dhabi's later *Pulse Corniche* (2015; figure 6.9), is part of his *Relational Architecture* series, which he defined as "antimonuments for alien memory agency."[55] The artist proposed these public art projects to reconfigure public spaces and

6.9

Rafael Lozano-Hemmer, *Pulse Corniche*, 2015. Guggenheim Abu Dhabi, United Arab Emirates. Courtesy of the artist.

create renewed forms of memories, relationships, and behaviors among those people who cohabit in a city.

Pulse Front and *Pulse Corniche* used a similar interface to *Pulse Room*, but instead of incandescent bulbs within a dark room, they used robotic searchlights projecting into the sky. The colossal interactive works use a matrix of robotic searchlights, a DMX controller, a computer, costume software, and metal structures with sensors located across different points. When passersby held the stick sensors, a computer read the data and sent it via USB cable to a minicomputer located in the base of the pulse stations, which translated the data into light beams via 10,000-watt searchlights. The lights traveled up to 10 kilometers across the sky. When the work was not being activated, the computer projected the biometric recordings of the last participants. The result was a spectacle of dancing lights in the dark sky that expressed life in a phantasmagorical reflection of pulsing beings.

A fundamental characteristic of Lozano-Hemmer's pieces is that they create a sense of community. The fostering of human connection via electronic art has been a continuing source of inspiration and investigation for his artistic practice. In his works based on the pulse, the artist prioritizes the creation of collective artistic experiences over solitary and individual encounters. This has become possible because of technological advances that have enabled the input of many people to be joined together and amalgamated into a single piece.

Lozano-Hemmer's most recent and most significant work using biometrics and searchlights aims to bring people together across the US-Mexico border. *Remote Pulse* (2019) is an interactive installation consisting of two heart-sensing stations, one located in Ciudad Juárez, Chihuahua, and the other in El Paso, Texas. Once they are touched, the sensors transmit the pulse of the stranger to the sensing station on the other side of the border, interconnecting spaces, persons, and hearts. Participants can feel the pulsing in their hands in a haptic connection. The piece was presented alongside *Border Tuner* (2019), which also interconnected the two sides through sensing stations that guided powerful searchlights. When the lights of two stations intersected, microphones and speakers automatically turned on and participants could engage each other in cross-border conversations.

Both pieces work in opposition to US usage not only of border searchlights but also of biometric technologies. These have been used to monitor and channel the intense back and forth of human flows across the border.[56] The exclusion of migrants from the political body indicates, according to Giorgio Agamben, a state of exception. This has become a norm found not only in the United States but around the world.[57] As noted by James C. Ross, the previously Orwellian state based on watching is now a cybernetic state control, a *bionetwork* that uses data recorders to decide who is part of the body politic and who it is necessary to exclude and "restrict their access to entry, benefits and jobs."[58] As part of these strategies, the US Special Forces designed Jetson and other heartbeat detector devices, which can be applied for both military and immigration control purposes. They can detect individuals by their cardiac signature from hundreds of meters away.[59] Many of these devices have been used to uncover migrants and asylum seekers hiding in trucks not only on the Mexico/US border but also on European borders. When aligned with technological forces, the heartbeat is immersed in socioethical quandaries.

Through heart reverberations, *Remote Pulse* creates a platform of dialogue for the questioning of political borders, the location of private and public frontiers, and the discriminatory categorization, objectification, and control of immigrants' bodies. The work explores the possibilities of expanding the body to unexpected and forbidden spaces via biometric technologies, which are often the domain of surveillance systems and are today a primary tool for distinguishing who is part of the body politic and who is not.

> I think that *Remote Pulse* surpassed *Border Tuner* in its emotional capacity. People truly "felt" each other's pulses through the haptic interface, and this created an intimacy . . . it is as if you put your hands on the chest of another person to feel their heartbeat. I donated the piece to Ciudad Juárez and El Paso so that it can be permanently installed in a public space in each city and become a reliable connection . . . a bridge across Trump's wall.[60]

Regarding the use of technologies in the piece, Lozano-Hemmer commented in another interview,

> I can't help but think about the ways in which these same biometric technologies are being used in ways I find appalling—for example, in the separation of families that's taking place at the border. For me, it's a beautiful opportunity to use these technologies of control and power to create connective experiences, poetic experiences, where we feel a sense of belonging instead of division and walls.[61]

In addition to fostering a space for spatial and poetic connection, *Remote Pulse* also fostered some empathetic and physiological connections. Recent neuroscientific studies demonstrate that the interoceptive sensitivity of heartbeats impacts both affective and cognitive empathy, and that people's cardiac rhythms sync when they connect spatially, whether they are sleeping, cuddling, or simply sensing their heartbeats for a certain period of time.[62] By facilitating the experience of touching the other from a distance and therefore experiencing a space of synchrony, closeness, and empathy, *Remote Pulse* emphasizes the interconnectedness and interdependence not just of persons but also of communities and border regions.

Lozano-Hemmer has created several works using heart rates that reveal interconnected technological systems and also use the heartbeat as a biometric identifier and as a vehicle for communicating the state of a person. During the COVID-19 pandemic, the artist created the online work *OnPulse* (2020).[63] Participants enabled their cameras so that their heartbeats could be detected using photoplethysmography. This optical technique detects blood volume variations by measuring light transmission. Once their heartbeats were translated into graphics and made audible as lub-dub sounds, users could access a chatroom. Here each heartbeat took the form of a flame, evoking the film *Macario*, and in that intimate and dark space, in that pulse room, one could initiate a dialogue with other hearts.

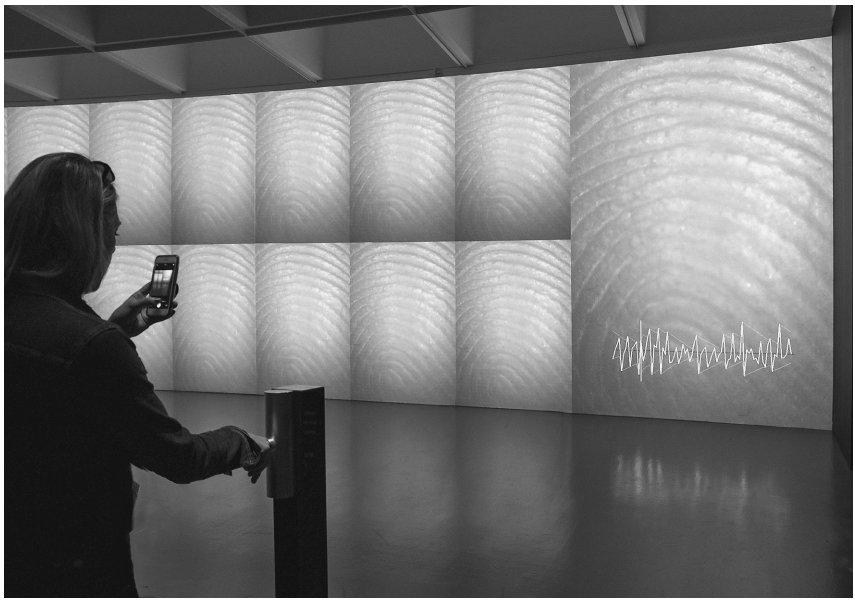
An earlier work also created for remote access was *Pulse Phone* (2009), an iPhone 4 app. It measured the user's heart rate using the phone's camera and flash, and could detect variations in the opacity of the person's finger via blood flows so that it could calculate their pulse in beats per minute. This information then appeared on the screen as an electrocardiogram. Lozano-Hemmer made the app by hacking Apple's camera code and developing an algorithm that analyzed the pulse. The app saved the

pulse history so that the user could share it by email if they wished. The artist considered *Pulse Phone* to be a "trick device," with its only artistic merit being the aesthetic visualization of data as white lines on a red background. I suggest, however, that this app, and other self-track apps and gadgets such as the Apple Watch, Fitbit, Garmin, Oura, and Strava, show how pulse rate technological devices and apps have crossed the traditional boundaries between art, health, fitness, science, surveillance, and entertainment. The possibilities such devices offer are numerous. Some Strava users, for example, have located data breaches in the app and publicly revealed several US military bases and users' data and activities. Others have used Strava's GPS mapping to draw hearts, animals, and other figures in their running or cycling routes—an activity that is now known as "GPS art."[64] Using Fitbit body data, American duo LigoranoReese created *IAMI* (2013–2014), a series of portraits in which an individual's emotions and weekly Fitbit activities were displayed as a colorful and continuously changing fiber optic tapestry. The work considered how our lives, activities, and bodily functions are more than bits and bytes as they are threaded, measured, transmitted, and networked on a daily basis across the internet. And of course, our data is subject to commodification by companies or governments that seek the monetization of life.

Heartbeats combined with other biometrics have become a plausible secondary option by which electrical and computer engineers can verify identities in our hyperconnected world, even with their variability owing to mental states, physical activity, and age.[65] They have found the EKG signature to offer a secure system because it is a living password. This makes it more difficult to hack and more reliable when used in combination with other forms of authentication like fingerprints or facial recognition. As Donna Haraway anticipated in 1992 in her "Cyborg Manifesto": "We are all chimeras theorized and fabricated hybrids of machine and organism."[66] Surveillance technologies are today an assemblage of technological and organic inscription devices, intersecting various parts and processes that are disaggregated for the purposes of observation. Data from computing devices, mobile phones, CCTV cameras, facial recognition, tagging systems in social media, and mobile applications that capture heart rates can be tools of control with which governments can expand their territories of dominance.

Today, the transformation of the body into data is ubiquitous. This information has been particularly useful in medicine and law enforcement, two arenas that are increasingly interconnected. As N. Katherine Hayles has stated, information has "lost its body," as it is dispersed into a diverse technological system that defines who we are and how we are perceived.[67] Technology has become so "entwined with the production of identity that it can no longer meaningfully be separated from the human subject."[68] The subject has become "a collection of heterogenous components, a material-informational entity" in constant flux.[69] According to biometric researcher Irma van der Ploeg, graphs and abstract images of the body have changed the ontology of the physical body into "flows of information and communication patterns" captured and stored by IT technologies. These databases of information have the potential to attach a "biometric identifier to every personal file in these databases" for use in the control of citizens, particularly in the areas of health, migration, criminal investigation, insurance classifications, and intelligence services.[70] Furthermore, as observed by Kate Crawford, as AI is designed to "benefit the states, institutes, and corporations that they serve,"[71] it is a form of power that has resulted in more algorithmic and predictive technologies that amplify existing structural inequalities. As a result, our bodies, and thus heartbeats, have become data that algorithmic systems might use and misinterpret.

In Lozano-Hemmer's *Pulse Index* (2010; figure 6.10), participants are framed not as body entities but as abstracts: as graphic recordings of heart rates and fingerprints, extracting the body from its physicality into an amalgam of virtual data. The bodily landscape of *Pulse Index* is activated when visitors touch a custom-made sensor equipped with a digital microscope. An image of the fingerprint is taken from the microscope itself and immediately projected, pulsing at their own heart rate, with an image of their cardiac waveform. The work can record and display the data of up to a thousand participants, but as more people activate the piece, the recorded images gradually become smaller and smaller until they vanish. This immersive installation highlights the human dimension through technological paraphernalia but dispenses with the notion of the individual. The pieces are most effective when the individual input disappears and merges into the community.



In its beguiling landscape of palpating traces, heart rates, and fingerprints, *Pulse Index* oscillates between a life form and a web of information, as an organic entity coming into contact with a nonorganic one. The life form is created through pulsating graphs and fingerprints and by a pulse that gives life to an image usually collected just for official identification and surveillance purposes. The web of information alerts us to the mechanisms of control, which we are already embedded within, and the uses of this body of information for social categorization and discrimination. But it also reminds us that we are part of a collectivity that lives in an

6.10

Rafael Lozano-Hemmer, *Pulse Index*, 2010. Hirshhorn Museum and Sculpture Garden, Washington, DC, United States, 2018. Photo by Cathy Carver. Courtesy of the artist.

inescapable hybrid system, where a new form of body has been created and governed by the conjunction of both body and data.

While biometrics, computers, networks, programs, and other technologies can be used to intrude into our privacy, artists like Lozano-Hemmer subvert their ontology by using them as creative tools and transforming them into a valuable resource that promotes community and aesthetic experiences. Heartbeats and lights in Lozano-Hemmer's works can be read as paradoxical material: they join the biological with the technological, as waves that represent absence and presence, life and reason, and as materials, they are used for both care and control, intimacy and spectacle. In the pulse works, lights and pulse commingle in a reflection of our nonbinary existence, showing that things are not always one thing or the other but can be many things at the same time. But most importantly, they are intangible elements that produce the visual illusion of the extension of the energy of our bodies into unimagined spaces; this is done by creating connective and collective experiences that extend the vitality of our intimate hearts into the public sphere, reminding us of their multiple connotations and (mis)uses.

Heartbeat Art

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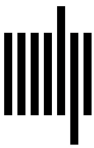

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