

Sicardi

Ayers  
Bacino

GUSTAVO DÍAZ

BIOGRAPHY, CV  
& CURATORIAL TEXTS

## GUSTAVO DÍAZ

1

[1969, Argentina] Born and raised in Argentina, Gustavo Díaz was awarded a scholarship to work at the Instituto Nacional de Tecnología Industrial at a young age. While studying engineering at the Universidad de Buenos Aires (UBA), he began to contemplate the nature of existence on a philosophical level. In the 1990s, he studied painting and sculpture at the Escuela de Bellas Artes Prilidiano Pueyrredón, and piano performance at the Conservatorio Superior de Música “Manuel de Falla.” Díaz’s multidisciplinary education reflects his curious and restless nature and serves as a foundation from which he continues to investigate contemporary scientific and philosophical thought through artistic research and production.

For twelve years, Díaz committed himself to the teaching of art, motivated by his belief in the artist’s responsibility to share a better vision of our reality and our perception of the world through this spiritual path. He cofounded and directed Centro NOUS in the city of Pinamar, Argentina. During this time, Díaz taught visual arts classes including drawing, painting, and photography and experimental workshops. After years of academic intensity, Díaz refocused his energy on discovering his own artistic language. This period of structural reconsideration gave rise, after years of internal searching, to the subject he has been researching for over ten years: the behavior of complexity.

Díaz presents his findings through intricate, abstract works on paper and installations that map the conceptual connections between disparate, yet related, theories. Through this intense artistic and academic journey, he has examined subjects such as the study of Chaos Theory, in particular issues related to Ilya Prigogine’s concept of Dissipative Structures, for which Prigogine was awarded the Nobel Prize in 1977, as well as René Thom’s Theory of Catastrophes, focusing on the rupture of linearity and the emergence of “the

new” through discontinuity processes. Another subject that he approached in depth to study the behavior of complex systems is the concept of networks, in particular those of rhizomatic origin. Díaz is interested in hypercomplex connectivity, especially in what relates to the Theory of Systems’ grammatical aspect and particularly grammars that are sensitive to their surroundings.

Díaz spent ten years immersed in this study of philosophical and scientific inquiries in almost complete isolation in the remote town of Cariló, Argentina before relocating to Houston, Texas, where he currently lives and works.

Díaz’s work has been shown in numerous selected exhibitions, including *Form, Line, Gesture, Writing: Facets of Drawing in South America*, Museu Valencià de la Il·lustració i de la Modernitat (MuVIM), Valencia, Spain (2008); *Cosmic Dialogues*, The Museum of Fine Arts, Houston (MFAH), Texas, USA (2015); *Latin American Experience*, The Museum of Fine Arts, Houston (MFAH), Texas, USA (2015); *Latin American Experience*, The Museum of Fine Arts, Houston (MFAH), Texas, USA (2018); and *To the Skylark: Selections from the Prints & Drawings Collection in the inaugural installation of the Nancy and Rich Kinder Building*, The Museum of Fine Arts, Houston (MFAH), Texas, USA (2020).

Díaz’s work is included in the permanent collections of Balanz Contemporánea, Buenos Aires, Argentina; Juana Manso 999, Buenos Aires, Argentina; the Fine Arts Museum System of San Francisco (Legion of Honor, de Young Museum, & Achenbach Foundation for Graphic Arts), California, USA; The Museum of Fine Arts, Houston (MFAH), Texas, USA; Noble Energy Collection, Houston, Texas, USA; Proyecto A Collection, Buenos Aires, Argentina; and The Transart Foundation for Art and Anthropology, Houston, Texas, USA.

## JUSTIFICATION A PRIORI: SCIENCE AND AESTHETICS IN THE WORK OF GUSTAVO DÍAZ

by Julie Knutson and Fabiola López-Durán

2

Text for the exhibition  
*Justification a Priori*, 2012.  
The Mission Gallery.  
Chicago, IL, USA

The work of Gustavo Díaz sits at the intersection of science and aesthetics. Preoccupied with the microcosmic—with rendering the minute, subatomic, and fractalized underpinnings of the universe visible—the Argentina-based artist eschews the facile and the dogmatic. Rather than representing the singular and universal, he seeks atomized and discrete particularities, offering, whether in elaborately assembled three-dimensional acrylic reliefs or in painstakingly rendered pencil drawings of rhizomatic structures, multi-layered, de-centered, and boundless compositions that require, in his terms, engagement with the work's "intimate complexity." This complex intimacy is evident at all stages of his creative process—from the conceptual moment before Díaz's work is materialized to his extended, artisanal crafting of the objects to the viewer's interaction with the piece, which requires proximity and close inspection. Using very few materials—his reliefs tend to consist of acrylic and vinyl, his drawings simply of pencil and paper—he attaches extraordinary importance to both concepts and craft. In his works, almost as in bricolage, concepts are inseparable from the material process of making. Like other contemporary artists in the Americas such as Vija Celmins (USA), Ana Maria Tavares (Brazil) and Maria Fernanda Cardoso (Colombia), Díaz explores the multiple ways in which art and science — crafting and thinking — illuminate one another, with his works standing as paeans to the visual intricacies of chaos, complexity, uncertainty and imperfection.

At first encounter, the exhibition title *Justification a priori* reads like a cipher. The term *a priori* is most often heard, if it is heard at all, in philosophical discourse, drawing on the writings of the late eighteenth-century German philosopher, Immanuel Kant. According to Kant, *a priori* knowledge is knowledge that exists and is possible prior to and always without experience, such as mathematics. Yet, Díaz's understanding of the term is more in

accordance with the post-Kantian mathematical logic of Charles Sanders Peirce and his concept of abduction. With the addition of this concept, Peirce complicates the dichotomous relationship between deduction and induction — methodologies used to prove or disprove a statement. Therefore, abduction, which for Díaz parallels the *a priori*, is a speculative enterprise, which involves guessing about what is plausible. In fact, Díaz uses the Latin term *a priori* literally to point to an abstract junction of space and time where the move to the material emerges within the hypothetical, initial origin of every search. For Díaz, limitless and unstable, drawing from the realm of the possible, the *a priori* moment engenders the first visualization of the work of art, precarious and incipient though it may be. In this amplified state of vulnerability, science provides Díaz not with the expected objectivity and neutrality, but rather with a vehicle for revealing the incomplete, unstable, and political condition of art. From Max Planck's quantum theory of 1900 to Einstein's 1915 general theory of relativity to Gödel's 1931 theory of incompleteness and Mandelbrot's 1975 "Fractal Geometry of Nature," Gustavo Díaz's work traverses twentieth-century scientific discourses whose combined emphasis on chaos, probability and uncertainty have infiltrated the aesthetics and politics of making and receiving cultural objects, including art, architecture, and other visual media and artifacts. In so doing, Díaz's work destabilizes not only our everyday pseudo-scientific assumptions—it stands as a visual response and challenge to proclamations like those made by the Argentine art critic Jorge Romero Brest. In his presentation for the 1965 Premio Nacional e Internacional Instituto Torcuato Di Tella, Romero Brest distinguished between scientific objectivity and aesthetic subjectivity, suggesting what has been commonly accepted as an indisputable truth: that the scientific is concrete, objective, and precise and therefore incompatible with the fragile, subjective, and imprecise nature of art.

Drawing on the discoveries of twentieth century physics—including Heisenberg’s Uncertainty Principle, Niels Bohr’s theory of complementarity, and what Einstein ‘called spooky action from a distance,’ it is clear that distinctions between objectivity and subjectivity cannot be reached, especially within the most rigorous of the sciences, in so simplistic manner as Romero Brest suggests. Díaz—who recognizes that science and art are not opposites, but compliments—probes this ground of uncertainty. Romero Brest’s assertion of the independence of scientific and artistic “truths” collapses when placed in discourse works like *Secuencia Entrópica* (Entropic Sequence, 2008), which consists of seventeen modules spanning four columns, the sum total of which illustrates the entropic sequence. Read from top to bottom, left to right, the work begins with the formula for entropy:  $S = K \cdot \log P$ . The same formula is repeated but altered with each step, and the original equation visually transforms from legible and recognizable letters and symbols to increasingly complex, blurred, and obscure marks. The material for this progressive abstraction is present in the original letters and symbols, something which a critic like Romero Brest would likely read as an expression of “pure” mathematics or science, antonymic to “art.” However, by distorting and fragmenting entropy’s constituent parts, Díaz reveals that something so apparently straightforward as an equation exists to mask the fundamental disorder beneath its surface, which has always existed and continues to evolve into greater stages of complexity. Complexity is, in fact, structurally inherent to things that appear deceptively simple and formulaic.

Born in Argentina in 1969, Díaz’s interest in the sciences predates his work as a visual artist. Díaz’s art bears the theoretical imprint of his electronic engineering and music studies, as well as his independent inquiries into the interrelated areas of philosophy and mathematics. The titles and descriptions

of his work—peppered with references to the theories of philosopher Gilles Deleuze, architect-musician Iannis Xenakis, and theologian Thomas Aquinas, among others—reflect his engagement with multiple intellectual influences and his use of art to visually manifest a different form of abstraction. This endeavor—to give shape and assign visibility to concepts that often elude form—distinguishes him from many of his abstract predecessors, in Argentina and elsewhere. Díaz’s abstraction does not translate to non-figurative, non-representational, or anti-naturalist—he defies and complicates many of these terms through creating abstractions and magnifications of things that, though not typically visible, are, nonetheless (in their microscopic form) figurative.

At the center of his creative process, then, is an understanding of *tekne* and *logos* as an indivisible unit. In fact, Díaz envisions his process not as an abstraction but as a figurative biological metaphor: a tree in formation. For Díaz, the first phase parallels a vast field of soil and seed, which together form an amalgamated entity. In this fertile moment, which he associates with doubt, instability, questioning, and curiosity, anything could happen. In the second stage, these invisible, underground workings begin to congregate into a solid axis: the trunk of the work. Díaz’s ideas meet and begin to acquire a relational logic. The third stage is represented by branches and foliage appearing as organic extensions of the trunk. This, according to Díaz, is the most significant phase of his process, the tangible moment of artisanal intervention at which he, as the artist, physically manipulates the material, giving shape to knowledge. Importantly, these stages are not distinct or discrete; rather, they are fluid, often overlapping, alternating, and intersecting.

The tripartite structure that follows derives from recurrent themes that emerged in a series of conversations with Díaz in February and March of 2012. The first section focuses on the boundlessness and unframeability of almost

all of Díaz's acrylic structures and drawings, which speak to the historical precedent of the disassembled and restructured frame set by mid-twentieth century Argentine artist collectives such as Grupo Madí or Grupo Concreto Invención. As a strategy to liberate the work from its representational function, these collectives, like Díaz, expanded and extended the frame: the former by breaking the frame, transforming it into an irregular entity, an object in its own right; Díaz by transgressing it. Although the operations of both transform the frame into an integral part of the work itself and, in so doing, incorporate the work into the surrounding environment, there is a critical difference. While the Argentine avant-garde shifted the attention to presentation over representation by portraying the frame itself as the work of art, Gustavo Díaz's works activate a regressus ad infinitum by forcing the viewer to engage with their inner depths while simultaneously imagining their proliferation beyond the work, endlessly inverting and subverting the process of presentation over representation. This section is followed by an examination of Díaz's engagement with discourses of science and his placement within the lengthy intellectual-artistic tradition of trying to visualize the invisible. Not simply concerned with sight, Díaz's work also evokes the sense of hearing, incorporating questions of sound and silence. Díaz attempts to do sculpturally what John Cage did aurally with his piece *4'33"*, that is, to force the audience to concentrate on that which ordinarily would be ignored. His project complements that of Cage, in that it engages people in the act of looking on an intense and contemplative level as Cage did with hearing and concentrating on silence. In the last section, we turn our attention to that which Díaz hopes his work will demand, an extended and absorptive engagement with its "intimate complexity." It is the "aura," the metaphorical shadow of the artist in the work, which Díaz refuses to cede in his bricolage handiwork. Correspondingly,

this last section explores the impossibility of digitally or photographically reproducing Díaz's art. Throughout, Díaz's works are placed in conversation with those of seventeenth-century scientist-illustrator Athanasius Kircher, whose detailed drawings help historicize the mutually influential forces of science and aesthetics so integral to Díaz's process.

I.

Waves of flames lap across the surface of Athanasius Kircher's mid-seventeenth century engraving *Solaris*. Kircher presents the sun as a sea of fire, dotted by volcanic mounds and crosshatched plumes of smoke indicative of gaseous intensity. The rim of the celestial body blazes, punctured at intervals by belching clouds that refuse to be circumscribed by the sun's perimeter. These atmospheric releases break what could be viewed as the sun's "frame," disrupting any idea of containment or enclosure. We imagine their diffusion and expansiveness as they gradually occupy more and more airspace from their circular points of release.

Like Kircher's sun, Gustavo Díaz's work defies circumscription. For instance, *El universo como origen hipotético entre una cierta ambigüedad y una ambigüedad cierta* (The Universe as a hypothetical origin between a certain ambiguity and a ambiguous certainty) is characterized by indeterminate endpoints that seem to proliferate and bear consequence beyond the construction. The assemblage of hundreds of overlaid transparent, acrylic rectangles protruding out of a panel, the back of which is marked by black vinyl strips, refuses to be flat or contained. Though the seemingly endless minute rectangles that comprise the whole are "regular," the collective effect of them is not—holistically, the object appears to have multiple contours,

with different endpoints on each of the several layers. Such refusals of easy measurement and central structuring predominate elsewhere in Díaz's work, notably in his other acrylic pieces *Estrato de estabilidad vulnerado por un bucle extraño con cuadrados Gödel* (Stratum of compromised stability by a strange loop of minute Gödel squares) and in *Mientras Malevich concibe su cuadrado blanco sobre fondo blanco es atravesado por la flecha del tiempo y en el fondo se escuchan sonidos 4'33"* (While Malevich was conceiving his White on White painting it was crossed by the arrow of time; in the background one can hear sounds 4'33"), which similarly disrupt the idea of a contained picture plane.

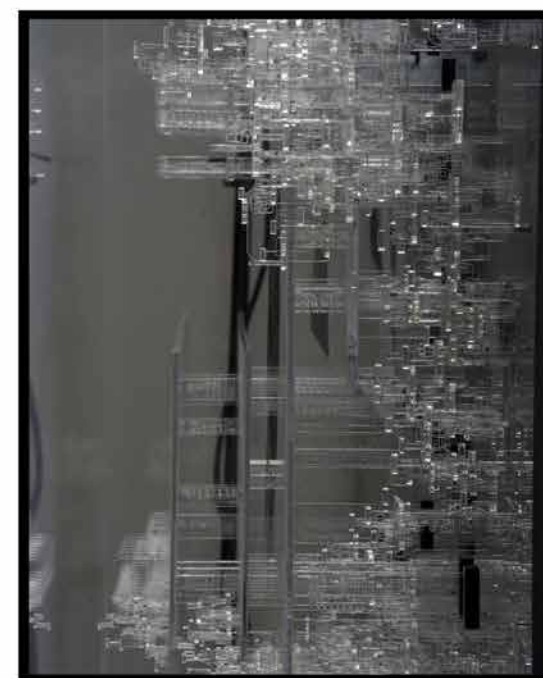
In a March 2012 interview, Díaz contrasted the irregularity of his objects with those of the Grupo Madí and Grupo Concreto-Invencción tradition, emphasizing the immesurability of his structures and their intrinsic complexity. Although these artist collectives working in Argentina in the 1940s and 1950s restructured the frame into polygons with sharp, jagged angles, theirs remained cordoned off with sides that, despite their deviation from the standard square or rectangle, were measurable. Their irregular frames, in their supposed "closedness" and in featuring them as part of the art object sought to "invalidate the stereotype, inherited from the figurative tradition of the painting seen as a 'self-contained organism'...as a circumscribed surface, separate from its surroundings and destined to house a figurative or other type of narrative." In keeping with this genealogy, Díaz's departure from the standard frame seeks not simply to formally restructure an object but to destabilize the dialectic of interior and exterior, object and milieu, and expand perceived reality. His structures defy the very idea of the frame, representing what he terms a rupture from centered, Cartesian stability.

By undifferentiating the work from the outside, Díaz creates a space for dialogue about aesthetic normativity and the power of the built environment.

Perhaps unsurprisingly, he confesses that architecture and habitats, which he sees as having the power to condition behavior in a manner comparable to the way in which the frame structures seeing and ultimately legitimizes the work, stood at the forefront of his mind as he worked on *El universo como origen hipotético entre una cierta ambigüedad y una ambigüedad cierta* (The Universe as a hypothetical origin between a certain ambiguity and a ambiguous certainty). In a similar vein, neo-concrete Brazilian artist Lygia Clark thought of painting specifically in architectural terms. This explains why her *Bichos*, those metallic unfolding sculptures that she called bugs, animals, or organisms, derived from paintings but curiously look like architectural models. Emancipating painting from its conditions, Clark's *Bichos* are modulated surfaces that seem to open, disconnect themselves from the wall, fall and then transform into creatures, reminding us that painting was always a body—perhaps an architectural body. In this sense, his work approximates the challenge set by twentieth-century philosopher Keiji Nishitani, as explained by Norman Bryson, "to dissolve the apparatus of framing which always produces an object for a subject and a subject for an object." As we shall later see, this dissolution of the frame enables the viewer to shed their subjectivity, forget about their distance from the work, and fully engage with its "intimate complexity."

## II.

Picture the earth, sawed from pole to pole, revealing its inner contents. To a seventeenth-century viewer, such an imagining might have looked much like that of Kircher's subterranean aquatic system. In his *System Ideale: Quo Exprimatur Aquarium*, a radiant center with tensely-concentrated energy



*Estrato de estabilidad vulnerado por un bucle extraño con cuadritos Gödel, 2011.*  
Acrylic.  $15 \frac{3}{4} \times 102 \frac{3}{8} \times 17 \frac{3}{4}$  cm

spirals outward from the middle of the mass. Egg-like repositories of water that branch in tendril-like growths surround this midpoint, with many of these aqueous arteries touching the interior edge. Scalloped waves—the world’s oceans, if we are to trust the sailing ship visible in the engraving’s lower portion—encircle this inner world. Mountainous landmasses are interspersed between the waters that cover the globe’s surface. Each corner features putti who, also invisibly, direct the earth’s winds and atmospheric conditions.

While this image may strike twenty-first century viewers as naïve, its project—to render the hidden transparent—has preoccupied scientists and artists for centuries. Art historian Barbara Maria Stafford goes so far as to label this tension between visible and invisible “the foundation of all dichotomies,” citing this dialectic as a driving force behind both the fine and medical arts, which share the task of “conjecturing about...the unknown.” Thoroughly embedded in this discourse, Díaz extracts and magnifies fragments to understand the structural logic of the whole from which they are taken.

In the graphite drawing *De natura sonorum invisibilis* (Sounds of invisible nature), Díaz exposes a complex, rhizomatic structure. In characteristic fashion, he subtly incorporates music, science, and philosophy: the title derives from a 1975 series of twelve pieces—*De natura sonorum*—by avant-garde composer Bernard Parmegiani, a study of the interrelationship between naturally-occurring sounds. This interest in sound and silence is evidenced elsewhere in Díaz’s work, particularly in *Arquitectura de ruido blanco* (Architecture of White Noise), and *Mientras Malevich concibe su cuadrado blanco sobre fondo blanco es atravesado por la flecha del tiempo y en el fondo se escuchan sonidos 4’33”* (While Malevich was conceiving his White on White painting it was crossed by the arrow of time; in the background one can hear sounds 4’33”), which references John Cage’s 1952 conceptual work 4’33”,

a silent piece intended to make people listen to the sounds that surround them but which often go ignored. The rhizome, while an organically-occurring structure, also relates to the philosophical works of Gilles Deleuze and Félix Guattari, who invoke it as an example of a non-hierarchical and non-dualistic mode of representing and interpreting information.

*De natura sonorum invisibilis* (Sounds of invisible nature), features two biomorphic forms that call to mind the pleural cavity. The impression—of a literal opening of knowledge and accessing of invisible forms through science—parallels the exposed core of Kircher’s earth. These oblong shapes, networked in pencil, are organically webbed together by fragile, circular outgrowths that bridge the blankness between them. From a distance, this pair looks ethereal and nebulous; the intense grays of the interior fade toward the outer edges, which appear smudged and without definite end or boundary. Step nearer the image, and its vagueness transforms into a gridded network populated by fine dots painstakingly rendered in pencil, such as if we were looking through the skin to the complex structure of the respiratory system and its invisible agent: air. The preciseness of the micro-level of viewing dissolves as one steps away, and these tiny, distinctly-rendered specs recede back into their former imprecision.

### III.

Kircher’s *Tabula Combinatoria* shows a seventeenth-century diagram of alchemic interactions, with straight lines stretching from points on one side of the figure to the other. With each line, the intensity of the network amplifies, acquiring density and depth. The imperfect alloys of the left y axis, which include arsenic and cadmium, span the diagram’s width to combine with such



perfect substances listed along the right y axis as ferrum and mercury, in the process creating a symmetrical, argyle-like pattern in which the addition of each line creates new angles and shapes.

In Díaz's 2008 pen and ink series *Paradigma de la línea: De Platón a Deleuze* (Line Paradigm: From Plato to Deleuze), we encounter a meditation on the function of the line in creative assembly. A tangled web of overlapping and intersecting lines, varying in thickness and value, supplants the predictable and ordered patterns of crossing observable in Kircher. Díaz's drawings represent the tension between classical and contemporary philosophical paradigms; in this case, the classical "ideal" model of Plato is contrasted to the complex system of Deleuze. Deleuze's alternate paradigm, as mapped by Díaz, possesses no determinable start or end point and no traceable trajectory; instead, these lines appear as endlessly repeating iterations, many of which continue to span well beyond the parameter of the image and exceed the notion of frameability.

Although *Paradigma de la línea* immediately presents as frenetic and multi-layered, extended viewing and contemplation of the piece reveals coherence. Recognition of this coherence, masked as it is by the density and complexity

of the network, involves intimate engagement—seeking the parallels, intersections, and perpendiculars that are not immediately obvious and tracing the course of the individual line within the composition. Like the 2008 relief *Universo fractal imperfecto* (Imperfect Fractal Universe) and the previously discussed *El universo como origen hipotético entre una cierta ambigüedad y una ambigüedad cierta*, this work provides an apt visual model for the networked and interconnected world we inhabit, the complexity of which is often missed in everyday and routine engagements. These drawings, like so much of Díaz's work, forces us into a meditative internal dialogue evoked by close, extended inspection.

Appreciation of the irreproducibility and complexity of Díaz's work—whether his three-dimensional reliefs or drawings in graphite—requires physical nearness, a literal intimacy. As he asserts, these works are meant to be seen in person, designed to "encourage the observer to get physically close...[in a] detail-oriented examination that might awaken some sort of philosophical interpretation." As seen in images of Díaz's *La suma teológica de las partes no es igual al todo: orden + desorden* >.



*Untitled, 2019*  
Cut out paper, pigment,  
colored pencil  
25<sup>5</sup>/<sub>8</sub> x 25<sup>5</sup>/<sub>8</sub> x 3<sup>1</sup>/<sub>2</sub> in  
Collection of Brad and  
Leslie Bucher, Houston, TX

## CONSTRUCTING UNCERTAINTY: TRAVERSING THE ART OF GUSTAVO DÍAZ

by Tobias Ostrander

10

Text for the exhibition  
*Incompleteness: The Poetics  
of the Intangible*, 2020.  
Sicardi | Ayers | Bacino,  
Houston, TX, USA

Addressing both the intimate and the infinite, Gustavo Díaz's works involve thinking on and through paper, demonstrating a rigorous and multifaceted engagement with his primary medium. Seemingly miraculous in their microscopic scale and rich detail, the artist's works involve hundreds of hours of production. He uses computers and laser-cutting machines, yet his interactions with these technologies are more analogue in approach than digital. While the patterns visible in these works appear computer generated, they are all meticulously drawn "by hand" (using a computer's mouse). The artist specifically defies the seduction of multiplicity and algorithmically generated forms that computer programs currently promote, preferring a more meditative and manually exhaustive process. With the laser cutting machines, their ability to cut paper to a minuscule degree is of particular interest in producing a scale that forces the viewer's close reception of them. It is additionally the fact that the machines are burning the paper to create lines and shapes that attracts the artist, as it represents a contemporary manifestation of the ancient use of fire as a tool for mark-making.

The artist's particular lived experience informs these artworks. At the age of twenty-seven, after studying engineering, fine arts and musical composition, Díaz moved to Cariló, several hours from Buenos Aires. At the time this area was extremely isolated and the artist moved there to study in solitude, pursuing diverse investigations related to philosophy, natural science, physics, literature, sound and drawing. He built by hand his own house and stayed living in this area for the next twenty years before relocating to Houston. The landscape of Cariló is both austere and full of texture and detail, as tall pine trees give way to wide sand dunes and unobstructed views of surf and the sea's horizon. One senses that this context has deeply influenced the artist's practice, the extended experience of physical isolation, combined with deep

contemplation and intellectual activation, occurring in dialogue with the specific visual qualities of the landscape in which these investigations took place. It helps create an understanding of this work's unique ability to feel so close and so far at the same time, with the seemingly endless and expanding repetition of its textured, minute details quickly moving one's mind toward more vast, expansive fields of contemplation.

Nests, bark, coral, mushrooms, stones; the linear patterns of these natural elements are references in many of the artist's works and help ground our reception of them in the tangible. Yet it would be an oversimplification to tie these works solely to landscape and the natural world. Rather, here one might come to understand natural forms as far less simple in organization than one normally accepts. In discussing his works, Díaz at times mentions nature, but more often speaks of generative systems and their disruption, of theories of chaos interconnecting with those of catastrophe, of disjunctive logics placed in dialogue. These ideas are often formally translated through conflicting stylistic patterning visible within an individual work. Looking intently, the viewer can often see fluid, irregular and natural looking configurations intersected by geometric forms that appear more traditionally architectonic and mathematical.

In his process of articulating a particular artistic investigation, Díaz often turns to the physical presentation of layered and overlapping books, which he refers to as non-linear "semantic constellations." While dense and initially difficult to grasp, these presentations are useful tools in deciphering the divergent roots of the artist's rhizomatic thought processes. Related to the works in the current exhibition, one sees, for example, several works by Argentine writer Jorge Luis Borges placed under those of the North American composer John Cage, near a book by the mathematician and analytical philosopher Kurt Gödel.

Several publications on the topic of “Fuzzy Logic” lie near “Granular Patterns,” adjacent to “Particle Physics” and “An Introduction to String Theory and D-brane Dynamics.” These are juxtaposed with “Branches,” by the British science writer Philip Ball and “In Praise of Shadows,” by the Japanese writer Junichiro Tanizaki. With Díaz’s three-dimensional diagrams, an initial layer of books is often followed by additional layers, as his thinking evolves with a given project.

With the title of his current exhibition, *Incompletitud: La poetica de lo intangible* Díaz alludes to the “incompleteness theorem” by Kurt Gödel, originally published in 1931, in which the mathematician articulates the idea that for any law or logic to be “complete” it must contain within it its own contradiction. His thinking, based in science but more philosophical or even existential in character, implies that we are all in fact incomplete and only within our own contradictions might we approach a sense of wholeness. Díaz combines this reference with those of the “intangible,” which addresses his consistent experimentation with the limits of materiality, often pushing the structure of paper close to the point of disintegration.

*Constelación semantica aproximada: Argumentación diagonal sobre conjuntos rudos, la nube y la hormiga* is the title of a series of works with paper that represent experimental investigations by the artist that have served as generative sources for other artworks in the exhibition. These tiny paper pieces, whose gray and brown tones are created by the laser burning process, look like hives, branches, or bones. In the production of each of these sequences Díaz initially looks for what he calls an “event,” which might be a certain texture in the paper, or a small tear, that is then multiplied, made into a system that creates a pattern, which he in turn manipulates and often later degenerates. For the artist this series of works is distinctly analytical and conceptual, lacking significant poetic content, which pushed him to then take

these studies and create a second body of work in which he layers symbolic content onto these structures.

The resulting series is titled *El rozamiento de la incertidumbre* and includes eighteen paper pieces, divided into seven groupings and a sound composition of 23 minutes. Each cluster has been given a title, such as “The birth of night,” “Algorithm of fire,” or “The intelligence of flowers.” These seven sections refer to both the drawings and passages within the accompanying sound piece. Díaz understands his sound works as structured similarly to that of his drawings, filled with patterns, textures, varying depths and layers. Jorge Luis Borges enters this series as one poetic referent, as does John Cage. Specifically Díaz is reflecting on a Borges text *The Fearful Sphere of Pascal* and with Cage a series of sound works and drawings based on the composer’s experience of the Japanese rock garden *Ryoanji* in Kyoto. He is inspired by the innovative structure and particular magic of Borges’ writing and with this text in particular, to the writer’s articulation of time and history as non-linear and existing as metaphors. Cage’s explorations of this Zen garden incorporated chance and improvisation as he used the fifteen rocks of this garden as loose structural elements, in an ever-changing group of pieces described as “compositions-in-progress.” These two sources are extremely different, creating an unusual juxtaposition, with the text by Borges heavy with historical references contrasting significantly with the lightness and minimal character of Cage’s pieces. But it is specifically the distance between these two aesthetic positions that interests Díaz, the abstract space of potential meaning existing between them, that he is exploring.

The multiple references to time and space addressed in this series are expanded upon within additional works produced for the exhibition, as are the unusual play with shadows seen here as well, gestures influenced by Junichiro

Tanizaki's meditations on light and darkness within Japanese aesthetics. Strong color enters in several spherical drawings, for the first time in many years within Díaz's oeuvre. The specific vibrant reds and warm yellows used are derived from tones discovered within the lazar burning process and are painted meticulously by hand by the artist.

*Arquitectura de murmullo* is an ambitious work that includes a twenty-seven minute sound piece involving thirty-six speakers accompanied by thirty-six works on paper. The audio is built around a series of seven to twelve clusters of sound, constructions that float and overlap, creating strong dissonances that make the overall form of the composition difficult to discern. The theory of *fuzzy logic* by the mathematician Lotfi Zadeh, published in 1973, enters here as a structuring reference for Díaz. Zadeh's ideas propose a way to manage uncertainty and develop models that are capable of interpreting data (here in the form of sound) that are imprecise or vague. Díaz's references to floatation, suspension and structural complexity with sound are mirrored in physical form within the set of drawings. Architectonic paper constructions, that each display three-dimensional depth through the use of minute vertical columns

that push their cut forms outward into space, are adhered to circular panels suspended from the ceiling. These discs are of different sizes and their positioning creates movement as they subtly turn, with their varying weights responding to gravity and the environment of the gallery. The rectilinear details of the paper pieces look like those of cities and recall the fantastical urban sites described by the Italian writer Italo Calvino in his book *Invisible Cities*. Assembled together Díaz's cities create an enigmatic cosmology, a mental mapping of forms and ideas.

Both as objects and concepts, all of these works are concurrently delicate and heavy, both dense and fragile. Uncertainty, contradiction and additional expressions of imperfection and vulnerability within organizational systems are reoccurring themes throughout all of Díaz's production. In each project's embrace of precariousness one additionally senses the artist's wrestling with the limits of physicality, materiality and the tangible, revealing his continual struggle with each artwork's ability to hold and convey the extensive conceptual and poetic weight he places on them.

Text for the exhibition  
*Confronting Silence*, 2022.  
 Sicardi | Ayers | Bacino,  
 Houston, TX, USA

## CONFRONTING SILENCE: A REFLECTION IN THREE PARTS

by Dr. Nikki Moore

1. A raucous debate has raged over the centuries in the fields of mathematics, physics, biology and the arts. In time, each discipline has proposed its answers to this question: How can we say something true about the world around us?

For Leonardo DaVinci, accessing the truth of the world lay in mastering the art of biomimicry. Formulating careful studies of birds to propel human flight, he looked with equal intensity to the human body for signs of its inner workings. For DaVinci, nature was not only one step ahead of humanity, it was a gracious partner, eager to divulge its methods to those who cared to linger, to plot, and to listen.

Centuries prior, Euclid claimed that the truth of the world could be derived through mathematical postulates, or axioms. He joined Plato in claiming that truth could be not only accessed—but spoken—through logic, as if the latter was a mirror of an absolute. Until it wasn't. And contradiction cried out.

In the fallout and the breakdown: enter Hernán Cortés' veneration and anti-perspectival map of Tenochtitlan just before he destroyed it. Hop to Einstein and quantum mechanics wherein light can be described as both a wave and a particle. Then, on to Kurt Gödel's realization that axioms, Euclid's voices of truth, can only ever be incomplete or inconsistent. While particular phenomena can be modeled, on the topic of universals even mathematics remains silent.

2. *"If this word 'music' is sacred and reserved for eighteenth and nineteenth-century instruments, we can substitute a more meaningful term: organisation of sound."*

JOHN CAGE, 'The Future of Music: Credo' (1937)

In 1983, John Cage entered into yet another study of the aesthetic order of the complex. Organizing sound as the Zen Buddhist monks of Ryōan-ji had ordered a field of smooth, raked, river-rock pebbles in the temple's famous 15th-century dry garden, the composer abandoned the idea of music for something outside convention. The resulting sounds, like Cage's drawings of the stones themselves, reveal beauty and facticity—the being there-ness—in what appear to be random or stochastic processes. And yet, the drawing never touches the truth of the rocks. Instead, it models the wild contingencies of their existence.

Furthering investigations launched by both Cage and Tōru Takemitsu on silence, and Karlheinz Stockhausen and Iannis Xenakis on the problematics and possibilities for sound and score notation, Díaz' "Vuelos Brownian" propose a demonstration of Brownian motion by aural means. The discovery of Brownian motion revolutionized the understanding of solid matter by revealing the constant vibration of particles in what had long been thought of as still, or inert. Díaz' "Vuelos" are not just audible metaphors, the mechanisms of the KRK 8400 headphones actually celebrate the work of waves and particles in motion, transmitting both from the player to the ear.

3.

How does one model that moment when a flock of a thousand birds lilt and change course, as if one organism? Can one predict the emergence of robust three-dimensional form from a single point, which by definition has no mass and no volume? When does a trickle become a stream, and then a river and a landscape, or self-expression a worldwide protest?

Not a drawing of, but a drawing with, Díaz' intricate works on paper bring the body into the service of differential equations and fuzzy logic. Choosing the somatic, the artist's careful articulations of line, point, and gesture eschew the illusion of realism only to show us the world all the more profoundly. With Xenakis, Díaz maps fields of uncertainty and spontaneous synchronizations not only in music, but in the act of drawing itself. Lines that never connect form shapes that never truly appear.

These experiments are the notation and the model of micro-choreographies. They are footprints of the dance that is between body and pen. Between point and line. Between sound and silence.

Thirteen billion years on, we are still listening to the percussion of the Big Bang. In every moment. Perhaps inaudible in its ubiquity. Díaz' work is a response to the subsequent silence. It is a glimpse of the instruments that tune and turn the body to it.

I would like to thank Sicardi | Ayers | Bacino Gallery, the mathematician Dr. Lynne Yengulalp, and the artist, Gustavo Díaz, for their time, knowledge, and generosity.



From the series Imaginary Flight Patterns V, 2021. Graphite on paper. 42 x 60 in



GUSTAVO DÍAZ:  
MARKS ON THE PLENUM

Fernando Castro R.

16

*Confronting silence by uttering a sound  
is nothing but verifying one's own existence.*

TORU TAKEMITSU

Gustavo Díaz's latest exhibit *Confronting silence* at Sicardi | Ayers | Bacino Gallery features a dozen large graphite drawings on paper. The title of the exhibit comes from a book of essays by Japanese composer Toru Takemitsu (1930-1996) and the above quoted sentence—a sort of composer's response to Descartes' famous dictum *cogito ergo sum*. At first sight, some of Díaz's drawings look like neural networks, aerial views of urban centers, or the ever-evolving wondrous flight patterns made by the thousands of starlings that periodically grace the skies over nearby Rice University, disgracing passersby in the process. The viewer seems to be lured into seeking a likeness where there may or may not be any, as is the case of the face on *Imaginary Flight Patterns I*. However, it is not the game of mimicry but perhaps of modelling in the mathematical sense that is at stake; one in which many, albeit not all interpretations are supported and encouraged by the works. Thus, while one drawing may suggest subtle sumi-e landscapes, other drawings are like things one would never see because they are nowhere to be seen by the naked eye, except in the drawing itself; or, because the referents are observed only by scientists with sophisticated observation tools or via mathematical constructs. Yet, the most astounding visual attributes of these particular group of drawings—even if one were to deny that they mimic anything at all—are the very implausible, yet actual hand-drawn lines that define them. *Confronting Silence* is a very cerebral exhibit, while at the same time it is a tour-de-force of the very physical act of drawing.<sup>1</sup>

It is no wonder then, that one of the few emotions induced by viewing Díaz's drawings happens when the viewer gets close enough to discern their intricate minutiae. Then the viewer may ask herself about the prowess and precision skill to draw those lines so incredibly and impeccably close to one another. Where does the artist place his body in order to render lines with that exactitude in such large supports? If artistic technique is at times missing from conceptual artworks, Díaz's are a clear counter-example. In fact, he readily admits that he had to retrain his hand and arm in order to undertake this series of drawings. He once stated in a 2012 interview for *Literal* magazine, "In the Bauhaus tradition it was said that there is a knowledge that travels from the head to the hand and another from the hand to the head."<sup>2</sup> Previous works (equally astounding in their own merits) started as drawings made manually, but on an electronic device that mediated between his physical marks and the final products. The technique in both cases is vastly different although the resulting products are equally mind-boggling. By design, Díaz's drawings are not randomly gestural, nor are they algorithmic, as may arguably be a Mondrian or a Vasarely. These drawings that at a distance of three meters may appear as products of spontaneous doodles; at thirty centimeters are the polar opposite of gesturing. The artist draws with such precise intentionality that any gesture would result in a blunder.<sup>3</sup>

If not spontaneous, what rules or patterns does Díaz follow? In these days when expressing the artists' identities and communities in their works is of paramount concern, Díaz is one of those artists who does what Grace Slick used to claim when she sang "I am doing things that haven't got a name yet."<sup>4</sup> If anything, Díaz's intellectual community is alluded in the "constellation" displayed in the main corridor of the gallery; from therein may his complex, fluid "rules" be derived as well.<sup>5</sup> That long print-out of the "constellation"

is a kind of Rosetta stone from which to think the multivalency of Díaz's works, whether a single work may simultaneously denote the trajectories of gas molecules in Brownian motion, the spatial form of the avant-garde composition by Iannis Xenakis *Pithoprakta*, or any other whimsical interruption of silence.<sup>6</sup>

Back to the title of the exhibit: how do these drawings confront silence? Excluding musical notation, can the connection between physical marks on a paper and musical sounds be more than metaphorical? Is the depiction of noise, and noise equivalent? When does noise become music, and vice versa? Díaz's constellation shows his musical penchant 20th century avant-garde composers (Messiaen, Stockhausen, Cage, et al) who have explored the latter question. Indeed, *Confronting silence* includes sound compositions by Díaz which may be better judged by a musical critic rather than the undersigned. Moreover, some of Díaz's titles are a variation of Takemitsu's composition "Flock descends onto the pentagonal garden" (1977), which becomes "Flock ascending to the quantum garden" (2021). Díaz himself has described it as "an attempt to switch to a non-Euclidian way of thinking." The variation ushers in the topics of probability and uncertainty. One of the main touchstones in Díaz's constellation is fuzzy logic, a type of multivalent logic that admits intermediate values between the truth and falsity (one and zero in our friendly computers) of bivalent traditional logic. In fact, one of the books in Díaz's constellation is Lotfi Zadeh's book *Fuzzy Sets, Fuzzy Logic, and Their Applications*. At the core of Díaz's artistic oeuvre and aesthetics is this idea of a continuum between noise and music, stochastic and stubbornly random processes, mimicry and abstraction, corporeality and virtuality.<sup>7</sup>

Two other loci in Díaz's constellation are worth exploring in the process of understanding the ideological horizon of his drawings. The first is the visual

atlas (*Bilderatlas*) of art-historian Aby Warburg (1866-1929); and the second one, the writings of Jorge Luis Borges (1899-1986). Indeed, Díaz's constellation is a model of Warburg's atlas. The idea behind both is to find interesting similarities or connections in a set of seemingly disparate objects, and important differences in a set of like objects. Warburg executed this idea in a way that upset art-historical orthodoxy because it transgressed space and time, geography and culture, art and social media. In addition to amassing an important art-historical bibliography, Warburg assembled the *Mnemosyne Atlas* (1924-29): 63 panels with 971 photographic reproductions of artworks from antiquity to his day, mixed-in with newspaper clippings, stamps, coins, ads, etc. The proximity of the objects in each panel suggested connections that went beyond similarity, and into psychological, sociological, cultural attributes, etc. Díaz's constellation is similar to Warburg's Atlas, and the current essay about his drawings is an exercise in engaging the connections in the former.

What about Borges' literary oeuvre in Díaz's works and constellation? A couple of Borges narratives are alluded to in these works. The first, *On the rigor of science*, is about the absurdity of an enormous comprehensive map that in order to leave nothing out becomes the size of the mapped empire. It bears into the quandary of whether Díaz's drawings may be described as a kind of cartography. At least one of the drawings, *Imaginary Flight Patterns IV*, bears some resemblance to an aerial view of an urbanized area. With Google-Maps we have become used to the choice of maps that schematically represent the land, or faithfully show satellite photographs of it.<sup>8</sup> While early cartographers relied on some resemblance to orient the traveler, maps evolved so that they did not necessarily aim at depicting the mapped objects; rather, different kinds of maps cleverly represented them. For example, pluvial maps may

assign different colors to areas with greater or lesser rainfall—hence, a cartographic representation ensues that does not resemble anything you may actually see in the world. That is precisely the case in some of Díaz’s drawings in which what is represented may be something you will not see in our dear visual world; like probability density clouds, or the record of the most stepped-on areas of a soccer pitch during the course of one or many games.

The second Borges story, *On salvation through works*, is about eight Shinto deities who are considering the elimination of the human species in order to save the world.<sup>9</sup> Only one of the deities argues against that terminal idea, submitting that in spite of the fact humans have done terrible things, they have also created haikus, or (here Borges’ language is ambiguous) one specific imperfect haiku; perchance, “*por obra de un haikú, la especie humana se salvó*” (thanks to a haiku, the human species was saved). The entire weight of human existence bearing down on seventeen syllables? Although, we tend to be less optimistic about the power of a haiku to save the world, and reluctantly agree with the other seven Shinto deities, we hasten to ask whether there is something as apocalyptic in the drawings of *Confronting Silence*.

It might as well be Takemitsu with whom we open and close these reflections. Peter Burt, a Takemitsu scholar has suggested that it was from Cage that Takemitsu developed the idea of silence as plenum rather than vacuum.<sup>10</sup> Is it a plenum that we are facing in *Confronting silence*? Does the vast white empty space in Díaz’s drawings stand for silence or do the drawn lines do? Or conversely, if the white spaces are the noise, the graphite marks the structure of silence? Díaz once stated, “I declare myself a fervent defender of the world of questions, not so much of that of answers. I am fascinated by the realm in which we question, where there is room for doubt; given that we open pathways toward reflection.”

#### ENDNOTES

1 Seventeen years ago, the book *Vitamin D: New Perspectives in Drawing* (Phaidon: London, 2005) attempted to give a glimpse of the state-of-the-art with regard to drawing. As any curatorial endeavor it is a moot question whether all the artists included ought to be, and which excluded ones should have been. However, the book is worth perusing in order to compare and contrast Gustavo Díaz’s current work with that of artists such as Daniel Zeller and Julie Mehretu, whose work is featured in it.

2 Salum, Rose Mary. Interview: “Gustavo Díaz: the Art of Questioning.” *Literal* 28. Spring 2012.

3 M.C. Escher (1898 - 1972), the Dutch artist revered by the psychedelic generation and unjustly ignored by art critics and historians, was featured in an exhibit titled *Virtual Realities: The Art of M.C. Escher* at the same time Gustavo Díaz was showing at Sicardi | Ayers | Bacino Gallery. I was amazed to discover that many images I had admired for years are woodcut prints, and yet they show meticulous details equivalent to Díaz’s drawings. My bias about the medium of woodcut was that it could only render bold large design; anything finer would require

etching. Escher proves my prejudice wrong.

4 Jefferson Airplane (Grace Slick). Song: “Wild Tyme.” After Bathing at Baxter’s. RCA Victor: Hollywood, 1967.

5 Back in 1997, MFAH curator Mari Carmen Ramírez also used the metaphor of “constellation,” although not as a compass for a hermeneutic of artworks as Díaz does, but as a structural guide for her curatorial endeavor. She wrote, “Instead, both the exhibit and the accompanying catalogue have been conceived as a constellation. That is, an arbitrary configuration of seemingly eclectic [sic], often competing, visions and attitudes toward drawing which came into being during the 1960s and 1970s in the Southern Cone and have continued to unfold into the present. [Re-Aligning Vision: Alternative Currents in South American Drawing. Ed. Mari Carmen Ramirez. The University of Texas: Austin, 1997].

6 The intentional fallacy is a phrase coined by the American New Critics W.K. Wimsatt Jr. and Monroe C. Beardsley in a 1946 essay that challenges the common assumption that an author’s declared or assumed intention in writing a work is a proper basis for deciding the work’s meaning. First, I do not believe that Díaz’s constellation is relevant to the fallacy.

Secondly, said fallacy is not always a fallacy. For example, when Immanuel Kant made some changes in the 2nd edition of the *Critique of Pure Reason* because he was dissatisfied with the words that did not convey exactly what he meant, he was the main authority in what the work meant. Third, the fallacy was coined for written works, not for works of visual art, and it is my contention that the difference is crucial.

7 Fuzzy logic is a form of multi-valued logic in which the truth value of variables may be any real number between 0 and 1. According to Aristotelian logic, there are only two logical values: true or false, black or white. Although in real life some things are black or white, in many others there are many shades of grey. For example, although being pregnant is either true or false, being "fit" may not be as clear-cut because fitness depends on many variables, including the individual herself. Fuzzy logic has been used in numerous applications such as facial pattern recognition, healthcare (radiographic image classification, image segmentation for tumors, etc.), control of subway systems and unmanned helicopters, et al.

8 With Google-Maps the user is able to actually view not only the outside of a building, but also sometimes the interior spaces of some bookstores, restaurants, etc.

9 "De la salvación por las obras," *Atlas*. Jorge Luis Borges. Sudamericana, Buenos Aires, 1984.

10 "Of particular importance amongst such ideas were: the concept of a pluralistic, many layered, spatialised music; the idea of silence as plenum rather than vacuum; and the preference for the individual timbre of the single sound-event over and above the syntactical relationships between such events which have traditionally formed the discourse of Western music." Burt, Peter. *The Music of Toru Takemitsu (Music in the Twentieth Century)*. 2021. Page 96. < <https://ebin.pub/the-music-of-toru-takemitsu-music-in-the-twentieth-century-0521782201-9780521782203-0521026954-9780521026956-9780511518331.html>>

**GUSTAVO DÍAZ**

[1969, Argentina/Lives in USA]

**SELECTED EXHIBITIONS****2022**

*Confronting Silence*,  
Sicardi | Ayers | Bacino, Houston,  
TX, USA  
*Connecting Currents: Contemporary  
Art at the Museum of Fine Arts,  
Houston.*, The Museum of Fine  
Arts, Houston (MFAH), TX, USA

**2021**

*Unframed*, Sicardi | Ayers | Bacino,  
Houston, TX, USA

**2020**

*Incompleteness: The Poetics of the  
Intangible*, Sicardi | Ayers | Bacino,  
Houston, TX, USA  
*To the Skylark: Selections from  
the Prints & Drawings Collection  
in the inaugural installation of the  
Nancy and Rich Kinder Building*,  
The Museum of Fine Arts, Houston  
(MFAH), TX, USA

**2018**

*Latin American Experience*,  
Museum of Fine Arts, Houston  
(MFAH), TX, USA  
*Common Ground*,  
Sicardi | Ayers | Bacino,  
Houston, TX, USA  
*Fuzziness: Thinking on Paper*,  
Sicardi | Ayers | Bacino,  
Houston, TX, USA

**2017**

*Expanding the Line, Drawing, Video  
And Sculpture*, Cecilia de Torres,  
Ltd, New York, NY, USA

**2016**

*Typed, Cut, Peeled and Painted:*  
*Latin American Made*, McClain  
Gallery, Houston, TX, USA

**2015**

*Cosmic Dialogues*, Museum of Fine  
Arts, Houston (MFAH), TX, USA  
*Typed, Cut, Peeled and Painted:*  
*Latin American Made*, The Mission  
Gallery, Chicago, IL, USA  
*Latin American Experience*,  
Museum of Fine Arts, Houston  
(MFAH), TX, USA

**2014**

*Latin American Group Show*, The  
Mission Gallery, Houston, TX, USA  
*Off The Grid*, The Mission Gallery,  
Chicago, IL, USA

**2013**

*Universe 1*, The Mission Gallery,  
Chicago, IL, USA  
*Contemporary Abstraction*, Cecilia  
de Torres, Ltd, New York, NY, USA  
*Latin American Group Show*, The  
Mission Gallery, Houston, TX, USA

**2012**

*Justification a Priori*, The Mission  
Gallery, Chicago, IL, USA

**2011**

*Intricate Calligraphies*, Cecilia de  
Torres, Ltd, New York, NY, USA  
*Marked Pages III*, Sicardi Gallery,  
Houston, TX, USA  
*Microwave Eight*, Josée Bienvenu  
Gallery, New York, NY, USA

**2010**

*Ontological Geometries*, Municipal  
Museum of Art, Tandil, Buenos  
Aires, Argentina

**2009**

*Hypothetical Universes*,  
A-Contemporary Art Project,  
Buenos Aires, Argentina

**2008**

*Form, Line, Gesture, Writing: Facets  
of Drawing in South America*,  
Museum of Illustrations and  
Modernity, Valencia, Spain  
*OpenSpace*, ArteBA, Buenos Aires,  
Argentina  
*Horizon-zontis 2.0*, Cecilia de  
Torres, Ltd, New York, NY, USA

**2007**

*The Eye of the Arts*, Pinamar,  
Argentina  
Arteclasica Guest Artist, Espacio  
Oces, Argentina  
*Contemporary Argentine Art  
Auction*, Galeria Wussmann,  
Buenos Aires, Argentina

**2005**

*Open Studio*, New Horizons, Buenos  
Aires, Argentina

**2004**

*#9. Proyecto A*, Espacio Pinamar,  
Argentina

**2003**

*Painting Workshop*, Museum-House  
Victor Magariños D, Pinamar,  
Argentina

**2002**

*Exhibition #1*, A-Contemporary Art  
Project, Buenos Aires, Argentina

**2001**

*City Cultural Center*, Manzana de la  
Rivera, Paraguay  
Municipal Museum of Fine Arts, La  
Plata, Argentina

**1999**

*V Salon Nacional del Mar*, Centro  
Cultural Auditorium, Mar del Plata,  
Argentina  
*Group Exhibition*, Casal de  
Catalunya, Buenos Aires, Argentina

**AWARDS & DISTINCTIONS****2016**

Grant Transart Foundation for Art  
and Anthropology, in Houston, TX,  
USA

**2009**

National Drawing Exhibition, Palais  
de Glace, Buenos Aires, Argentina

**2007**

National Drawing Exhibition, Palais  
de Glace, Buenos Aires, Argentina

**2004**

Rioplataense Prize for Visual Arts,  
OSDE Foundation, Buenos Aires,  
Argentina

**2001**

Paloma Alonso IV Biannual Painting  
Exhibition, Argentina  
Banco Ciudad Foundation Prize,  
National Museum of Fine Arts,  
Buenos Aires, Argentina

**2000**

1st Prize, II National Painting  
Exhibition, Pinamar, Argentina

**1988**

INTI Honorary Scholarship. National  
Industrial Technology Institute,  
Sensors for Robotic Applications  
Development Laboratory,  
Argentina

**SELECTED COLLECTIONS**

Augusta Barrera Collection, Peru  
Balanz Capital Collection,  
Buenos Aires, Argentina  
Carlos Quaglio Collection,  
Argentina  
Family Sánchez Córdova  
Collection, Argentina  
Fine Arts Museum System  
of San Francisco (Legion of Honor,  
de Young Museum, & Achenbach  
Foundation for Graphic Arts),  
CA, USA  
Juana Manso 999, Buenos Aires,  
Argentina  
Michael Himes Collection, Indiana,  
USA  
Noble Energy Collection, Houston,  
TX, USA  
Proyecto A Collection, Buenos  
Aires, Argentina  
Renato Catellani Collection,  
Argentina  
Site Specific Installation, Puerto  
Madero, Buenos Aires, Argentina  
The Museum of Fine Arts, Houston  
(MFAH), TX, USA  
The Transart Foundation for Art  
and Anthropology, Houston, TX,  
USA  
Zitelli Collection, Argentina







Dean Rickles  
**A BRIEF HISTORY OF STRING THEORY**  
From Dual Models to M-Theory

H. Haken  
**Dissipative Structures and Chaos**



"A completely accessible, stunning work." —NATURE  
**FROM BACTERIA TO BACH AND BACK**  
DANIEL C. DE

WILEY PROFESSIONAL COMPUTING  
**FUZZY LOGIC FOR THE MANAGEMENT OF UNCERTAINTY**  
Edited by Lotfi Zadeh and Janusz Kacprzyk



Ilya Prigogine and Isabelle Stengers  
**Order Out of Chaos Man's New Dialogue with Nature**

**Circuit Complexity and Neural Networks**

H. T. NGUYEN

OXFORD  
**GRANULAR PATTERNS**  
IGOR S. ARANSON · LEV S. TSMIRING

OXFORD CHEMISTRY PRIMERS  
**Oscillations, Waves, and Chaos in Chemical Kinetics**  
Stephen K. Scott

**THE BOOK OF TREES**  
Visualizing Bra

**PARTICLE PHYSICS**  
An Introduction

JUNICHIRO TANIZAKI  
**EL ELOGIO DE LA SOMBRA**

**Branches**  
PHILIP BALL

Messiaen  
**Catalogue d'Oiseaux**  
Aimard



# SEMANTIC CONSTELLATION

Jorge Wagensberg in the prologue of *The intrusive thinker* says:

*"The spirit of the border invites one to flutter around a subject before delving into it. It is a habit of risk that favors the creation of new knowledge but that, on the other hand, invites more to open parentheses than to close them. That is why the intrusive thinker sails adrift at times, but his north is more a hope of intellectual joy than a guarantee of arrival at port."*

*In the border zone, certainties weaken, diversity appears, and beautiful dissonance emerges.*

*Alternative circuits, recursions, jumps out of the system, intertextualities, non-linearities, gravitations, and temporal contractions are exploratory resources used in my semantic constellations... Zadeh lends me his lens, and from a distance, I observe a figure; it looks like Aby Warburg.*

GUSTAVO DÍAZ

As I collect Ryoanji stones, it rains hybridity. Mientras junto piedras Ryoanji, llueve hibridez.

The Helicopter Quartet, composed in 1993 by Karlheinz Stockhausen. First performance was in 1995



### strange loop

Leonardo da Vinci - bird flight drawings - human flight - mechanical flight - helicopter - helicopter stretch quartet - Stockhausen - Messiaen - bird - bird flight drawings - Leonardo da Vinci

Leonardo was motivated to discover how birds continuously soar in order to use this information for developing human flight.



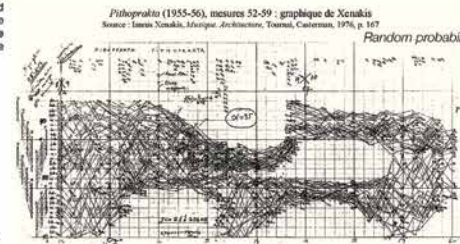
Otto Lilienthal

I find a beautiful link between stochastic processes and fuzzy logic (probability and uncertainty)

*Pithoprakta* is an example of a stochastic work. Stochastic processes are those which have a random probability distribution that may be analyzed statistically, but never predicted precisely. Examples include bacterial growth patterns, electrical current fluctuation, and—in the case of *Pithoprakta*—the movement of particles within a fluid. *Pithoprakta*, composed in 1955, is for 49 musicians—2 trombones, xylophone/woodblock, and 46 strings—where each instrument is conceived as an independent molecule following the Maxwell-Boltzmann distribution law. This law describes the probable velocity ranges of particles moving within an idealized gas at thermodynamic equilibrium. These ranges differ based on the temperature and pressure of the gas. In *Pithoprakta*, Xenakis divides the work into sections each with their own temperature and pressure parameters and calculates the velocity ranges of 1148 theoretical particles, according to the Maxwell-Boltzmann law. He graphed these calculations with the vertical axis representing the speed of the particle and the horizontal axis representing time. An example of this can be seen in Figure 1. These measurements were then connected with lines to show how the velocities change over time based on the temperature/pressure parameters.

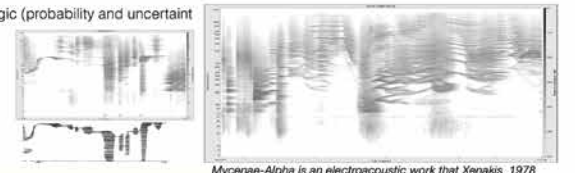
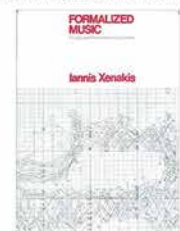
*Pithoprakta* es un ejemplo de trabajo estocástico. Los procesos estocásticos son aquellos que tienen una distribución de probabilidad aleatoria que se puede analizar estadísticamente, pero nunca predecir con precisión. Los ejemplos incluyen patrones de crecimiento bacteriano, fluctuación de la corriente eléctrica y, en el caso de *Pithoprakta*, el movimiento de partículas dentro de un fluido. *Pithoprakta*, compuesta en 1955, es para 49 músicos - 2 trombones, xilofono / bloque de madera y 46 cuerdas - donde cada instrumento se concibe como una molécula independiente siguiendo la ley de distribución de Maxwell-Boltzmann. Esta ley describe los rangos de velocidad probables de las partículas que se mueven dentro de un gas idealizado en equilibrio termodinámico. Estos rangos difieren según la temperatura y la presión del gas. En *Pithoprakta*, Xenakis divide el trabajo en secciones, cada una con sus propios parámetros de temperatura y presión y calcula los rangos de velocidad de 1148 partículas teóricas, de acuerdo con la ley de Maxwell-Boltzmann. He representado gráficamente estos cálculos con el eje vertical que representa la velocidad de la partícula y el eje horizontal que representa el tiempo. Un ejemplo de esto se puede ver en la Figura 1. Estas mediciones se conectaron luego con líneas para mostrar cómo cambian las velocidades con el tiempo en función de los parámetros de temperatura / presión.

*Pithoprakta* is an example of a stochastic work composed in 1955, for 49 musicians



### Xenakis

The movement of particles within a fluid.



*Mycenae-Alpha* is an electroacoustic work that Xenakis 1978



Example 6: Mycenae Alpha, Section 8, spectrograph and score

UPIC system (Unité Polyagogique Informatique du CEMAMu) Iannis Xenakis, France, 1977.



FROM XENAKIS'S UPIC TO GRAPHIC NOTATION TODAY

Example 1: UPIC Model on display at the Museum of Music, at La Villette in Paris, France.



...to think about the air

emergent patterns  
(flight patterns)

self organization  
(different kind)



spontaneous synchronizations

micro gestures  
micro choreographies

airo  
patrones  
emergentes  
(patrones de  
vuelo)

auto-organización  
micro gestualidad  
micro coreografías



El ruiseñor no sabe que te consuela...



The mockingbird does not know what consoles you.

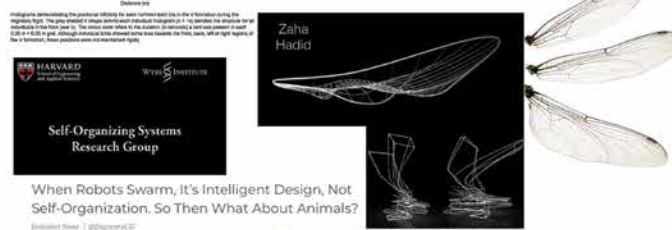


1970 Robert Rauschenberg

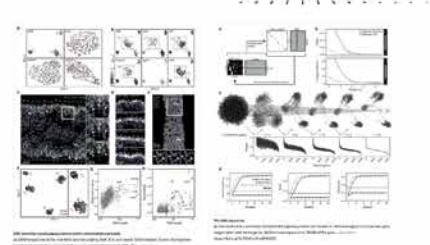
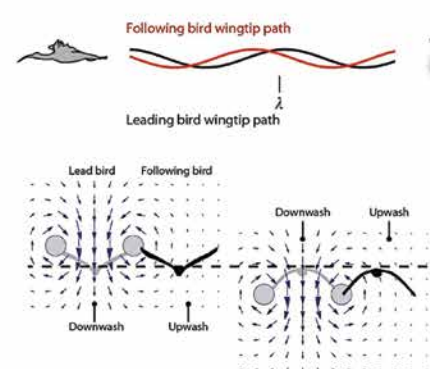
1973



Flight of the Starlings



When Robots Swarm, It's Intelligent Design, Not Self-Organization. So Then What About Animals?



Self-assembling manifolds in single-cell RNA sequencing data  
Collectores de autensamblaje en datos de secuenciación de ARN de una sola célula

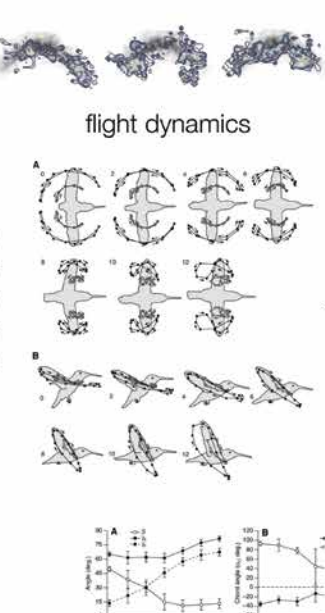


Fig. 3. Angles describing horizontal wing and body kinematics in reflex homophyly. (A) Body angle relative to horizontal. (B) Tracking angle relative to horizontal relative to lead bird's plane of body. (C) Head angle of wing relative to horizontal plane of flight. Values are mean  $\pm$  s.d.

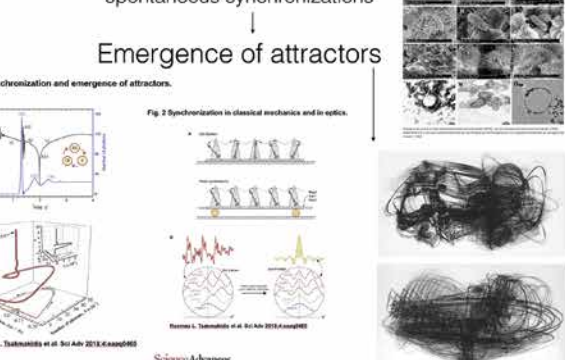
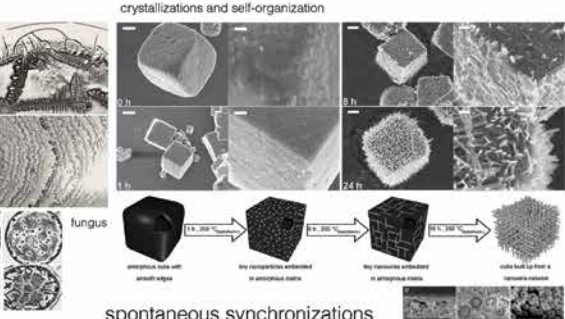
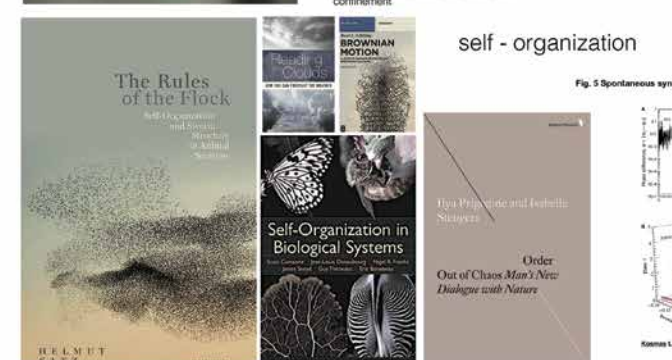
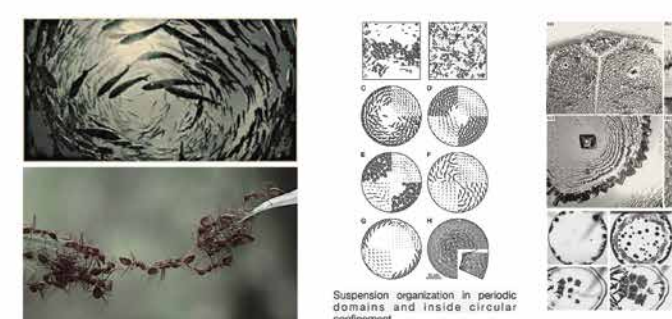
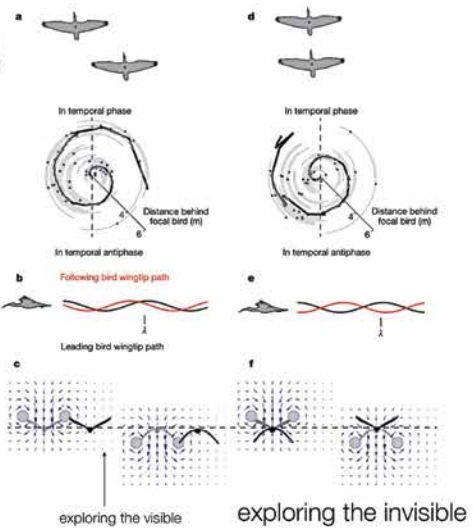


Fig. 5 Spontaneous synchronization and emergence of attractors.

complex emerging patterns

granulations

PNAS

MICRO SOUND TEXTURES  
CHROMAPHONE 3 SOUND PACK  
by RICHARD DEVINE

Curtis roads

microsound

Granularity

The theory of Self - Organised Criticality

Criticality

Fuzzy sets/rough sets  
Oscillations

Per Bak → Criticality

binary logic

Standard logic: 1-0 truth1 vs completely false 0  
Fuzzy logic degree of truth anywhere between 0.0 and 1.0

Vs

Fuzzy logic degree of truth

Catastrophes follow a simple pattern

Dr. Lotfi Zadeh  
1965  
UC Berkeley

Uncertainty, Complexity and Fuzzy Logic  
Fuzzy logic is intended to model logical reasoning with vague or imprecise statements

Boundary conditions  
condiciones de contorno

fluid dynamics  
dinámica de fluidos

Schrödinger's cat drinks water from the Klein bottle.  
El gato de Schrödinger bebe agua de la botella de Klein.

Mechanics of Flow-Induced  
Sound and Vibration

Vibrations  
and Waves

WAVES AND  
OSCILLATIONS IN  
NATURE

PARTICLES,  
FIELDS AND  
FORCES

D-branes

String Theory

D-branes

BIG DATA

Mapping Patterns of Information

Visual Complexity

cartographies

patterns

network theory

trajectories  
routes

On Salvation by Deeds  
by Jorge Luis Borges

One autumn, one of the autumns of time, the Shinto divinities gathered, not for the first time, at Izumo. They are said to have numbered eight million. Being a shy man I would have felt a bit lost among so many. In any case, it is not convenient to deal in inconceivable numbers. Let us say there were eight, since eight is a good omen in these islands.

They were downcast, but did not show it: the visages of divinities are undecipherable kanji. They seated themselves in a circle on the green crest of a hill. They had been observing mankind from their firmament or from a stone or from a snowflake. One of the divinities spoke:

Many days, or centuries, ago, we gathered here to create Japan and the world. The fishes, the seas, the seven colors of the rainbow, the generations of plants and animals have all worked out well. So that men should not be burdened with too many things, we gave them succession, issue, the plural day and the singular night. We also bestowed on them the gift of experimenting with certain variations. The bee continues repeating beeshives. But man has imagined devices: the plow, the key, the kaleidoscope. He has also imagined the sword and the art of war. He has just imagined an invisible weapon which could put an end to history. Before this senseless deed is done, let us wipe out men. They remained pensive. Without haste another divinity spoke: It's true. They have thought up that atrocity, but there is also this something quite different, which fits in the space encompassed by seventeen syllables.

The divinity intoned them. They were in an unknown language, and I could not understand them.

The leading divinity delivered a judgment:

Let men survive. Thus, because of a haiku, the human race was saved.

Izumo, April 27, 1984

DE LA SALVACIÓN POR LAS OBRAS  
Jorge Luis Borges

En un otoño, en uno de los otoños del tiempo, las divinidades del Shinto se congregaron, no por primera vez, en Izumo. Se dice que eran ocho millones pero soy un hombre muy tímido y me sentiría un poco perdido entre tanta gente. Por lo demás, no conviene manejar cifras inconcebibles. Digamos que eran ocho, ya que el ocho es, en estas islas, de buen agüero.

Estaban tristes, pero no lo mostraban, porque los rostros de las divinidades son kanjis que no se dejan descifrar. En la verde cumbre de un cerro se sentaron en rueda. Desde su firmamento o desde una piedra o un copo de nieve habían vigilado a los hombres. Una de las divinidades dijo:

— Hace muchos días, o muchos siglos, nos reunimos aquí para crear el Japón y el mundo. Las aguas, los peces, los siete colores del arco, las generaciones de las plantas y de los animales, nos han salido bien. Para que tantas cosas no los abrumaran, les dimos a los hombres la sucesión, el día plural y la noche una. Les otorgamos asimismo el don de ensayar algunas variaciones. La abeja sigue repitiendo colmenas; el hombre ha imaginado instrumentos: el arado, la llave, el calidoscopio. También ha imaginado la espada y el arte de la guerra. Acaba de imaginar un arma invisible que puede ser el fin de la historia. Antes que ocurra eso hecho insensato, borremos a los hombres. Se quedaron pensando. Otra divinidad dijo sin apuro:

— Es verdad. Han imaginado esa cosa atroz, pero también hay ésta, que cabe en el espacio que abarcan sus diecisiete sílabas. Les entonó. Estaban en un idioma desconocido y no pude entenderlas. La divinidad mayor sentenció:

— Que los hombres perduren. Así, por obra de un haiku, la especie humana se salvó.

Izumo, 27 de abril de 1984.



Keith Jarrett

Tokyo, 1984

La pila de arena, el río y la piedra...  
The pile of sand, the river and the stone...

fluid dynamics

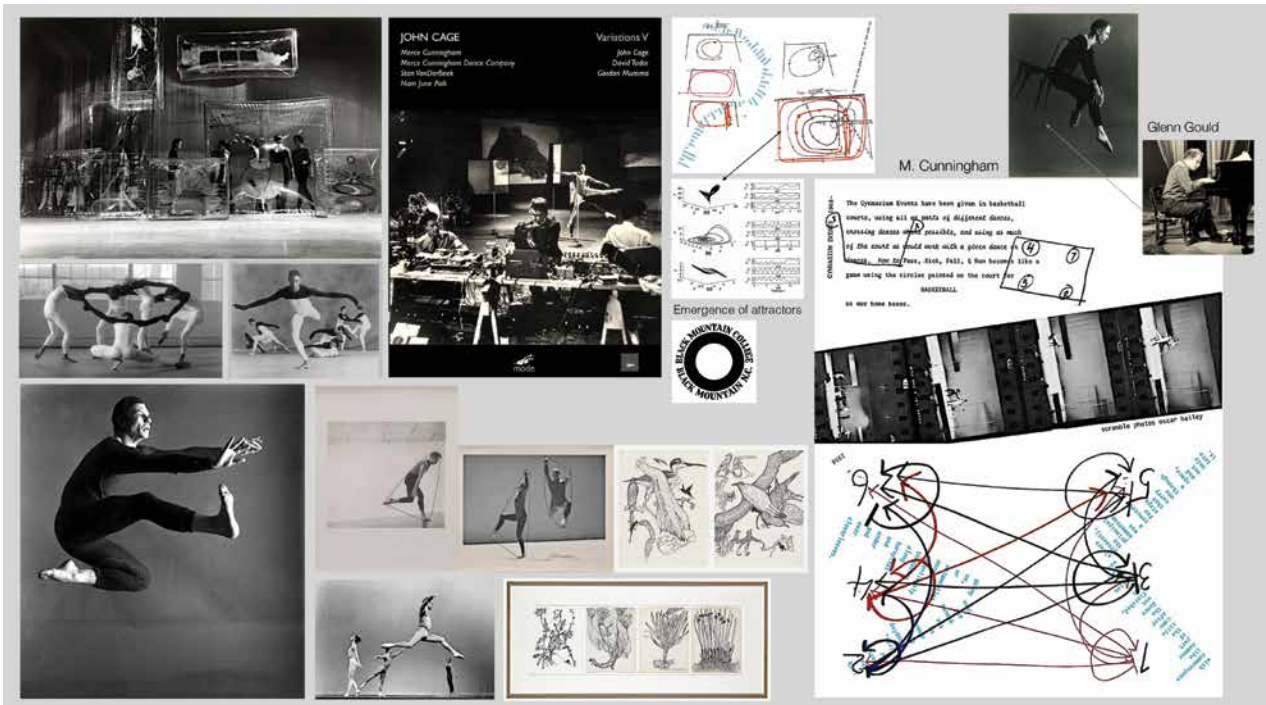
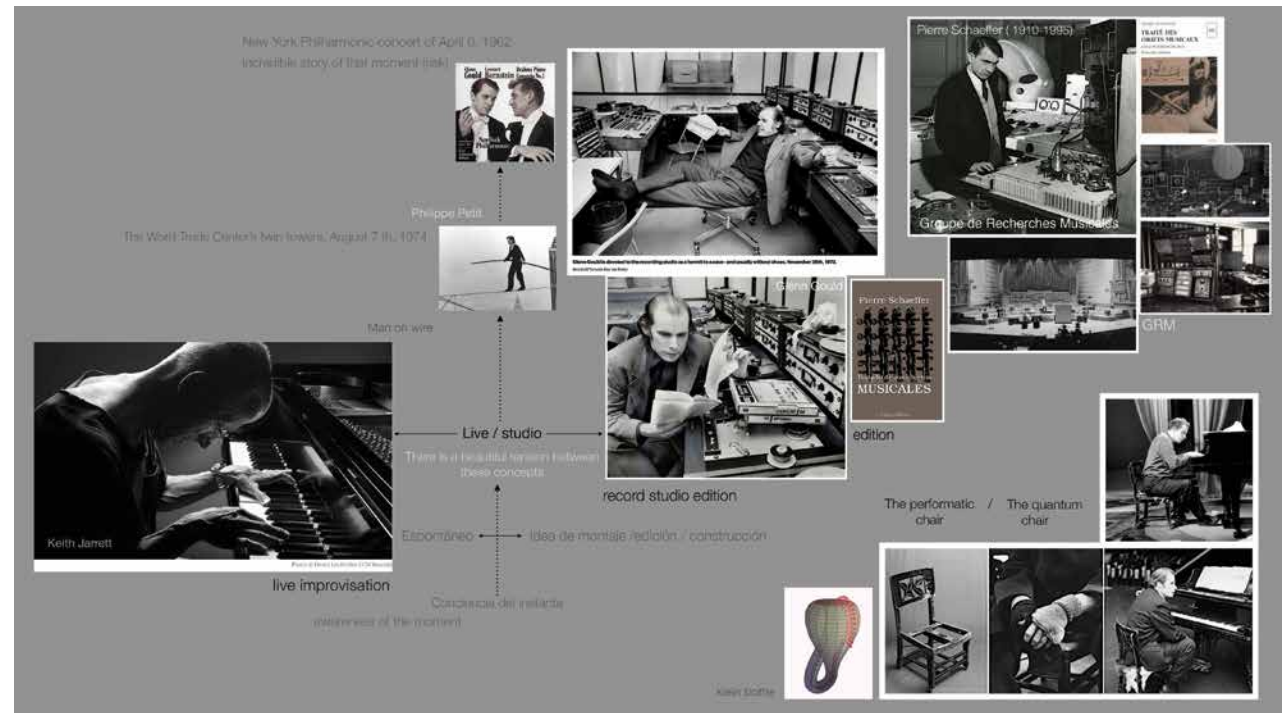
system

criticality

Structural Stability and Morphogenesis

René Thom

exploring the invisible



**TRACES OF SPACES**

Installation view, Traces of Spaces, Voonuit Art Centre, Gent, Belgium, 2011

← →

Yves Sacreco, Aerographies

A project for several mapping stations in and outside.

The artist Nikolaus Gansterer has a deep interest in the links between drawing, thinking and action. While having had an ongoing practice of mappings and diagrams, in his recent project he is focussing on the exploration of expanded drawing.

Is it possible to let the inherent dynamics of space be recorded, mapped and drawn by themselves? Therefore, dynamic things in public space such as trees, wind, insects, etc., are tested to become drawing tools, capturing unique described movements. Thus, for example, a writing tool suspended inside hardware inscribes on a paper the wave movement of a canal, drawing instruments held on stretched ropes are pressed onto paper by birds sitting on the ropes, papers attached to street cars brush through the city or even plain papers get buried in the park becoming a test field for microbial activities: All of these experiments offering a very specific insight on the otherwise invisible traces of the urban spaces. Each of the drawing stations distributed in the city is its own performative spot at which the observer can follow the process.

**Santiago Ramón y Cajal**  
1852-1934

neuroscience

nervous system  
1906

The purpose which guided him was not impossible, though supernatural. He wanted to dream a man; he wanted to dream him in minute entirety and impose him on reality.

...El propósito que lo guiaba no era imposible, aunque sí sobrenatural. Quería soñar un hombre; quería soñarlo con integridad minuciosa e imponerlo a la realidad.

Christa Bille  
Julia Bayerl

**ALEXANDER VON HUMBOLDT**  
THE COMPLETE DRAWINGS FROM THE AMERICAN TRAVEL JOURNALS

PRESTEL

Journal I June to October 1799

Journal II and VI 1798-1805

Journal III 1799-1800

Journal IV 1800

Journal V 1797, 1799-1800

Journal VII a/b 1801-1802

Journal VII bb/c 1801-1802

Journal VIII 1802-1804

Journal IX 1803-1804

**DEL RIGOR EN LA CIENCIA** - J.L. Borges

... En aquel Imperio, el Arte de la Cartografía logró tal Perfección que el Mapa de una sola Provincia ocupaba toda una Ciudad, y el Mapa del Imperio, toda una Provincia. Con el tiempo, estos Mapas Desmembrados no satisficieron a los Colegios de Cartógrafos levantaron un Mapa del Imperio, que tenía el Tamaño del Imperio y coincidía puntualmente con él. Menos Adictos al Estudio de la Cartografía, las Generaciones Siguientes entendieron que ese dilatado Mapa era inútil y no sin impedido lo entregaron a las Inclemencias del Sol y los Inviernos. En los Desiertos del Oeste perduran despedazadas Ruinas del Mapa, habitadas por Animales y por Mendigos; en todo el País no hay otra reliquia de las Disciplinas Geográficas.

Suárez Miranda: Viajes de varones prudentes, libro cuarto, cap. XLV, Lérida, 1658.

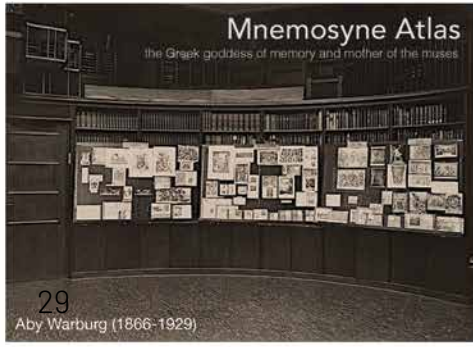
... In that Empire, the Art of Cartography attained such Perfection that the map of a single Province occupied an entire City, and the map of the Empire, an entire Province. In time, these Excessive Maps did not satisfy the Schools of Cartographers but a Map of the Empire, that was of the Size of the Empire, and which coincided point for point with it. Less Addicted to the Study of Cartography, the Following Generations understood that that dilated Map was Useless and not without Pitilessness they delivered it to the Inclemencies of the Sun and the Winters. In the Deserts of the West endure broken Ruins of the Map, inhabited by Animals and Beggars; in the whole country there is no other relic of the Disciplines of Geography.

Suárez Miranda: Viajes de varones prudentes, libro cuarto, cap. XLV, Lérida, 1658.

**DEL RIGOR IN SCIENCE**  
J. L. Borges

**280**  
Fruit of the creeper *Delouo de ambibusca* from Moyobamba (Viceroyalty of Peru), 1802

Detailed multispectival study of the fruit of the liana *bejora de ambibusca*, which Humboldt asked José Ignacio Chica, governor of the province of Jaén, to send him. A sub-species of the poison curare is made from this plant. In the text, Humboldt describes the sketches and his method of analyzing the fruit. "Cut horizontally, it resembles a cut across the *Bauhinia*, woody rings or eccentric rays, all originating at the same point. Much modular substance between each fiber. Furthermore, the striosity rings are divided into three concentric areas separated from one another by the medullary substance. [...] F. 1 the receptacle with a fruit. F. 2 berry on a stem. F. 3 cut up in the middle."



The Atlas (unfinished) consisted of 63 panels, on which he laboriously organized sequences of close to 1,000 black-and-white reproductions

I think it is a beautiful idea, and the first methodological attempt of diagonal thinking  
for me... the first fuzzy sets in history



29  
Aby Warburg (1866-1929)

Pensar distinto...



The Library of Babel  
J.L. Borges

Library is unlimited and periodic. If an eternal traveler should journey in any direction, he would find after untold centuries that the same volumes are repeated in the same disorder (which, repeated, becomes order) the Order. My solitude is cheered by that elegant hope.  
La biblioteca es limitada y periódica. Si un eterno viajero la atraviesa en cualquier dirección, comprobará al cabo de los siglos que los mismos volúmenes se repiten en el mismo desorden que, repetido, sería un orden: el Orden. Mi soledad se aligera con esa elegante esperanza.



Aby Warburg, Mnemosyne Atlas, 1924-29, panel 32 and 39. All panels have been reconstructed from the Warburg Institute Archive. Courtesy: The Warburg Institute, London; photograph: Woolton/Fluid

Warburg x Warburg ≈ Zadeh

GUSTAVO DÍAZ

Sicardi | Ayers | Bacino

