

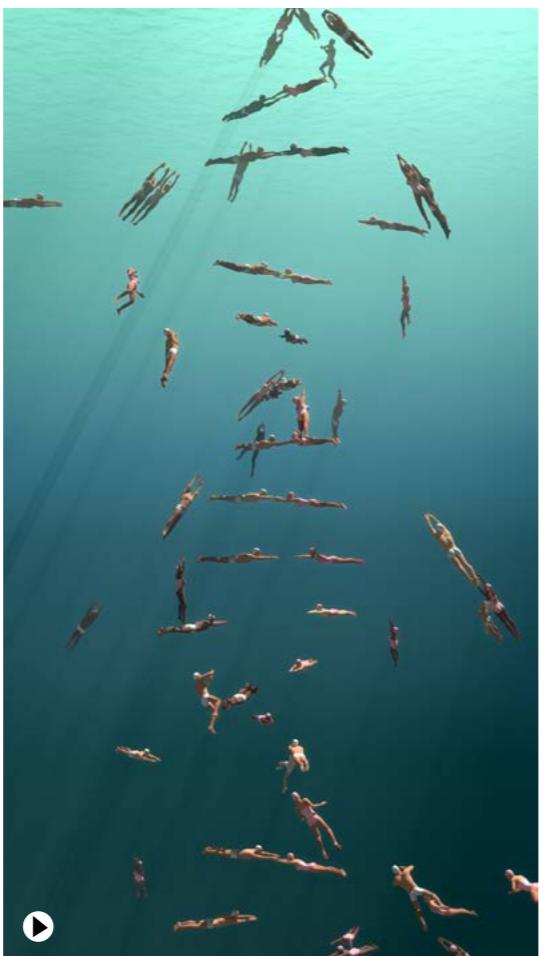


01

## Big Data and Singularities

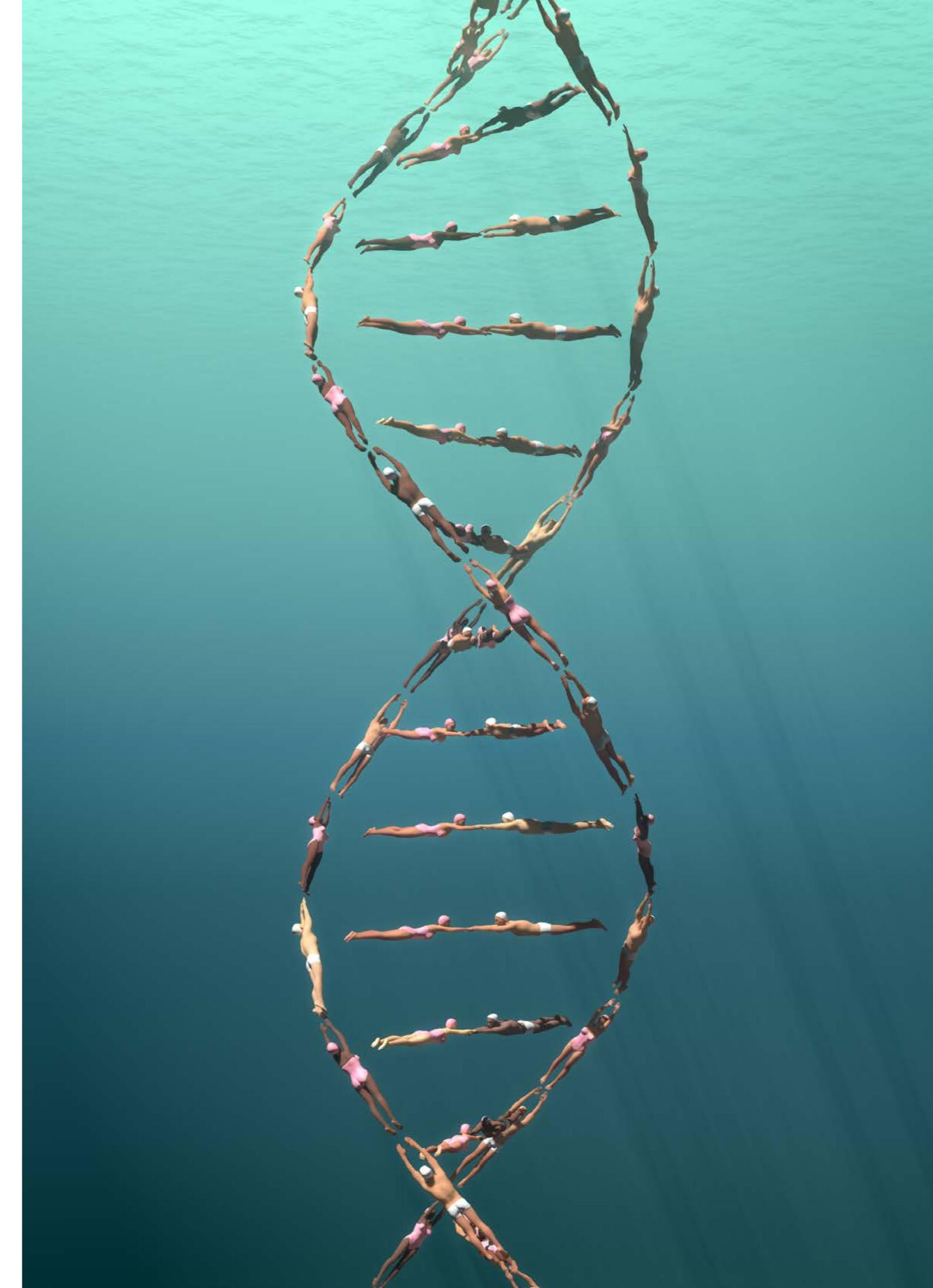
*Creativity as a Basis for Re-thinking the Human Condition*

JUNE  
2020



© Patrice Mugnier/Active  
Creative Design, Musée de  
l'Homme

Patrice Mugnier/ACD has created and developed six visual animations sequences in motion design for the Musée de l'Homme in Paris. They are presented as visual inquiries: Where do we come from? Who are we? Where are we going? This commission is in line with the values and mission of the Musée de l'Homme, which consists in articulating scientific knowledge based on original collections with a research centre that embodies humanist values.



# HUMANITIES, ARTS AND SOCIETY MAGAZINE

Dear readers,

We are honoured to welcome you to the first issue of *Humanities, Arts and Society Magazine*.

Our era is full of extremely challenging ventures and explorations—unimaginable progress and innovation in many fields, but also major crises that include climate change, political turmoil, social tensions, pandemics, economic inequality, gender issues, and more.

In such times, our minds are, unsurprisingly, spinning with interrogations: What can be done? What are the responsibilities of each one of us, individually and collectively? What solutions can be undertaken for sustainable, positive change and how can we disseminate and share practical, conceptual ideas and worthy examples while implementing them? How can we turn theoretical examination into efficient action?

HAS Magazine aims to serve as a platform that presents ideas and propositions, and attempts to answer some of the above enquiries. The founding and editorial team members have envisaged a cross-disciplinary

publication that tackles the most critical topics in contemporary society from the perspective of “humanity”—i.e., being human.

Our aims are not simply to echo existing concepts or to reproduce artistic projects that examine issues of importance, but to contribute to progress in cross-cultural and multi-disciplinary collaborations while being anchored in the humanities and the arts. If we take inclusiveness seriously, the diversity of disciplines and approaches will enrich each other. The necessity for inter-disciplinary collaboration becomes essential when attempting to apprehend important questions, as does proof of how creativity is fundamental to all schemes of research and practice. The arts do not replace science and are not reducible to the concerns of the sciences, but they participate in the process of imagining new futures in a diversity of fields and in critical thinking.

These aims have led to the establishment of a magazine that reaches beyond the classical boundaries of the humanities. By opening our pages to debates on pressing world issues, we hope to provide a platform for positive change in society, locally and globally.

Here, the reader will find contributions that represent a wide range of research fields and artistic practices, including analytical texts, documentary projects, and creative pieces. In representing plural reflections and concerns, HAS Magazine is not only looking to find innovative answers, but it opens paths to improve our present and future, by introducing venues for rethinking the human condition.

Our engagement with the arts and humanities follows the philosophy that recognize both as complementary and essential to—in fact define—the human condition. This is the approach we chose to investigate with the main theme of our first issue: Big Data and singularities.



Big Data offers tools and opportunities to improve actions and decision-making, serving all fields of development, including government, healthcare, education, employment, economic productivity, communication, security, ecology, and the environment. Yet it also poses concerns related to privacy, cyber security, ethics and labour.

Across fields, data has become one of the world's most valuable resources, but facing the big data resources, individuals seem to be reduced to those providing data. Still, singularities—understood as the unique capacity of each person to perceive and interpret his or her environment—have enabled progress to be made in producing hypotheses, sciences, cultures, and arts, including the latest major technological advances.

At this juncture, the reader will realize that in the majority of the following contributions, singularities are not set in opposition with Big Data, but interpreted in their quality of making sense of Big Data, using creativity to analyse, to evaluate, and to propose.

We wish to initiate and encourage inclusive, pluralistic debates, with critical discussion valuing the essential contribution of creativity to progress.

HAS Magazine is the result of a collaboration between inter-governmental agencies and non-profit organizations, following the mission of UNESCO to build peace through international cooperation in education, the sciences, and culture while working toward sustainable development goals. Sharing knowledge leads to a deepening of our understanding of ourselves and the world, and of the responsibility of each of us to act and participate.

HAS Magazine is made freely available in English, French and Chinese, aiming to be accessible to a global readership.

On behalf of our Partners and Editorial Team, welcome to the first issue of HAS Magazine.

Marten Berkman, *The Ecology of Perception, Sensitivity Experiments at a Distance*, 3D Video installations 3D, passive and interactive.

# CONT TEXT CULTURE

HAS Magazine is established as part of the Humanities, Arts and Society project, an international movement of artists, researchers and creative projects demonstrating the impact of the arts and the humanities in society.

HAS Magazine is the next step in this project and the continuing partnership between UNESCO-Most<sup>1</sup>, The International Council for Philosophy and Human Sciences (CIPSH)<sup>2</sup>, Mémoire de l'Avenir<sup>3</sup>, and the Global Chinese Arts & Culture Society (GCAC)<sup>4</sup>. Together with an international team of highly dedicated professionals of the humanities, culture and the arts accompanied by an Advisory Panel of eminent scholars and thinkers from the sciences and the cultural sector.

Founded as Arts and Society in 2016, the Humanities, Arts and Society project was developed within the preparatory endeavour of the first World Humanities Conference in Liege in 2017, organized by UNESCO-Most and CIPSH, following the concept *Humanitude*\* by Adama Samassékou, the President of the African Academy of Languages, former President of CIPSH and Minister of Education in Mali.

HAS Magazine is created upon an original proposition of Prof. Xiang Xiong Lin, President and founder of the GCACS, conceived and developed by Mémoire de l'Avenir, UNESCO-Most and CIPSH within the Humanities Arts and Society Project.

1. With Dr. John Crowley, Chief of section

2. With Professor Luiz Oosterbeek, Secretary General

3. With Margalit Berriet, President and founder

4. With Professor Lin Xiang Xiong, President and founder

\* A concept that explores openness to the Other, the only possible way out for a disenchanted world.



Anne Cazaubon,  
*Flying project*

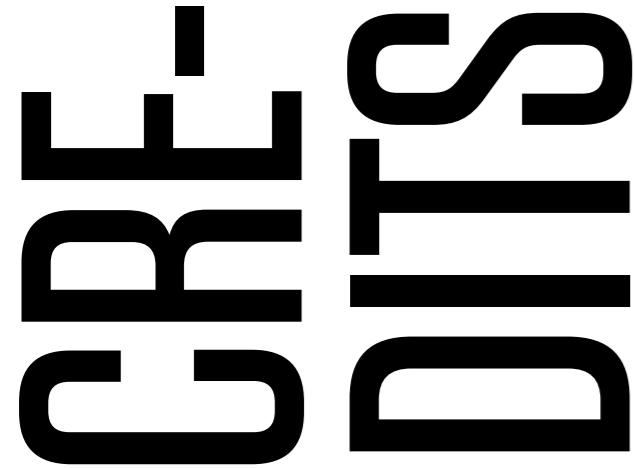
War begins in the minds of men.<sup>5</sup> The only way to prevent war from happening is through humanity, culture, and the arts. Only by penetrating the hearts and thoughts of people, individually and collectively, can we enable culture to suppress and overcome humanity's wild and barbarous instincts, and purify its avaricious and power-hungry desires and ambitions.

The digital publication *Humanity, Arts & Society* is an ambitious artistic and scientific biannual journal, sponsored by four intergovernmental, non-profit cultural organizations. The shared mission and vision that has brought these four organizations together is based upon the goal of serving people and society, promoting culture, the artistic spirit, and human thought with the aim of building a universal global village of trust and harmony.

Professor Lin Xiang Xiong

5. "Since wars begin in the minds of men, it is in the minds of men and women that the defences of peace must be constructed."

- Preamble of the UNESCO constitution.



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com  
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### Liu Thai Ker

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## ACKNOWLEDGMENTS

The HAS team warmly thanks John Crowley, Chief of section UNESCO-MOST, for his collaboration and precious support of the project.

Aurore Nerrinck for her participation in the selection of contributions and Margherita Poli for her participation in the corrections.

All the people who have worked with great dedication in the creation of this first issue.

# CATEGORIES

Ca

## CONNECTING

Encompasses disciplines, initiatives, expressions and topics from related fields

ti

## TRANSFORMING

Ongoing projects, action research, field activities

da

## PERFORMING

Acting, executing, proposing; multidisciplinary and cross-disciplinary creative practices

th

## THINKING

Research, concept analysis and theoretical study

# EDITORIAL

## CONTEXT

## CREDITS

## SECTIONS

## SUMMARY

## CONTRIBU- TORS

## BIG DATA AND SINGULARITIES

*Creativity as a Basis for Re-thinking the Human Condition*



Charlotte Colmant, SOMNIA



Refik Anadol, Archive Dreaming

**1** **FEELING THE ELEPHANT**  
John Crowley p. 18

**3** **TRICKS OF PERCEPTION AND THE ROLE OF ARTS AND HUMANITIES**  
Luiz Oosterbeek p. 30

**5** **SOMNIA**  
Charlotte Colmant p. 46

**7** **SOCIALITY**  
Paolo Cirio p. 64

**9** **THE AGE OF WEEPING**  
Lin Xiang Xiong p. 24

**11** **THE DATAFLOW PARADIGM, DATAISM AND THE MYTH OF SINGULARITY**  
Marc-Williams Debono p. 88

**12** **HOW SHOULD WE THINK ABOUT BIG DATA?**  
Harold Sjursen p. 52

**13** **DECODE AND REVEAL**  
Naomi B. Cook  
Interview by Magdalena Zborowski p. 110

**17** **MULTIPLYING SOURCES OF INSPIRATION**  
Bernard Picet  
Interview by Florence Valabregue p. 118

**19** **TULIPS ON MY ROBOT'S TOMB**  
Andrés Roemer p. 82

**20** **ON THE REALITY OF ANCIENT PLACES**  
Dragos Gheorghiu and Livia Stefan p. 188

**22** **INSPIRATION THROUGH INFORMATION**  
Zoltán Somhegyi p. 136

**25** **MULTIMEDIA INSTALLATIONS IN MUSEUMS**  
Patrice Mugnier p. 166

**27** **ART IN THE AGE OF BIG DATA**  
Bénédicte Philippe p. 150

**29** **AND IF THE SOUL WAS QUANTIFIABLE?**  
Hang LU p. 156

**31** **FREE CONSUMER INSIGHTS DERIVED FROM IMAGE-BASED SOCIAL MEDIA DATA**  
Dorothy Yen p. 224

**32** **NO WORRIES**  
Michel Monteaux p. 178

**33** **MULTIPLICITY**  
Moritz Stefaner p. 230

**34** **DATAFICATION OF AN IMPLORING GESTURE**  
Sylvie Anahory p. 240

**35** **ON THE SEARCH FOR TERRESTRIAL INTELLIGENCE**  
Olivier Auber p. 246

**36** **WHITE MOUNTAIN**  
Emma Charles p. 218

**37** **NOISE AND SIGNAL**  
Nour Awada p. 258

Addictive TV



Refik Anadol, Archive Dreaming

## RESEARCH/ ACTION

## UNESCO- MOST

## CIPSH

(The International Council for Philosophy and Human Sciences)

## MÉMOIRE DE L'AVENIR

## GCACS

(Global Chinese Arts & Culture Society)

## HAS #02

Call for contributions



Addictive TV



**JOHN CROWLEY**  
Chief of Section  
- Research, Policy  
and Foresight

Since joining UNESCO in 2003 John Crowley has been a program specialist in social science (2003-05) and head of the communication, information and publications unit (2005-07), chief of section for ethics of science and technology (2008-11), and team leader for global environmental change (2011-14). Before joining UNESCO, he worked as an economist in the oil industry (1988-95) and as a research fellow at the French National Political Science Foundation (1995-2002). From 2002 to 2015, he was editor of the UNESCO-published International Social Science Journal.



**LUIZ OOSTERBEEK**  
Secretary General  
of CIPSH

Professor of Archaeology at the Polytechnic Institute of Tomar and holder of the UNESCO chair in Humanities and Cultural Integrated Landscape Management. His archaeological research focuses on the transition to food producing economies in Portugal, Africa and Southern America. He also conducts research on Cultural Heritage and on Humanities contributions for landscape management. Currently, he is the Secretary-General of the International Council of Philosophy and Human Sciences. He is author of 70 books and 300 papers, including *Cultural Integrated Landscape Management: A Humanities Perspective* (2017).



**LIN XIANG XIONG**

President and founder GCACS

President of the Global Chinese Arts & Culture Society, Research Fellow of the Chinese National Academy Of Arts, Guest Professor of School Of Arts, Peking University, President of Honour Mémoire de l'Avenir. Professor Lin Xiang Xiong, an artist and entrepreneur, is a Singapore citizen.

Born in 1945 in China's Guangdong Province, he moved to Nanyang in 1956. He studied fine arts in the Singapore Academy of Arts between 1965 and 1968 and in Paris between 1971 and 1973. He has held seven solo exhibitions in Singapore and Thailand (1968-1988). In 1990, 1994, and 2013, he was invited and supported by Ministry Of Culture of the People's Republic of China to hold solo arts exhibitions in Beijing, Shanghai, Xi'an, Zhengzhou, among other cities. In 2015, he was invited to attend the "Mons 2015 European Capital of Culture" to exhibited his paintings in Bois du Cazier. In 2016, as the major exhibiter he curated the "Art for Peace"- Cultural Dialogue between East and West on the platform of UNESCO, France.



**MARGALIT BERRIET**

President and founder Mémoire de l'Avenir

Born in Tel Aviv-Jaffa, Israel, living in Paris since 1988. Margalit Berriet is a painter with a Master of Fine Arts from New York University and has been exhibited internationally in solo and group shows. Since 1984, she has published several essays and a book, and has initiated multidisciplinary arts events and conferences in the USA, Europe, Africa, Asia, and the Middle East, promoting, via the arts, a better knowledge of cultural diversity and fostering intercultural dialogue. In 2003, she founded Mémoire de l'Avenir. She has collaborated with public and private institutions, including UNESCO, CIPSH, Musée du quai Branly, Centre George Pompidou, Musée de Louvre, Dapper, Musée d'Arts et d'Histoire de Judaïsme, the Institute de Monde Arab, and Musée de l'Homme.



**ADDICTIVE TV**

In their work, Addictive TV delve deep into movies and videos hunting for sounds and images to sample, creating music that fuses everything from electronic to rock. They create their music by keeping the audio and video samples together.

**REFIK ANADOL**

Media artist, director, and lecturer and visiting researcher in UCLA's Department of Design Media Arts. Working in the fields of site-specific public art with parametric data sculpture approach and live audio/visual performance with immersive installation approach, his works explore the space among digital and physical entities by creating a hybrid relationship between architecture and media arts with machine intelligence.

**SYLVIE ANAHORY**

Researcher and artist, graduate of EHESS. Her studies have led her to be interested in several disciplines, and to reflect on the diversity of forms of knowledge and the porosity between the different arts. Since 2012, she has been practicing photography, questioning its categories, its display devices and its links with our book and media culture, in order to encourage us to look at different points of view.

**PAOLO CIRIO**

Artist, researcher and lecturer engaging with the legal, economic, and cultural systems of the information society. His works investigate social fields impacted by the Internet, such as privacy, democracy, intellectual property, and finance. He shows his research and intervention-based works through photos, installations, videos, and public art.

**CHARLOTTE COLMANT**

Artist and choreographer trained at Le Centre des Arts Vivants in Paris and the Martha Graham School in New York City. Colmant researches dance as a visual form, through an exploration of the body in its environment. Her artistic work includes photography, video and site-specific installations where the body is both subject and object.

**NAOMI COOK**

Artist, living and working between Montreal and Paris. She studied Art and Philosophy at Concordia University, Montreal. Her technique stems from interest in engravings, sound, and visual representations of data. Her work has been featured in several group exhibitions in Montreal and abroad.

**BRENDAN DAWES**

Artist and designer exploring the interaction of objects, people, art and technology using an eclectic mix of analog and digital materials. Working with form and code, his work is often born from data and realized as interactive installations, electronic objects, online experiences, data visualizations, print advertising and digital campaigns for various clients around the world.

**MARC-WILLIAMS DEBONO**

Neuroscientist, poet and essayist, Debono developed a new concept of plasticity on the epistemological level. He founded the group of plasticians in 1994 and then the association *Plasticités sciences arts* in 2000, which is interested in the relationship between science, the arts and the humanities. Since 2005, he has directed the Transdisciplinary Journal of Human Plasticity PLASTIR.

**FRANÇOIS DJINDJIAN**

Associate Professor at the University of Paris 1 Panthéon Sorbonne, President of Commission "Methods and Theory of Archaeology" of the International Union of Prehistoric and Protohistoric Sciences (UISPP) and Vice-President of CIPSH (International Council of Philosophy and Humanistic Studies of UNESCO), prehistorian specialized in the teaching of archaeological methods.

**FRÉDÉRIC LENNE**

Essayist, journalist, publisher, consultant in urbanism, in particular on the issues related to architecture, city planning, landscape, and the city. In 2013, he created *Esprit Urbain*, a structure at the service of stakeholders of the living environment. It acts to promote the city communication in all aspects of urban policies.

**GUILLAUME DUMAS**

Research fellow of the Human Genetics and Cognitive Functions Laboratory at the Institut Pasteur and affiliate member of the Human Brain and Behavior Laboratory at the Center for Complex Systems and Brain Sciences of Florida Atlantic University, as well as founder and scientific coordinator of SoNETAA platform at the Child & Adolescent Psychiatry department of the Robert-Debré Hospital in Paris.

**DRAGOŞ GHEORGHIU**

Anthropologist and experimental archaeologist whose studies focus on the process of cognition and material culture. His most recent research is concerned with the reconstruction of ancient technologies in context, as well as their virtual reconstruction and exploration using AR and MR techniques.

Professor Gheorghiu is author and co-author of multiple books and has a sustained publication activity on prehistoric material culture and semiotics in Europe.

**HANG LU**

Artist, graduate of the Fine Arts Institute of Sichuan in China and the School of Fine Arts of Bourges in France. He has exhibited at the Blue Roof Museum in China and Galerie Crous in France.

Artist and multimedia director. Graduate of the ENSAD Paris school of art and design and motion design director, he worked in parallel on real time digital technologies for museums and art installations. He is the co-founder of Active Creative Design.

**ÈVE LEPAON**

Art historian and photography specialist. A graduate of the Ecole du Louvre and the University of Paris-Sorbonne (Paris IV), she has conducted research on the relationship between painting and photography in the 19th century, which was awarded the Roland Barthes Prize for photographic research in 2010. After teaching at the École du Louvre, she is currently a lecturer and trainer at the Jeu de Paume in Paris, where she teaches courses in art and visual history.

**MICHEL MONTEAUX**

Michel Monteaux began his career as an assistant director in the film industry. After 10 years spent in the United States as a photographer and activist, notably with the Native Americans, with whom he was involved for more than 6 years

in the fight against their precarious situation and against the gigantic Wipsite nuclear waste dump project in southern New Mexico. He returned to France in the mid-1990s, and worked in particular for the press.

**PATRICE MUGNIER**

Artist and multimedia director. Graduate of the ENSAD Paris school of art and design and motion design director, he worked in parallel on real time digital technologies for museums and art installations. He is the co-founder of Active Creative Design.

**BÉNÉDICTE PHILIPPE**

After studying History at the Sorbonne and then Sociology of Information (Université Panthéon-Assas Paris II), she opted for a postgraduate degree in Journalism Techniques. Education, Culture and Heritage have become her favourite fields in France and elsewhere. A freelance journalist, she has collaborated since 1997 with the French weekly magazine, *Télérama Sortir*, as an exhibition critic (Photography, Civilization, Sciences). Art brut, primitive arts, architecture and design are among her favourite fields of exploration. Dance, singing, music, plastic arts, have always been part of her practice and her life.

**BERNARD PICET**

Glass craftsman, trained in glass apprenticeship with Jean-Gabriel Druet. He opened his own workshop in 1981, teaches at the Ecole Spéciale d'architecture and has been the president of the jury for the Best Worker of France in the glass category since 1998. Since 2008, the Atelier Bernard Picet has been awarded the Living Heritage Company Label (EPV).

**HAROLD SJURSEN**

Professor Emeritus at NYU Tandon School of Engineering. Teacher and administrator in higher education for over 40 years, serving on the faculty of a liberal arts college and a school of engineering. With an educational background in the history of philosophy, he has had a lifelong interest in science and technology. His current research and writing interests focus on the philosophy of technology, global philosophy and technological ethics.

**RYBN.ORG**

Platform for artistic, experimental and independent research created in 1999 and based in Paris. The collective follows an "extra-disciplinary" research methodology, on the functioning of complex and esoteric phenomena and systems - high-frequency trading algorithms, architecture of the offshore economy, structure of financial markets, hermeneutics of Kabbalah, communication network management protocols, computer viruses, etc. - that are the subject of a number of research projects. On the basis of these investigations, RYBN.ORG produces devices, which evolve beyond the artistic field alone, based on processes of intrusion and contamination, in order to integrate environments and terrains where these objects are able to generate particular resonances: social networks, financial markets, patents, radio-electromagnetic spectrum.

**LIVIA ŠTEFAN**

Independent researcher with a PhD on e-learning in 3D online virtual worlds. Her current research interests include e-learning and developing virtual and augmented reality environments, including educational games, and human-computer interactions for optimizing the learning. She is a professional member of IEEE Computer Society and Association for Computing Machinery (ACM).

**MORITZ STEFANER**

A "Truth and Beauty Operator" on the crossroads of data visualization, information aesthetics and user interface design. With a background in Cognitive Science and Interface Design, his work balances analytical and aesthetic aspects in mapping abstract and complex phenomena, working with a wide range of clients.

**CHE HSIEN SU**

Film director. Graduate of the Applied Media Arts School, National Taiwan University of Arts. His first film *Hip Hop Storm* was awarded as Best Documentary at the Taipei Golden Horse Award in 2010, making him the youngest recipient of the award. In 2019, he worked on *Summer*, a mainland Taiwan-China co-production feature film and for the first time created a short feature film, *Nine Shots*.

**FLORENCE VALABREGUE**

After a master's degree and a DEA in theatre, Florence Valabregue turned to the communication for cultural establishments. She directed the communication of prestigious institutions such as the Bibliothèque Historique de la Ville de Paris and cultural events before managing European Social Fund training project for France Terre d'Asile. She is the founder of the communication and press relations agency Les Mots pour vous dire.

**DOROTHY YEN**

Reader in Marketing at Brunel University London. Taking on a consumer-centric approach to marketing and branding, she is interested in exploring how culture affects human behaviour, in both B2B and B2C domains. She studies acculturation in relation to food consumption and social media practices during travel, and discusses the notion of animosity in relation to consumption and tourism.

**MAGDALENA ZBOROWSKI**

Curator, art critic and translator. Zborowski has a background in Art History, Italian and French literature. She worked at Galerie Karsten Greve in Cologne and Paris for 11 years, working at major art fairs, visiting collections, contributing to the organization and curating important exhibitions with international photographers, painters and sculptors.

**KARINE ZIBAUT**

French visual artist. Photographer, video artist and painter, she has been exhibiting for more than 12 years in France and abroad. In London, she joined Kindred Studios. She has participated in several associative projects, including the creation of SKIN, helping women with breast cancer. Working at the crossroads of ink and photography, she questions the feminine, identity, transmission and 'mother earth'.

# FEELING THE ELEPHANT

John Crowley

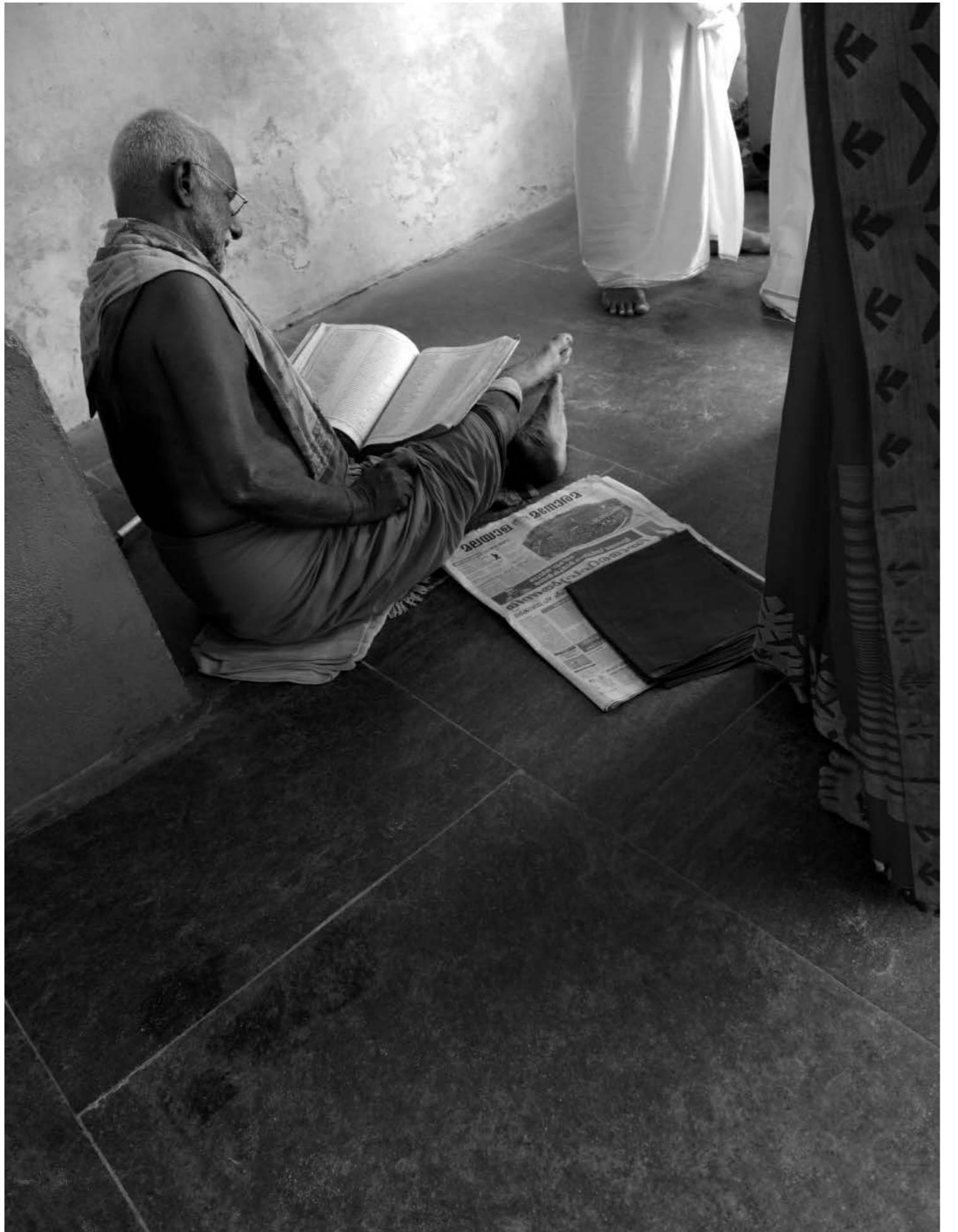
TRANSFORMING

L

THINKING



Margalit Berriet, Kerala, India, 2018



**Attempting to cordon off artistic creation from reflection on the creative process is a mutilation, not just of how artists create, but of the way in which arts operate within their social setting.**

Margalit Berriet, Kerala, India, 2018

Why would a programme focused on social transformations – like UNESCO's MOST – be interested in the arts? After all, one could say that social transformations are the province of the social sciences. They're about systems and how they evolve. Studying them involves variables such as GDP, birth rates, defense spending, climate, political parties and ideologies, urbanization and agricultural technologies – macro-variables, in other words – that interact at levels beyond individuals and relate only marginally to their aesthetic sensibilities. Of course, the arts – like everything else – have social conditions of production, and to that extent can be studied from a social transformations perspective. But that's about the limit of their relevance.

This vision isn't false. Indeed, in some ways, it's not just true but important. The systemic level of analysis is indispensable in order to grasp certain essential features of societies and their interactions. And, yes, the arts can be studied from the outside, so to speak, in ways that emphasize how they respond to the social and technological preconditions that make them possible. One can even, as did Norbert Elias, study Mozart in terms of a "sociology of genius".

But things can be true and important while still being partial and even profoundly misleading – as in the famous parable of the blind people and the elephant, in which each person, touching just one part of the elephant, describes that part as if it were the whole. This is equally the case of the systemic analysis of societies and their transformations.

A society is a system, which can be described in terms of abstract macro-variables; it is also, inseparably, a web of meanings that can be understood only in terms of

the sense-making embedded in activities that make sense, not just to an external observer, as in the colonial paradigms of much early anthropology, but also to the actors themselves. It is the distinctive role of the humanities to make sense of sense-making, through the concepts and methods of philosophy, history, languages and literature, and the critical artistic disciplines. This is why UNESCO's Management of Social Transformations programme has a major – and growing – humanities component, which includes such large-scale commitments as the General History of Africa and the historical and cultural analysis of the Silk Roads.

But still, the reader might say, there is an irreducible gap between the critical artistic disciplines and the arts, which is the gap between doing something and talking about doing it. Wittgenstein observed that you can't learn to swim just by reading a book about swimming. Surely the same applies to the arts – a musicologist can make music, but making music is a profoundly different activity from doing musicology. The sceptical reader might go so far as to say that, after all, a musicologist can make wooden furniture or raise Persian cats, and we wouldn't assume any organic connection between them.

Indeed, common-sense thinking about the arts often pushes this idea even further, subscribing to the form of spontaneism or primitivism in which inability to give a critical account of creation is the ultimate form of creativity. It's because the great bluesmen of the 1930s and 40s never learned to read music that they were great, to take just one stereotypical expression of this idea.

But there's actually no reason to think that this is true. Attempting to cordon off artistic creation from reflection on the creative process is a mutilation, not just of how artists create, but of the way in which arts operate within their social setting. Art history isn't art, but every artist creates, to some extent, against the backdrop of things

learned, glimpsed, half-remembered, admired and detested. It is this sense, the arts do not simply express society and its dynamics, but more profoundly constitute an important mode of the sense-making that institutes a society, and shapes its dynamics and conditions of change.

In his famous poem "Annus Mirabilis", Philip Larkin captured this brilliantly:

Sexual intercourse began  
In nineteen sixty-three  
(which was rather late for me) –  
Between the end of the "Chatterley" ban  
And the Beatles' first LP.

Literature, censorship, pop music, the sexual revolution, and individual existential angst, all fused together epigrammatically by poetic genius. This is, in a nutshell, is how the arts relate to social transformations. This is why UNESCO's MOST programme is committed to the arts, and why we welcome this first issue of HAS Magazine and look forward to working with its publishers and editorial team to nurture a global arts-and- humanities conversation.

Margalit Berriet, Kerala,  
India, 2018



# THE AGE OF WEEPING

2

Lin Xiang Xiong

PERFORMING

10



Lin Xiang Xiong,  
Eye Opening & Heart  
Wrenching, ink on paper

### Part 1

In the world of insects, communities of fireflies are insignificant and self-effacing, unremarkable in the grass.

Millions of species coexist on Earth, living and dying together, repeating this cycle endlessly. In the vast wilderness, the diversity and inherent complementarity of all creatures – the forest birds and animals, the reptilian water – although also exposing their brutality for survival, the splendor of nature writes a symphony of harmonious coexistence.

### Part 2

Humans, as intelligent creatures, have the culture and wisdom to build a harmonious and peaceful home in the global village. It's safer than living in the deep mountains and forests, where the fierce and vicious beasts of the jungle are constantly bullied and killed according to the threatening and fearful "law of the jungle".

Looking back at history and observing objectively, we have learned that humans are not as close to forest animals as we thought. There may only be one human species, but societies, cultures and geography have made us different. Human societies have waged wars of aggression for the sake of political expansion, territorial domination and plundering resources, annexing and colonizing countries and peoples to enrich themselves.

### Part 3

The 21st century is arguably a great time for humanity. Telecommunications, electronic commerce, and intelligent research and development have almost overturned thousands of years of human operating patterns, transforming economic development and reducing human distance.

Big Data and cloud services are making humanity transparent! In the face of such high technology, humanity has begun to realize how small it is – a mere speck of dust. Fireflies are the tiniest, but when they swarm at night they radiate a bright light that illuminates the dark earth!

Humankind may be small in the universe and on Earth, but if it realizes and understands the power of solidarity and can learn to work together in the face of natural disaster, we can overcome them.

### Part 4

The 2020 new coronary pneumonia COVID-19 outbreak originated in Wuhan, China, but has spread throughout Hubei province and throughout China and the world, causing global disaster.

Because of the human-to-human transmission of the virus, people must live in isolation. The pandemic has caused hundreds of millions of people to live in one room and not communicate with each other.

Usually busy streets have become desolate and empty. Whereas we used to shake hands and hug each other warmly, we now bow our heads at a distance.

A corona virus has brought all mankind to its knees; no one dares to fight back, everyone listens! Once again, mankind feels small, as tiny as a grain of sand of a river. When all the humans gather together, they are only a collection of sands, looking at the Earth from the universe.

Nature is unkind. It treats the creation like sacrificial straw dogs. When we meditate on the present vicissitudes and sadness of the human world and look back on the 21st century, and see SARS, Influenza, Ebola, H1N1, to new corona virus... one after the other, have made human beings anxious and fearful, as if confronted by a great enemy in an all-out war. These diseases underline the greatness of humanity's insignificance and mentality.

### Part 5

Most of the disasters on Earth are caused by humans. Australia's forest fires lasted half a year, deforesting nearly 11.7 million hectares and killing up to a billion animals.



Lin Xiang Xiong, *Disaster Reveals True Friendships*, ink and colour on paper



Lin Xiang Xiong, Untitled,  
ink and colour on paper

Last year, a great flood in the United States caused immense financial and natural damage. And an unexpected flu this year caused imponderable losses of people, society and economy. The sudden pandemic outbreak this year caused even the most powerful nations on Earth to suffer great losses of human life.

#### Part 6

The viral pandemic has become a public health issue for all of humanity. Therefore, all mankind must join hands to fight this disease! Floods, fires and viruses are all natural disasters, but the underlying cause appears increasingly to be man-made! If mankind understood the intrinsic interconnectedness of nature, it would not pollute the atmosphere for the temporary benefit of individual and national interests. It is climate change, an imbalance in the natural world, that has created a "disorder" in the laws of nature, leading to a frequent and destructive succession of floods, fires and other catastrophes.

#### Part 7

When humanity gives in to its greed and wantonly disrupts the ecological balance, viruses and bacteria are quietly born due to a disorder of natural laws, attacking human beings and causing panic in the world. Humans have been confronted with thousands of years of diseases and calamity, and though it has been hit hard, it has fortunately not been extinguished. The rounds of serious illness since the beginning of the 21st century have been controlled and eliminated by the joint forces of human societies. However, we also know that the Arctic and Antarctic ices are melting. Causing even more concern are the viruses that emerge from the melting permafrost that were suspended for decades but still have the power to come back to life! Will humanity be able to confront old viruses that are revived? The Paris Agreement, a worldwide convention, reinforces the alertness and urgency of the active implementation of the protection of the climate, in particular the warming of the Arctic and Antarctic.

#### Part 8

The world is crying, but mankind will be stronger and braver to face everything and change everything for the better, and "humanity will prevail!"

*"The Age of Weeping"* was originally written in Chinese.

# TRICKS OF PERCEPTION AND THE ROLE OF ARTS AND HUMANITIES

ANTICIPATING

Interior and exterior  
images of school  
cluster in Maçao, Verde  
Horizonte, integrated  
into the school network  
"UNESCO network of  
schools, Asp-NET."



Luiz Oosterbeek

3

THINKING

# Should the cultural management of heritage give in to the field of visual imagery or, conversely, should it persist in the tradition of conservation?

Should we freeze moments of a continuous process? To a large extent, debates in the dawn of the 21st century follow an impulse to create new insights from scratch, guided by oblivion and a lack of awareness of prior reflections. Unity or diversity? Harmony or contradiction? Globalization or localism? Limitless movement in face of virus threats or total confinement? Big Data or singularities? All of these perceived divides seem to be expressions of the same epidemic disease—alienation. This disease seems to be propagated by a specific carrier—mental images structured almost exclusively through sight.

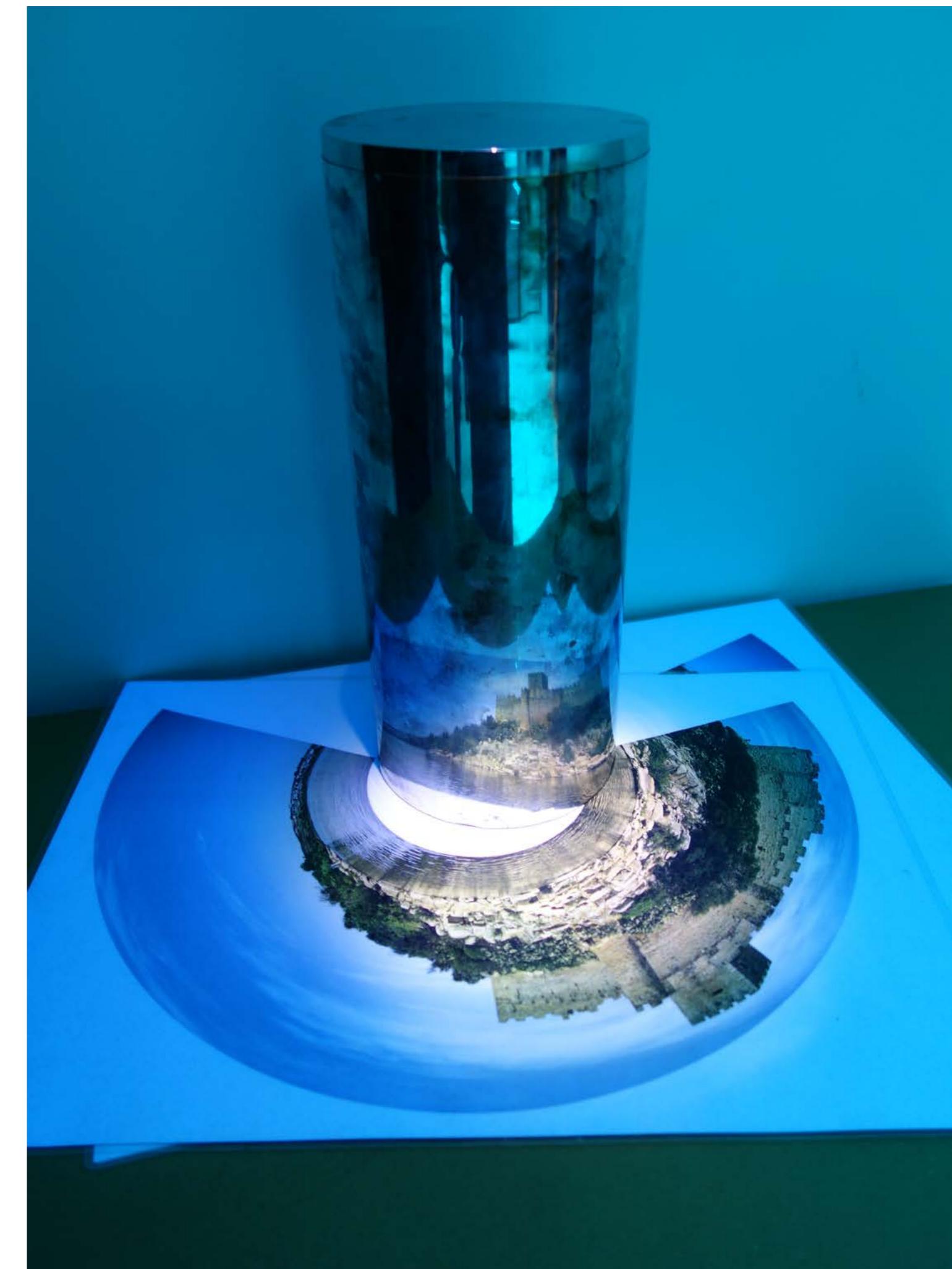
Humans organize memory, as well as our anticipations and expectations, around mental images, which we successively reorganize in a game that alters, at the same time, our perceptions of the past and visions of the future. At the individual level, we recognize these changes and offer them a more or less negative connotation, calling them “memory lapses” (when not “lies”) or “lack of coherence” (when not “betrayals” or “opportunities”). Everything seems to be processed differently, however, when we record these changes at the collective level. If it is true that negative connotations exist (“counterfeits” of the past or “illusions” about the future), there is currently a growing appreciation of perceptual discontinuities, valuing both revisions of the past (understood as expressions of “plurality, diversity and the right to difference”) and disrupt-

tive views of the future, often associated with “innovation and creativity.” In a society that is increasingly oriented towards continuous improvement, to which the notion of quality is attached, change has almost become an absolute value, and “continuity” (in heritage management, we say “conservation”) is often understood as a retrograde, elitist, even “undemocratic” expression.

In the cultural field, the expression of this process is the progressive replacement of “history and heritage” (which dominated until the end of the 20th century) by the articulation between “memory and cultural animation” which prevails these days, from funding programs oriented towards creativity and innovation, to museological strategies oriented to themes of the present, to performative dimensions, and to visual and digital entertainment, including the proliferation of “museums without collections.”

There are certainly many explanations for this paradigm shift—among them, the aging of the population (acting out the idea of innovation as a substitute for opines, in the construction of the double illusion of perpetual youth via constant creativity throughout life) and the precariousness of employment (the offer of the “right to a diversity of pasts” functioning as a correlate of the substitution of “individual responsibility” for social solidarity). We can also recognize in these trends a growing alienation (the reduction of the notion of heritage as a space to stimulate critical reflection) and mercantilization (of which the maximum expression is the

Right: Maçao, Portugal, exhibition resulting from an internship organized by the National University of Arts of Bucharest at the Polytechnic Institute of Tomar. (Photo by Margalit Berriet.)





Margalit Berriet, Park,  
Maçao, Portugal

reduction of visitors to the passive condition of "public," i.e., consumers, to be "educated").

This is a new stage of the process of accelerating communication and cognitive processes and, in particular, of the great sensory revolution in which we are living—the consolidation of sight as the dominant sense in our understanding of the world. It is a revolution because the understanding of the territory, or the context (i.e., the understanding of the intimate relation between Big Data and singularities throughout the past history of humanity), has never been dominated by sight, which is a sense that is affirmed belatedly in the evolution of individuals (long after touch and hearing), and is clearly insufficient for the full apprehension of the subtleties of human contexts and processes. In fact, in the past (and still today, with babies), touch has been the structuring sense in the building of relationships between things and people, offering information about textures, temperatures, and flavors that are essential to prevent the misleading images derived from visual perception.

However, in today's society, visual images have become increasingly dominant in shaping mental images. As a result, in comparison to the multitude of images triggered by hearing, touch, or even the reading of texts, the range of mental images is being considerably reduced under the empire of sight. This is not a very old process, as it is directly related to the expansion of instant visual communication, initiated by television and enhanced in the digital world. If the records of the past highlighted, first, the rhetorical and oratorical capacity of leaders (given that voice in particular, and sound in general, was the principal means of the mass communication of the past, until even the mid-20th century), visual aesthetics have gained

predominance in recent decades, no longer as a "permanent" image (as in icons, rock art, or even photography), but as a "changing" image, which eventually creates the visual illusion of "image transformation." This empire of sight results in a clear loss of cognitive skills (by amputation of diverse sensory information), simplifies the understanding of contexts (thus threatening free and democratic societies, which are deprived of instruments for the awareness of needs), pasteurizes the past (reduced to memories of curiosities—negationism being a clear expression of this), and blocks the transformative, multisensory construction of the future (now reduced to the construction of visual images, or scenarios, in turn understood as opinions and not as historical processes). In simple terms, a sight-centred cognition obliterates vision and foresight.

Many of the current social debates seem to lead to this dilemma: Should the cultural management of heritage give in to the field of visual imagery (which includes the construction of agendas focused on the present and on social debates) or, conversely, should it persist in the tradition of conservation, of medium- and long-term reasoning (which includes the rationalist understanding that this tradition enhances global transformation, socially participated, through comparative-based critical thinking)?

By no means can long-term reasoning preclude sight, nor should it. Apart from contributing to the building of perceptions, human evolution pays relevant tribute to it, and later cognitive evolutions find relevant expressions through it—e.g., in materializing mental images through rock art. But once visual impressions emerge from complex multisensorial performances, there is no room for single-sense "empires." For instance, rock art objecti-



Above: Instituto Terra e Memória (Mação, Portugal) – hand stencils on Wall, made by school children after learning the Palaeolithic Art techniques to produce them.

Below: Reproduction of rock art from Galicia in the street walls of Mação, Portugal, made with the participation of the local community, with the support of researchers and artists Guillermo Muñoz and Pedro Cura.

fies processes—i.e., takes them out of the flow of time and freezes them as moments, as abstractions. Prehistoric Rock Art is a syncretic feature which stands as material evidence of a crossroad of multiple human processes—cognitive, symbolic, economic, aesthetic, and ethical, among others. Organization of collective memories within non-literary societies is done through tales, songs, body art, dance, portable art, rock art, technology.

When I was a young boy in grammar school, I had the chance to have the late writer and philosopher Virgílio Ferreira as my teacher of Portuguese language. He used his first week and a half of lessons to show us slides of paintings and sculptures, videotapes of ballet and movies and, when we were all puzzled because he was not talking about literature or grammar, he explained that language is what allowed us to create all of these, that art is singular even if it is expressed in different forms, and that what makes us human is this capacity to always try to express mental images, namely through words—be those written, painted, or performed.

Indeed, grabbing as much information as possible, through as many means and senses as possible, and then bringing together all that Big Data in order to produce singular mental images and their tangible mirrors, resuming the notions of *ars* and *téchné*, is probably what made us the kinds of humans we have become.

# SINGULARITIES AND BIG DATA

THE ROLE OF CREATIVITY  
AND THE ARTS IN  
RELATION TO SCIENCE  
AND THE HUMANITIES

Margalit Berriet

**Human beings have always been observing the world and the nature of life, looking to attribute sense to their perceptions. The observation and the comprehension of the world gave birth to all forms of expression, as well as to rites, ceremonies, laws, philosophies, and sciences.**

TRANSFORMING



Photo by Margalit Berriet

## **Arts and culture are mirrors of the entire journey of the humanities, bridging people, continents, cultures, civilization, and time.**

Human beings have always been observing the world and the nature of life, looking to attribute sense to their perceptions, aiming to know and understand their available resources while anticipating and acting to produce ways to communicate and live within organized societies. The comprehension of the world gave birth to all forms of expression, as well as rites, ceremonies, laws, philosophies, and sciences. This process of accumulating the world's never-ending tangible and nontangible heritages has also generated contradictions, ambiguities, paradoxes, conflicts, and denials.

Arts and culture are mirrors of the entire journey of the humanities, bridging people, continents, cultures, civilization, and time. Through the practice of the arts, we can illustrate a pattern of communication that transcends time and difference. It allows an understanding of our virtues as well as our limits, our objects as well as our use of signs, symbols, and languages. The grammar of the arts is shared by all cultures. It can sketch out a basis for an understanding of the universal functioning of the human mind, observing the world and giving birth to symbolic forms that have assisted humanity with its infinite productions and inventions.

Arts and culture are the materialization of a massive accumulation of know-how, of

scientific and conceptual exploration and knowledge. This accumulated data is a record of the development of humanity. With the rise of globalization, humanity has developed the need for faster and faster global processing of memories, shared connections, and tools. Big Data offers new ways to examine and share knowledge, but also to analyze, to process information, and to act. Big Data offers tools to open up new challenges for contemporary science and art.

Big Data refers to the processing of all data produced by the use of new technologies, for personal or professional purposes. The exploitation of mega-data has opened up new perspectives in many fields—social science, politics, communication, medicine, meteorology, ecology, finance, commerce, and the arts. Utilizing Big Data, we can foresee new analytical tools and data modeling, carry out new forms of comprehension, enhance collective knowledge, anticipate risks, and monitor ecological and other phenomena in real time. However, Big Data can also become a tool of influence and manipulation, and a cause of conflicts of interest within economics, politics, and society as a whole.

With the arts, we can project beyond facts into the unknown. As Paul Klee said, "Art plays with the ultimate realities, yet attacks them. We imitate in the game of the arts the forces that created and create the world." According to the esteemed sociologist and historian Georgi Derluguian, it has become more and more difficult to anticipate the future the more and more complicated the world becomes, and facing the anger of the people and the risk of radical upheaval of the current political and economic system, it is urgent to rethink the relationship between citizens and the state.<sup>1</sup>

I contend that the arts and the humanities may be the best tools to fight all forms of ignorance—the main cause of all systems of discrimination, prejudice, hatred, and



Photo by Margalit Berriet



Photo by Margalit Berriet

conflict. *Humanitude*<sup>2</sup> is the concept that explores openness to the other and which prescribes a culture of being over a culture of having. By using art and creativity, humanity can make it possible to “connect man to man,” according to Aimé Césaire. Collaboration between the humanities, the sciences, and the arts can contribute to a fundamental recognition of the equality between humans, and between people and nature. By seeking multi-disciplinary cooperation and cross-cultural collaboration, we can increase knowledge, encourage research, and reach beyond religious and political boundaries, allowing active participation and open dialog between all divergences. By offering access to creativity, we can help persons of different backgrounds to discover innovative venues for learning and self-expression, contributing to the debate on notions of self, of the “other,” of freedom of self, and of respect for others.

With the *Humanities, Arts and Society* project, we are attempting to demonstrate that all transformations of nature, as of oneself, are based upon human actions, and all human actions are based on cultural schemes of interpretation and understanding. With the globalization of markets, of knowledge, and of principles, the processes and the conditions of human actions have changed dramatically. However, dealing successfully with educational, cultural, and social changes on a worldwide level requires people to understand their own locally-embedded lives, in a local and global context.

Cultures consist of the ideas, customs, and social behavior of a particular people or society, reflecting the amazing plurality of the world’s beliefs, aesthetics, and ethics. Therefore it can be argued that the humanities, arts, and creativity are a constant base for rethinking the human condition.

In an increasingly interconnected world, the collaboration between the empirical, critical, and speculative sciences and the

arts, as a source of infinite expression, and consequently a unique decoder of the world, is crucial in order to understand complex social and conservational problems, and to tackle the challenges that they raise. Big Data’s extremely large data sets may be analyzed computationally to reveal patterns, trends, and associations, share knowledge, and compare information.

In this first issue of *Humanities, Arts and Society Magazine*, we will be exploring creative uses and approaches to global knowledge, to Artificial Intelligence, and to network tools, as well as to ways to rethink the consequences of their use.

Human brains and technology have been co-evolving since the appearance of the first intentionally-modified stone. In fact, all forms of creation, from tool-making to abstract language, share a common foundation in the capacity of the human species for complex questioning. This includes what we call creativity, but in fact this capacity is characterized by the increasing sophistication of tools—practical and philosophical.

The atomic physics of the Epicureans admits that there are two fundamental realities—the perceptible particles in infinite number, and the bottomless vacuum in which they/we all interchange. Within this meeting between humanities, civilization, and the world there exists cultural and scientific knowledge, yet we are often frightened by the unknown. Learning that is reduced to an accumulation of knowledge is a stumbling block to true creativity and critical thinking because it prevents us from acting beyond their limits. Feeling and sensing, on the other hand, can offer new revelations, new harmonies, new propositions, and perhaps new aesthetics.

To conclude, all matters, themes, objects, and ideas emulate the agility of humanity, and its global knowledge—they convey representational meaning, knowledge, and nonphysical significance. As Robert Filliou said, art is what makes life more interesting than art. Art is composed of endless original ways to question and discover, to see, to generate, to tell, to resist, to criticize, to propose, and to act. The responsibility of an artist not only lies in aesthetic or intellectual research, but also in the capacity to challenge, criticize, and ultimately to raise awareness. To again cite Aimé Césaire:

"Being engaged means, for an artist, to be inserted in its social context, be the blood and flesh of the people, experience the problems of his country with intensity and testify."<sup>3</sup>

1. Georgi Derlugian.  
["Nous devons revenir aux théories anarchistes d'autogestion."](#) interview by Alexandre Mekhanik et Piotr Skorobogaty.

2. Adama Samassékou.  
["Humanitude, or how to quench the thirst for humanity."](#) CIPSH, 2017.

3. Aimé Césaire, interview with Khalid Chraibi, 1965.

In this work the artist is inspired by the spider's web for its different properties and forms. Forms also similar, according to a recent theory, to the initial theory of the universe which would be composed of galaxies of filaments.

Thomas Saraceno - Galaxies forming along filaments, like droplets along the strands of a spider's web - Venice Biennale - 2009 - photo by Margalit Berriet



# SOMNIA

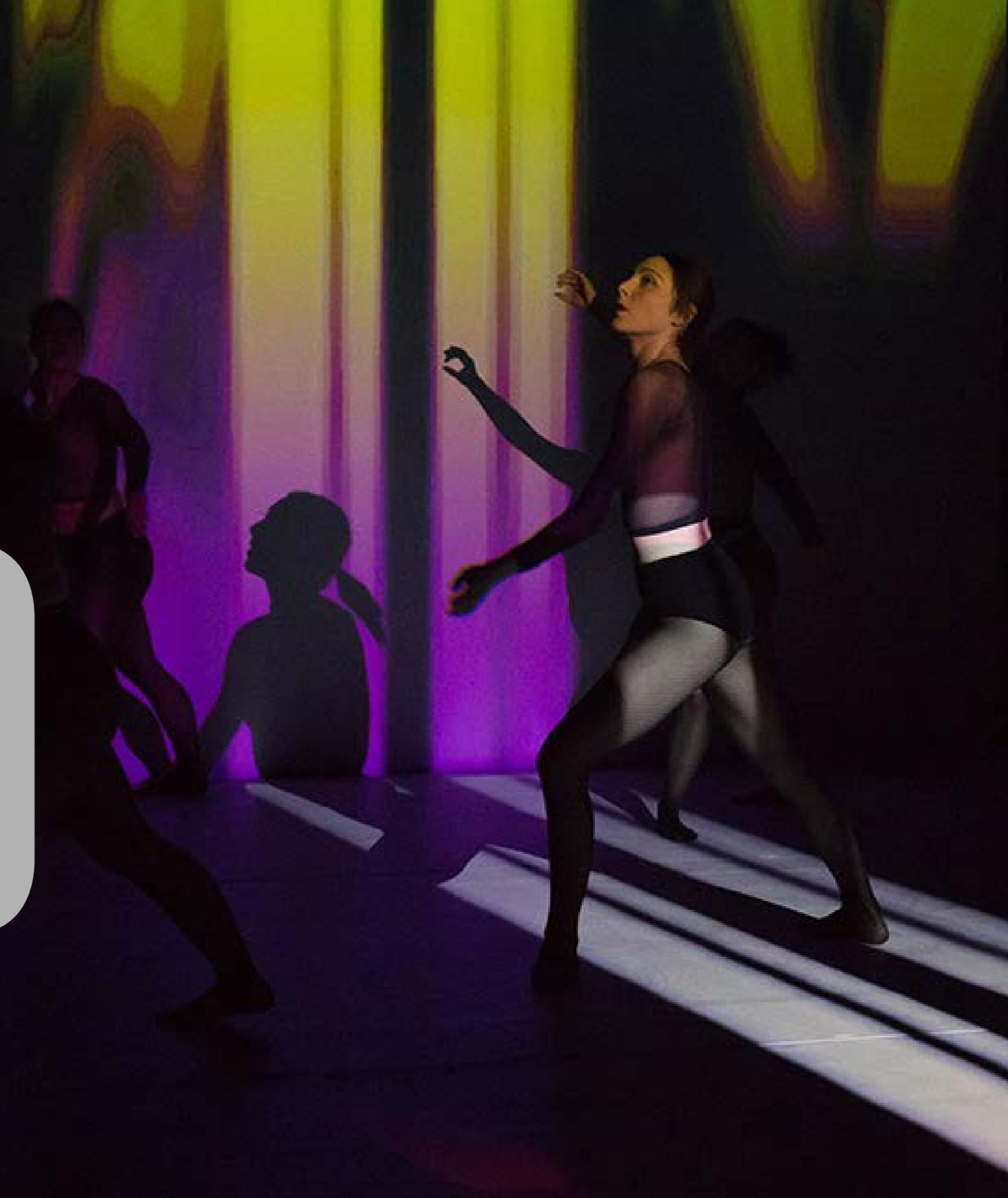
Charlotte Colmant

5

10

PERFORMING

Charlotte Colmant, SOMNIA,  
2016



**Humans are both mentally and physically shaped by the presence of technology. The performance *SOMNIA* dramatizes and visualizes the physical and metaphorical distances between humans caused by technology.**

In *SOMNIA*, a collaborative dance installation/video choreographed by Charlotte Colmant and designed by Raul Zbengheci, dancers interact in a room, surrounded by electronic landscapes, at a very slow pace, looping body forms in repetition and coordination, working the borders between connection and disconnection, consciousness and unconsciousness.

*SOMNIA* is a metaphor for the involvement of the human species in a technological world, where the only form of individualism is a solitary one.

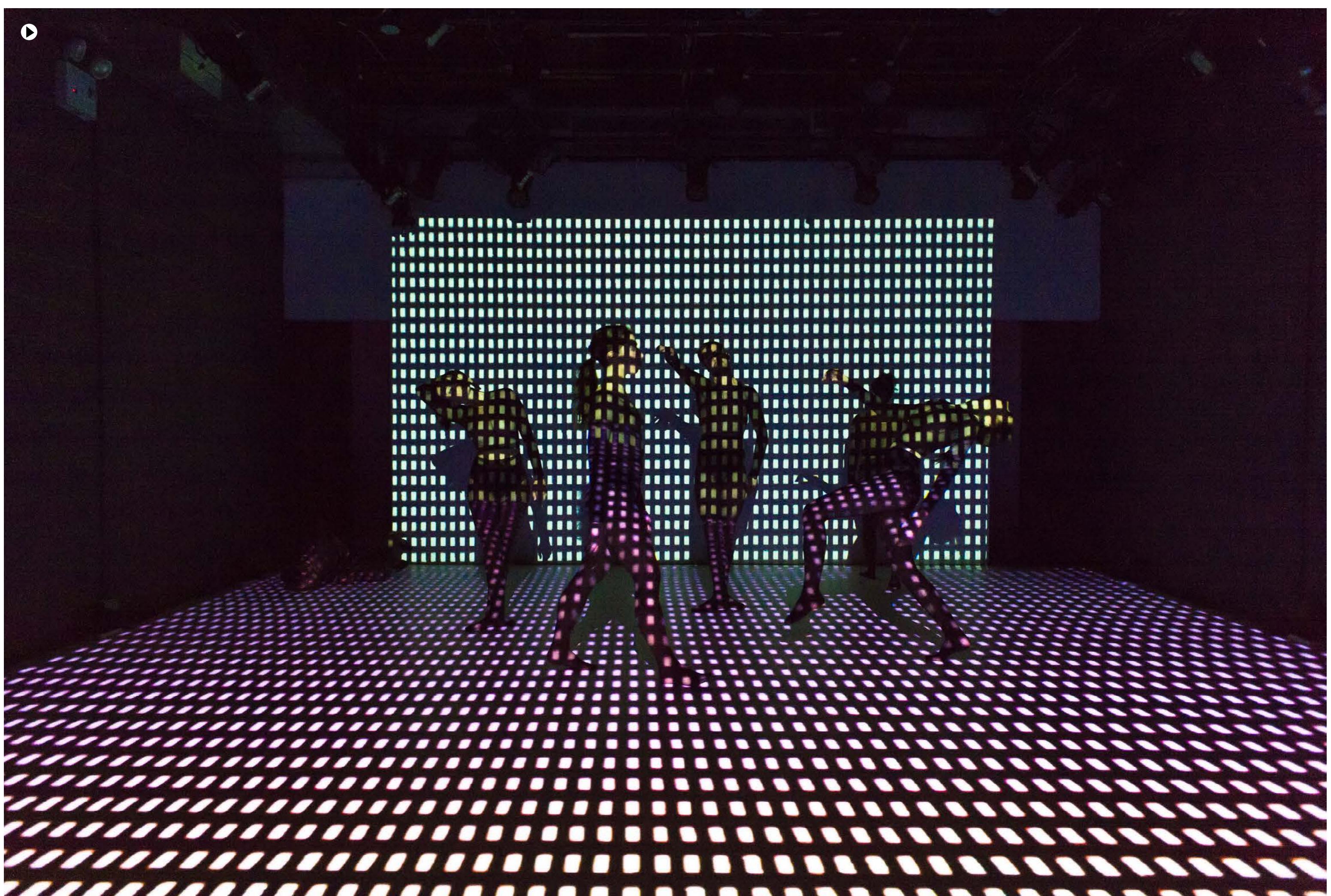
With mechanical repetitions of motion and dehumanization of emotion, the dancers fall or convulse at moments, as if electrical shocks were occurring in their bodies, as they walk back and forth on defined lines or in circles. They have no escape from constant lights, sounds, and patterns affecting their bodies, feelings, and intuitions.

*SOMNIA* uses the body as subject rather than object, in order to question binary notions such as thinking and feeling, presence and absence. How is the body affected by new technologies, signals, ultrasounds, and vibrations? How does this interfere with human interactions? Is solitude becoming a greater aspect of our lives?

*SOMNIA* explores the machinery of time, through an exploration of the body and visual patterns in synchronization.

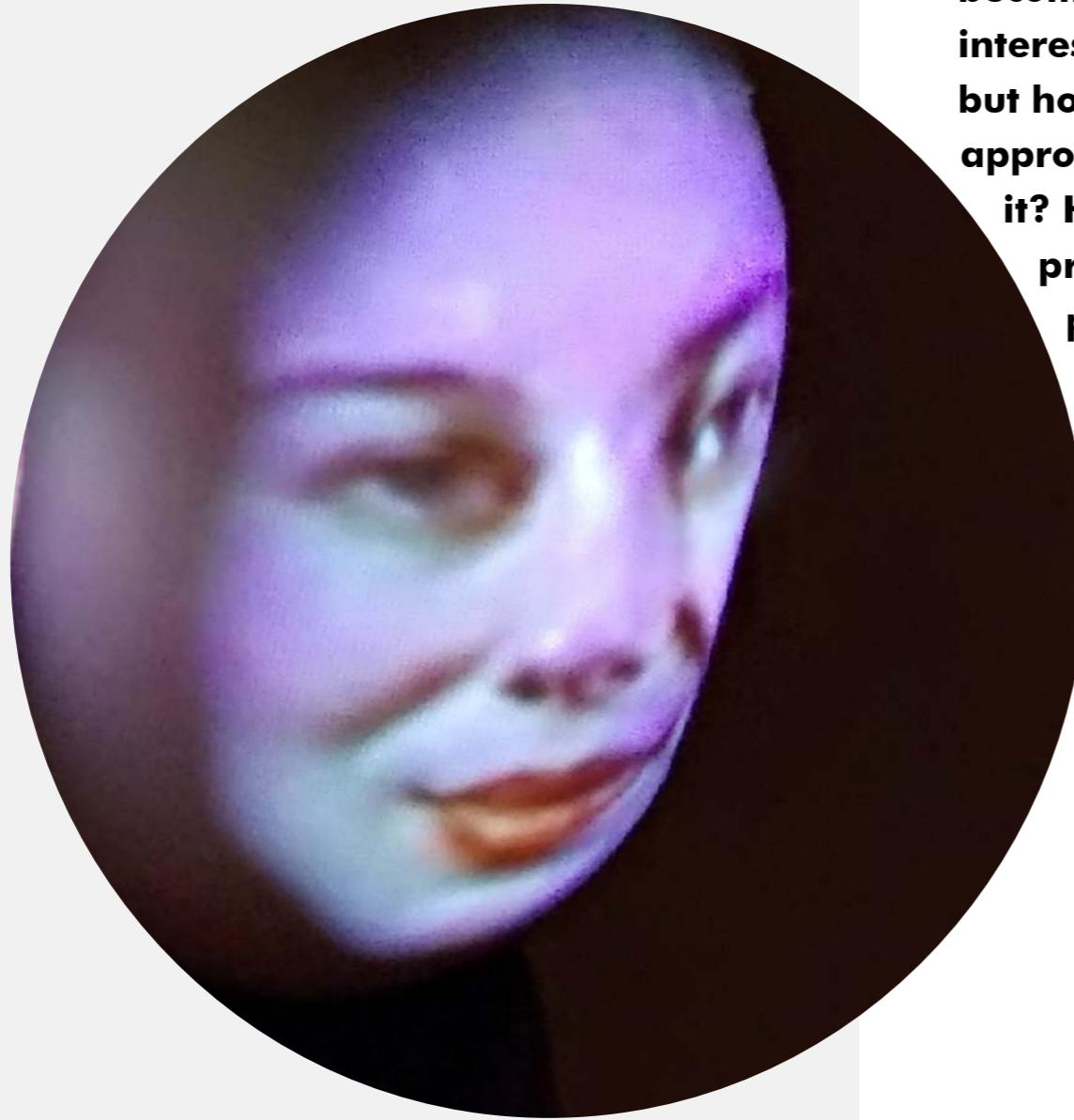


Charlotte Colmant, *SOMNIA*, 2016



# HOW SHOULD WE THINK ABOUT BIG DATA?

**Harold Sjursen**



**Big Data has rapidly become a subject of interest and controversy, but how should we approach and understand it? Harold Sjursen proposes a broad philosophical perspective to contextualize and emphasize it in light of a redefinition of the human condition.**

6



ANTICIPATING

Big Data is such a large and interesting topic, calling for a theory of everything. How can we begin to approach it, and why is it important? Despite its *au courant* focus on the new knowledge embedded in and now being released from Big Data, the questions being posed are perennial themes of philosophy appearing in new guise. The prisoners in Plato's Cave Allegory were likewise called upon to rethink the human condition, based upon the unveiling of new knowledge previously sequestered behind the veil of false appearances. By mining the depths of Big Data, its proponents argue, we will see through false constructs and understand in what sense we, too, have been prisoners, and will subsequently redefine the human condition and be better able to place ourselves on the road to liberation.

Let's start with a story:

It's Manhattan in the 1960s, and everything seems up for grabs. Two priests, who were boyhood friends growing up in Brooklyn in the 30s, keep up their friendship by meeting weekly for lunch. One is a Jesuit—cerebral, intellectual, intense—the other a Franciscan—compassionate, relaxed, living to realize *Pax et Bonum*. Their boyhood friendship is nurtured by the guilty question: Is it acceptable to smoke and pray at the same time? They meet weekly at a small Italian restaurant just south of Greenwich Village and, over eggplant *parmigiana*, discuss pressing issues. Inevitably, their conflict over the propriety of smoking and praying arrives as the topic for theological reflection. The discussion follows the canonical methods of disinterested scholarship, hermeneutics and apologetics, eudemonistic ethics, and enlightened psychology. Their prodigious collective memory consults the Bible, the Church Fathers, Augustine, Aquinas. They invoke positivistic accounts of language, the later Heidegger's non-objectionifying thinking, the principles of Carl Rogers' client-centred therapy, but still the solution evades them. Their schedules are full, and they finally agree to pursue the question further the next time they meet.

A week later, they return to the same restaurant and upon arrival, each notes a look of self-satisfaction upon the face of the other. "Father J, you're looking rather pleased with yourself today," said Father F. The Jesuit replied in kind, noting the Franciscan's delight bordering on smugness. "Well, I have solved our puzzle," the Franciscan said. "The answer is No!" His Jesuit companion, taken aback, retorted, "But that can't be. We discussed it thoroughly, and the answer is undoubtedly Yes." After enduring a few moments of silent puzzlement, Father J finally inquired: "What question did you pose?" Without hesitation, Father F confidently asserted, "Exactly the question we puzzled over: Is it alright to smoke while praying?" The Jesuit then allowed that he thought he understood the contradiction. "Ah, in our conversations we discussed praying while smoking." For if while smoking, for example, one witnesses an act exemplifying the grace of God and responds sincerely with a spontaneous prayer, of course that is acceptable and proper, but on the other hand, if one is in the midst of fulfilling the priestly duty of administering the holy sacraments, then smoking would be an abomination! It's all in how you frame the question.

But how do we frame the question, and indeed, given the resources of Big Data, what are the questions? The theme of this inaugural issue of HAS Magazine connects Big Data, creativity, and the human condition. Big Data as a concept within the engineering discipline of informatics was described at the beginning of the 21st century. Its famous definition, advanced by Doug Laney, an analyst at Gartner, concisely identifies the potential challenges before us: "*Big Data*" is high-volume, high-velocity and high-variety information assets that demand cost-effective, innovative forms of information processing for enhanced insight and decision making.<sup>1</sup>

Like the priests in the story, we believe that there are definitive answers to the existential questions of how we should live our

lives, if only we knew and could understand the sources. But for us, unlike our hapless pair, Big Data does not present itself to us within a set of canonical texts with established, if disputed, methods of interpretation. On the contrary, Big Data (some have said, like dark matter) is normally invisible to us—it is wildly heterogeneous, dynamic, and in perpetual flux. Yet we believe that if only we can find the key to this treasure trove, the abundance of insight unlocked will allow us to pursue the good. Today, this kind of techno-optimism may be somewhat muted, but still, our hope is that with the right computational heuristics, we will be able to mine the data and organize the needed information in a manner that will yield key information, permitting the best decisions and ultimately the solution to our most vexing and threatening problems.

In the philosophical tradition, the relationship of thought, knowledge, and understanding to action or praxis has been much discussed without a strong consensus. One can find arguments for both their mutual distinctiveness as well as for the contrary notion that on some level they are the same. Common sense suggests—as reflected in Doug Laney's formulation—that thinking precedes action, the effectiveness and quality of which is enhanced in rough proportion to the accuracy, detail, and correctness of the thinking. Thus, it is assumed that thinking prepares the way for action, and the better-informed the thinking, the more likely that successful action will follow. But is the collecting and analyzing of Big Data a mode of thinking such that the commonsense belief that it can improve action is in order?

The results of Big Data mining can hardly be likened to the standard body of scientific evidence, let alone to the contemplation of personal experience. Our awareness of Big Data is almost hypothetical. Of course, in ordinary experience, we are also frequently removed from crucial evidence that is invisible to us, mediated by technology such as a microscope, and in this sense Big Data superficially resembles much scientific information. But this sort of scientific evidence, produced through laboratory experimentation or field work, is normally an enlargement of something of which we have an immediate awareness, a clue to or symptom of an underlying complexity. In the case of Big Data, the situation is different—what is purportedly disclosed comes as a surprise because we did not have evidence suggesting it, only theoretical conjectures. For this reason, it can be compared to dark matter, which we know about primarily only inferentially. It is necessary for the universe to hold together, but what we know of it is hardly more than that. So the matter of Big Data may very well influence our lives in significant ways of which we are unaware.

Knowledge of it might change our understanding of the human condition. This may be the premise motivating data mining.

1. Svetlana Siclari. "Gartner's Big Data Definition Consists of Three Parts, Not to Be Confused with Three 'V's." Forbes.

# The proposition that the conjunction of Big Data, creativity, and thinking as a possible way to understand the human condition radically reframes enduring questions behind the central admonition of Socrates to “know thyself.”

But Big Data is more than a matter of practicality. It has inspired creative appropriation by artists like my friend and colleague, [Luke DuBois](#). DuBois is an academically-trained musician—performance and composition—and a visual artist who is completely at home in the world of digital media. Truly an artist, he nonetheless thinks of himself (as do many other contemporary artists I know) as a kind of engineer, in the understanding that engineering is what artists actually do. One of his most interesting recent projects, *A More Perfect Union*, has been reported with great enthusiasm in the business press, probably because of its deployment of attitudes towards Big Data that seem to resonate with Doug Laney’s famous definition.<sup>2</sup>

DuBois’ approach is both ironic and challenging. He encourages us to think about what reality is—not an abstract, cosmological account of reality, but the reality of our day-to-day, lived experience. He does this by mining a data base, namely the words that members of online dating services use to describe themselves. DuBois describes the project as follows:

“*A More Perfect Union* is a large-scale artwork based on online dating and the United States Census. In progress since 2008, the work attempts to create an alternative census based not on the socio-economic fact but on socio-cultural identity.

In the summer of 2010 I joined 21 different online dating services and “spidered” their contents, downloading 19 million profiles of single Americans. These profiles were sorted by zip code and analyzed for significant words. A series of national, state and city maps (43 in all) show this data in various ways. Most notably, a set of prints shows a road atlas of the United States, with the city names replaced by the word used by more people in that city than anywhere else in the country. This lexicon of American romance, as it were, consists of more than 200,000 unique words, and

gives an imperfect, but extremely interesting perspective on how Americans describe themselves in a forum where the objective is love.”<sup>3</sup>

In this project, large heterogeneous data sets are culled and juxtaposed, revealing an aspect of ordinary life with a new and surprising focus. The subject—how one presents oneself when seeking romance—addresses something of our understanding of the human condition, suggesting how we understand basic human characteristics such as erotic desire and the need for companionship. Importantly, however, it also indicates that we don’t know and might not recognize ourselves in this context without the kind of analysis this project reveals.

As it was reported in the *Financial Times*, “What [people like DuBois] are doing is trying to convey the secret life of data in a way that is elegant and exciting... we have gone from a very literal view of data to a very emotional view.”<sup>4</sup>

This project would seem to satisfy the elements of the proposition that through creativity, Big Data can help us to redefine and thus better understand the human condition. But is that what is actually being done? Are enumerated and correlated records of large amounts of human behaviour (statements or actions) indicative of what makes humanity what it is? Does this enhance our insight and lead to better decision-making? Pragmatically, perhaps. If knowledge of the most successful terminology for finding a romantic partner will lead to my greater success in finding such a partner, then in that sense it can guide me to making a better decision. This seems doubtful, but even if it is the case, it does not afford anything like a better understanding of the human condition. And if this is how we make decisions, are we following our inward light, are we in possession of any genuine insight, or are we merely performing a calculative process that is possibly devoid of any understanding whatsoever?

2. Gillian Tett. “[The art of Big Data](#).” *Financial Times*. July 5, 2013.

3. [Luke DuBois](#).

4. Ibid., *Financial Times*.

I cited Socrates' admonition to know thyself as conveying a moral dimension, but self-knowledge is often elusive. Socrates' injunction is more than a moral admonition—it's an epistemic challenge as well. How does one know oneself? Our introspective self-examinations may lead us to reinforce beliefs that obscure genuine self-understanding. Are summations of the data of our lives any more auspicious a path to self-understanding?

Another of DuBois' projects engages this question. Called *Self-Portrait, 1993-2014*, he explains it in this way:

"The term quantified selfie was, to my knowledge, coined by Maureen O'Connor in 2013. Writing in New York Magazine (Heartbreak and the Quantified Selfie, 12/2/13), O'Connor discusses the Tumblr blog of journalist Lam Thuy Vo and the work of designer Nick Felton in the framework of a larger cultural trend in which the narcissism of social media and the ubiquity of Big Data collide in a new form of self-portraiture. These data portraits often co-opt, parodically or otherwise, the visual semantics of post-Tufte infographics for the purposes of generating content for the Millennialist online sharing.

The self-portrait I created consists of a force-directed graph of my email since September, 1993. In layman's terms, imagine a "big bang" of a universe of personal and professional e-mail sent and received for 20 years; the different people in this universe have different mass and gravity, causing galaxies of attraction to form; those in constant dialogue with one another, or whose language is more familiar, or loving, have stronger bonds of attraction. The five or so primary e-mail addresses I've used over the years appear in the centre of this star map, with the several thousand people I've corresponded to surrounding them in clusters of sentiment and carbon-copy.<sup>5</sup>

Portraits both reveal and conceal something of the human condition. That is, they open

our eyes to perhaps unnoticed dimensions of self-presentation while simultaneously protecting or reinforcing one's position in the world. The official portraits of the president of a university, for example, are intended to show how an individual embodies the spirit of the institution, while both preserving its legacy and leading it forward to master the new challenges of the future. That is to say, portraits create a person, institution, or event while asserting its natural compatibility and salutary relationship with the human condition writ large. The veracity of a portrayal is a function of its selectivity, no less so with reference to the results of previously unnoticed factoids uncovered by data mining. So, how seriously should we take efforts to reframe the world according to the results of Big Data disclosures? DuBois' ironic re-description of commonplace beliefs is playful, and a reminder that what we see is sometimes little more than what we want to see. Our understanding of the human condition, no less than our seeing the world around us, is an intentional act, formed and guided by tradition and necessity. The humorous question, "Is it OK to smoke and pray at the same time?" illustrates this aspect of our understanding of the human condition. Big Data indeed provides a platform for creatively redefining the human condition, but is it a disclosure of truths hidden deep within the human collective psyche or, on the contrary, an arbitrary collection of things/events that we find as evidence in support of our contingent desires?

Consider the three components of Doug Laney's definition of Big Data: (1) high-volume, high-velocity and high-variety information assets, (2) that demand cost-effective, innovative forms of information processing (3) for enhanced insight and decision making. We notice that the source (1) is not accessible to ordinary observation or comprehension. It is too vast, changes too quickly, and is too diverse for that. Normally invisible, these characteristics may evoke a sense of awe when we first become aware of them. Next it is

## **This belief in progress and the quest for certainty foment the crisis of modernity from Descartes to Kant.**

asserted (2) that this awesome source makes demands of us, viz., we are to know it through innovative information processing. Normative modes of information processing will not do. And finally, (3) those who inquire in the proper way will be rewarded. This anti-democratic message is obviously not implicit for everyone—not even most people, but only a select few. The philosophers or high priests of Big Data can access this source and they, at their discretion, mediate the enhanced insight they possess for the benefit of the many.

This doctrine has been put forward before; politics and religion both offer examples. We have mentioned the Platonic version as found in the *Republic*. The gnostic paradigm<sup>6</sup> suggests another, perhaps more insidious version. According to the Gnostics of late antiquity, the truth is concealed, and humanity is generally imprisoned in a body surrounded by veils of ignorance. A secret message is conveyed to a select few, providing the salvific key breakout of this constraining environment and on to understanding and liberation. Is it too great a stretch to think of Big Data in these terms—as an unapproachable deity that can provide the secret message that will lift the veil of ignorance and bring humanity to a brighter future? Are artists like Luke DuBois or analysts like Doug Laney the purveyors of such a secret message?<sup>7</sup>

If we believe Aristotle, the human condition is one not of certainty but wonder. The question of purpose, the purpose of action, and the belief that there must be purpose,

that things make sense, supports the conviction that with enhanced insight, beneficial decisions are possible, and progress can be made. Behind the idea of progress is the assumption of fixity, a stability against which motion towards a goal is possible. On this view, the human condition is largely a quest for understanding.

This belief in progress and the quest for certainty have fomented the crisis of modernity from Descartes to Kant. For Descartes, the discovery that what appeared to be and was evident to ordinary observation—and which was validated by metaphysics beginning with Aristotle—was false, and called for the wholesale and radical reassessment of all knowledge. His method was disbelieving, or at least doubting all one had been taught and which had been confirmed by experience as correct. Descartes called this discovery our new knowledge, a precarious formulation that ultimately required the severing of mind from body, and the declaration that God is no deceiver, to legitimate it. The faith that Descartes's God required was in the enhanced insight afforded by modern mathematics (of which Descartes was a prominent founder). Descartes' assertion of the efficacy of mathematical rationality to both succinctly summarize the true nature of the physical world and to demarcate the limits of human insight was eventually capped and partially refuted by Kant's famous declaration that "I had to deny knowledge in order to make room for faith." Similarly, he asserted: "The schematicism by which our understanding deals with the phenomenal world... is a skill so deeply hidden in the human soul that we shall hardly guess the secret trick that Nature here employs."<sup>8</sup>

Kant acknowledges, in this way like the advocates of Big Data theory, that the source of our knowledge (the *noumena*) is beyond our grasp, that what appears to us (*phenomena*) is due to the structure of human reason itself. The ways of nature are beyond our ken while still determinative of our well-being. Conformity to duty

5. Luke DuBois.

6. The term *gnostic paradigm* refers to ideas held by the Gnostics of late antiquity but is broader than the inverted theological cosmology they proclaimed. See Hans Jonas, *Gnosis und spätmittelalterlicher Geist*.

7. I very seriously doubt that either has entertained anything like the gnostic typology. I mean only that their work hints at structural similarities.

8. Both remarks are found in Kant's *Kritik der reinen Vernunft*.

becomes the key ethical principle and guide for our actions and the basis of our hope.

The promise of Big Data asserts the claim to be able, through the data-mining technology of information science, to penetrate Kant's noumena or, in other words, not to be constrained by the limitations of pure reason. The new knowledge disclosed is (or will be) salvific in that it promises to put us on the road to progress. In this way, it is possible to transcend the limits and constraints on the human condition as understood by Kant. This approach of Big Data is inherently gnostic—it is predicated on the communication of secret knowledge (from a demythologized deity) conveyed by a messenger to an elect few. The messenger of this secret knowledge is technology, aided for the present by human under-labourers. The salvific promise entails the subordination of human action to data mining technology. Indeed, it must be the case, given the presupposed complexity of the fields of Big Data, that successful data mining can ultimately be accomplished only by computing devices managed by Artificial Intelligence. Clearly, such an eventuality would redefine the human condition, the nature of human action, and the existential meaning of being human.

An alternative way of conceiving the human condition, one that preserves the integrity of human action, has been suggested by Hannah Arendt. Let us approach her theory from the standpoint of thinking. Descartes' famous designation of a human being as a *thinking thing* (*res cogitans*) of course raises the questions of just what thinking is, why it is the defining characteristic of humanity, and why it is that humans choose to think. Kant was critical of what he called *Denker vom Gewerbe* (professional thinkers) because thinking was the natural disposition of humanity. Yet when referring to the highest interests of humanity (for Kant, *God, Freedom, and Immortality*), he opposes those he mocks as the *Luftbaumeister* of reason, people

who would try to establish the truth about these matters through arguments removed from all common experience and understanding. For Arendt, the problem is precisely how to see thinking in terms of common experience and understanding. Mental activity that is disconnected from such understanding (as indeed the calculative heuristics of mining Big Data would be) cannot lead to action and our determination of ourselves as agents of the human prospect.

In her aptly-titled book, *The Human Condition*, Arendt delineates several useful distinctions: the public and private realms; the *vita activa* (active life) and the *vita contemplativa* (contemplative life); and the three types of activities within the *vita activa*—labour, work, and action. Unlike in the philosophical tradition, the contemplative life is not viewed as superior to the life of action. Action is not dependent upon the formative influence of thought, and the goal of action need not be to change understanding—Arendt is not simply inverting Marx's 11th thesis. While Marx argues that humans are *animal laborans*—that is, defined by the necessity of labour—Arendt asks what if automation (AI technology) frees us from this necessity of labour so that we don't need to labour merely to survive? Work, according to her scheme, is different because whereas labour is what one does simply to survive, work has different goals and produces durable objects. Action, the third category, includes what we ordinarily call action as well as speech; it is the way by which humans present themselves to each other, and is distinctly human. Being human implies the ability to act. It is through action that the human world is created and maintained, and through which human community is sustained. But this is due to difference, not conformity to an unchanging essence—the human condition is contingent, beginning anew with each birth, and hence a matter of ever-changing possibility. "Human plurality, the basic condition of both action and speech, has the twofold character of equality and

Portraits  
both reveal  
and conceal  
something  
of the human  
condition.

distinction. If men were not equal, they could neither understand each other.”<sup>9</sup>

The Cartesian mind-body dualism is by Arendt supplanted by more subtle distinctions in which human action is neither predetermined nor the emulation of an ideal type. Moreover, with her famous emphasis on *nativity*, she underlines the fact that with each birth, a new beginning, with new possibilities and hope, is established. A Hegelian view of history is ruled out. Like Kierkegaard, Arendt sees new individuals as the foundation of the human condition. These individuals are to be sure thinkers, but thinkers in the midst of lived experience, contributing to the common realm of possibility by working through diverse opinions.

The 24th World Congress of Philosophy was held in Beijing in August 2018. The theme of the Congress was *Learning To Be Human*. The Congress represented all branches of philosophy, and vigorously pursued the general theme from multiple perspectives. Big Data was not a prominent concern among the participants. The idea of learning to be human stands out in an age when the notion of post-humanity is thought by many to be in its incipient stages, or upon us already. In this context, the question of learning how to be human assumes a new urgency. It is a step beyond the Socratic injunction to know thyself in order to live well in accord with the good, beautiful, and just. The question becomes how, or whether it is possible, to co-exist in a world in which non-human entities—cyborgs in possession of intelligent agency—determine the social and cultural norms available to humans. It is curious, and perhaps distressing, that the reality of Big Data, with its inextricable bond to such devices as intelligent robots, has not emerged as one of philosophy’s leading concerns.

As we have suggested, the accessibility of Big Data radically reframes the question of what it means to be human, and of the state of the human condition. This refram-

ing challenges the traditional formulations of philosophy from antiquity and the Enlightenment. Big Data is not available to us either through a rational, deductive logic or through sense perception—the two sources of all knowledge that Descartes argued were exhaustive. Moreover, given the dynamic, even volatile state of Big Data, an epistemology yielding certainty is out of the question. The approach advocated in the techno-business world suggests a dangerous Gnostic typology based upon privileged access to a body of hidden knowledge that can offer the enhanced insight necessary for a life of excellence. The mining of Big Data is offered as the new paradigm, obviating approaches rooted in common experience. Arendt’s notion of action with a pluralistic world of competing doxa derived from experience in the public realm is likewise, on this view, inapplicable.

Where do we turn? It seems that the challenge presented by Big Data is how, in a world where decisions are based on aggregations of information that are beyond the parameters of natural access, is it possible to sustain an idea of humanity that preserves our unique status as agents who can pursue the good, true, and beautiful? Creative attempts to redefine the human condition in works of art suggest, as several of Luke DuBois’ projects do, that rather than active agents, we are caught unawares in the volatility of Big Data’s dynamism. This surely should be a question high on the agenda of philosophy’s quest to learn how to be human.

9. Arendt, *The Human Condition*.

# SOCIALITY

Paolo Cirio

PERFORMING

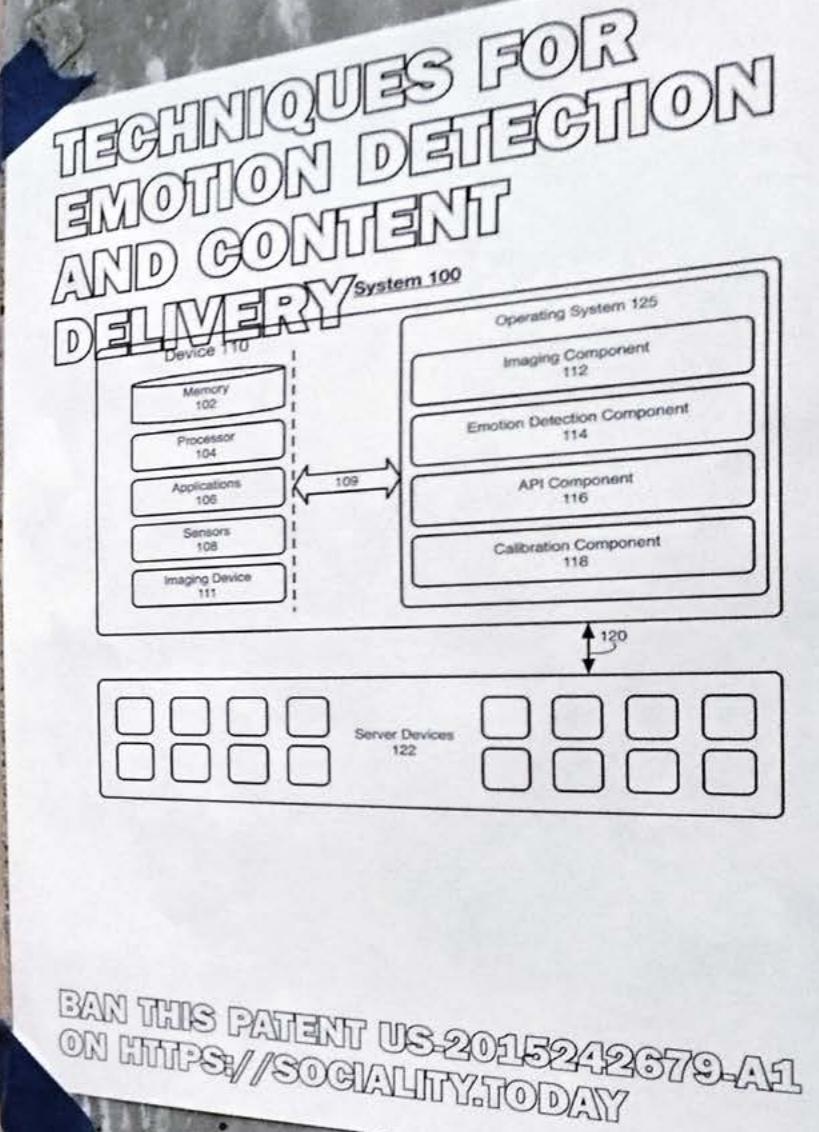
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Paolo Cirio,  
Sociality,  
Installation MIT  
Museum, Boston,  
2017- 2018



ANTICIPATING

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**Algorithms that collect, analyze, and control data have been the subject of patent filings. Sociality raises awareness about these mechanisms, which are loosely regulated by governing institutions but increasingly shape our lives.**

The conceptual artwork Sociality is composed of over twenty thousand patents for online platforms, interfaces, algorithms, and devices. The artist Paolo Cirio investigated public repositories of patents to document technologies that conceal the social control, manipulation, and surveillance at play on the Internet.

Today, human sociality and psychology are affected by devices subtly designed to program social behaviours. Sociality seeks to inspire regulations, oversight, and public awareness regarding these apparatuses. Beyond addressing the technology itself, the artwork looks at intellectual property as a political and economic field that has become applied to the sociality of humans. Our sociality is now being owned and traded by private companies without public scrutiny.

This artwork documents the history of the unscrupulous business of engineering human sociality with the introduction of technology for social networks, Internet advertising, and even mind-reading. Sociality reveals some of the first patents from this particular technological field, dated around 1998, and it concludes in 2018, the year when nefarious unintended and intended social consequences of such technologies have become most evident and reported. These patents document the history of how humans began to be programmed by machines. A list of videos, books, news articles, and experts provides further information about the subject-matter of this project.

Paolo Cirio identified classes of patents, then collected, aggregated and sorted the data on the website <http://Sociality.today> where thousands of patents of problematic technologies are exposed. On Sociality's website everyone is able to browse, search, submit, and rate patents by their titles, images of flowcharts, and the companies that created them. Both the artist and the online participants perform oversight of invasive inventions designed to target demographics, push content, coerce interactions, and monitor people.

With Sociality, Paolo Cirio reveals devices that are often obscured by technological language, trade secrets, and the public's general unawareness. The documentary form of this artwork aims to shed light on contemporary mechanisms of social control by showing evidence of complex technological systems and their roles in enabling addiction, opinion formation, deceptions, discrimination, and profiling. Sociality examines the concepts of social bubbles, algorithmic bias, amplification of misinformation, behaviour modification, tech addiction, and corporate surveillance. Expanding from privacy and bias, this project focuses on technology for the manipulation of human behaviours and psyche. Attention economy, steered social validation, and habit-forming products can be psychologically damaging and impact social relationships to the point of harming the fabric of society and endangering democracy.

This artwork intervenes by seeking accountability for the creation and deployment of unethical Artificial Intelligence, user experience and interface design, data mining, network monitoring, mind sensors, and algorithms. These technologies should be handled and regulated as in similar developments in chemistry, biology, and

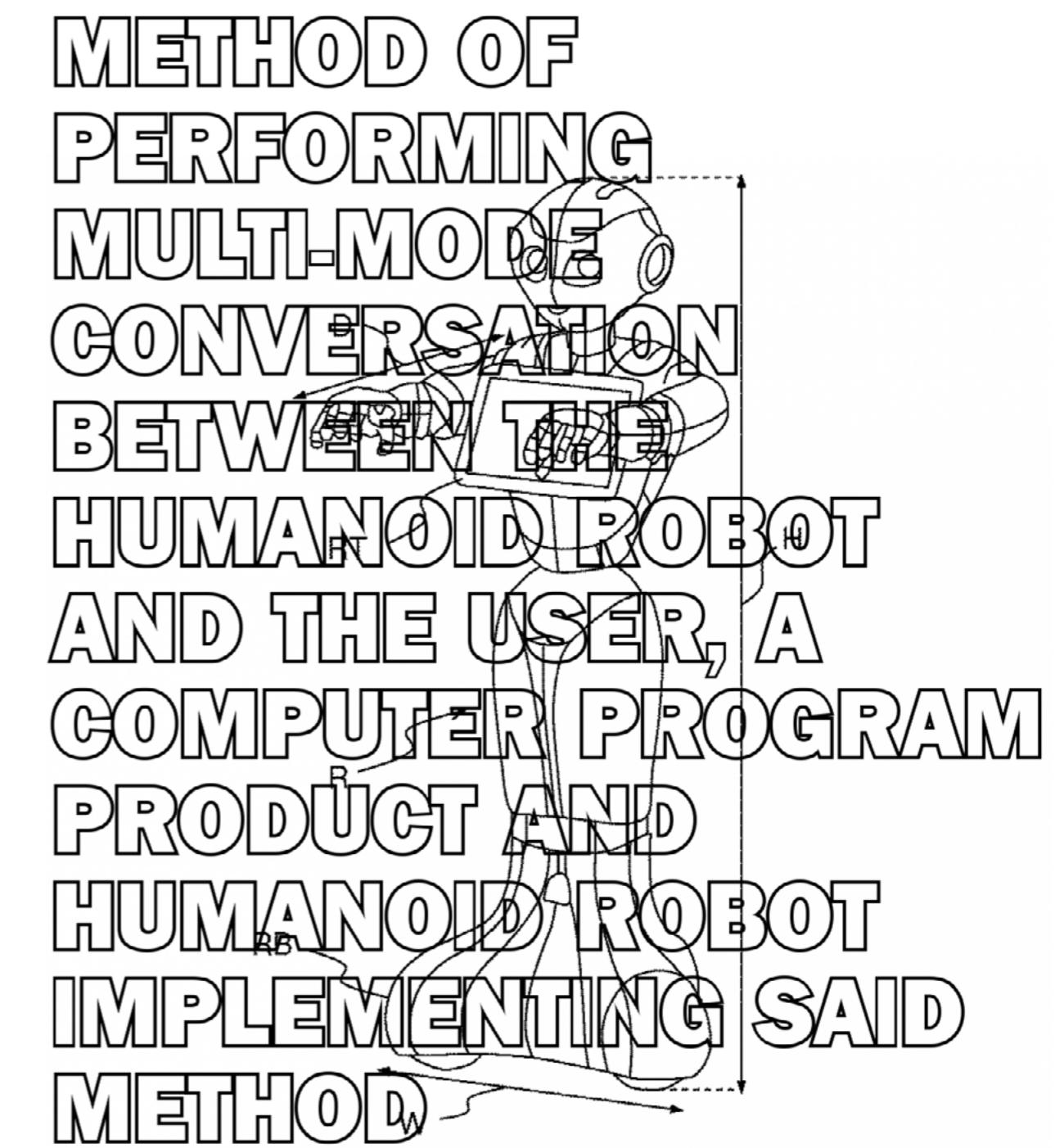
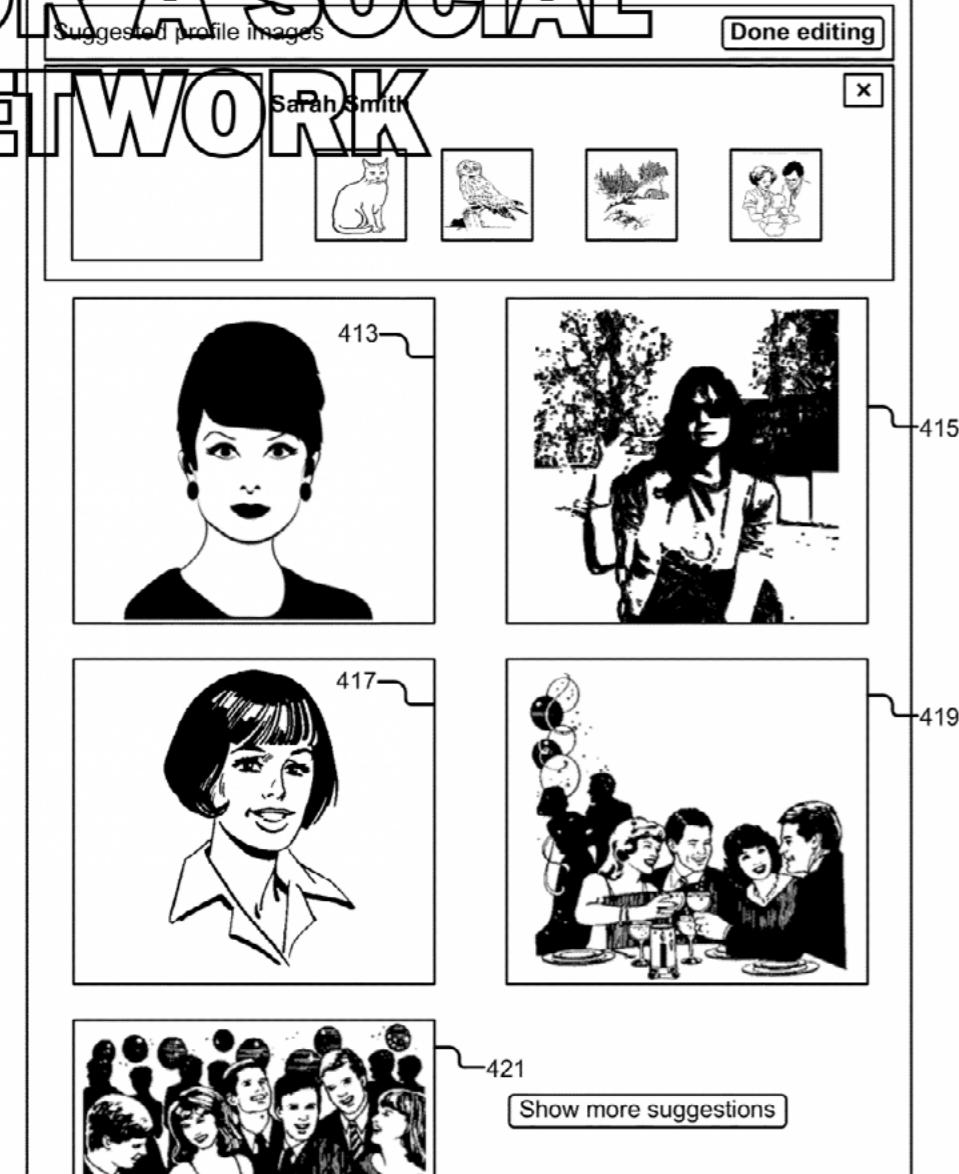


FIG 1

**BAN THIS PATENT JP-2017520782-A  
ON [HTTPS://SOCIALITY.TODAY](https://SOCIALITY.TODAY)**

# SUGGESTING PROFILE IMAGES FOR A SOCIAL NETWORK



BAN THIS PATENT US-8867849-B1  
ON [HTTPS://SOCIALITY.TODAY](https://sociality.today)

genetics. As such, the banning of toxic and dangerous inventions should extend to information technology. For this proposition, the artist invites everyone to flag and ban patents through the interactive website of the *Sociality* project. This provocative and participatory component elicits engagement for a democratic and collaborative oversight. The images of flowcharts of patents are composed with short descriptions and patent numbers to be shared online or through printouts. These documents are eventually sent to legislators, academics, activists and journalists for advocating regulation and the potential banning of the publicly scrutinized technologies.

The visual strategy of flowcharts and graphics aims to make the project popular and emblematic for denouncing controversial inventions. In the art installation, hundreds of flowcharts of algorithms with their descriptions are printed in black and white on A4 paper sheets. Through integrating visual, conceptual, activist, and participatory aesthetics, the offline art installation and website constitute informative Internet art about the social and mental health effects of information technology.

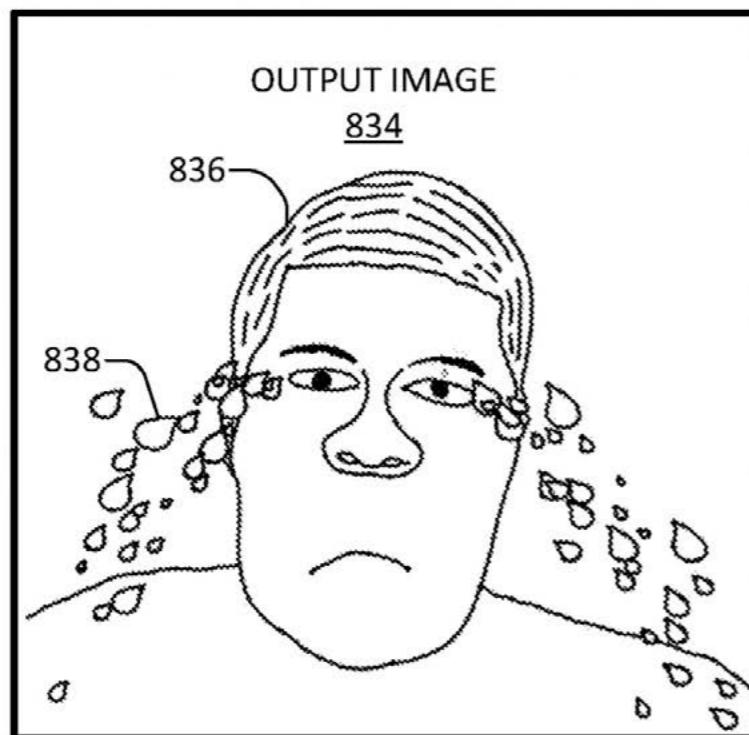
In the exhibition, the public confronts large-scale compositions with images of flowcharts that abstractly invoke the complexity and magnitude of uncanny plans to program people. Furthermore, the artist invites children between the ages of 9 and 12 to color in flowcharts and descriptions of the patents as an integral component of the conceptual artwork.

As a final artistic gesture, Paolo Cirio will create an algorithm for aggressive social manipulation and control. He will then attempt to patent the algorithm to keep it unavailable to the industry. This ultimate act will propose to exploit intellectual property laws for halting socially harmful information technology.

We regulate the financial sector, we have checks and balances in the government, we ban the sale of guns, and toxic chemicals. As information technology impacts society perilously, we must also regulate both centralized and decentralized platforms, infrastructures, and interfaces with inventive, restrictive, and reflexive policies.

Paolo Cirio,  
*Sociality*,  
*Ban this Patent*

## DYNAMIC MASK APPLICATION

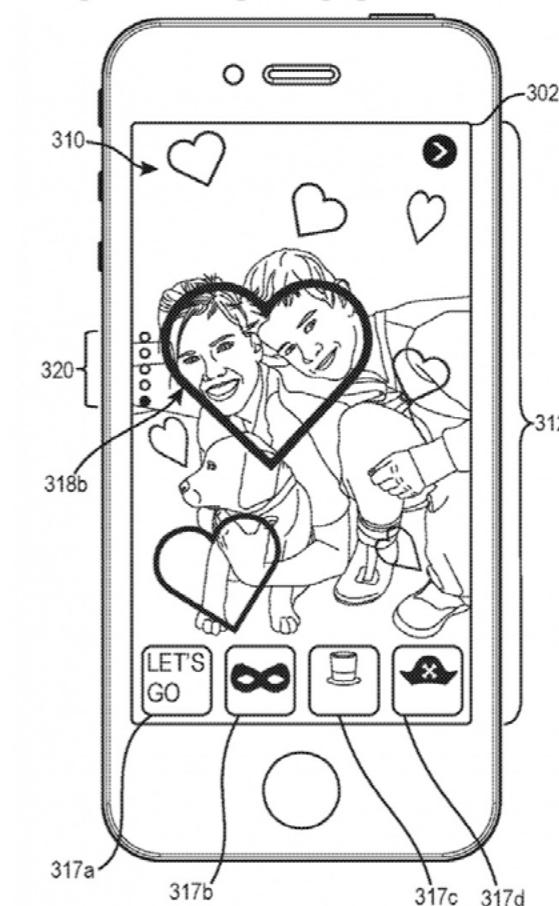


US-2018182141-A1 by Facebook in 2016

DECEPTION

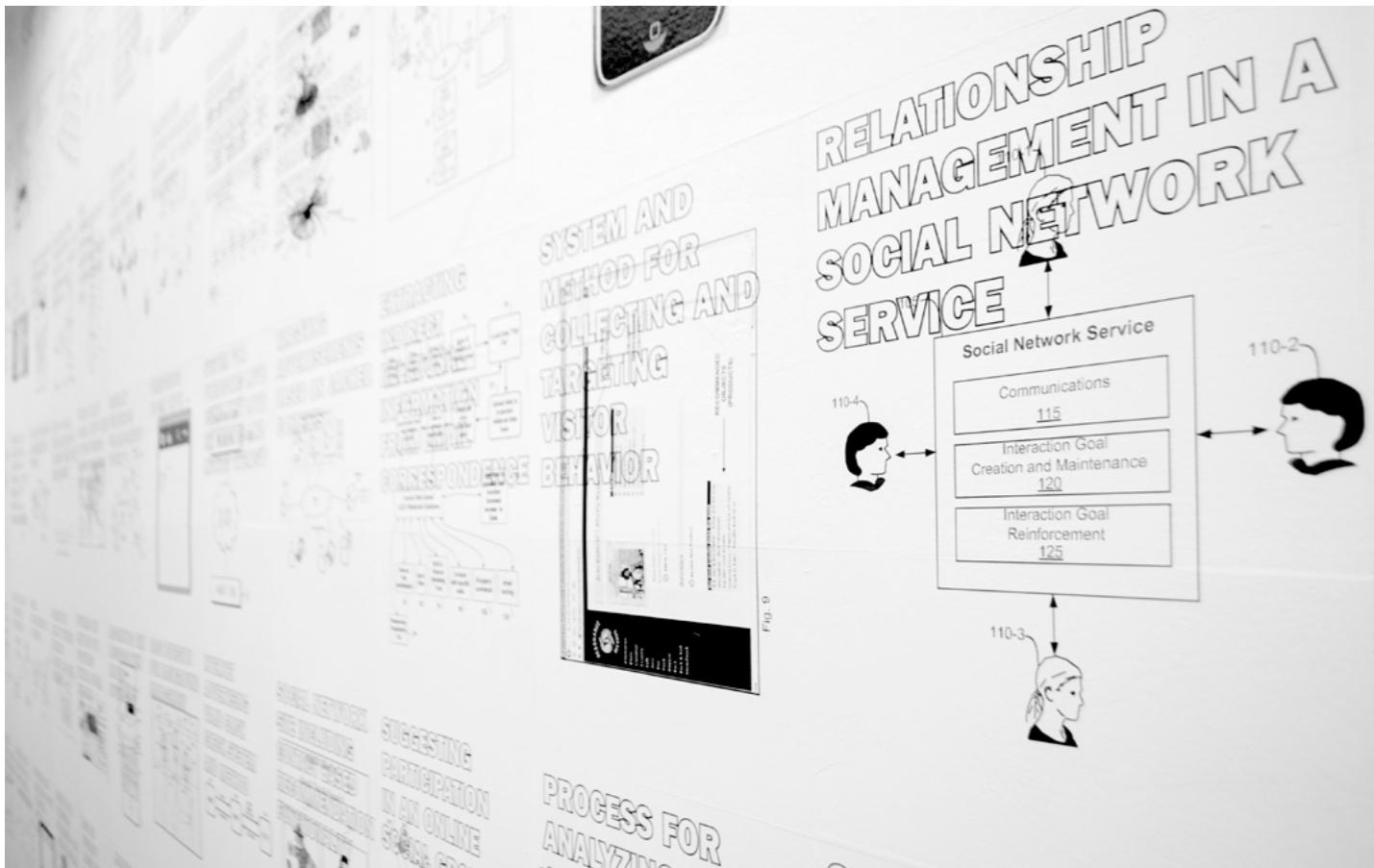
The visual compositions of Sociality were printed in form of posters and a colouring book for informing on devices that enable discrimination, polarization, addiction, deception, and surveillance.

## DYNAMICALLY RANKING MEDIA EFFECTS BASED ON USER AND DEVICE CHARACTERISTICS



US-2018191962-A1 by Facebook in 2016

ADDITION

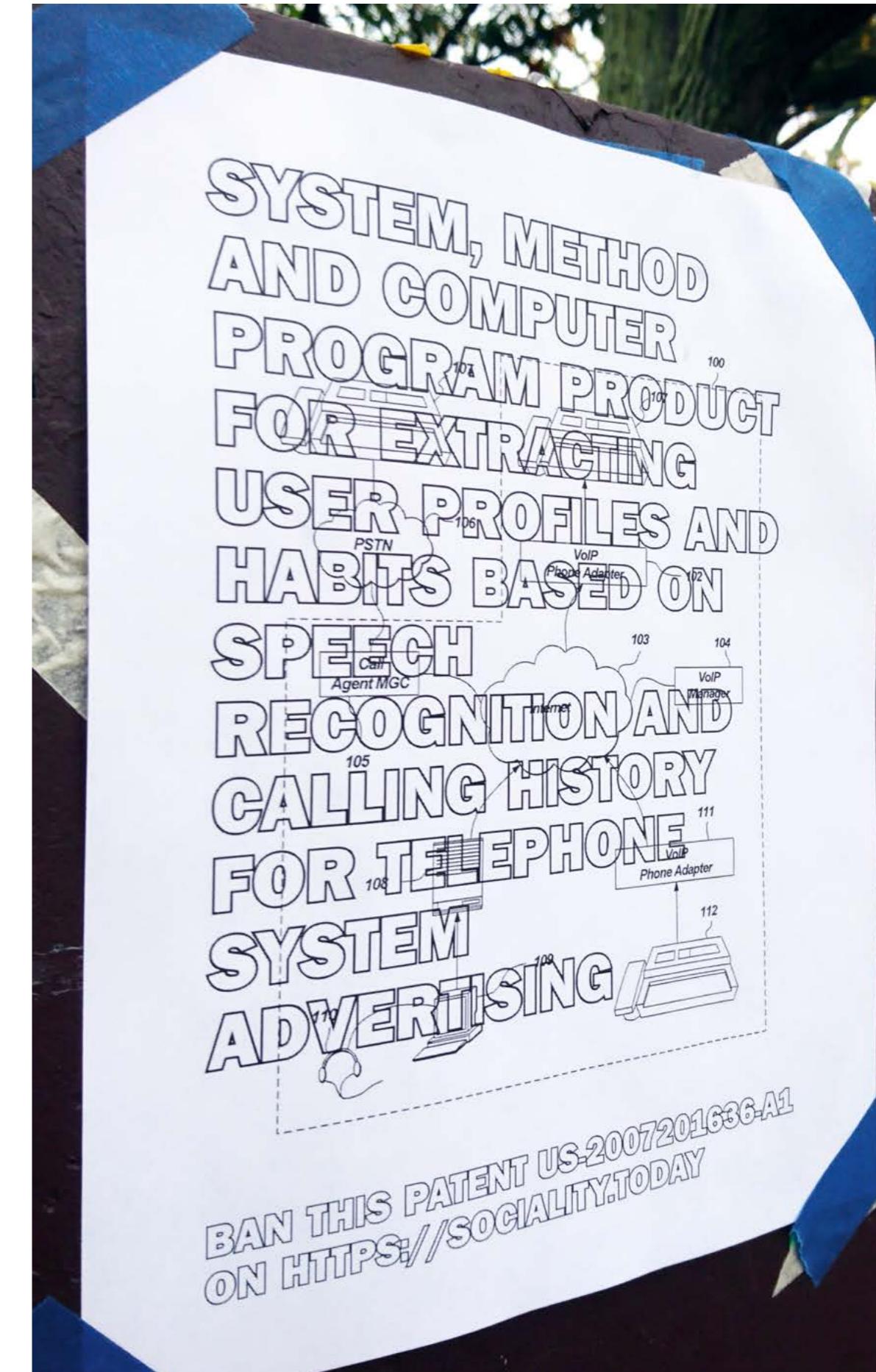


Paolo Cirio, *Sociality*,  
installation Biennale de  
Strasbourg, 2018

### Regulatory Art

The cultural celebration of technology concerns the ethics of representation. Critical art should account for the intentional and unintentional social consequences caused by technolibertarianism. In a time when institutions struggle to regulate technology, artists can creatively engage with regulations and governance as a form of Regulatory Art.

Technology is now a cultural field in which belief systems, politics, and ethics are central in determining the acceptance of any technological system. Data, code, crypto, and platforms are not the law, nor above it, and they should never be. Technology has become a political agent and its governance needs creative, critical, and dynamic propositions from artists. Regulatory Art is the practice of addressing, engaging, and inquiring about regulations in the technocratic society we live in.



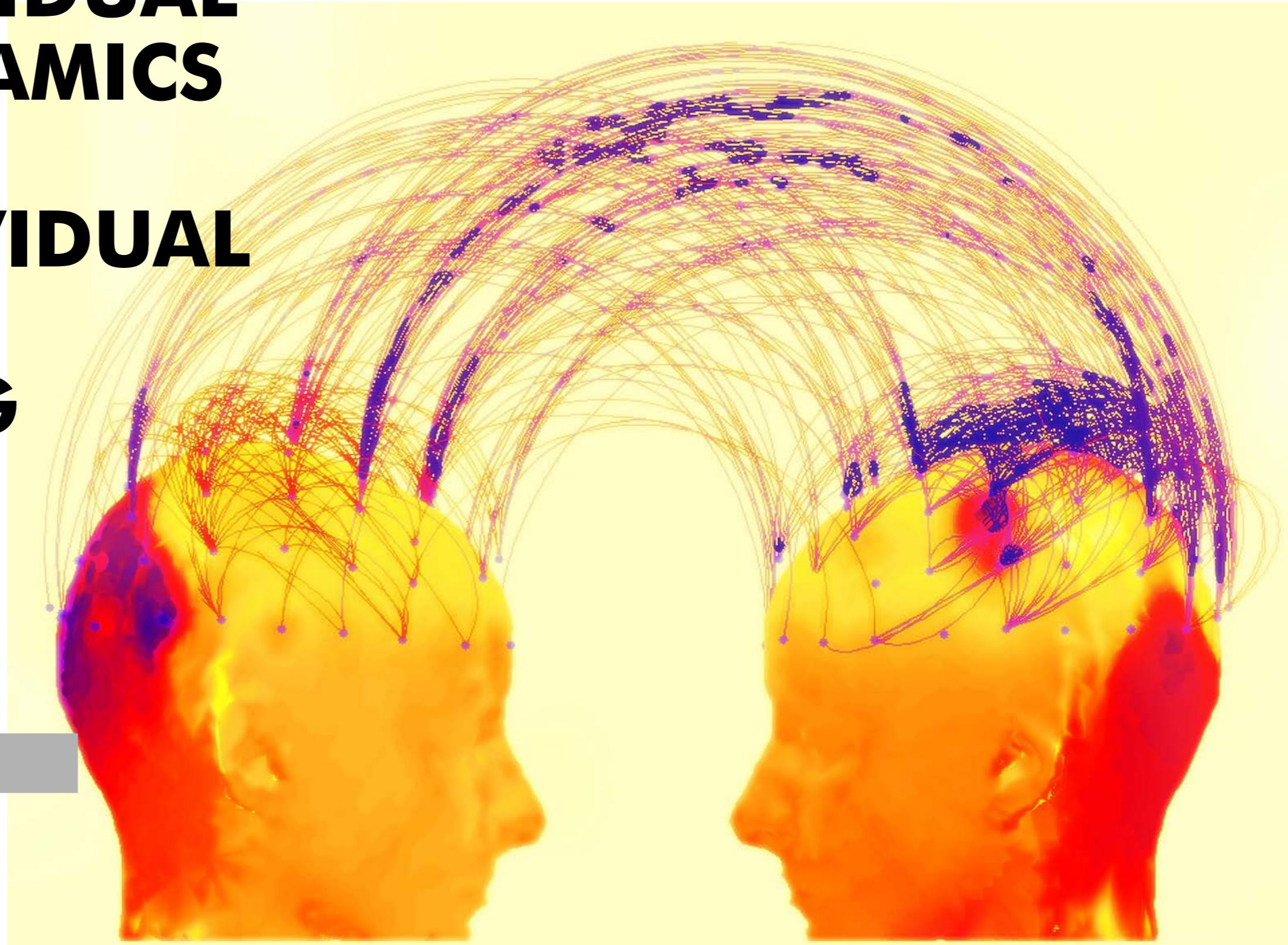
# ON THE COMPLEMENTARITY OF INTER-INDIVIDUAL SOCIAL DYNAMICS AND INTRA-INDIVIDUAL BIOLOGICAL GROUNDING

Guillaume Dumas

TRANSFORMING

Guillaume Dumas,  
Faces-to-phases, 2013

8



## **The metaphor comparing the human brain to a computer has long been popular within neuroscience, but how do different models of computationalism explain social interactions and culture?**

**“The bee dreams up the flower and the flower dreams up the bee.”**

**Francis Huxley**

**“Bee and flower are together, such that if you take one out, both disappear.”**

**Francisco Varela**

At the crossroads of the biological sciences and computer science, the brain/computer metaphor that has prevailed for more than fifty years in neuroscience has led to the consideration of isolated individuals without taking into account their social interactions. The neuro-imaging technique called hyperscanning now allows us to record the behaviour and brain activity of multiple participants simultaneously and thus, finally, study social interaction in a spontaneous, reciprocal context. Human interaction is then apprehended in a holistic way, by considering two individuals as a single system, and observing behaviour as well as brain activities. These methodological and theoretical developments have demonstrated that interacting with others is fundamentally different from passive social percep-

tion. These results therefore invite us to consider more broadly interactional dimensions in neuroscience work, as well as the complementarity between the dynamics of our social interactions and our biological grounding.

### **From Cybernetics to Self-Organization — Which Paradigm to Approach the Complexity of Human Cognition?**

The nature of human cognition is a complex question, one that has received different answers in different disciplines, and that has mobilized contradictory and often fragmented theories—much like the elephant in the ancient Jainist parable illustrating the relative reality of individual perception, as described in the philosophical system *Anekāntavāda*.<sup>1</sup> An elephant arrives in a village of the blind, and when its occupants try to guess what it is, very different hypotheses are proposed. The blind man touching the foot thinks it is a tree, while the one holding the tail thinks it is a rope, and so on. No single blind man is able to figure out what the elephant is on his own—only by pooling their different experiences will the blind men be able to recognize it. Human cognition is the elephant of the cognitive sciences, and the blind men are well represented by the various disciplines—philosophy, psychology, neuroscience, but also linguistics, computer science, anthropology, and literary theory—that have tried, in isolation and in vain, to understand how our psyche works.

The emergence of modern cybernetics at the beginning of the 20th century reflected a desire to establish a new field of research into modes of communication by combining the knowledge of several disciplines, while giving a central place to the notion of “control.” It was not until the Macy Lectures in New York in the 1940s<sup>2</sup>, which brought together mathematicians, philosophers, anthropologists, psycholo-

gists, and economists, that research on cognition took a new direction at the international level. These conferences, and the many theoretical debates on the nature of the mind, led to a new momentum, in resonance with the developments of a new discipline—computer science—whose promise of potential applications contributed to the craze for the metaphor of the “computer brain.”

However, this metaphor, also known as “computationalism,” is not accepted by the entire scientific community. Beyond the efficiency of algorithms, cyberneticians and their successors insist on the importance of self-organizing processes in the emergence of cognition. Nevertheless, the computer model does not take into account all of the properties of brain functioning. Indeed, these properties had initially been set aside to conceptualize the computer. Ironically, the latest work of the fathers of computer science, Alan Turing and John Von Neumann, underlines this problem by considering the self-organized aspects of cerebral functioning, which are totally absent in the computer.

Among the thinkers of the second cybernetic wave, Humberto Maturana and Francisco Varela, in complementarity with the work of cognitivists, have gone into greater depth with respect to certain phenomena, in particular the processes by which the brain reconstructs the reality of the world—e.g., remembering the beauty of an exhibition, the order in which paintings were seen, etc. The two Chilean biologists approach these phenomena by taking the side of a strong biological anchoring. Before considering cognition more specifically, they attempt to conceptualize life from a new angle. At a time—the 1970s—when molecular biology was booming, and the cell was increasingly appearing as a complex miniature machine for biologists, the two neurobiologists

focused their reflections on two central and complementary aspects of life—autonomy and coupling with the environment.

Maturana and Varela thus developed the theory of autopoiesis—“auto” meaning “self” and “poiesis” “to produce” in Greek (Maturana and Varela, 1994). The cell is considered to be the basic unit of life, inasmuch as the conditions necessary for the establishment of an autonomous structure, yet one coupled with the environment, are already present at this elementary level of organization. This structural coupling—known as “first-order” coupling—is the combination of a causal network closed in on itself that maintains the cell’s self-organization or reproduction.

This theoretical framework helps to conceive how stabilizing the structural coupling with the environment provides the conditions necessary for the establishment of coupling between the cells themselves during evolution (Figure 1). This transition from unicellular to multicellular entities corresponds to the Cambrian explosion<sup>3</sup>, 541 million years ago. This landmark event in the history of life on Earth saw the first eukaryotes (i.e., cells with a nucleus surrounded by a membrane), protozoa (“proto” meaning “first” and “zone” being “animal” in Greek) become metazoans, whose cells can specialize in different functions for the benefit of the whole organism. This specialization allows the appearance of much more complex biological systems with levels of organization that allow the development of processes other than nutritional autonomy. Thus, we see the immune system appearing, which ensures the defense of organisms against diseases, but above all the nervous system, which allows us to perceive the environment and to better act upon it in return.

1. A philosophical system of Indian origin, developed before our era, which considers that all reality is relative and that there are multiple points of view.

2. Conferences organized in New York from 1942 to 1953 on the initiative of neurologist Warren McCulloch. They are named after the financial support by the Macy Foundation.

3. A period of several tens of millions of years—also known as the “zoological big bang”—during which a great diversification of animal, plant, and bacterial species can be observed.

Structural coupling then becomes “second-order” because this loop with the environment no longer only maintains the organism’s material autonomy, but also its informational autonomy. Varela will later develop the theory of enaction, focusing specifically on these aspects<sup>4</sup>, with a focus no longer on the evolution/structure of the living but on cognition. As he had been able to do by proposing the theory of autopoiesis, Varela distanced himself from his contemporaries by refusing to use the metaphor of the computer brain, and by playing with the idea of autonomy and coupling.

Since stabilization during the evolution of cell/environment coupling provides the necessary conditions for coupling between the cells themselves, stabilization of the informational interaction between organisms and their environment has allowed these organisms to interact with each other (Figure 1). This “third-order” structural coupling is nothing more than social interaction, the precondition for the emergence of culture.

### Understanding Social Interaction: A New Challenge for Neuroscience

As paradoxical as it may seem, work in social neuroscience has long focused on isolated brains, which has led some researchers to use another metaphor, considering social interaction as the “dark matter”<sup>5</sup> of social neuroscience (Schilbach et al., 2013). It was not until the 2000s that neuroscientists took social interaction seriously and studied the functioning of not just one but two brains in synergy (Hari and Kujala, 2009).

Two challenges therefore had to be met. On the theoretical level, experimental protocols had to be invented to question this interactional dimension, and on the technical level, tools had to be built to record brain activity during reciprocal

exchanges in real time. Until then, the study of the brain had been oriented towards social perception, based on research focusing on the perception of social stimuli, and these investigations did not take into account the reciprocity and co-regulation of exchanges. For example, participants had to detect an emotion from images of faces or imitate scenes presented in a video. But obviously, because the image of a face or a video remain insensitive to the behaviour of the spectator, information in this case is unidirectional and not bidirectional, as in social interactions.

How can we close this loop in which the self and the other influence each other? Three main approaches have been developed: studying several humans “in vivo” simultaneously, simulating “in silico” (i.e. in a computer) interactions with mathematical models and, combining both of these approaches, observing the interaction between humans and mathematical models.

### Brains on the Same Wavelength, or Exploring Synchrony

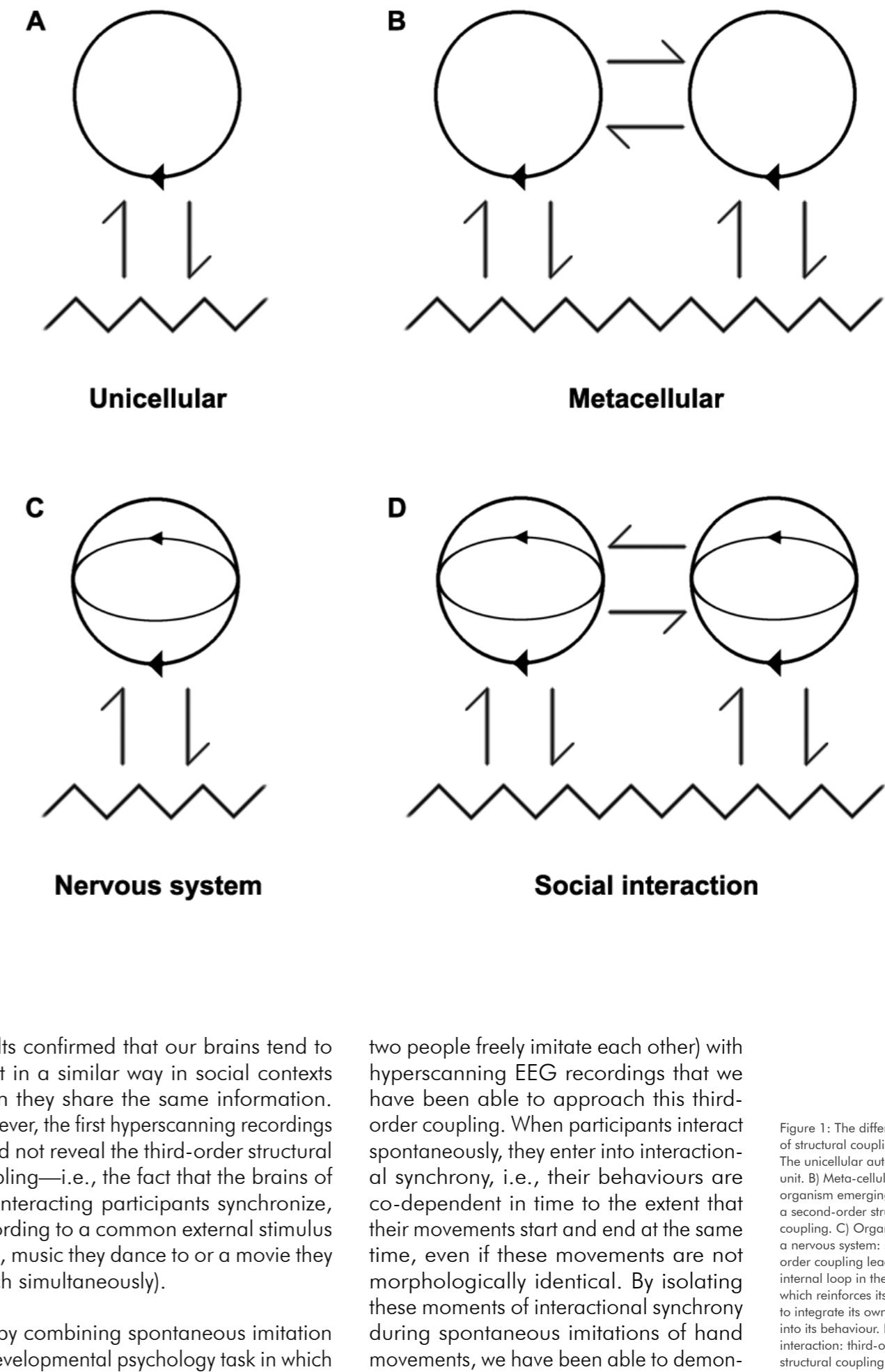
Studying several interacting human participants had already been done in psychology, for example in child development research that highlighted the fundamental role of the co-regulation of exchanges between a baby and his or her parents (Fogel, 1993). However, to apply this approach to neuroscience, it had to be combined with recordings of the brain activity of the interacting participants.

This is the aim of the method called “hyperscanning,” introduced in 2002 with Functional Magnetic Resonance Imaging (fMRI; Montague et al., 2002), then extended to electroencephalography (EEG) in 2006 (Babiloni et al., 2006)<sup>6</sup>. These first studies demonstrated the feasibility of simultaneous recordings, and the first

4. Enaction is the way living things organize themselves in interaction with the environment.

5. Metaphor referring to a physical substance, also called «dark matter,» which would be made up of particles that have never been detected in the laboratory but which, nevertheless, would represent a substantial mass of the universe according to certain astrophysical observations.

6. For the anecdote, experiments were carried out in the 1960s with the EEG, but in the field of parapsychology.



results confirmed that our brains tend to react in a similar way in social contexts when they share the same information. However, the first hyperscanning recordings could not reveal the third-order structural coupling—i.e., the fact that the brains of the interacting participants synchronize, according to a common external stimulus (e.g., music they dance to or a movie they watch simultaneously).

It is by combining spontaneous imitation (a developmental psychology task in which

two people freely imitate each other) with hyperscanning EEG recordings that we have been able to approach this third-order coupling. When participants interact spontaneously, they enter into interactional synchrony, i.e., their behaviours are co-dependent in time to the extent that their movements start and end at the same time, even if these movements are not morphologically identical. By isolating these moments of interactional synchrony during spontaneous imitations of hand movements, we have been able to demon-

Figure 1: The different scales of structural coupling. A) The unicellular autopoietic unit. B) Meta-cellular organism emerging from a second-order structural coupling. C) Organism with a nervous system: second order coupling leads to an internal loop in the organism which reinforces its capacity to integrate its own state into its behaviour. D) Social interaction: third-order structural coupling.

strate that they are accompanied by brain wave synchronizations between the brains of the participants (Dumas et al., 2010; Figure 2).

In addition to being consistent with the terms “being in phase” or “being on the same wavelength,” these results also showed that the human brain reacts to real-time social interaction in a different way than it does to social perception. For example, brain reward circuits are more activated during spontaneous two-way interaction, such as dialogue, and less when we are passively watching a monologue. Highlighting these variations thus questions the generalization of previous results in the field of social neuroscience, based solely on a unidirectional approach to social perception. The results also highlight the importance of context and the role played in social interaction (e.g., imitator or model) in modulating the brain’s response (Nadel and Dumas, 2014). These new approaches may have applications to how to design more interactive learning and to approach the performing arts.

### The Two Faces of Social Interaction

Thus, we have seen how the approach to human cognition can be renewed. Moving beyond the metaphor of the computer brain, human thought can be seen as an interface between the biological embedding in the body (especially the brain) and social dynamics (Dumas, 2011). A double constraint operates between these two faces: The social brain enables informational coupling with other brains, and social interactions shape our brain connections (Clark and Dumas, 2016). As in the myth of the blind men and the elephant, it therefore seems that the different disciplines of cognitive science must co-construct meaning across disciplinary boundaries and levels of observation (Dumas, Laroche, Lehmann, 2014). Social interaction appears as a subtle mix between the interplay of our inter-individual dynamics and intra-individual biological grounding.

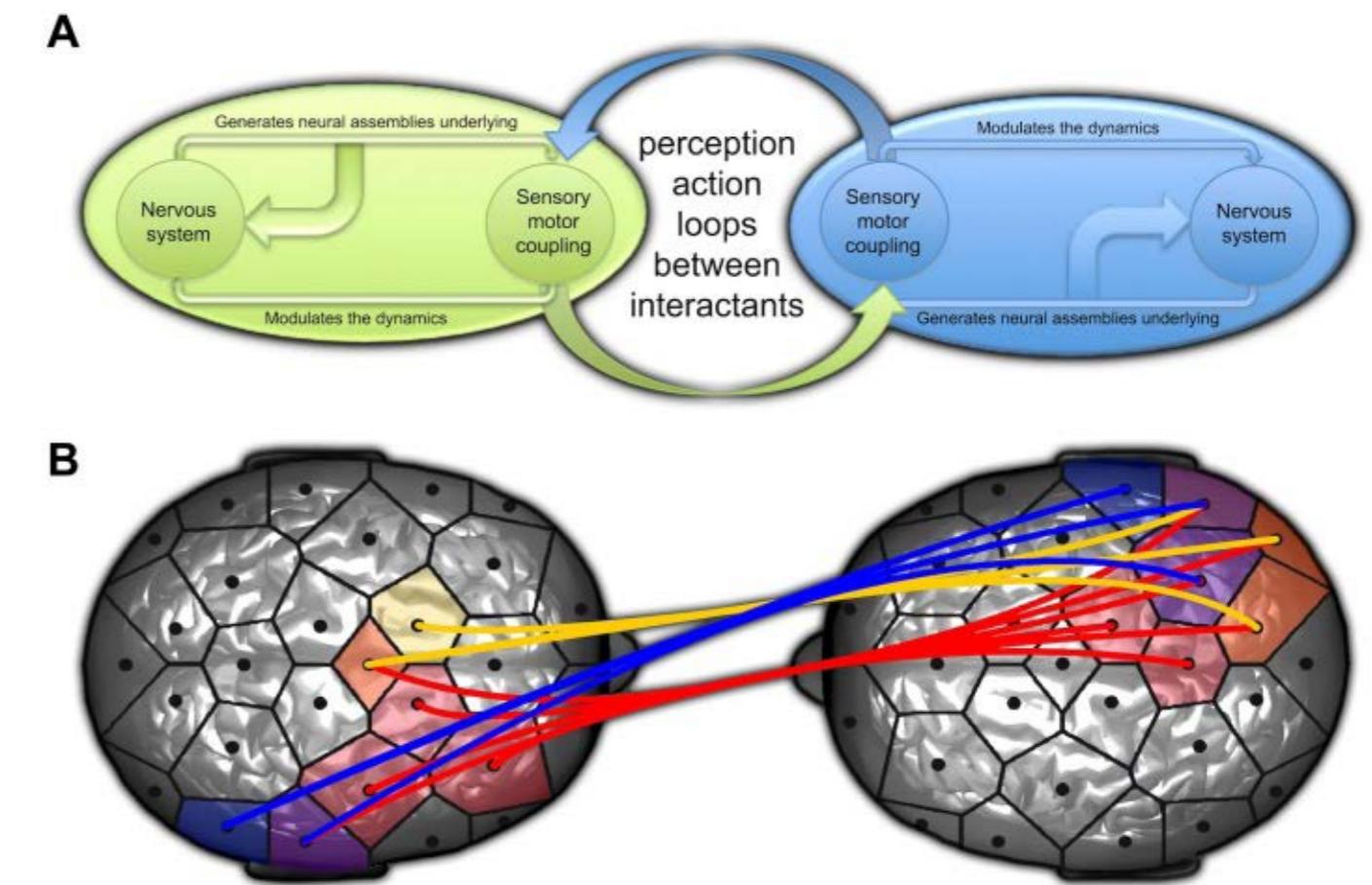


Figure 2: Inter-brain synchronizations. A) Schematic view of dyadic social interaction considered as a coupling through perception and action between two people. B) Interbrain synchronization in the alpha (blue), beta (orange) and gamma (red) frequency bands related to interactional synchronization during spontaneous imitation of hand movements (based on Dumas 2011).

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9

# TULIPS ON MY ROBOT'S TOMB

Andrés Roemer



Margalit Berriet, Merida  
Cemetery, Yucatan,  
Mexico

**The accumulation of data increasingly requires automation and Artificial Intelligence to analyze and treat it, provoking questions about ethics, humanity, and machines that think.**

To answer the Edge 2015 question – *What do you think about machines that think?* – we should start by knowing a little bit about ourselves, about who we are. So let's begin by talking about our most significant organ: the brain. A simplified schema of this extremely complex structure divides it into three parts: the cortex (responsible for rational processes), the limbic (supporting functions including emotion and motivation), and the reptilian (where our most fundamental and primitive drives reside: survival and reproduction).

The debate about how to think about thinking machines tends to gravitate towards our cortical and limbic brains; which is barely the tip of the iceberg. The cortex allows us to more accurately assess the costs-benefits that AI carries regarding things like the relative costs to business of human versus robot labour and the relative value of human versus digital capital, as well as concerns about bioethics, privacy and national security. It also gives us the capacity to plan and foresee, attracting more and better funding to research and development, and define public policy priorities.

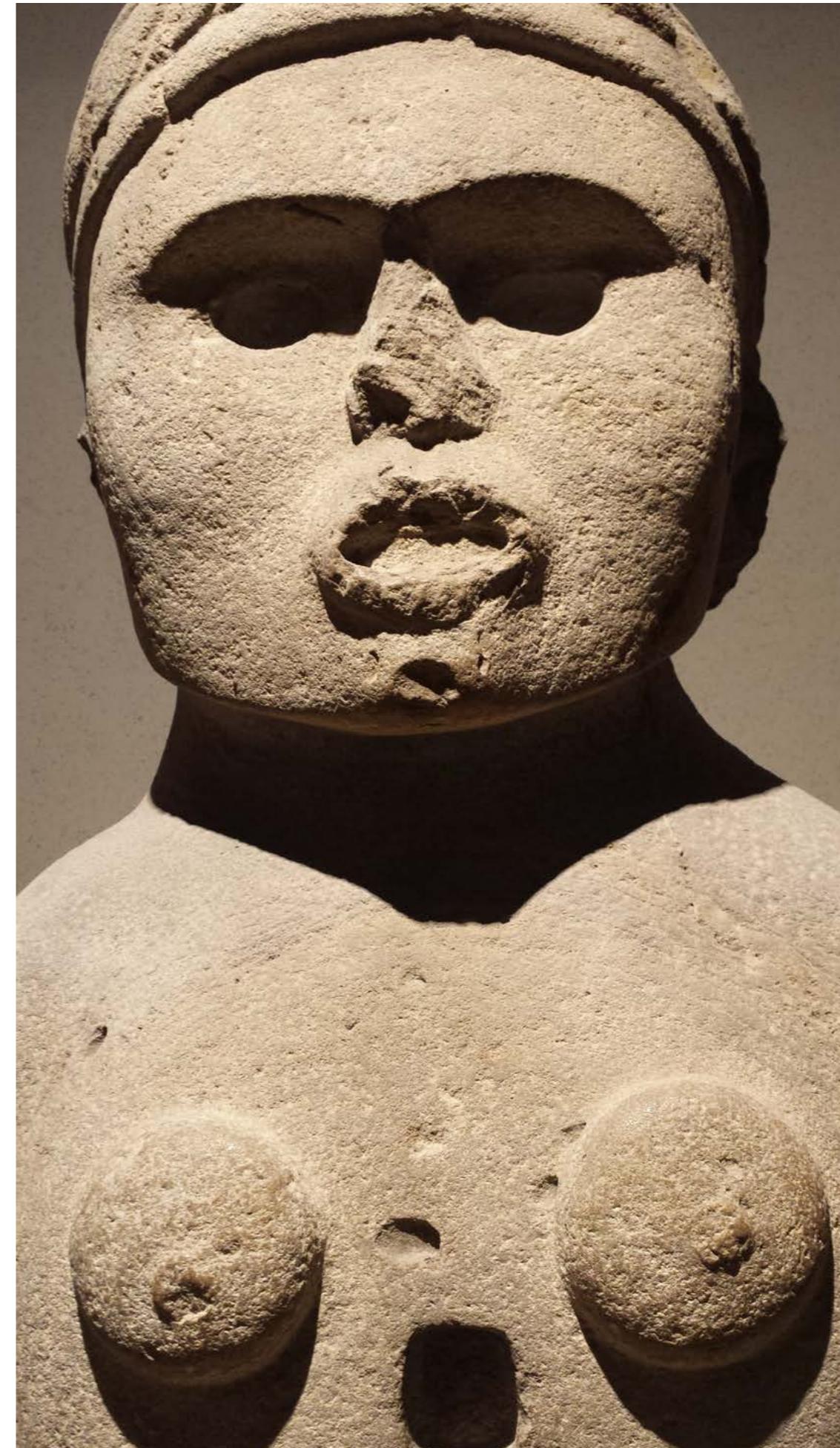
In parallel, our limbic brain helps us to take precaution and respond with fear or excitement towards the risks, opportunities or dangers of developing AI. In this case,

the panacea and the technophobia become immediate emotional reactions. The common fears include those of being manipulated and of being replaced by machines, leaving us unemployed, and the perceived opportunities include machines greatly expanding our memory and making all the daily tasks of life easier.

But in considering what we think of the prospect of machines that truly think, we must also be aware of the powerful—even dominant—role of the reptilian brain in thinking. This means becoming aware of our most primitive responses, our most territorial and emotive way of thinking about the concepts of “thinking,” “machine,” “robot,” “intelligence,” “artificial,” “natural,” and “human.” The primary preoccupation of the reptilian brain is survival, and though it's not generally said, the quest for survival is at the heart of our hopes and fears about thinking machines.

However, when we study ancient archetypes, literature and the projections in the contemporary debate reflected in the Edge 2015 question, a recurrent subconscious instinctive appears, the reptilian binomial: Death vs. Immortality.

Our fear of death is, without a doubt, behind the collective imagination of robots that can reproduce and that, with their thinking omnipotence, will betray and destroy their creators. Such machines seem to pose the most horrifying danger: that of the extinction of everything that matters to us. But our reptilian brains also see in them the saviour, hoping that super-intelligent machines will offer us eternal life, and youth. We can see intimations of these ways of thinking embedded in our language. While in English the terms robot and machine are genderless, the Latin languages, as well as German, differentiate the word *el robot* as masculine, dangerous and fearsome; while *la máquina* is feminine, protective and caring.



Margalit Berriet,  
Pre-Colombian feminine  
sculpture, National  
Museum of Anthropology,  
Mexico



Margalit Berriet, Merida Cemetery, Yucatan, Mexico

Jeremy Bentham defined man as a rational being, but we know we are not. All people sometimes think, and act, in irrational ways due to the power of the reptilian brain, and the reptilian drives have been and remain at the heart of the evolution of intelligence. Feeling is what is most profound about thinking. Therefore, a machine that grows exponentially in its velocity of data processing every eighteen months, that defeats natural intelligence in a game of chess or jeopardy by sorting through a zillion options move by move, and that can accurately diagnose diseases, is highly impressive, but it's a term that is too distant and limiting to what it means to think.

In order to achieve the dream for thinking machines, they will have to understand and question values, suffer internal conflicts, and experience intimacy. An approach that gives us machines that empathetically imitate our facial expressions and emotions, that more quickly process vast quantities of data, and that have a greater connectivity between our neurons and AI's, is neither a necessary nor a sufficient condition that we are on the right path. Therefore, in thinking about machines that think, we should ask ourselves reptilian questions, such as: Would you risk your life for a machine? Would you let a robot be a political leader? Would you be jealous of a machine? Would you pay taxes for a robot's well-being? Would you put tulips on your robot's tomb? Or even more important... Would my robot put tulips on my tomb?

Acknowledging the power of the reptilian in our thinking about machines that think helps us to see more clearly the implications, and nature, of a machine that genuinely is able to doubt and commit, and the kind of AI we should aspire to. If our biology designed culture as a tool for

survival and evolution, nowadays our natural intelligence should lead us to create machines that feel and are instinctual; only then will immortality overcome death.

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# THE DATAFLOW PARADIGM, DATAISM AND THE MYTH OF SINGULARITY

COGNITIVE DETERMINISM AND FREE WILL IN THE AGE OF BIG DATA

**Marc-Williams Debono**

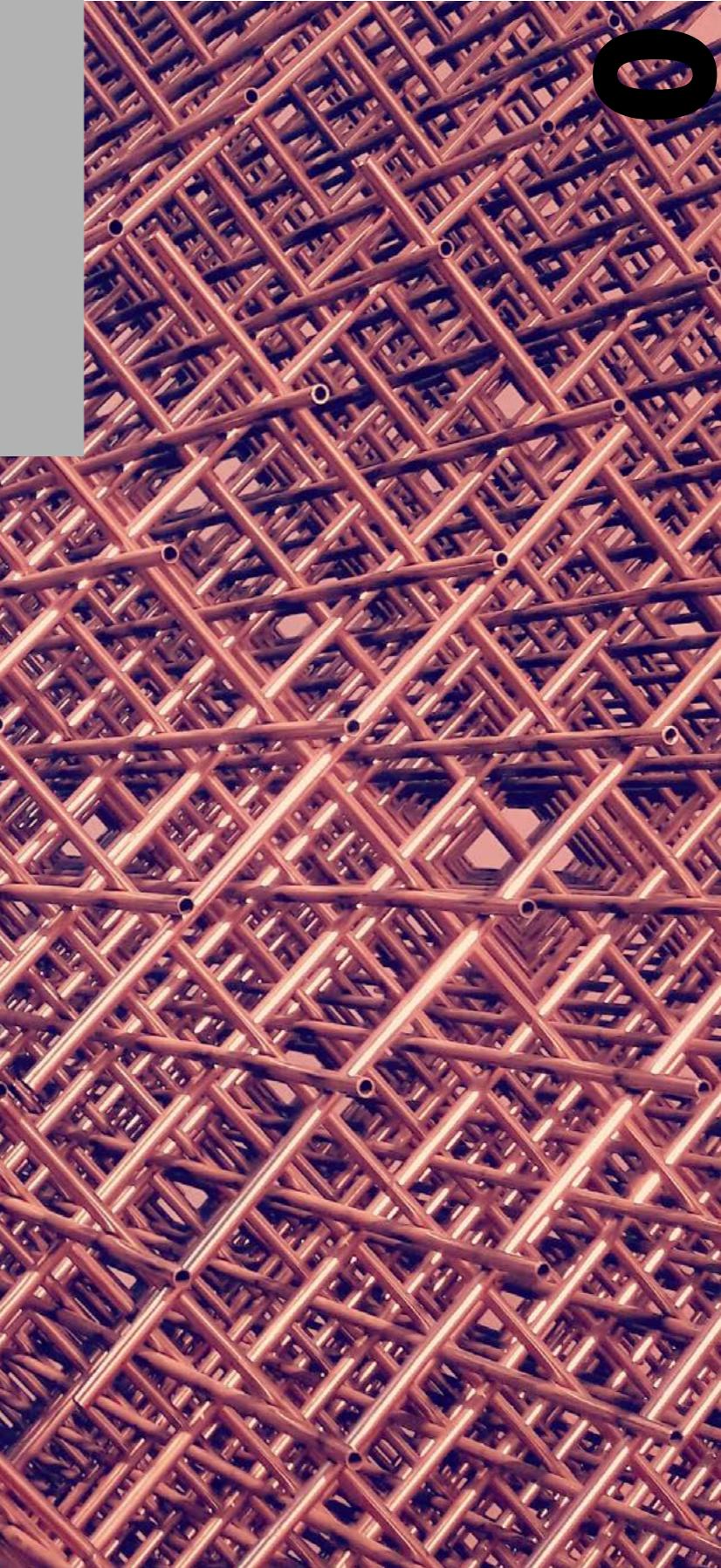
CONNECTING

ANTICIPATING

THINKING

ai

Marc-Williams Debono,  
*Epistemological cages*



# **Digitalization has allowed for the existence of digital memory. A fear of our future includes concerns about the development of data processing, its storage and retrieval. Human memory and Artificial Intelligence are different. A careful observation of the nature of this difference provides hope for a long future of the particularity of human thinking.**

1. GAFA: Google-Amazon-Facebook-Apple; NBIC: Nano, Bio, Info & Cognitive technologies. Alternative acronym: BANG (Bits, atoms, neurones, genes).

2. Transhumanism in its more extreme form advocates for elitist and consumeristic immortality resulting from limited access to super-intelligent technologies or artificial organs.

3. Michel Laguës, Denis Beaujouan and Georges Chapouthier, *L'invention de la mémoire*, Paris, CNRS Éditions, 2017.

4. Jean-Michel Ganascia, *Le mythe de la singularité: Faut-il craindre l'intelligence artificielle?* (The Myth of Singularity: Should We Fear Artificial Intelligence?), Le Seuil, 2017.

5. Gilbert Simondon, *Du mode d'existence des objets techniques*, Aubier, 1958. According to Simondon, the technical object (the tool being its earliest instance) has an evolution of its own (concretization) and it is in fact Man who dehumanizes technique, and not the other way around. This stems from the concretization of technical objects in the real world and the ethical and utilitarian relationship that links them to Man. This ontological reality is intrinsic to human nature—smart materials basing themselves on autonomous functioning and homeostatic or autoregulatory functions rather than to any kind of 'capacity to think' even in the case of sequential data processing.

6. Edgar Morin, Patrick Curmi, *La mémoire de la vie*, M.-W. Debono, ed., Éditions de L'Attribut, 2017.

After thousands of years spent in the church of transcribed knowledge (oral and later written traditions) we are now, in the Anthropocene, witnessing the rise of instantaneous, all-encompassing data processing, and with it a revolution in intelligence. The memory of the brain has evolved little since the beginning of mankind, yet humans have never ceased playing the sorcerer's apprentice, evolving at high speed from a species of hunter-gatherers to one of engineers. This postindustrial biotechnological phase has, however, surreptitiously, and for the first time in the history of mankind, effected radical changes in human behaviour. Indeed, biochips, NBICs and powerful GAFA<sup>1</sup>-exploited algorithms currently permeate every key sector of society (finance, healthcare, transportation, services, military), and are surpassing (or replacing) humans in an increasing number of tasks and positions, while the proponents of transhumanism simultaneously posit the post-biological future.<sup>2</sup>

Is this to say that most human ambitions or trades are going to become obsolete due to the increasing sophistication of machines, or that Artificial Intelligences (AIs) are bound to rule the planet? Or that DNA data storage, neural networks, and AI will eventually replace the encyclopaedia of human memory that has taken millennia to develop?<sup>3</sup> In other words, could Dataism—having either insidiously or overtly established itself through the

Internet of Things and computer-assisted tasks—have unforeseeable consequences to the fate of mankind were it to escape our control? How, then, may we retain control? Which aspects should we reject, and which should we invite into our inescapable relationship to technical objects? Coevolution and the digital era in full swing? Digital humanities? The fight would be a futile one, particularly if we consider, like Ganascia<sup>4</sup>, the myth of technological singularity as a decoy promoted by our cybersocieties, decidedly set on exploiting Big Data for mercantile purposes, even if it means crediting AI with powers it does not have.

Beyond the vain opposition between Man and the Simondonian technical object<sup>5</sup>, there still remains the matter of undeniable mutations occurring within our relationship to the now digitalized world, and the meaning of the memory of Life<sup>6</sup> whose specificities (structural invariables, consciousness, intention, memory, creativity) and plasticity (our infinite capacity for imagination and interculturality) remain *a priori* out of the reach of machines.<sup>7</sup>

## **The Dataflow Paradigm**

If there is one fact we can agree upon, it is that we have fully entered a new standard, characterized by dataflows and digital turbulences, which impacts everything from the stock market to the biosphere but struggles to identify the ethical implications of the transformations it has initi-

ated. This unprecedented situation has placed garnered (bio-evolutionistic) memory and algorithmic memory face to face, bringing about speculation surrounding the finiteness and prosthetization—or cyborgization—of the human species but, more importantly, sparking new attitudes towards Dataism and the augmented or enhanced memory systems evolving all around us—in other words, our new genome. Whereas, although triggering a certain degree of fear and fascination, cyborgs and the postbiological world have prompted relatively little mobilization, while the Dataist movement—which views the universe as a constant flow of data, filled with meaning-full streams, waiting to be decrypted—is irreversibly underway.

Historian Yuval Noah Harari assimilates Dataism to the religion of data and to the scientific revolution of the 21st century,<sup>8</sup> a revolution made up of consecutive digital disruptions and the mass production of biochemical algorithms which can be analyzed in terms of the probability of action, chances of survival, and level of information. Controlled by the Tech Giants, the age of Big Data has already had tangible effects on the populations and deciders of the world, the former being essentially passive vectors or addicted users and the latter duly informed commanders. Both, however, remain heavily dependent upon and even manipulated by the masters of AI and digital sciences—who, since the rise of cybernetics, have been developing increasingly autonomous softwares and machines while remaining virtually impervious to the potential risks of unchecked robotics or intelligence. Thus the question arises in relation to all computer-assisted signal processing, from our daily use of e-readers or iPhones to androids, drones, or military strategies based on autonomous lethal weapons.

The age of Big Data also raises concerns regarding our now connected brains and how they compose an expanded form of cognition in which external, remote organs could potentially become uncontrollable, creating virtual object-worlds (the Internet being the earlier manifestation, the quantum computer being the future one) which could stray from their initial purpose and pose a threat to humanity. This is where safeguards (deep learning, non-monotonic and deontic logics)<sup>9</sup> based on including human ethics in all decision-making processes come in. Another example of this is Asimov's initial three laws of robotics,<sup>10</sup> now expanded to five by Andra Keay, head of Silicon Valley Robotics<sup>11</sup> and the Human Brain Project.<sup>12</sup> Red flags have equally been raised by a number of philosophers, ethicists, and sociologists, calling for resistance in the face of proliferating smart objects and this new, crypto-commodifiable, potentially viral dataflow paradigm.

## **The Given Fact Versus Data**

The human being appears, therefore, to remain essential, but for how long? In order to answer this question, we must challenge the alleged opposition between the given fact (historical, biological, human, and cerebral memory in particular) and data (artificial, algorithmic, or augmented memory), or more broadly, between technological singularity and the singularity of the living, the central question being how to manage the expansionist logic we have irreversibly thrown ourselves into—a dataflow paradigm marking the societal disruption of nature versus techno- or cyber-culture, with cybernetics initially meaning the science of government, before being redefined into Norbert Wiener's science of systems, and then later into the fundamental model in AI and cognitive sciences research and development.

7. Marc-Williams Debono, *Mémoires singulières, mémoires plurielles: A l'heure du dataïsme et de l'intelligence artificielle*. L'Harmattan, Coll. Colloques et Rencontres, Paris, 2018. The author expands the concept of plasticity on an epistemic level (see "États des lieux de la Plasticité," Implications Philosophiques, Mars & Mai, 2012), as well as in terms of memory ("Les plis de la mémoire," Plastir, HS, PlasticitéS., 2015).

8. Yuval Noah Harari, *Homo Deus: A Brief History of Tomorrow*, Harvill Secker, 2015.

9. A recent study led by Deepmind (Google), MIT, and IBM states that though deep learning may currently be incapable of understanding what it perceives, a new generation of hybrid algorithms linking it to symbolic AI may achieve this.

10. Isaac Asimov, *I, Robot*, 1967.

11. See the author's article on the expansion of the laws of robotics: "Les robots « persécutent déjà les stéréotypes de genre »" 20 minutes, 16 November 2016.

12. <https://www.humanbrainproject.eu/en/>

It is therefore important that we remain clear-sighted when facing any decision-making or benchmarking processes. A recent example can be found in the United States, where a fully autonomous AI system has been given clearance to perform automated screenings and diagnoses for diabetic retinopathy. This kind of result perfectly illustrates situations in which elaborate algorithmic systems<sup>13</sup> serve as diagnostic tools supporting the treatment prescribed by the physician, but it encloses the question of the added human value in the final decision.<sup>14</sup> As established regarding the process of writing and, more broadly, the creative act,<sup>15</sup> added human value is very much linked to our cerebral plasticity, which can only adapt itself to the flow of digital streams to the extent that the brain, much like a sponge, is constantly absorbing and being traversed by these streams, while still always keeping space available—much like a default mode in computational terms—for its own creative or artistic activity.<sup>16</sup> Therein resides the difference between computing power and the human brain, capable of storing and acquiring new forms of learning (cognitive plasticity, fluid intelligence) and above all, of managing uncertainty and practicing inventiveness while always preserving its memory-identity.

13. The IDX-DR software presents an above-90% reliability rate, surpassing human performance.

14. Rémy Demichelis, *«Comment une IA a été autorisée à poser un diagnostic?»* *Les Echos.fr*, 31 August 2018.

15. Marc-Williams Debono, *Écriture et plasticité de pensée*, Anima Viva Publishing House, Andorra, 2013.

16. Marc-Williams Debono interview published in the magazine *Axone(s)*, Université Panthéon Sorbonne, 2017.

17. *The Villani Report*

18. Inoculating in this manner sources and resources the average user is an unknowing accomplice to...

19. Yuval Noah Harari, *Homo Deus: A Brief History of Tomorrow*, Harvill Secker, 2015.

20. Laurent Alexandre, *La guerre des intelligences*, JC Lattès, 2017.

21. <https://www.epfl.ch/research/domains/bluebrain/>

their decision-making to machines. As a result, the increase in data volume and circulation, and the generalized use of processors, data sets, and AI will become the de facto instruments of an inevitable technohumanistic evolution over which we would no longer have any control, since all areas of sociopolitical life (economy, labour, climate, communications) would be dependent upon and impacted by each other.

There are, however, analysts who argue that these upheavals would not necessarily entail any changes in our value systems. Indeed, for although these transformations present radical modifications in our way of life, a human individual will only personally attribute value to data that makes sense to him or her; while data streams indiscriminately flood our servers through just-in-time data processing, we humans pick and choose what is meaningful to us and only then proceed to unfurl it through social networks and the mammoth entity that is the Internet.<sup>18</sup>

### Between Technological Singularity and Biological Singularity

What may we expect from a global data system governed by intelligent algorithmic programs designed to offer us THE supreme form of well-being, and to which we would hand over more and more power?<sup>19</sup> Granted, the premise seems to verge on posthumanist fiction, but hypothetical though it may be, the possibility is not lost on world leaders. And though cyborgs still fuel the somewhat fantastical aspect of a mutant humanoid cyberculture, they remain quintessential examples of the augmented, siliconed, transhumanized, immortalized body, and the symbols of an inevitable biotechnological evolution which, some researchers believe, could be capable of compensating for our degenerative or deleterious natural evolutions,<sup>20</sup> to the point of even creating a wear-free (*Human Brain Project 2024*) or entirely synthetic (*Blue Brain Project*) digital brain.<sup>21</sup>



rather than a mere ecological process that nature would be capable of overcoming.

This domino-effect disruption runs parallel to contemporary environmental and collapsological scenarios in the sense that the asymptotic curve relating to technoscientific and capitalistic progress unequivocally evolves in tandem with the erosion of the relationship between humans and nature, and its dire repercussions on global warming and biodiversity. Along with several other colleagues, writer Alain Damasio<sup>22</sup> has associated this situation to a civilizational (and financial) crisis

Marc-Williams Debono,  
*Sensory flow*

22. As stated by Alain Damasio, author of *Furtifs* (La Volte 2019), in a recent *Dispute* interview conducted by AgroParisTech on the topic of *Collapse*, Volet 4, ENS Paris Saclay, Jan. 2020.

# Where does the play of cognitive determinism end, where does free thought begin, and how do we transpose it to the age of Big Data?

impact includes the prevalence of intertwined cultures which could easily imply as with the acquisition of language and the invention of writing—the digitalization of thought. The future of mankind resides at the confluence of these two realities whether we like it or not, and it would be a mistake to underestimate its hybridity. Indeed, robotics and AI currently foretell machines capable of self-programming, self-transforming, and strongly interacting with their surroundings—in other words, artificial beings emulating the bios, cognitive architecture, and epigenesis included! We must therefore root intelligence within a body which would be spared of the alienation of a machine without refuting it.

A sensitive—and therefore fallible, creative, and metamorphic—mind-body is made of flesh and blood, as opposed to a compact, predictable, thought-decrypting AI. A body is an integral part of a mind whose stable imbalance, like its fragility and previousness, is essential to the world it inhabits. And yet, presently we are seeing a body of highly symbolic, computational existence, which is slowly severing itself from its earthly roots and which, mirroring scientific ecology, thinks in terms of statistics and probability, forsaking that which binds us to nature and the beings that make it up.<sup>23</sup>

Nevertheless, brain simulations, artificial neural networks, and synaptic microchips are still no match for the human brain which, as we've demonstrated, internalizes sensations and cultures in real time, using its intelligence for purposes other than simple problem-solving. This is, more broadly, the case for all living things, as has been suggested by contemporary research on our relationship to the living world and the intelligence of plants.<sup>24</sup> Vegetal otherness leads us to challenge the seemingly axiomatic notions of sensitivity, intelligence, and cognition as well as the nature-culture binary. The challenge of the 21st century therefore resides in this opposition between technological and biological singularity which Miguel Benasayag<sup>25</sup> has defined (through the

Mamotreto model), outlining the hybridization of technical objects and living organisms which will necessarily demand a new frame of mind that accounts for the irreducible nature of the living.

In conclusion, the scenario defended in this article is that, rather than accepting an anti-progress posture fueled by the myth of Frankenstein, let us accompany the movement by honestly asking ourselves the following question: Where does the play of cognitive determinism end, where does free thought begin, and how do we transpose it to the age of Big Data?<sup>26</sup> In any case, as recently stated by Edgar Morin, the answers should indicate that an augmented human does not imply a better human,<sup>27</sup> and for that matter, it seems vain to oppose a biological given to any piece of algorithmic data. Let us rather observe their objective differences (experiential memory versus artificial memory) and the points where they converge and potentially hybridize, without disembodiment unique human thinking.<sup>28</sup> And let us wager that, even if cyborgs may very well be the first genomic or cybernetic human variants to appear, they will erase neither the animal within us nor the meaning in our garnered memory—which is to say, our historicity.

*The original version of this revised and extended text was initially published in the online magazine Turbulences #3 (Oct-Nov. 2018, Symbolon Consulting Ed.).*

23. Jacques Tassin, *Pour une écologie du sensible*, Odile Jacob, Paris, 2020.

24. Marc-Williams Debono, *L'intelligence des plantes en question*, Hermann 2020.

25. Miguel Benasayag, *La singularité du vivant*, Le Pommier, 2017.

26. Marc-Williams Debono, *Écriture et plasticité de pensée*, Anima Viva Publisher, Principauté d'Andorre, 2015.

27. Extract from the Sans tabou (Without tabou) debate on hominization with Edgar Morin and Anne Dambricourt Malassé conducted by the ESSEC Edgar Morin Chair for Complexity in partnership with the Plasticités Sciences Arts association (Paris, 4 Octobre 2017).

28. The brain's plasticity draws on two facets of cognition: serendipity or extended cognition for the positive effects and blind destruction for the negative effects, but the power of human's imagination (art, intuition, creativity) and emotional capacity will always outweigh the machine's capacity for abstraction.

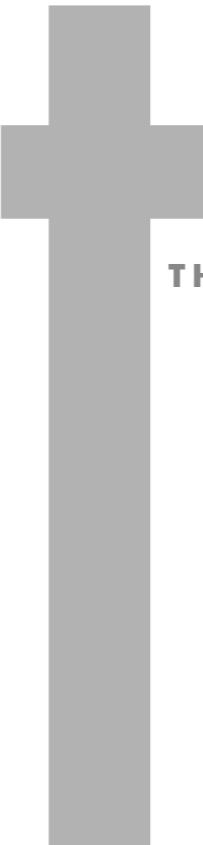
# A BRAVE NEW URBAN WORLD

Frédéric Lenne

a

ANTICIPATING

LL



THINKING

Big Data is ubiquitous in business districts that are using it in exponential development.



**Big Data is omnipresent in contemporary urban life. As the COVID-19 pandemic has affected cities all over the world, some data become useless while others become essential for safety at the cost of privacy. Written just before the institution of worldwide governmental restrictions regarding the pandemic, in this text Frédéric Lenne explores the measures needed to protect the safety of citizens, while specifically examining the potential threats of mass surveillance technology and digitalization, which may serve other agendas.**

#### **When useful services shift into mass surveillance**

The following events occurred not too long ago, in China. A city of several million citizens was barricaded in order to prevent the spread of the coronavirus. There was no way in or out. People were ordered to self-quarantine within their homes, and those who were authorized for temporary outings were required to wear a mask. In order to ensure that the new law was enforced, the solution was simple: Drones hovered over the streets, scanning residents, ordering whoever was outdoors to go back into their homes and identifying those who—either out of negligence, dereliction, or simply because they didn't own one—were not wearing the mandatory mask. A voice sounded from the drone calling locals to order, and—because there had been such wide governmental development and adoption of facial recognition—offenders were spotted, identified, and registered.

First comes discipline then, surely, comes punishment.

This story had been unfolding far from the shores of Western countries, where the share of guaranteed individual freedoms is broader than in dictatorships. But it wasn't long before the coronavirus pandemic spread indiscriminately to countries historically sheltered from human rights violations. When it did, out came the drones, calling citizens to order and driving them back into their homes.

As was the case in China, the basis for implementing such surveillance was entirely warranted and virtuous: These measures were to protect the people from the frightful virus and ensure better care for those who were infected. Without a shadow of a doubt.

#### **Green, Social, Urban Acupuncture**

Yet we cannot help but shudder at the thought that Aldous Huxley's most terrifying predictions may one day take the form of something even deadlier than a con-



tagious viral disease. For several decades now, cities have been advertised as the sole remedy to the woes of the Earth. A number of experts and observers—myself included—have contributed to the spread of the idea that we must save space and that, to avoid scattering the infrastructures we need to sustain life, the logical move is to group them together in urban centres.

This simple idea is currently neither outdated nor called into question. Indeed, we currently do not know how we could ensure decent living conditions for billions of humans on Earth without bringing them together into collective spaces in which they can share common services, therefore preserving vast areas which can be dedicated to food production. It stands to reason that urban sprawl allows us to better share our resources as well as limit our waste. "The world shall be urban or shall not be" is a widely-shared view whose basis seems self-evident. One of its proponents, Brazilian urban planner and architect Jaime Lerner, has said: "The City is not a problem, the City is a solution."

Elected mayor of Curitiba in 1972 and serving three consecutive terms, Lerner pursued policies enforcing green and social forms of urban acupuncture through projects conceived on a human scale.

Once the idea of an exclusively urban future is adopted, we still have to define what the ideal city would look like—if it exists. Not only must an urban entity be conceived in such a way that it ensures sufficient material conditions for its inhabitants—meaning a roof and a food supply—but it must equally offer them the means to tend to their health and well-being. Last but not least, it needs to provide a number of the intangible enhancements which give meaning to existence. If urban sprawl is indeed the only way we can preserve our future, so be it. But if we must live in cities, let them be attractive and nurturing!

#### **An Uncertain Definition**

"City" is an ill-defined term. There is not even a consensus regarding the number of inhabitants that are required of a terri-

A frantic consumer of Big Data, the autonomous car is sometimes seen as one of the modes of transport likely to relieve congestion in cities.

tory in order to qualify it as a city. Stuck between the small and the big, the middle cities feel disregarded, average. Many of them suffer from poor urban planning, which we unfortunately see over and over again despite the established disastrous outcome. One example is the multiplication of peripheral shopping centres under the sacrosanct pretext of job creation, when in fact such projects only drain city centres without showing any positive impact on employment.

At the top of the ladder in terms of size are the metropoles which, though attractive on many levels, remain clusters of disparate components containing hugely diverse living situations. A better choice of words would be "urban territories," given the colossal divides that separate a large regional capital, a two-storey city centre, a skyscraper business district, a suburban residential area, and so on. These are indeed all cities, or components of cities, yet we cannot identify the city—as it is promoted in certain narratives—as corresponding to a single unified image or, more importantly, answering to a cohesive set of questions.

As a consequence of this uncertain definition, urban planners have begun affixing adjectives to further qualify the word "city" so as to better express the projected, desired, or effective aspect of the cities in question. Thus came the rise of the globalized city, the flexible city, the sustainable city, the sensual city, the light city, the digital city, the contained city, the generic city, the desirable city, the kind city, the diffuse city, the festive city, the franchised city, the ethical city, the stimulating city, the unfinished city, the porous city, to name only a few. In each and every one of these projected cities, Big Data plays a central role in helping to promote their most showcased facet—globalization, flexibility, sustainability, etc.

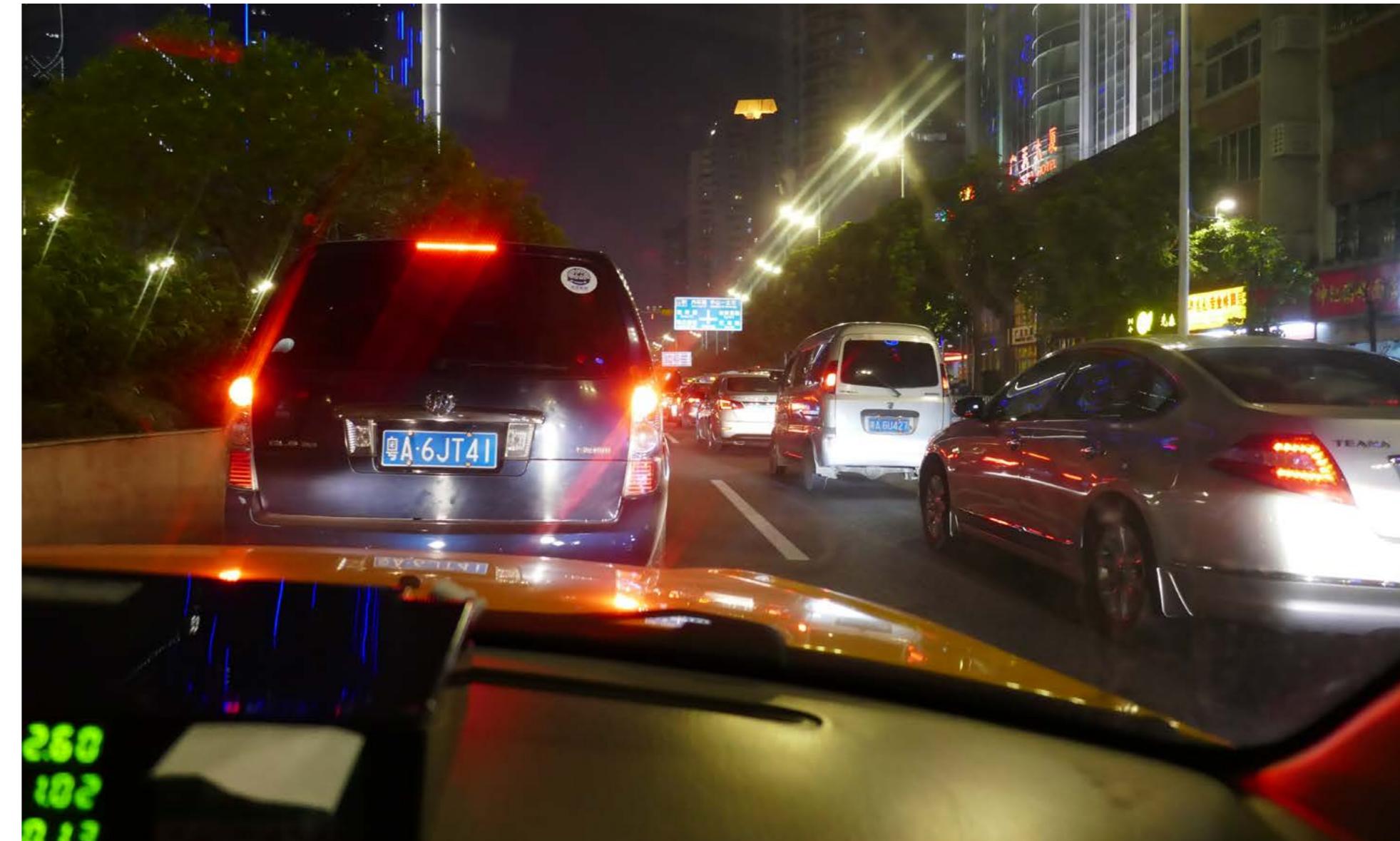
#### No Way Around It

Each of us can easily observe the ways in which the data provided to a city's inhab-

itants has transformed daily life. Maps, for instance, are no longer of any use to us. All we have to do is type an address into our smartphones or tablets in order to be guided swiftly to our destination without ever having to look up at the buildings or pay attention to the street names. Forget about cardinal points and let the machine guide you! The wait for public transportation such as buses, trams, and subways has become far more bearable now that the commuter has real-time information on the minutes left to wait, via screens at the stations or their personal devices. Soon, automobiles will no longer require drivers—they'll be piloted by electronic devices spread out on every corner.

The experience of quarantine in times of pandemic is made far more bearable by the immense amount of data we are able to access from our devices. It is a prison from which we are offered infinite escape, without ever having to leave our homes. Even education and culture are dispensed at home. A future city in which there would be no schools, no theatres, no museums, seems but one step away, but knowing just how vital human, face-to-face, body-to-body interaction is, it is a step we must not take. We must avoid the risk of dehumanizing our cities to the point of reducing them to an accumulation of closed-off cells, to which everything can just be delivered through an online network.

Unless, that is, the destruction of all that is living takes on such magnitude that it becomes impossible to ever set foot outside without being infected with the plague. We have not yet reached that point, but we must be wary of driving the world into just such a deadlock. However, the point we have reached because of Big Data—some would say, thanks to Big Data—is that of mass surveillance. The slightest human action—whether it be within our homes, at work, or in our places of leisure, entertainment, or education—is digitally recorded, and can be effortlessly traced back to its origin. The city is thus a space of conditional freedom. (Nearly) everything is per-



mitted, as long as you toe the line. Everything can be monitored. Everything usually is. In December 2019, the headline of the French weekly magazine *Télérama* read: Facial recognition, there's no way around it. (*Reconnaissance faciale, vous n'y échapperez pas.*) This technology has, more than ever, granted our rampant security craze the means to satisfy its desire. Governments possess an extraordinary array of data collection tools that are perfectly adapted to the mass surveillance of civilians, however many they may be. The tragic thing is that humans are consenting victims to the misuses of Big Data. It goes from willfully volunteering up one's bank details while purchasing something online, to grooming one's personal image on social media networks, where many exhibit their private lives for all to see. Everything is out in the open. Everything

is known. There is no need for policemen to follow citizens around. Everything is documented. Everything is visible. Even intimacy is logged.

My view may seem pessimistic. Indeed, it is imbued with great concern. But we do, however, possess one imperfect weapon of defense. Its name is Democracy and the Rule of Law, and it is our only shot at avoiding disaster.

GPS doesn't prevent traffic jams, but it can help avoid them and make it easier to find your way around.



Left above:

- Indispensable companion for all ages and a real Swiss Army knife in everyone's pocket, the mobile phone is the instrument of all uses in the city.

As numerous as individuals may be, Big Data follows them around the city.

Left below:

- Big Data could give some hope to the city centres - here Saint-Gaudens - which have lost a lot of their shops.

Right:

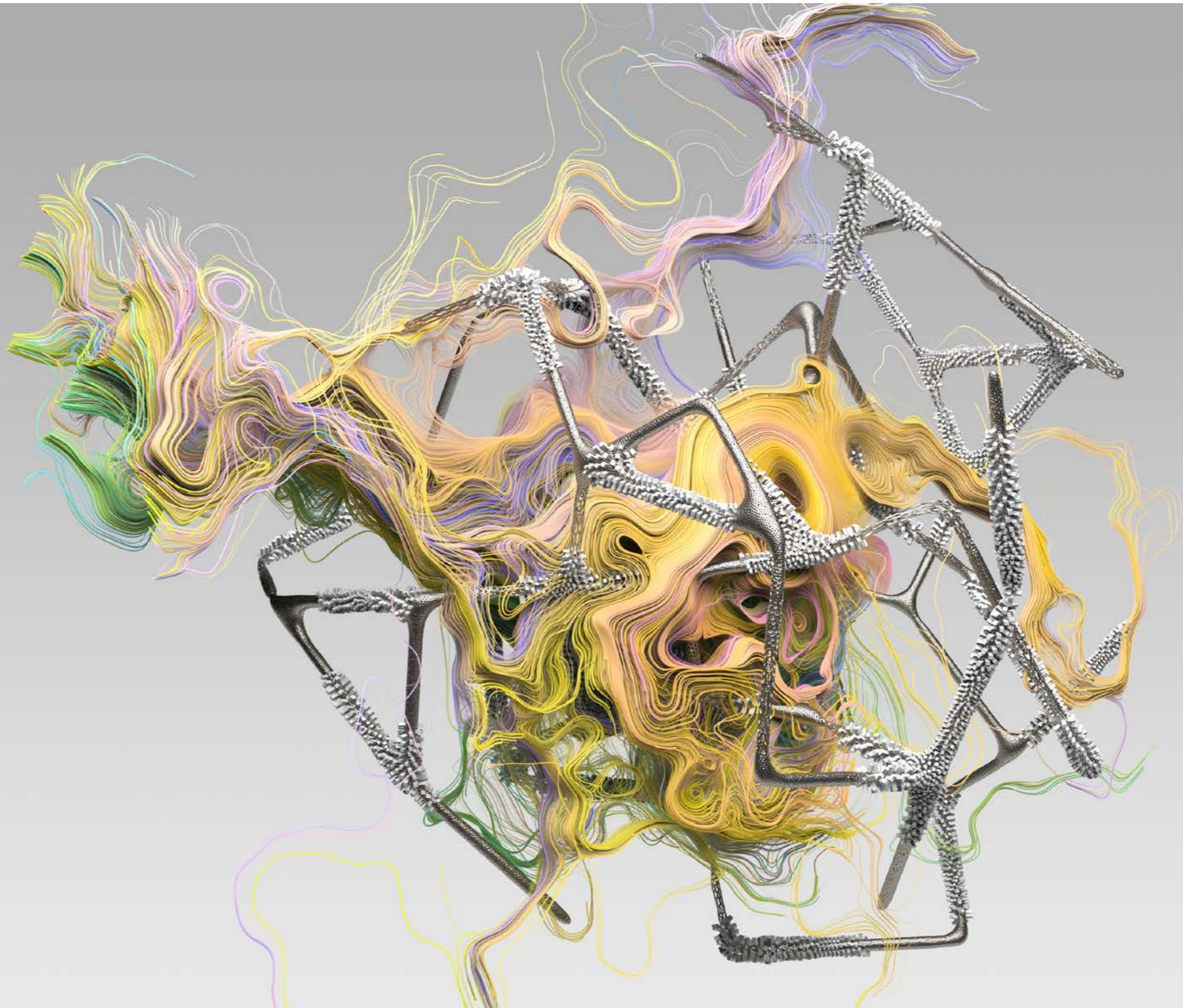
Even those who wear masks in times of confinement can't escape facial recognition.



# THE ART OF CYBER- SECURITY

ANTICIPATING  
a

PERFORMING



**Brendan Dawes**

Brendan Dawes, The  
Art of Cybersecurity -  
"Government", 2019



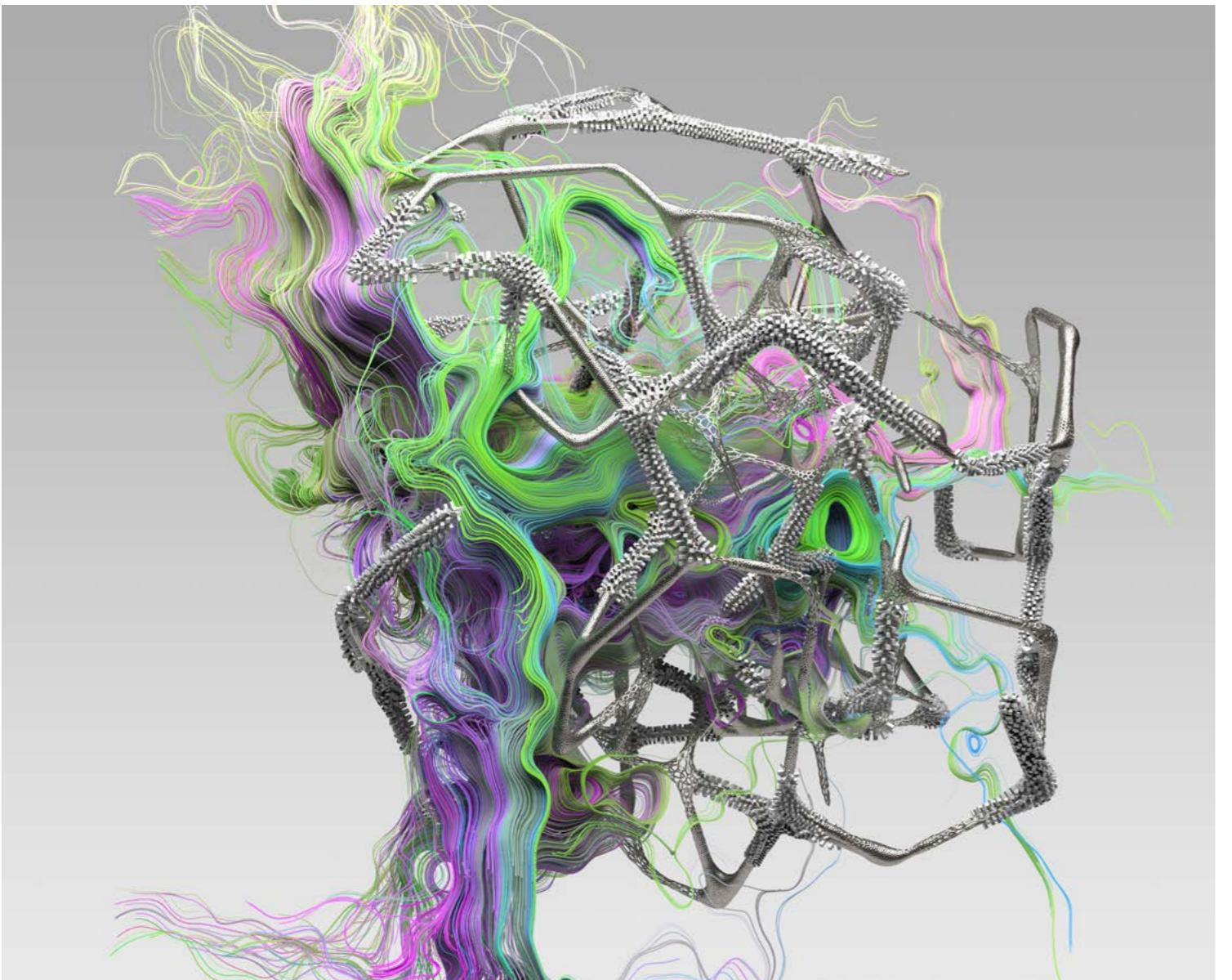
**Data has become an asset for companies around the world, making it a target for pirating. *The Art of Cybersecurity* visualizes how threats and attempts at intrusion are detected, and how they are neutralized.**

Commissioned by McMillan for Trend Micro, *The Art Of Cybersecurity* is a series of images, together with a 4K animation born from cybersecurity threat data.

The work features three main components—the threats, represented by black obelisks derived from over 350,000 data points provided by Trend Micro; the system which detects and deals with these threats, represented by an organic, mesh-like structure; and finally, the creativity that is allowed to flow because the threats have been neutralized.

To create an interesting shape to represent the Trend Micro monitoring system, I made use of an algorithm used in security systems called an MD5 hash. Using this system, I took certain industry verticals such as Banking or Media, created an MD5 hash of those verticals, then used that to create a series of numbers which I then used to drive shapes created by employing the 3D software Houdini. Using this system, I could create specific and unique shapes that would in turn drive the flow of imagery.

Each threat relates to a threat metric derived from the data, while the flow patterns of the creativity strands were influenced from metrics in the data as well as the space carved from the form itself.



Brendan Dawes, The Art of  
Cybersecurity - "Technology",  
2019



Brendan Dawes, The Art of  
Cybersecurity - "Banking",  
2019

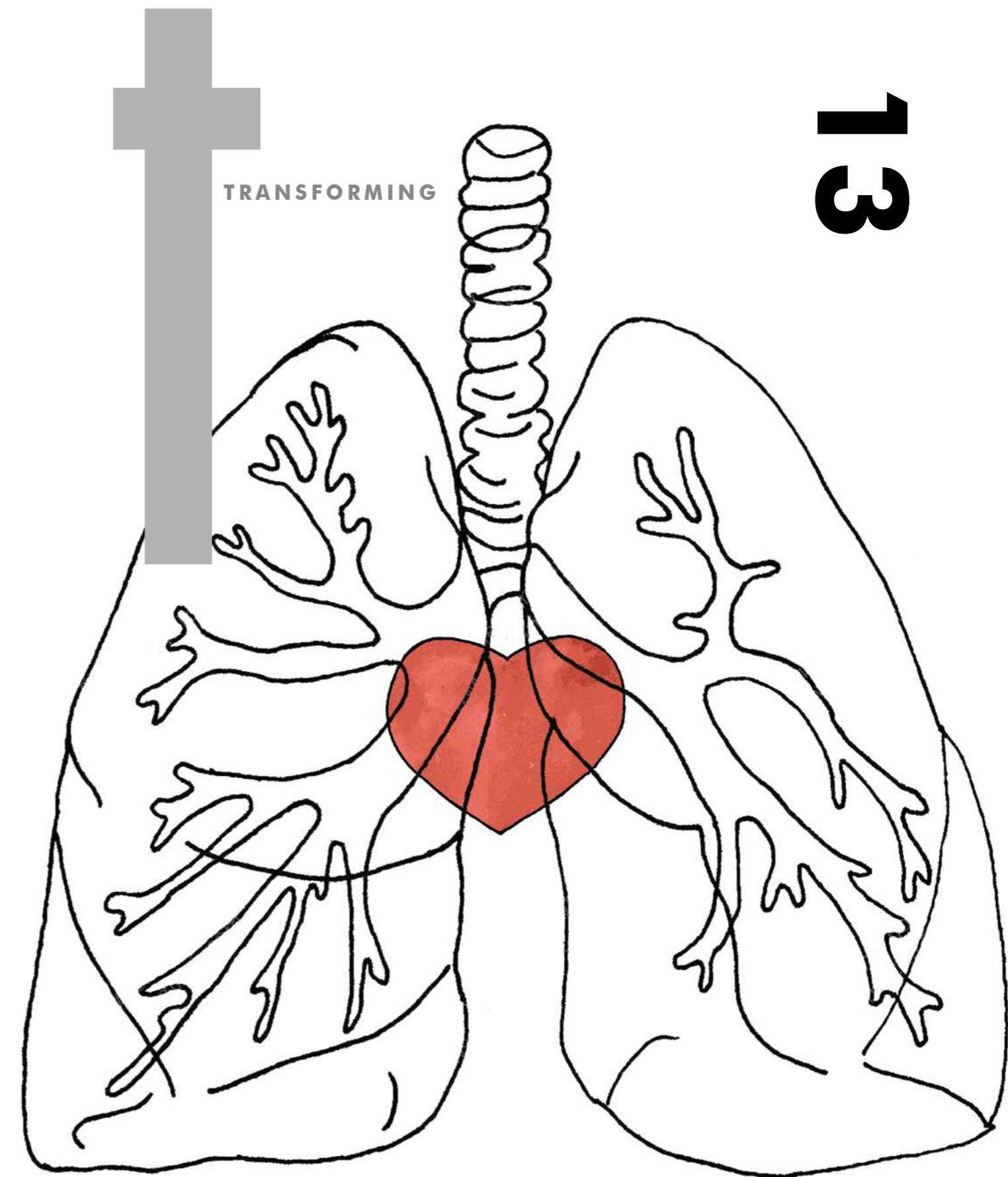
# DECODE AND REVEAL

Magdalena Zborowski

Naomi B. Cook

The meaning of Big Data requires its decoding. The artist Naomi B. Cook looks for the visualization of its embedded patterns and demonstrates, among other concerns, the moral issues and threats of systems of data collection.

PERFORMING  
n



Naomi Cook,  
*Be Still My Heart*, 2018

**Naomi B. Cook,  
Artist statement:**

**I have spent my life to date developing survival skills that often seem like a process of decoding the world around me. My art practice is an expression of this process of decoding. All of my artistic projects start with research. They begin by looking at a large data set with the intention of creating a visual interaction that goes beyond aesthetic representation to allow for poetry. My projects have included topics like High-Frequency Trading, online dating apps, GPS coordinates and, more recently, environmental statistics. With each project, I've learned new ways to reveal the embedded patterns within systems. This has been a process of developing a language, which evolves with each new topic and informs the previous works.**

**MZ:** You realized very early that you were an artist. Growing up in Canada of the '90s, at the beginning of the Computer Revolution, what was the first project you did working with data, and when was it?

**NC:** In 2012, I was invited to participate in a residency at the Vermont Studio Centre, where I worked on a project translating a piano roll into imagery and then back into sound, using MIDI and a program I developed that read ink notations as sound. This was my first project working with technology and data, in this case a song—"Hesitation Blues."

**MZ:** How was life in Canada regarding data protection at that time, compared to Europe or other countries? Do you think it would be different if you had grown up somewhere else?

**NC:** I can't speak for other peoples' experiences, but in my elementary school we were introduced to the Internet in third grade, through a Bell monitor and keyboard with a dial-up connection that we were invited to take home. I was paired with another student to monitor the server. We figured out how to open up the private chats of the other students, which got us into a lot of trouble, and which gave me a very clear sense of how ingrained surveillance is in these systems.

Data protection is a global issue that needs to be solved as a group effort, with all countries involved. The major corporations making decisions about what to do with our data and who has access to it are now more powerful than the countries they operate in.

**MZ:** Is living as a Canadian in Paris a different exploration of data and society, and the human condition?

**NC:** When I was working on the *Troika* project, which deals with online dating apps and personal information, I was simultaneously working on the *Monex* project, which looks at financial data—for example, High-Frequency Trading. Interestingly, it was difficult to find an audience for the *Monex* project in France, and I got a far more positive response to the *Troika* project. It was the complete opposite in North America. This seemed strange to me, as they both deal with the same issue—surveillance—but it was like people were saying "Oh no, we don't talk about that," but for very different reasons.

**MZ:** You are often combining many media in your works—drawings, videos, fabric, and others. What inspired you to do so?

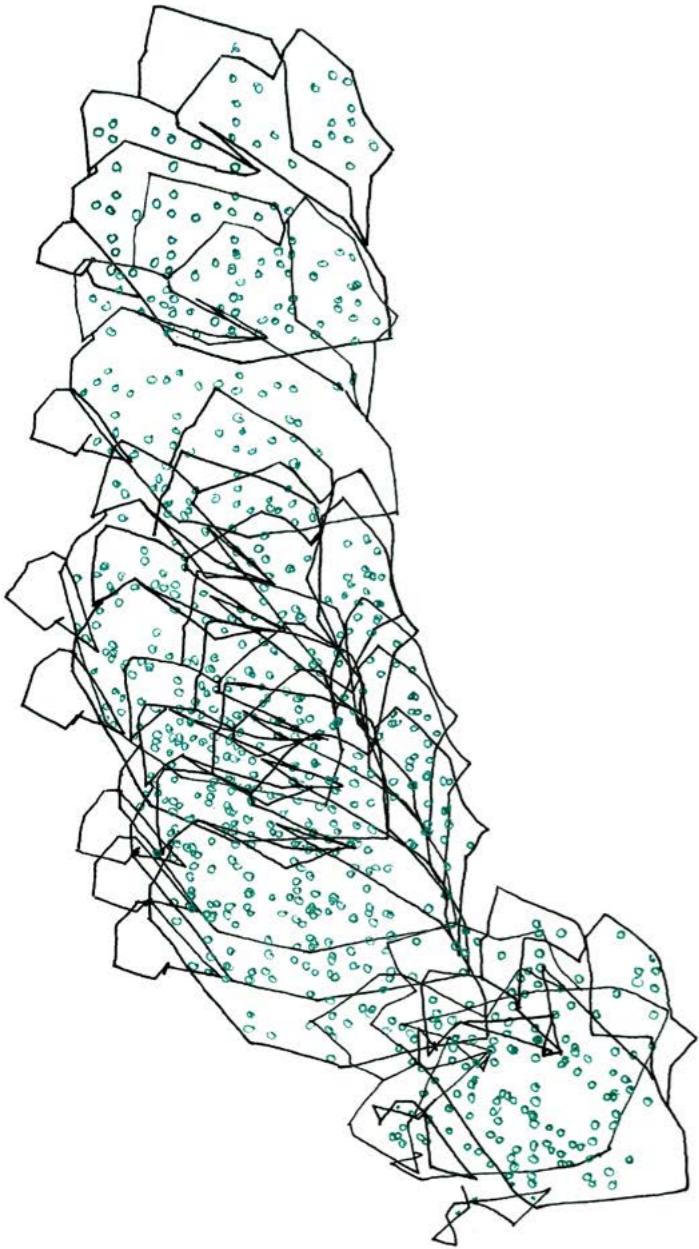
**NC:** "Big Data" is a pretty abstract subject matter, and it involves large amounts of time-organizing information. Through this process, I look for ingrained patterns and a way to translate the data into something tangible. So when it comes to picking a medium, it is a matter of picking the right tool for the job.

**MZ:** Your project seems to interact with many subjects—philosophy, politics, mathematics, and nature. Is there a reason for this?

**NC:** My main topic is "Big Data," which takes me in many different directions, and is not removed from the worst characteristics of human nature. I am interested in the systems that use data and how they function. I have found philosophy a useful tool to address difficult social, economic, and political questions that arise, and I often find myself returning to texts like Gilles Deleuze and Félix Guattari, and Franco "Bifo" Berardi.

**MZ:** You have chosen two images of significant works. What is the drawing and video *BATS* about?

**NC:** *BATS\_2012-03-23* was part of a project looking at financial data and the atomization of the financial markets. I used several sources, including the May 6th, 2010 Flash-Crash and the Mt. Gox bitcoin exchange disaster. *BATS* (Better Alternative Trading System) was created by Dave Cummings in Kansas, and is famous for moving a computer across from NASDAQ to get a faster connection. The company now claims to account for ten percent of all trades made in North America. The *BATS* exchange had made a disastrous attempt to create an IPO. The video is based on one of these early attempts, in which a computer glitch caused a quasi-instantaneous plummet of their IPO price, and subsequently crashed. I was interested in how time operates in the stock market, often at speeds intangible to the human mind. I found myself slowing the information down to something that is understandable and within the human perspective. Doing this, patterns arose, and I was able to read the embedded information in the data. For the *BATS\_2012-03-23* video, the timeline of the crash was slowed to 300 times the actual speed—1.25 seconds—in a hand-drawn, animated visualization of 4,560 drawings.



Naomi Cook,  
BATS\_2012-03-23, 2015

**MZ:** What did you learn from the trading project? How do you see the impact on our society? Does human science and the example of trading give us progress or regression, and how does it influence our cultural life?

**NC:** As I mentioned, the speeds at which algorithms operate in financial markets are not comprehensible to humans. Because of these speeds, this means an algorithm can be in multiple places within fractions of a second to verify prices and the activities on and off the market. This technological upper hand is a form of surveillance and power—a perfect allegory of the many systems and networks we interact with daily.

**MZ:** In your work *Troïka* from 2017, you are exploring and decoding a more private part of social life. Can you tell us a little bit more about this work?

**NC:** For the *Troïka* project, I was given, by users, data from various online dating platforms. From the beginning, I was interested in how the quantification of relationships through these platforms affects empowerment, particularly for women. The quilt titled “*Troïka*” was prompted by the 2015 user-information hack at Ashley Madison, a dating website specializing in extramarital affairs. After the user leak, one of the users, at my request, offered me detailed locational data of the last day of her affair. Stitched into the resulting quilt is the locational data, alongside a visualization of the emotional experience as described by the woman and the centre point of the affair.

**MZ:** What does the word *troïka* mean to you, and what is your reference to the meaning of “three” in this project?

**NC:** *Troïka* is a Russian word meaning a set of three, a cart pulled by three horses, or a traditional dance which brings together a woman and two men. Admittedly, I like to play with numbers in my projects in a superstitious way. Three as used in the *Troïka* project invites flexibility into the traditional definition of a union. I was

looking for a parameter that reflected a modern definition of a relationship.

**MZ:** How do you see GPS within the context of privacy and liberty of human rights?

**NC:** GPS is another tool I often like to use in my projects. It takes a sophisticated infrastructure to aggregate and analyze. I have worked on projects where the limitations of GPS proved very one-sided. It is no secret that our devices using GPS are constantly tracking our location. The issue of liberty and human rights in this regard won’t begin to be solved until we are truly in control of our personal data and who has access to it.

**MZ:** Isn’t using data aspects in art a kind of abuse of human rights, and an invasion of privacy as well?

**NC:** I try to be very cautious when it comes to private data. I have always asked for permission, and never made something public without consent. To be honest, people are very generous. For example, when I was collecting Tinder user data as part of the *Troïka* project, I thought it would be difficult to find people willing to give me their data, but it was quite the opposite.

**MZ:** Is “Big Data” changing our human condition and privacy, and how does it change and contribute to your art?

**NC:** As we have seen in the recent global elections, Brexit and Cambridge Analytica proved how powerful information is. In trading, this is called an algo-war, and obviously a select few have the tanks. When breaking down data sets, I have always looked for patterns. In the Monex project, I played a game with myself in which I would guess what the algorithm’s strategy was, and after rendering an object, I would confirm with financial analyst experts what had happened. Often I was aligned. Through my art projects, I have been trying to level the playing field.

**MZ:** “Big Data” obviously inspired you to creativity. How do you see its influence for future projects? Is there any future for “Big Data” in art, and how will it impact our culture?

**NC:** “Big Data” and its collection is not going anywhere anytime soon. This has created several troubling moral issues, and most of those in a position to address them have proven unwilling or unequipped to tackle it responsibly. Roger McNamee, an early investor in Facebook, Edward Snowden, and lots of other activists, point out the potential and actual disasters this has caused. How are we supposed to organize ourselves if the systems in which we do so are broken? I am a strong believer in the arts’ ability to highlight these issues and propose alternatives.

**MZ: What kind of collaboration do you see with "Big Data"? Aren't your works, at the end, also a kind of "Big Data" that could be used by somebody else for another creativity, and if so, where would you like to see it?**

**NC:** Ha! I like that idea. I'm definitely an avid collector-to-be of future works based on my work!

**MZ: Tell us what is your personal "re-thinking" of the human condition and singularity in your works?**

**NC:** I can't count how many times I have heard, "It is up to you as an artist to solve the pending reality that there will be no jobs and the robots will be running everything." Maybe being a woman, the idea of losing my job to a "superior" identity is not a justifiable threat, and isn't it amusing how we anthropomorphize AI? I am not afraid of the rise of a robot class. I am worried about the same actors manipulating these tools, including AI, algorithms, and data collection. When looking at the systems using these tools, I am interested in highlighting how power structures influence us, and yet I am still optimistic. Working towards an understanding, I believe we can solve these problems.

**MZ: What will be your next "Big Data" exploration, and where can we discover it?**

**NC:** Currently, I am building a new project centred around environmental statistics, specifically oil spill data dating from 1991 to the present. The project is called *Rorschach Test*, and includes sculpture from a material made from waste, drawings, photographs, and a video. A selection of the works will be exhibited at my gallery Christie Contemporary in Toronto in the fall of 2020.



Naomi Cook, *Troika*,  
2017

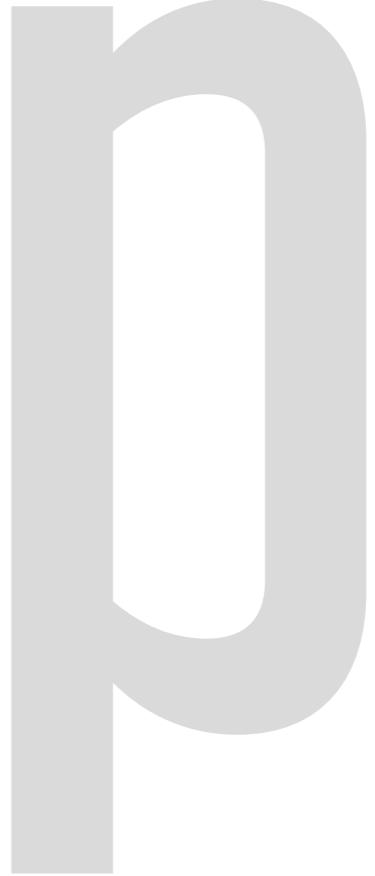


# MULTIPLYING SOURCES OF INSPIRATION

**Bernard Pictet**

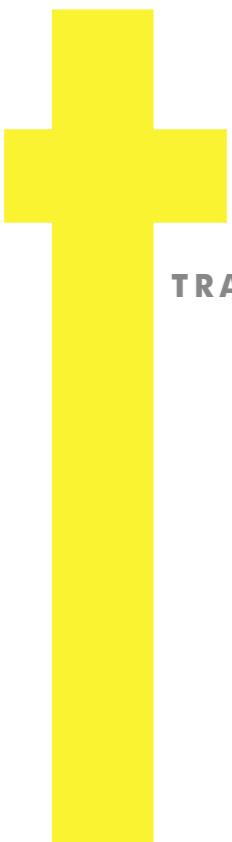
Interview  
by Florence  
Valabregue

PERFORMING



41

TRANSFORMING





**The accumulation of visual data on various online archives and social media has provided new ways of creation, and increased access to inspiration for artists and artisans. Glassmaker Bernard Pictet reflects on his digital sources of inspiration.**

The glassmaker Bernard Pictet officiates in a small workshop of under ten people, located in the heart of the Oberkampf district in Paris. His workshop specializes in glass facings and partitions, commissioned by architects and interior designers from all over the world, to decorate luxury stores, hotels, yachts, and private homes as well as museums and universities. Each piece of glass goes through the hands of craftsmen who apply skill and knowledge inherited from the decorative arts tradition.

Bernard Pictet has incorporated new techniques such as diamond-point and saw engraving. He also uses screen printing to obtain results ranging from coloured to unpolished and mirrored. Each of his handmade creations is a display of imperfection and uniqueness highly sought after by the most demanding interior decorators. His glassworks do more than play with light—whether transparent, translucent, opaque, or reflecting, they are perceived as exceptional in both materials and texture.

Like most craftsmanship, Pictet's trade was once available to all, before the age of mass production. Today, however, considering the time spent on each piece, his work can only be afforded by the elite. His daily practice with glass resembles an artistic process; his inspirations and his extensive technical knowledge of glasswork are endless. Nothing could seem further away from this Parisian craftsman, transforming glass through traditional techniques, and who was granted the EPV label, than the world of Big Data.

Who could have guessed that the multiplication of data on the internet and on social media could have impacted the creative process of this traditional craftsman? And yet, data globalization has indeed fed, revamped, and expanded the art of Bernard Pictet, who in turn brings his own inspirations to the world wide web.

**How would you define your work, from the perspective of the creative and technical process?**

You cannot define creation! Life is inspiration in itself, whether it's a work of art seen in a gallery, an atmospheric change in the sky, or a shop sign seen on the street, anything can be turned into creative material from the moment it moves me. Whenever I start to look for inspiration, I usually end up finding it accidentally! I make it a point of honour to keep an open mind. I can find inspiration in anything I see, but I only keep what creates feeling. One of my leitmotifs is diversity.

The only time I don't look for inspiration within my own sensitivity is when I am given a particular theme for commissioned work, such as water, fire, geometry, or a reference to a specific period in the decorative arts.

I have been practicing the craft of glass-making for forty years. From a technical perspective, this experience with the material helps me to determine the technique or techniques that will best express the result I'm looking for. Certain techniques can adapt to the project I'm working on, whereas others may not apply.

**Where did you look for inspiration when you started working with glass?**

In books on decorative arts. At that time I was also lucky enough to have the King of Morocco as one of my most important clients. That led me to start looking into geometric patterns in traditional Islamic arts, which I mainly found in an extraordinary book on the subject by André Paccard.

**Since gaining access to a global data base through Pinterest and social media, how have you come to use it?**

I browse on Pinterest, searching either by theme or through the boards of members I've subscribed to. Pinterest's algorithms, having memorized my previous searches, offers me a selection of links in relation to my points of interest and prior searches. I either find sources of inspiration di-

rectly from this pool of images or I use the algorithm's results to look for new inspiration.

**Would you say this way of conducting research is more time-consuming than the "old fashioned" way?**

It's less a matter of time than it is of data volume. When I relied solely on books for my research, I could find a dozen images in a book, whereas today I can find thousands. Finding as many images the traditional way, in books, would of course be far more time-consuming. The online searches do not keep me from consulting art books or exhibition catalogues. Currently, approximately 80 to 90 percent of my work is inspired by Pinterest content.

**How do you go from enormous volumes of information to a unique custom-made piece?**

After conducting my research, I make an initial selection with the studio's computer-graphics designer. I then examine that selection on vector graphics software in order to figure out which elements could be exploitable. Once that step is completed, we create our own interpretation on that same software. The second-to-last step is making a sample with glass. The choice of the most appropriate engraving style or technique comes at the end.

**Has this process brought about any changes in terms of technique?**

Perhaps on the level of graphic design, but certainly not in the fabrication process, with the exception maybe of screen printing. Pinterest is a source of ideas in terms of patterns and shapes, but it does not provide any insight in terms of effects such as light or layering. A visual form can, however, inspire a new technique. For instance, it was a very fine visual form that gave me the idea to try the diamond-tip engraving technique (see the image of Nénuphar).

**Would you say it's a positive advance that allows you to draw from the world of art and interior design, thus remaining alert and in advance on what's trending?**

Absolutely. But I consider my work to be beside fashion. I observe it with great interest and I can even make use of it, but it's very important to me that I don't get too involved in trends. In the words of the philosopher Jean Guitton, "Keeping up with the times will only destine you to the fate of dead leaves."

**Your work tends to circle back to Big Data, enriching it in turn through images shared on your website and social media platforms such as Instagram and Pinterest. How do you maintain uniqueness when images of your work are spread and reproduced?**

Taking a good photograph of glass is an extremely difficult task. Reproducing three-dimensional glasswork from a photo is practically impossible. Certain samples are extremely complex creations, so most of the time people, even if they like what they see, have a very hard time understanding the piece's materiality. The materiality of some glass creations is even hard to discern in real life!

**Can we touch upon the notions of one-of-a-kind and copyright?**

In no way do I copy patterns—I reinterpret them or use them as inspiration. Copying would be impossible given the fact that my tools and materials are never the same as the ones used in the works I draw inspiration from.

Regarding the images shared on the workshop's website and social media accounts, every piece is trademarked. Posting images of our creations on social media is a double-edged sword. We have to show our work in order to make ourselves known, but at the same time we are exposing ourselves to plagiarism.

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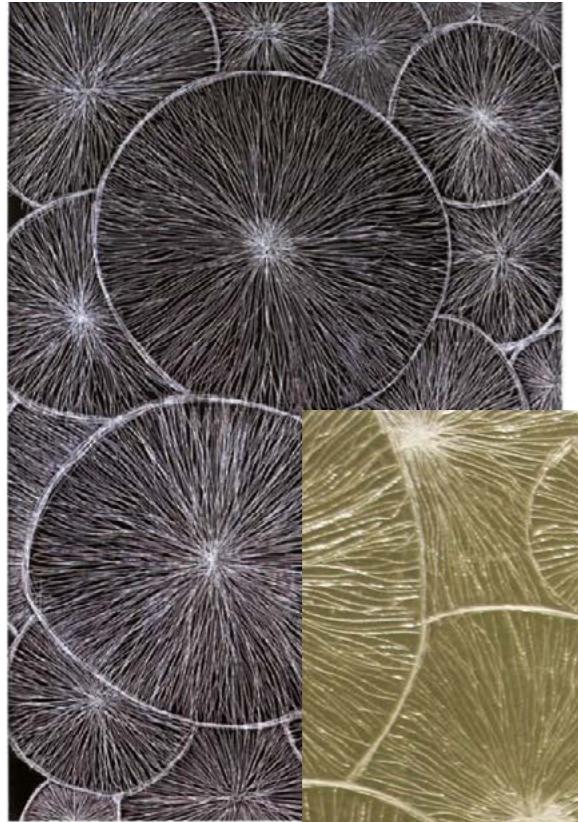
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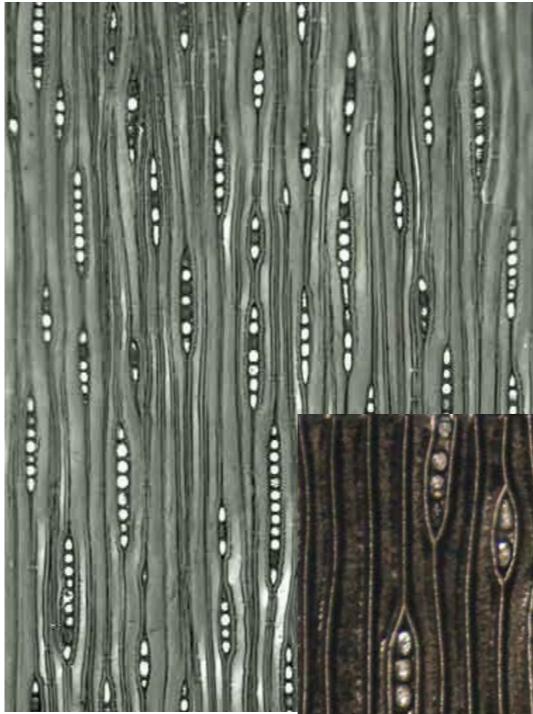


Nénuphar - Inspiration

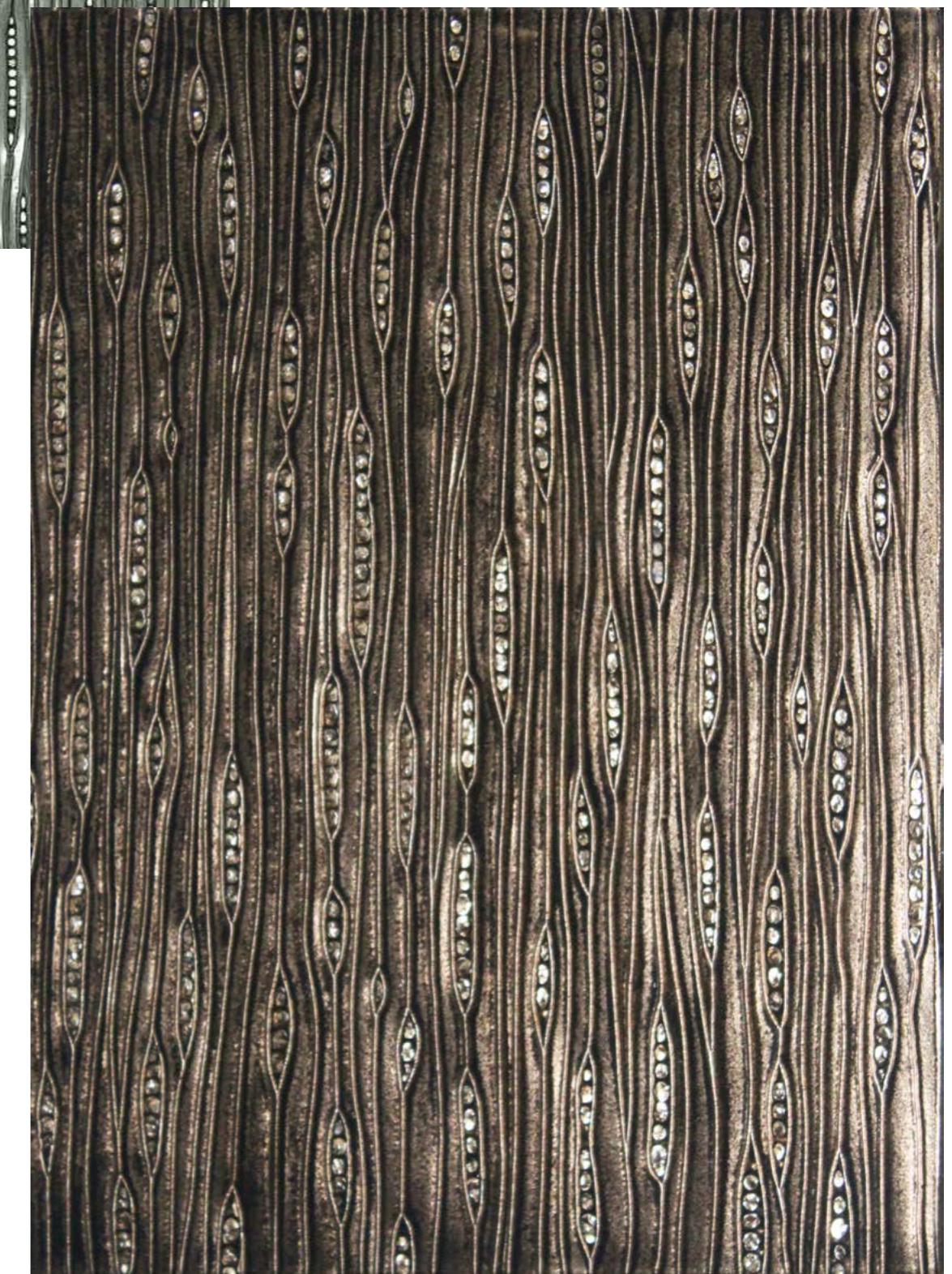


Nénuphar

©Atelier Bernard Pictet  
Glass adaption of the  
motif Nénuphar



Wood fragments in a  
microscope - Inspiration



Cosses - sample  
©Atelier Bernard Pictet

Glass adaption of  
wood fragments in a  
microscope



Vincent Van Gogh,  
Peasant Woman Against a  
Background of Wheat,  
1890 - Inspiration

Epi Van Gogh sample  
©Atelier Bernard Pictet  
Glass adaptation



Carpet motif - Inspiration

Luminous superimposition  
mirror pattern  
©Atelier Bernard Pictet  
Glass adaptation of the  
carpet motif



51

# ARCHIVE DREAMING

Refik Anadol



Refik Anadol, *Archive Dreaming*, 2017

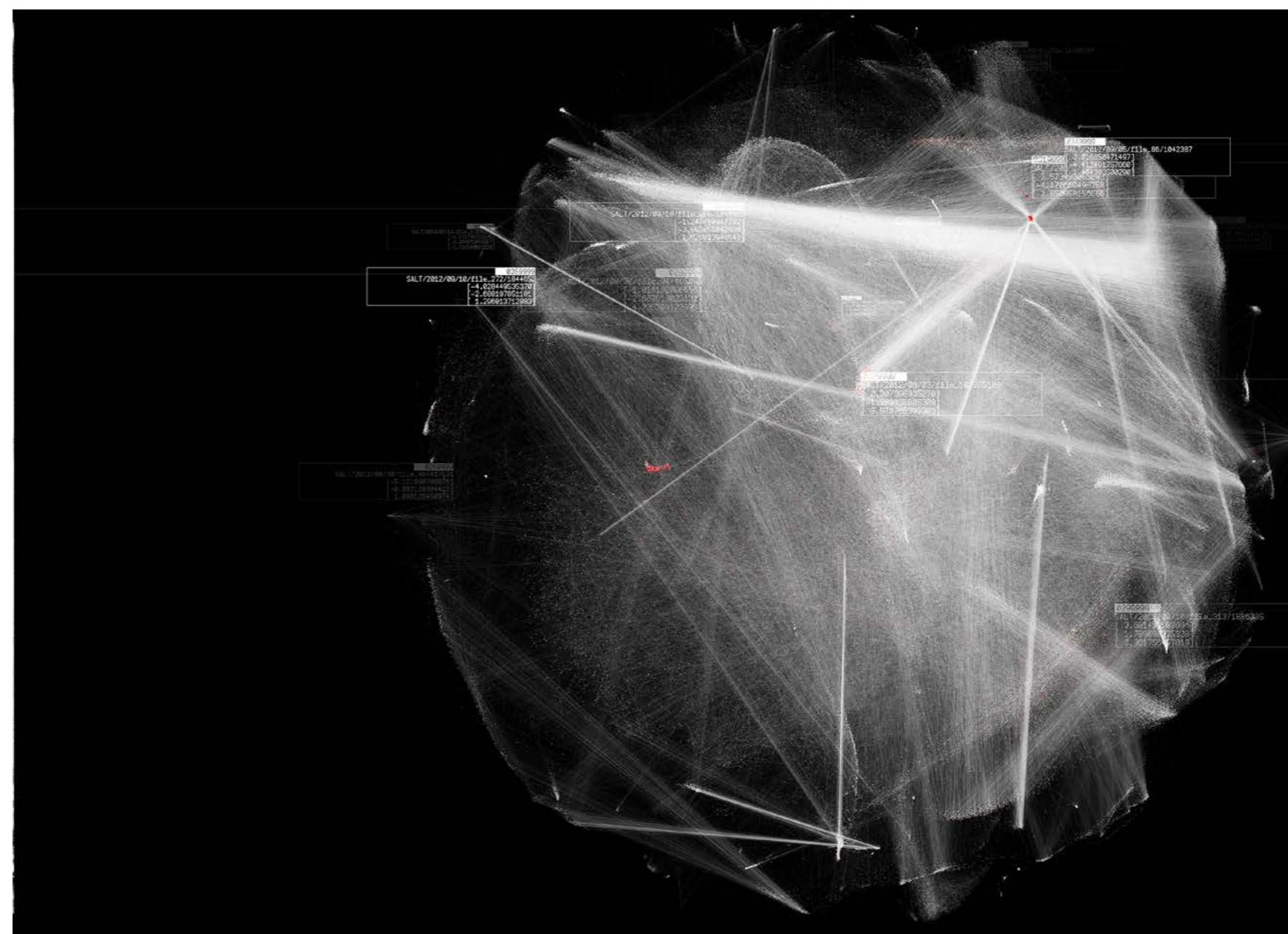
**As material archives are digitized, their data can become the source of new discovery or creative working material. Refik Anadol's *Archive Dreaming* creates an immersive environment that blurs the lines between historical and modern, material and digital, two and three-dimensional.**

Commissioned by SALT Research to work with its collections, artist Refik Anadol employed machine learning algorithms to search and sort relations among 1,700,000 documents. Interactions of the multidimensional data found in the archives were, in turn, translated into an immersive media installation. *Archive Dreaming*, presented as part of *The Uses of Art: Final Exhibition* with the support of the Culture Programme of the European Union, is user-driven. However, when idle, the installation "dreams" of unexpected correlations among documents. The resulting high-dimensional data and interactions are translated into an immersive architectural space.

Shortly after receiving the commission, Anadol became a resident artist for Google's *Artists and Machine Intelligence* Programme, where he closely collaborated with Mike Tyka to explore cutting-edge developments in the field of machine intelligence in an environment that brought together artists and engineers. Developed during his residency, the *Archive Dreaming* intervention transformed the gallery space on Floor 1 at SALT Galata into an all-encompassing environment that intertwines history with the contemporary, and challenges immutable concepts of the archive while destabilizing archive-related questions with machine learning algorithms.

The immersive architectural space was created as a canvas, with light and data used as materials. This effort to deconstruct an illusory space radically transforms both the normal boundaries of the visual experience of a library and that of a conventional movie screen into the three-dimensional, kinetic, and architectonic space of a visualized archive. Using architectural intelligence, the principal idea of the immersive installation was to reframe memory, history, and culture in a museum perspective for the 21st century.

Refik Anadol,  
*Archive Dreaming*, 2017





Refik Anadol,  
*Archive Dreaming*, 2017

# ARCHIVE DREAMING

DATA UNIVERSE OF SALT.ARCHIVE

t-SNE

MACHINE INTELLIGENCE

4,735,278 DOCUMENTS

SALT RESEARCH

l'internationale

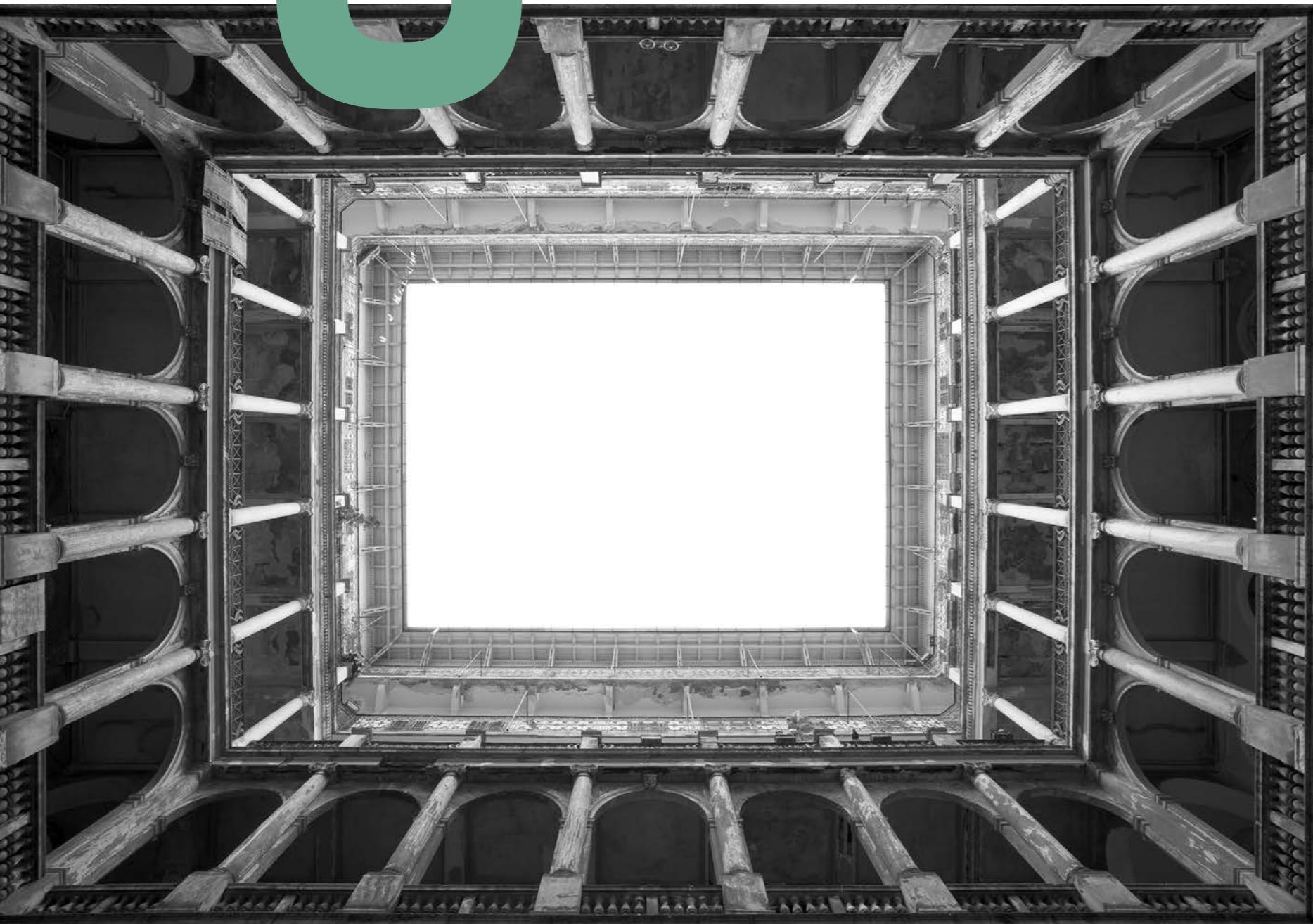
AMI

Google  
CULTURAL  
INSTITUTE

Refik Anadol,  
Archive Dreaming, 2017

CONNECTING

91



# INSPIRATION THROUGH INFORMATION

## VISUAL ARTS BETWEEN BIG DATA AND SINGULARITIES

Zoltán Somhegyi

Ákos Czigány, *Sky 8888*,  
2014, impression à jet  
d'encre pigmentaire  
d'archives, courtesy Várfok  
Gallery



THINKING

**Big Data can influence, contribute to, and appear in artworks; in some cases, artists themselves, inspired by their predecessors, use the Big Data of visual information through an unconscious selection process, while in other cases they create “encyclopaedic” sets of works, and in yet other cases try to visualize the sublime effects of encountering the impressive data flow.**

It might at first seem surprising to investigate the relationship of Big Data and singularities with regard to the visual arts. Hearing the term Big Data, one automatically thinks of fields like computer science, the information technology (IT) industry, economics, business, or the natural and health sciences. When surveying the implications, applications, and concerns of Big Data, sociology, politics, or ethics tend to come to mind before the arts. Nevertheless, and precisely because of this, I would like to offer some considerations of the possible interconnections between these areas, including some examples of artists' works and methods of creation, in the hope that I can shed some light on the nature of both Big Data and creative processes. At the same time, I would also like to introduce the reader to a broader interpretation of Big Data by examining it beyond its traditional meanings and appearances—ones that are often limited to IT-related areas. Therefore, in the following brief overview of the question, I will first discuss some considerations that are more distant from the strictly techn(olog)ical meaning of Big Data, then narrow it back, somewhat closer to its original sense.

Usually, we do not think of Big Data with regard to the fine and visual arts, perhaps because we are accustomed to the idea that in the arts, we need to celebrate singularity. The focus is upon the individual achievements and the special, personal style of the artist, and especially upon the launch of a new (art) form that may develop into a “school,” “movement,” or “ism”—an innovative solution to a pictorial problem, a novel approach to the representation of a topic, a bold standpoint with respect to a pressing issue, the making of a political statement through a unique artwork, and so on. Many of the creators who have been canonized as leading figures in the history of art—Giotto, Leonardo, Rembrandt, Cézanne, Picasso—are respected for their individual achievements, and can be connected to some of the aforementioned forms of innovation and singularity. Today's emerg-

ing creators also aspire to become, literally, outstanding—i.e., to stand out from the huge mass of data and visual input and the overwhelming aesthetic offerings that contemporary viewers are constantly encountering.

Hence, in this first part of my examination of the connections between Big Data and the fine and visual arts, Big Data may in a sense refer to the massive amount of art production, from both historical periods and our present world, of which those who appreciate art are trying to get an overview, and which the artists themselves are working, struggling, and often even competing with. The appreciators strive to find their individual preferences, and to discover those works and genres that are the closest to their own tastes and ideals—of course, this personal taste will make them, as appreciators of art, singular too—while artists working on and for the free market hope to find a singular approach that will make their work become the favourite of galleries, museums, and collectors.

At the same time, however, seeing the question in a broader sense, there are other ways in which Big Data can be traced in art production and artistic processes. Here again, Big Data is not (solely) interpreted in the strict sense of having a large quantity of information collected, stored, and elaborated by machines based on specific instructions and algorithms, but is seen with respect to the creative, human working of the material—i.e., the creativity gained from the information. Seeing from this perspective, we can consider any and all types of influences, elaborations, re-interpretations, and re-visitations as part of working with the Big Data of the immense traditions of the global history of art.

Whenever an artist creates a new work with an earlier one in mind, or under the unconscious influence of previous works, the endless possibilities of the effect of those preceding works will arise. In this sense, the connection of the concepts of

Big Data and singularity can be traced in the creative process of the artist—i.e., what he or she may choose from the endless options of the historical tradition, and how to transform it into a new, singular piece, with which and through which, ideally, the present viewer can both understand more of the original work and our contemporary world. Bringing forward this idea, we can even say that every work of art, once created, becomes part of the Big Data of human artistic tradition, and thus may also become the possible subject of future re-interpretations. Naturally, this re-working of a singular piece depends upon many factors—how widely the artwork is known, its artistic and aesthetic quality, in what ways it contributed to the defining of its era, whether it can be considered exemplary, and/or can and should it be questioned with regard to the social and political issues of its era. Naturally, many artworks will never be re-discovered and will be completely forgotten, while others have long-dormant periods of decades, even centuries, before re-discovery, and yet others trigger an immediate reaction and lead to an incessant flow of re-interpretation and re-working right after they are completed.

At this point, we will mention pieces that are a part, or sub-category, of the above—works that are also parts of a larger set of investigation. This sub-category may include open-ended or never-ending works, unfinished and/or unfinishable pieces, and encyclopaedic collections of visual material and their re-elaboration. As examples, we can quote Ákos Czigány's photographic series on the courtyards of Budapest, collected through his Lucien Hervé- and Rudolf Hervé-prize-winning images entitled *Skies—Hommage à Hiroshi Sugimoto*, in which the delicate outlines of roofs, seen from the middle of the buildings' courtyards, frame a sky that appears in large, homogenous white areas, like the screens in Sugimoto's movie series, to which I will return later in this article. In this way, the historicist and modernist architectural heritage of

Budapest is not only surveyed and collected, but through a status change—from architectural into visual material—gets transformed, and becomes a constituent pictorial element in the new work.

A different intention motivates Gregory Buchakjian—to document the civil-war-torn city of Beirut and its fascinating constructions. In 2009 he started to document over 700 buildings, forming an impressive inventory of the dilapidated and abandoned interiors of the capital through tens of thousands of photographs, while at the same time, parallel to this documentary collection, he was also creating artistic pieces in which some of these spaces reappear as a polyvalent hosting environment for staged photographs investigating his personal attachment and response to the decaying space. Another “encyclopaedic” collection we recall is Milorad Krstic’s *Das Anatomische Theater*. This time, however, the starting point is not architectural heritage, but the history of the 20th century. In Krstic’s collection of detailed visual analyses of the figures, movements, and events—as well as their interwoven connections—of modern times, he manages to create a critical visual encyclopaedia of the history and art history of the 20th century, where at the end it is the century itself lying on the dissection table.

Getting closer to the original and narrower sense of Big Data, we can mention another of its important connections to the world of the arts—those works, especially contemporary pieces, that contain and use a large amount of visual and/or digital information and its elaboration. Some of these are created with techniques and media that by now seem classical, like analogue photography. Just think, for example, of Hiroshi Sugimoto’s fascinating series made in movie theatres, where the exposure time is the same as the film’s length, hence the final photograph, even if it looks like a bright screen, nevertheless “contains” the entire film. Another example, this time created through the medium



Gregory Buchakjian,  
Abandoned Dwellings.  
Tableaux. BF585-Ras  
Beyrouth \_ 06'12'2014

of digital photography, is Ádám Magyar’s *Stainless* series, in which the artist meticulously collects a huge amount of digital data with his camera for the creation of every piece in his series by “scanning” metro trains arriving from a tunnel with a special recording technique he developed, for which the final result will be a seemingly sterile, pure, engineer-like rendering of the vehicle, that at the same time successfully attempts to poetically analyze various aspects of contemporary urban reality through high-resolution details.

Towards the end of our overview, and arriving at the original sense of Big Data, I shall mention works that not only operate with large amounts of data—previous

# DAS ANATOMISCHE THEATER

THE SIMULTANEOUS GAMES OF THE 20TH CENTURY



Milorad Krstic, *Das Anatomische Theater 1*, 1998

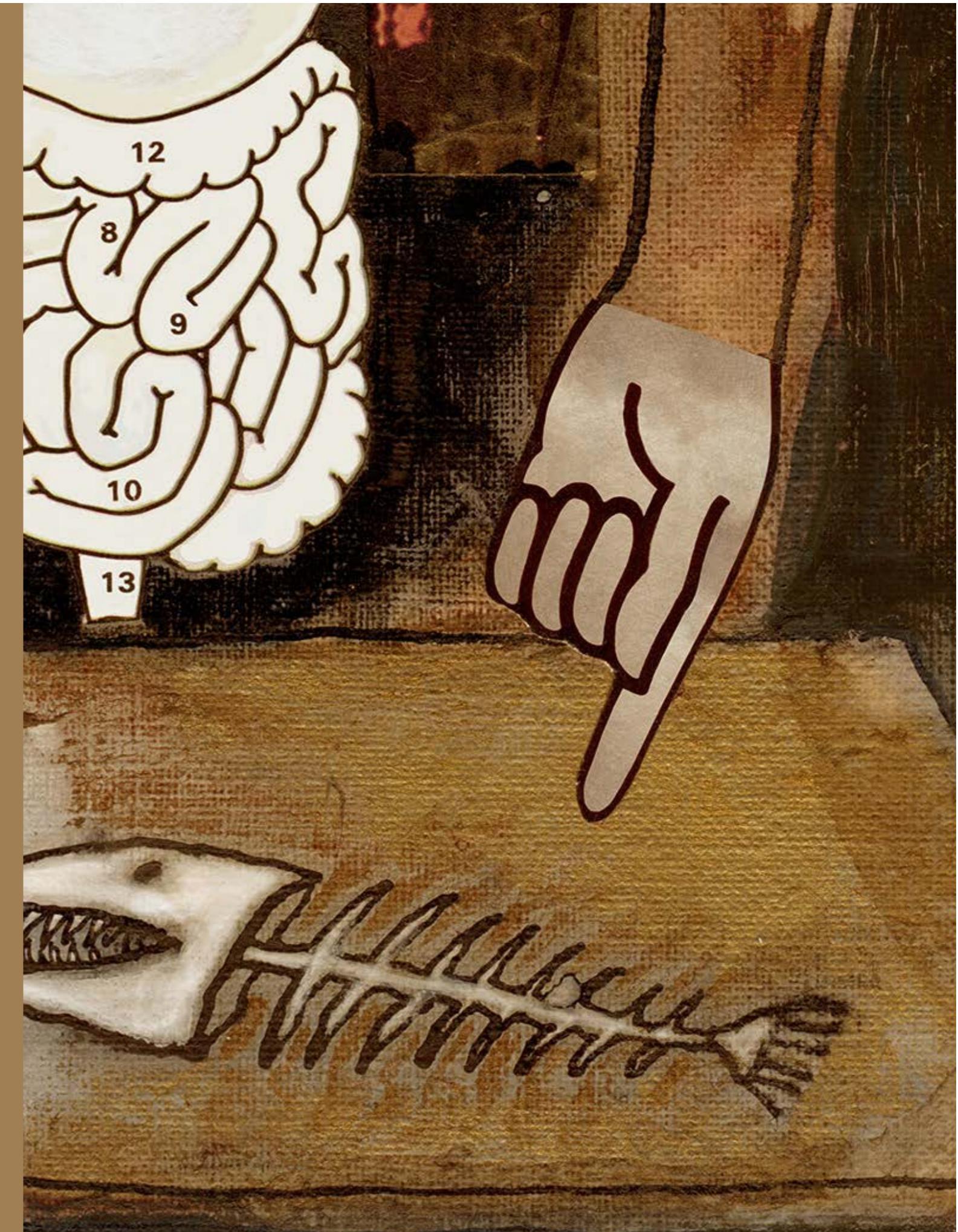
artworks, subject matters, or motives inherited as visual (re)sources to get inspired by, and to re-interpret in the creation of novel pieces—but that explicitly visualize Big Data itself, creating fascinating and, at the same time, singular pieces that investigate the flow and nature of Big Data. Some of the artists working in this direction are principally interested in making manifest the otherwise abstract nature of Big Data by, for example, using its raw material in creating a piece with a sublime effect. Ryoji Ikeda, whose large-scale installations and computer animations with the series title “data-verse” not only show Big Data, but create an overwhelming experience of it. The strange sublimity of his work comes not only from the ways of experiencing the data, but also from the difficulties of making sense of it. And it is exactly here where the thrilling appeal of his work is traceable: Data that was originally collected to understand a certain phenomenon becomes so abundant and overwhelming that it fills our mind to the point that we have to give up attempting to understand it, and instead try to enjoy the flow of the visual and mathematical information that we perceive, but are unable to elaborate.

Claude Closky uses visual information, and the visuality of information, in another way in his 2003 work “Untitled (NASDAQ),” for which an entire gallery wall was covered with wallpaper designed by Closky that contained stock exchange data. Needless to say, the numbers lost their significance, not only because one could not perceive the immense quantity of them, but because they also lost their actuality, since in our

high-paced economy it is always the latest value that counts. In Closky’s case, we have a large segment of Big Data taken out of its context and used for its pure visuality, to create a decorative pattern. The artist thus manages to both impress the viewer with the unusual “use” of numbers and information, and at the same time implicitly mocks the often-hyped commercial aspects of the global art world and its infrastructure.

Needless to say, this has only been a brief overview of the myriad of possible interconnections between Big Data and singularities with regard to the fine and visual arts. I have provided just a few singular examples from the Big Data of artwork that use the immense historical traditions of art, investigating and re-working this material or directly using and visualizing Big Data for the creation of a new artwork. In each of these examples, however, the singularity of artwork dominates—i.e., the unique way in which the artist uses these influences, working with all of the available material in order to make a new piece, one that gives a new interpretation of our contemporary reality.

Bringing forward this idea, we can even say that every work of art, once created, becomes part of the Big Data of human artistic tradition.



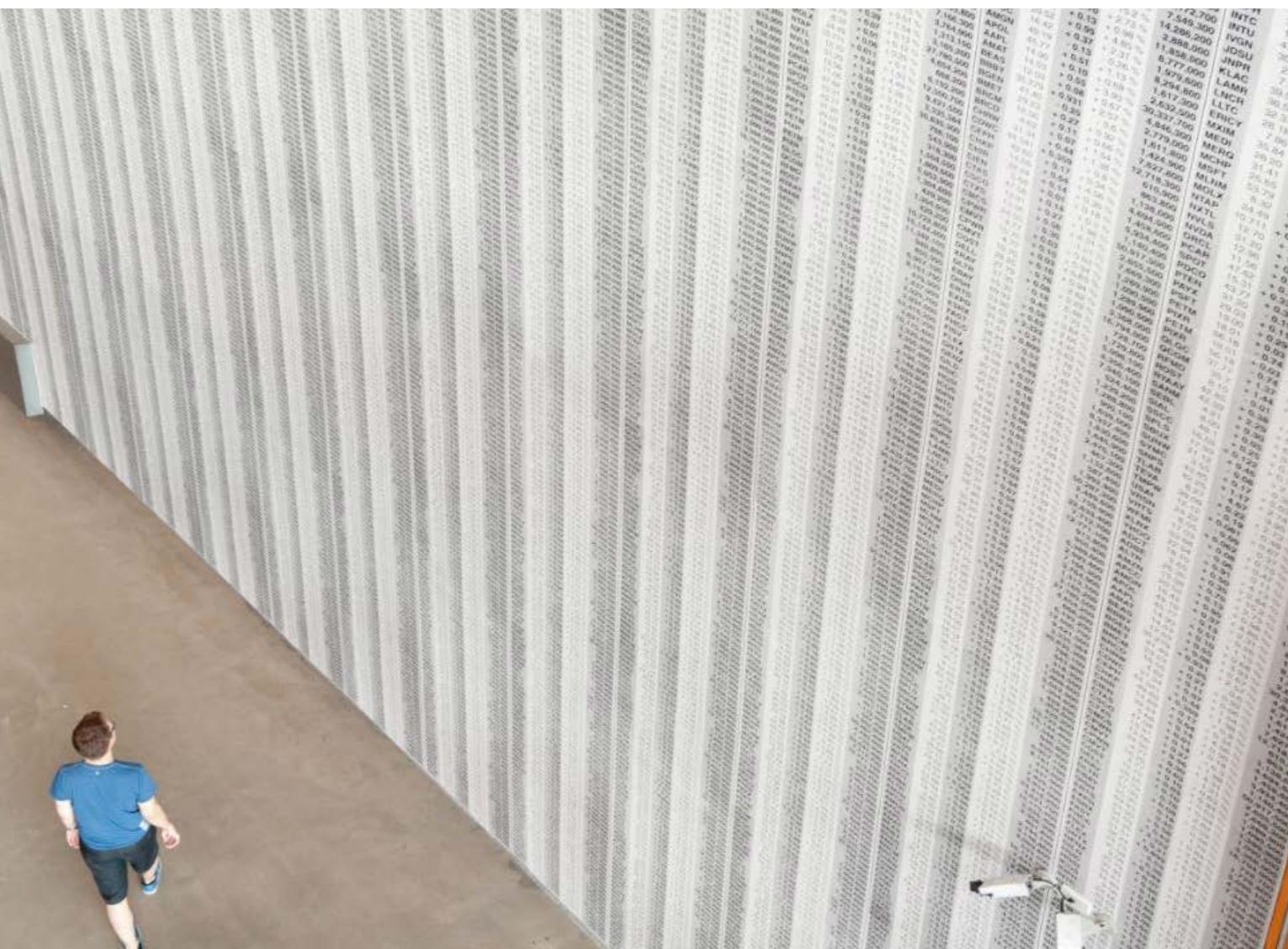


Ádám Magyar, Stainless,  
03621 (Tokyo, 2010)

-0.19	-0.48 %	2,350	801,800	HSIC	44.80	+ 0.06	+ 0.67 %	1,100	VRSN	8.50	+ 0.08	+ 0.47 %	4,000	INTC	16.54	+ 0.22	+ 0.4
2,194,100			HGSI	9.06	+ 0.06	+ 0.24 %	587,400	VRTS	17.03	- 0.06	- 0.11 %	533,500	INTU	47.08	+ 0.22	+ 0.4	
148,800			ICOS	24.66	+ 0.06	+ 0.24 %	1,992,800	WFMI	53.88	+ 0.91	+ 4.13 %	10,172,700	IVGN	30.16	+ 1.57	+ 5.4	
1,059,800			IDPH	33.69	+ 0.65	+ 1.97 %	50,287,200	XLNX	22.94	+ 0.50	+ 2.84 %	7,549,300	JDSU	2.77	+ 0.02	+ 0.7	
1,727,700			INTC	16.54	+ 0.15	+ 0.92 %	2,489,600	YHOO	18.10	+ 0.35	+ 15.22 %	14,286,200	JNPR	7.39	+ 0.03	+ 0.4	
7,549,300			INTU	47.08	+ 0.22	+ 0.47 %	1,759,900	ADCT	2.65	+ 0.70	+ 2.73 %	2,888,000	KLAC	39.00	+ 1.64	+ 4.3	
1,286,200			IVGN	30.16	+ 1.57	+ 5.49 %	22,633,400	ADBE	26.30	+ 0.13	+ 0.98 %	11,858,000	LAMR	36.53	+ 0.67	+ 1.8	
2,888,000			JDSU	2.77	+ 0.02	+ 0.73 %	7,712,700	ALTR	13.38	+ 0.95	+ 4.85 %	8,777,000	LNCR	32.37	- 0.04	- 0.1	
858,000			JNPR	7.39	+ 0.03	+ 0.41 %	12,771,100	AMZN	20.52	+ 0.37	+ 2.31 %	1,979,600	LLTC	28.18	+ 0.79	+ 2.8	
7,700			KLAC	39.00	+ 1.64	+ 4.39 %	913,800	APCC	16.42	- 0.13	- 0.26 %	8,294,800	ERICY	7.86	+ 0.24	+ 3.1	
600			LAMR	36.53	+ 0.67	+ 1.87 %	955,400	AMGN	49.19	+ 0.51	+ 1.13 %	1,617,300	MXIM	35.84	+ 0.07	+ 0.2	
28.18			LNCR	32.37	- 0.04	- 0.12 %	6,389,600	APOL	45.77	+ 0.10	+ 0.68 %	2,632,500	MEDI	28.20	+ 0.32	+ 1.1	
0			LLTC	28.18	+ 0.79	+ 2.88 %	2,993,800	AAPL	14.90	+ 0.55	+ 3.93 %	30,337,700	MERQ	31.41	+ 0.16	+ 0.5	
0			ERICY	7.86	+ 0.24	+ 3.15 %	7,166,300	AMAT	14.53	+ 0.08	+ 0.67 %	4,846,300	MCHP	25.65	+ 0.39	+ 1.5	
0			MXIM	35.84	+ 0.07	+ 0.20 %	12,771,100	BEAS	12.03	+ 0.08	+ 0.67 %	2,779,000	MSFT	53.79	+ 0.07	+ 0.1	
0			MEDI	28.20	+ 0.32	+ 1.15 %	3,764,900	BBBY	35.279	+ 0.931	+ 2.71 %	1,611,800	MLNM	8.32	+ 0.01	+ 0.1	
0			MERQ	31.41	+ 0.16	+ 0.51 %	1,313,100	BGEN	41.40	- 0.25	- 0.60 %	1,424,900	MOLX	24.49	+ 0.06	+ 0.2	
0			MCHP	25.65	+ 0.39	+ 1.54 %	3,165,200	BMET	29.23	+ 0.27	+ 0.93 %	7,627,800	NTAP	10.711	+ 0.011	+ 0.1	
0			MSFT	53.79	+ 0.07	+ 0.13 %	27,780,500	BRCM	16.50	+ 0.11	+ 0.67 %	12,718,300	NTXL	12.70	+ 0.24	+ 1.9	
0			MLNM	8.32	+ 0.01	+ 0.12 %	4,654,200	BRCD	4.62	+ 0.07	+ 1.54 %	610,900	NVLS	31.20	+ 1.34	+ 4.4	
0			MOLX	24.49	+ 0.06	+ 0.25 %	668,200	CHRW	31.34	+ 0.44	+ 1.42 %	863,800	NVDA	12.96	+ 0.65	+ 5.5	
0			NTAP	10.711	+ 0.011	+ 0.10 %	6,192,200	CDWC	44.341	+ 0.359	+ 0.82 %	1,458,600	ORCL	11.56	+ 0.35	+ 3.1	
0			NXTL	12.70	+ 0.24	+ 1.93 %	12,500,700	CEPH	49.60	+ 0.17	+ 0.34 %	1,138,000	PCAR	47.62	+ 0.37	+ 0.1	
0			NVLS	31.20	+ 1.34	+ 4.49 %	9,421,500	CHKP	14.69	+ 0.64	+ 4.56 %	4,694,500	SPOT	15.31	+ 0.332	+ 2.1	
0			NVDA	12.96	+ 0.65	+ 5.57 %	3,335,384	CHIR	39.24	+ 0.14	+ 0.36 %	50,917,500	PDCO	43.77	+ 0.34	+ 0.1	
0			ORCL	11.56	+ 0.35	+ 3.12 %	30,835,300	CTAS	5.68	+ 0.01	+ 0.18 %	5,934,400	PTEN	31.20	- 0.19	- 0.1	
0			PCAR	47.62	+ 0.37	+ 0.78 %	766,100	CSCO	47.08	+ 0.14	+ 0.30 %	1,140,400	PAYX	29.03	+ 0.11	+ 0.3	
0			SPOT	15.31	+ 0.332	+ 2.22 %	543,900	CTXS	13.91	+ 0.27	+ 1.98 %	2,655,500	PSFT	19.00	+ 0.29	+ 3.76 %	
0			PDCO	43.77	+ 0.34	+ 0.78 %	318,300	CMCS	13.56	+ 0.56	+ 4.31 %	7,669,300	PETM	18.01	+ 0.03	+ 0.17 %	
0			PTEN	31.20	- 0.19	- 0.61 %	1,504,500	CPWR	24.50	- 0.30	- 1.21 %	10,722,800	PIXR	56.18	- 0.74	- 1.30 %	
0			PAYX	29.03	+ 0.11	+ 0.38 %	1,809,600	CMVT	4.77	+ 0.03	+ 0.63 %	16,114,000	QLGC	37.77	+ 1.37	+ 3.76 %	
0			PSFT	19.00	+ 0.29	+ 1.55 %	5,052,900	COST	10.70	+ 0.10	+ 0.94 %	1,289,900	QCOM	35.7	+ 1.44	+ 4.20 %	
0			PETM	18.01	+ 0.03	+ 0.17 %	1,304,600					RFMD	8.10	+ 0.11	+ 0.38 %		
0			PIXR	56.18	- 0.74	- 1.30 %	429,200					RFMD	8.10	+ 0.144	+ 4.20 %		
0			QLGC	37.77	+ 1.37	+ 3.76 %	10,722,800					QCOM	35.7	+ 1.44	+ 4.20 %		
0			QCOM	35.7	+ 1.44	+ 4.20 %	16,114,000					RFMD	8.10	+ 0.144	+ 4.20 %		

Above: Claude Closky, 'Untitled (NASDAQ)', 2003, wallpaper, silkscreen print, dimensions variable. Exhibition view 'NASDAQ', Mudam, Luxembourg, 2003. Curated by Marie-Claude Beaud, Björn Dahlström. Photo Joséphine de Bére

ight: Claude Closky,  
Untitled (NASDAQ)', 2003,  
wallpaper, silkscreen print.  
exhibition view '21st Century,  
Art in the First Decade',  
Gallery of Modern Art,  
Brisbane, 2010. Curated by  
J. Chambers, A. Clark, T.  
J.wood, S. Raffel, K. Weir.





# ART IN THE AGE OF BIG DATA

Bénédicte Philippe

**A WINDOW FOR  
RESISTING THE  
NORM**

**As digitization becomes the norm and activities are transformed into analyzable data, finding expressions of authenticity and individuality through art and creativity help maintain the particular and special in the face of standardization.**

The globalized world is under numeric rule. The roads are paved. Our identities are digitized, our footsteps monetized. Big Data feeds giant tech corporations. Once Big Data is brought together and broken down, it is transformed into tools, products, and services that shape our day-to-day lives, our economies, and even our political landscapes. World views shrink to the size of a screen, along with our attention span. Critical thinking is replaced by instinctive reaction. Scoops and scandals drive the audiences, and the click-bait economy holds hostage our dreams of a fully and freely-connected planet.<sup>1</sup>

#### On Living in a Calibrated World

Regulations regarding food, health, hygiene, and security are reassuring on a large scale. Social media create unexpected bonds, echoes, and connections—provided, that is, it keeps away from profiling, monitoring, or excessively rating certain groups and individuals, through a legal framework that has yet to be established.

In such a calibrated world, is there any room left for chance, disorder, and accident? For nuance, hesitation, repentance, transformation? Is it possible to live under the radar in a world where we must show ourselves in order to exist? Is it possible to suffer or be different in a reserved, discrete manner? To be poor, in the face of digital banking, credit cards, and computers? Can we be ourselves without having to explain ourselves or justify our life choices, appearances, and hybrid identities? How can the ugly ducklings, the bad fruit, the crossbreeds, the flamboyant or rickety humans escape this normative reign?<sup>2</sup>

The flow of life cannot be contained within airtight boxes. Our human condition must evolve in circumstances that bring

together the common good and individual freedoms, in which all forms of uniqueness are allowed a place without being met with fear or rejection. Societies in which different genders, social classes, nationalities, traditions, and convictions coexist must be protected or established. Preserving or creating such territories is a task for nations as much as it is for individuals. It is a personal, social, local, and national matter before being a global one. It's about awakening and upholding certain states of mind. Independence and freedom are fragile things, especially in the face of powerful global interests.

#### Confronting the Other

Art, when it is not engulfed by commercial stereotypes or globalized formats, offers an open space in which our minds are free to roam. Indeed, whether it be the fruit of a single individual or an entire civilization, art leads to the discovery of otherness, of what is distant and ancestral, beyond the barriers of space and time. This encounter with otherness can also lead us to embark on a journey within the depths of ourselves.



Karine Zibaut, *Epiphanie, Alice on the Wall*

1. Marc Dugain, Christophe Labb  , *L'homme nu. La dictature invisible du num  rique*, Plon: 2016; and Bruno Patino, *La civilisation du poisson rouge*, Grasset: 2019.

2. Josef Schovanec, *Nos intelligences multiples. Le bonheur d'  tre diff  rent*,   ditions de l'Observatoire: 2019.



Karine Zibaut, *La moisson, L'apnée des ombres*

3. Published by Albin Michel, 2008.

4. Bénédicte Manier, *ille et une révolutions tranquilles*, J'ai lu, 2016.

Such is the message conveyed in the book *L'un vers l'autre. En voyage avec Victor Segalen*,<sup>3</sup> written by Chinese-born French thinker François Cheng. In the book, the writer, poet, and calligrapher places his own life aside that of Segalen (1878-1919). A doctor, novelist and ethnologist, Segalen had journeyed, many years before Cheng, in the opposite direction, from France to China.

Art travels through sensitive channels in the body. Song and music reaches us through our ears. Performance and visual arts penetrate through our eyes. Just as education gives us guidelines and helps us build up solid intellectual and scientific structures, art opens the doors of the senses to our emotions. To marvel, through the encounter with what is strange or peculiar, is what allows us to escape standardization. A blow to the heart can bewilder our minds and overturn our most deeply-rooted beliefs. We bond with each other over that which moves us, which drives us regardless of stereotypes. This sidestep hollows that empty space which breeds creativity, the warrantor of a fruitful and imaginable renewal. The indefinite, the abstract, the unknown, and the unexpected all pave the way towards inquiry and the imaginary.

An open, confident, curious mind can confront novelty and innovation. The historic artistic avant-gardes paved the way for societal shifts. Artist-run spaces and other spaces dedicated to art are breeding grounds for relationships and idea circulation. They are home to hybrid pollinations best illustrated by architecture and design, which are fields of experimentation in the social and environmental sciences.

#### **Disseminating the Creative Mind**

In the throes of dealing with current environmental and technoscientific challenges, ideological tensions, and financial perils, the world may very well accelerate its shift towards dehumanization. Knowledge is built through bringing together

advances and progress, and information is flowing now more than ever before, but that knowledge must first reach our consciousness and move us before it can inspire change and action! Feeling is fundamental in order for us to stay true to our human condition. It guarantees the survival of our species. The Universal Declaration of Human Rights, having emerged after the cataclysm of World War II, proves it—legal recognition for all, by all—at least in the countries that signed the text.

It is our collective responsibility to be the defenders and keepers of diverse ways of being. In being aware of others and of our own oddities, big or small, we can nurture respect for our differences. New technologies bring about unforeseen opportunities. Through them, it is possible to create, share, and exchange knowledge between our plural worlds, under the strict condition, that is, that these technologies remain tools at the service of a universal consciousness that is free and open. The 21st century human being must escape, both individually and collectively, from the grip of techno-economics. The seeds of new initiatives have been planted.<sup>4</sup> Now all that is left is to disseminate, like petals of thought, the creative mind.



156

# AND IF THE SOUL WAS QUANTIFIABLE?

Hang LU

THINKING

PERFORMING

Hang LU, *World Map*, oil on  
canvas, 2020

157

81  
10

# Big Data has been used experimentally in creating artistic works. As AI technology and data enter the art world, how do the results compare to human artistic productions and the role of the painter in creating a work of art?

In the painting *The Door*, we can see the heavy iron gates, the soldiers under the lights, and the dim sky. These come from my impressions and feelings when I entered the gates of government agencies as a child. More than twenty years later, the impressions of another world, hidden behind a noisy street, prompted me to pick up my brush and paint my memories. I can't imagine how we can quantify this personal experience via an algorithm.

The definitions of "art," "beauty," and even "artist" are constantly changing. Today, we are once again at the starting point of further change. Technology will slowly take us into another world—one of man-machine integration, Big Data, quantum computing, and Artificial Intelligence. Life will be as it is in science fiction movies. Our current definitions, concepts, and ethics will be redefined.

Yet, while the art of the future will be different from today's, I think that the essential arts—painting, sculpture, dance, singing—cannot be replaced, because they originate from the primordial nature of human beings. Children are born to play with mud and draw pictures. However, one day, human beings will have quantified their souls. When art is 100% done by artificial beings, I believe that human beings will begin to innovate again, and that will be the next renaissance of mankind.

## Learning and Creating the Portrait Painting of Rembrandt

In October 2016, the Dutch advertising company INJ launched *The Next Rembrandt* project. Using Big Data, 346 of Rembrandt van Rijn's works were analyzed, Rembrandt's "next" work was deduced by Artificial Intelligence, and it was printed out. This presents us with a question: What is the value of this creation of Big Data and Artificial Intelligence?

In the painting *The Door*, we can see the heavy iron gates, the soldiers under the lights, and the dim sky. These come from my impressions and feelings when I entered the gates of government agencies as a child. More than twenty years later, the impressions of another world, hidden behind a noisy street, prompted me to pick up my brush and paint my memories. I can't imagine how we can quantify this personal experience via an algorithm.

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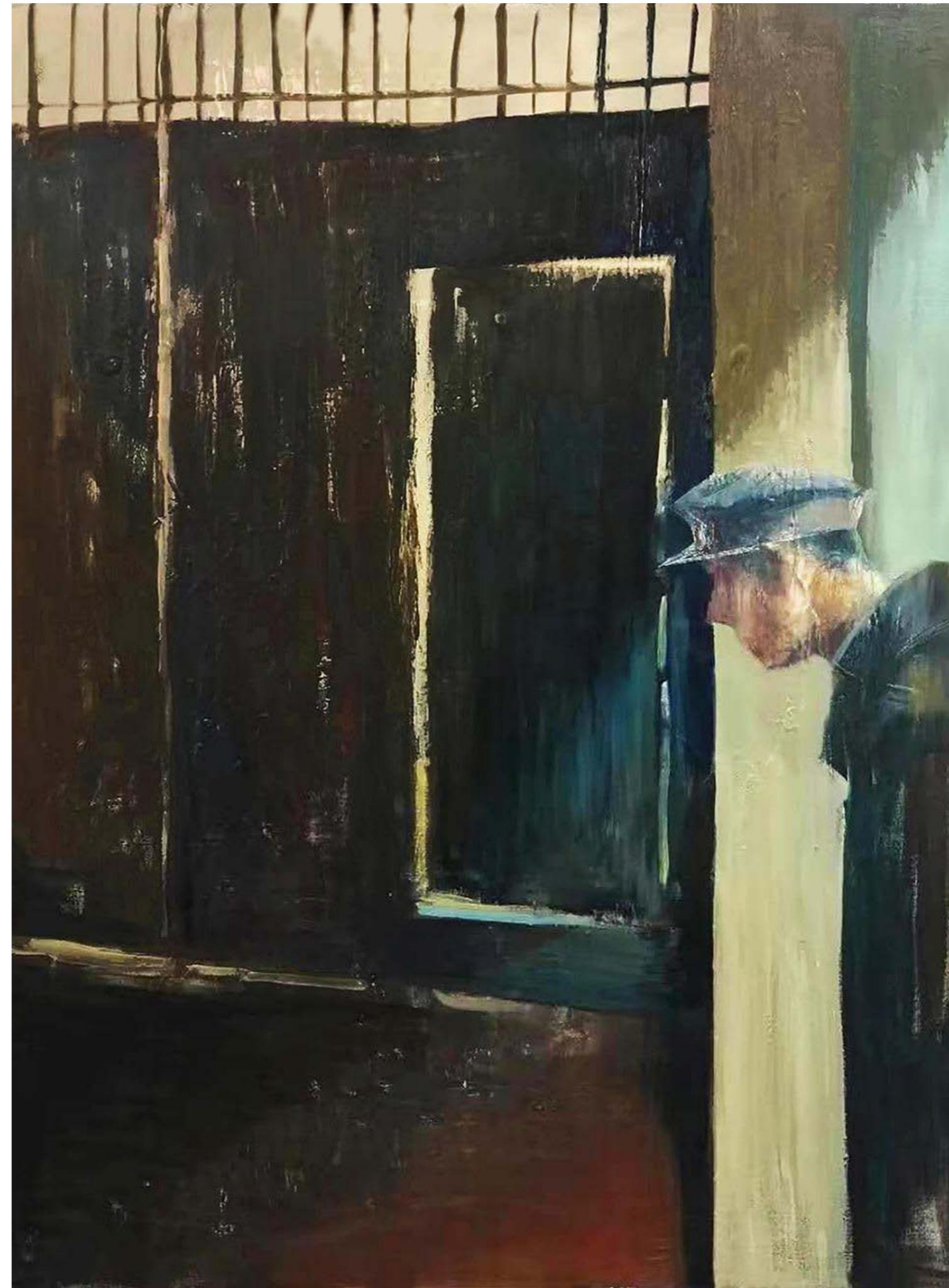
Hang LU, *The Door*, oil on canvas, 2017

In my opinion, Rembrandt's paintings express the brilliance of human nature through his superb skill. However, the algorithms formed by machine learning, after analyzing Big Data, can only produce an imitation of a Rembrandt painting—a high-grade fake.

The motive of a machine is essentially different from Rembrandt's. Real art comes from the expression of one's personality rather than an algorithm, and focuses on the process of expression rather than the result of expression. Fake art merely imitates the style of existing works. *The Next Rembrandt* experiment is an attempt to obtain new algorithms by studying existing examples and copying them, instead of creating algorithms that are driven by emotion. Inspiration, imagination, and intuition cannot be achieved through Artificial Intelligence.

The motive of an artist's creation is the expression of their desires. This requires artists to observe the world attentively, witness peoples' lives, uncover the insignificance of human beings before major events, and feel the joys and sorrows of humanity. Artists are mockingbirds of their times and of human nature. They have rich antennae, and can quickly "receive" the changes and developments of the times—hidden problems, future directions, and so on. Only under these conditions can one begin to express one's desires. Works created by artists being sincere to themselves are expressions of nature, and are not created simply for the sake of creation.

The most important thing about a painting is not what the audience thinks after seeing it, but whether the audience can be touched in the soul by seeing it. The most direct and



powerful way for people to communicate is to carry out a spiritual dialogue through the medium of art. The process of artistic creation is complicated, and requires intuition, feeling, imagination, premonition, self-observation, the ability to transcend errors, and many other qualities. Some creations only come about through intentional coincidence. In my creative work, I rely on intuitive judgment, inspiration, and imagination to find new expressions. While painting, my heart communicates with the picture, and a great deal of my inspiration comes through feedback from the picture.

Receiving feedback from the picture, my imagination is stimulated, and my decisions are made by intuition. In other words, the relationship between the painting and myself is not the relationship between God and the world, but the relationship between the gardener and the flowers. It is difficult for me to imagine how Big Data can participate in this kind of creative process. Inspiration, imagination, and intuition are difficult to translate into an algorithm. If the attempt is made to translate creativity into an algorithm, without human participation, what will be the outcome? The most important thing is: Artists have a human perspective. How can an inanimate, digital, logic operation express emotion?

### **An Accelerated Auxiliary Role for Production**

Artistic creation is not meant to solve mathematical problems. Everyone's answer to an artistic problem will not be the same. The goal of art education is to teach people to have the qualities that an artist should have, and not to become a machine for producing artworks. If people truly want to rely on Big Data and Artificial Intelligence to create art, we will have to face the following problems:

1. How to determine the value of art in a society dominated by Big Data and Artificial Intelligence;
2. How to evaluate Big Data, which needs 100% accurate data; this requires that everyone providing data be absolutely truthful;
3. How to quantify abstract concepts such as truth, kindness, beauty, emotion, humanism, and universal values;
4. How to establish viable algorithms that can be "creative." For example: How can an algorithm generate mistakes and make use of them?;
5. How to fully understand people and "digitize" such human characteristics as inspiration, imagination, intuition, various exquisite feelings, psychological structure, etc.

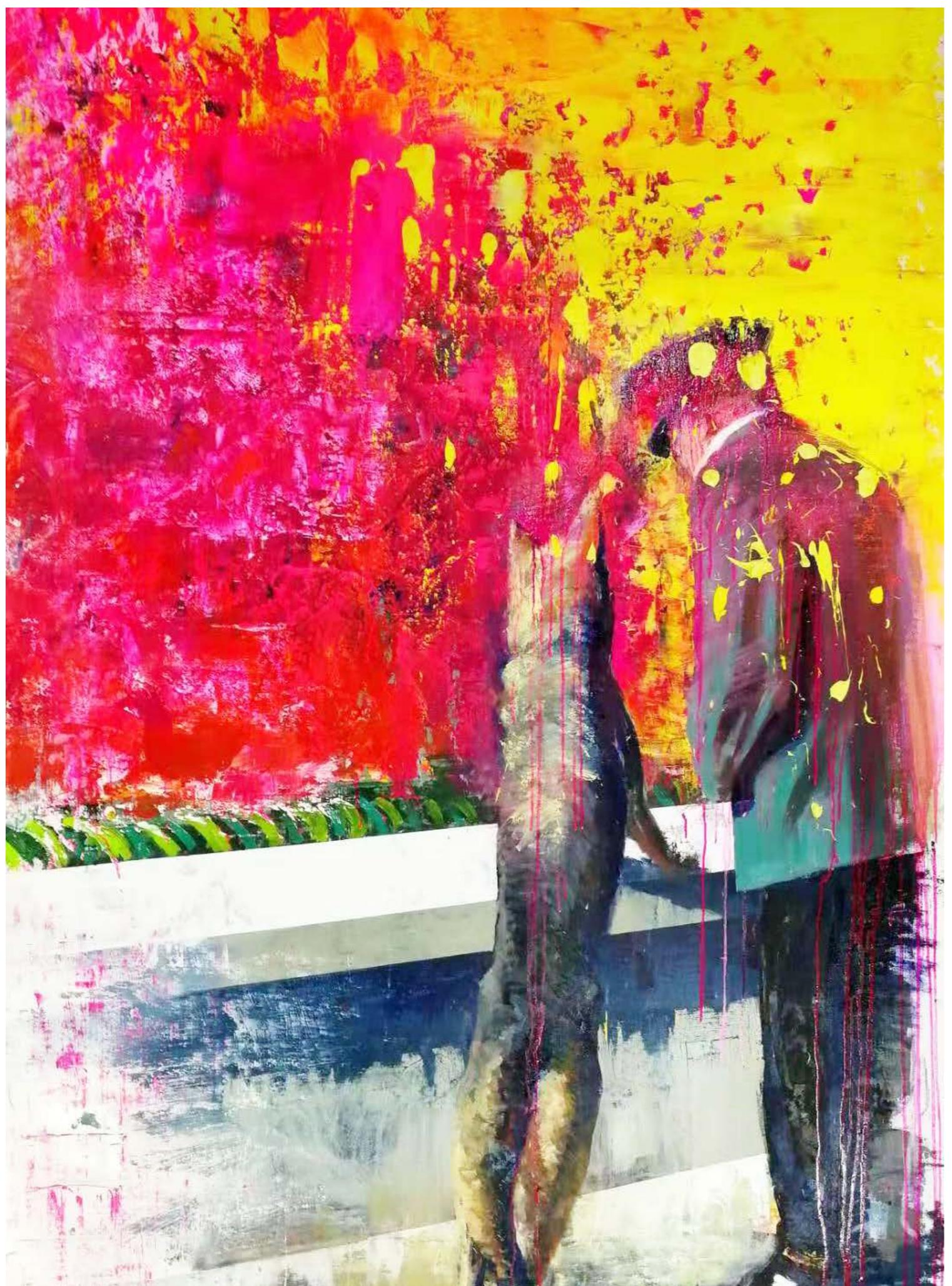
We have not been able to solve these problems. Therefore, in my opinion, Big Data and Artificial Intelligence will play an expanding but auxiliary role in the artistic creation of the future. An information framework cannot generate and address aesthetic problems, just like one's genes cannot completely determine one's fate. Artists create special problems that come from themselves. In my creative process, I take advantage of the convenience brought by Big Data. When I study painting and history, being able to find all kinds of text and picture information makes my research much more in-depth. For this reason, I think that Big Data will play an important, though auxiliary role in art education.

### **Inspirational Big Data**

As the art world experiences the rising trend of Big Data and Artificial Intelligence, I frequently observe two misconceptions. The first is creation for the sake of creation – the pursuit of an algorithm that, once and for all, produces "artwork" continuously. The second fallacy is relying on Big Data and Artificial Intelligence to improve the decorative, technical, and technological sense of art while ignoring its essence.

**The most important thing about a painting is not what the audience thinks after seeing it, but whether the audience can be touched in the soul by seeing it. The most direct and powerful way for people to communicate is to carry out a spiritual dialogue through the medium of art.**

Certainly, this kind of art is in its development stage. Perhaps, after further development, new and interesting things will emerge. However, it remains to be seen, through continuous exploration by artists if this art form will disappear due to the logic of Artificial Intelligence that distinguishes it from humans.



Hang LU, *Dog's Story*, oil on canvas, 2019

Hang LU, *Dog*, oil on canvas, 2019

Seven years ago, I saw a picture of Hitler and his dog Blondi on the Internet. Later, I learned that he had tested a cyanide capsule on the dog. This raised a question for me: What is the relationship between our parents and ourselves and our country and its children? I created these four paintings: *Dog*, *Dog's Story*, *Dear Children 6*, *Dear Children 5*. During the creative process, historical images found via data searches gave me the motivation and inspiration for my creation.





Hang LU, *Dear Children 6*, oil  
on canvas, 2019



Hang LU, *Dear Children 5*, oil  
on canvas, 2019

# MULTIMEDIA INSTALLATIONS IN MUSEUMS

Patrice Mugnier

PERFORMING  
p<sup>61</sup>

TRANSFORMING

Patrice Mugnier/  
Active Creative Design,  
Introduction films,  
permanent exhibition,  
Musée de l'Homme, Paris



## **Big Data can serve education and research, and enhance cultural experiences, for example when it is used in designing interactive multimedia installations in museums.**

Big Data is formed by the massive accumulation of digital information at scales beyond the conventional capabilities of scientific analysis. Their emergence has driven the development of new tools, both from the standpoint of visualization and of the processing of information that compose them. Based on the use of digital technologies, these tools open up new challenges for contemporary artists and designers. I will focus in this article on their impact upon my artistic practice as a designer producing multimedia installations for museums.

### **An Original Form of Collective Experience**

Data visualization is a new field of pictorial representation. Neither figurative nor abstract, it uses as its primary material the component specific to the information, implemented in a synthetic and meaningful way. Openly using all the graphic means at its disposal, it is constantly looking for the most relevant representation system—2D, 3D, use of color, animation and, above all, real-time interaction with the viewer, who becomes able to manipulate this representation in order to deepen his or her knowledge.

In a museum context, a relevant example is based on digital questionnaires offered to visitors of an exhibition. That set of questions and manipulations allows the visitors to situate themselves in relation to the theme of the exhibition—technology,

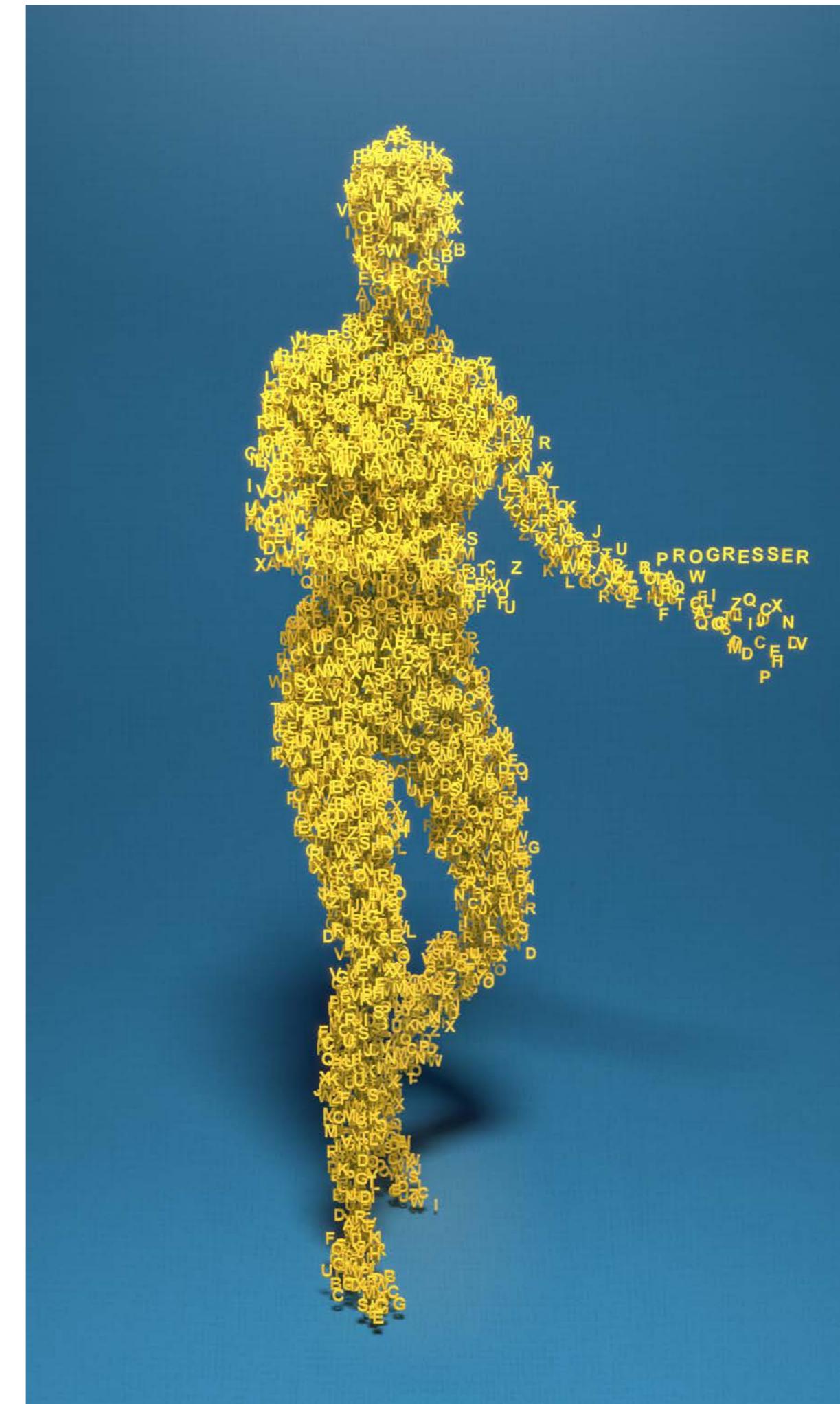
bioethics, transhumanism, etc. Responses from all visitors are then stored in a database that can contain hundreds of thousands of entries. Finally, an algorithm makes it possible to synthesize the responses of each visitor according to several axes of analysis. Using these different axes, its responses are localized in three-dimensional space. All of the visitors' responses thus form a cloud, which can be filtered according to the characteristics of the different visitors (age, gender, socio-professional category, etc.), and in which each of them can clearly identify their own position.

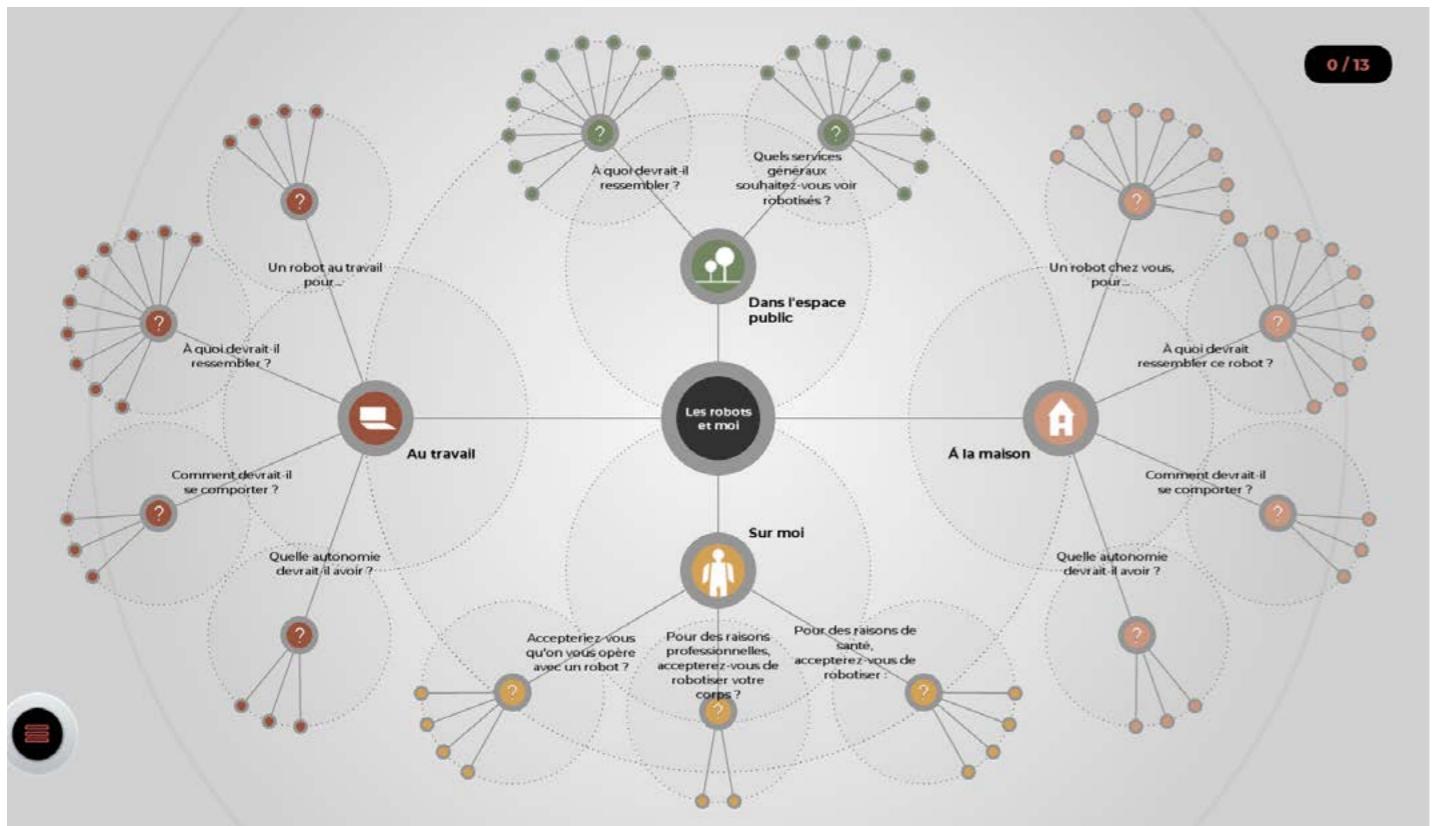
The exhibition then becomes an original form of collective experience, within which each person can situate themselves in his or her relation to the content. We can note two major challenges for the designer of the multimedia device: (1) the need to carefully consider the algorithms for which they do not know in advance the public's responses, and (2) the risk that the data visualization system produces its own artefacts, namely graphical figures more dependent on the representation system itself than on characteristics of the public response.

### **Deep Learning**

The processing of information related to Big Data is the basis of a second major issue, whose introduction in the context of museography today remains experimental. Given the amount of information used in certain fields (image processing, voice recognition, 3D analysis, etc.), the algorithms based on classical mathematical equations quickly proved to be unsuitable: There is no equation for identifying a cat or winning a game. The emergence of deep learning, a digital technique using layers of artificial neural networks, has revolutionized the scientific approach to Artificial Intelligence by training software systems to achieve concrete

Patrice Mugnier/  
Active Creative Design,  
Introduction films,  
permanent exhibition,  
Musée de l'Homme, Paris





Patrice Mugnier/Active Creative Design, Digital project for the exhibition *Robots*, Cité des Sciences, Paris, 2019

objectives—identify a form, analyze a behaviour, understand an oral request, etc.

For museums, deep learning has already been introduced in different fields by adding assistant robots capable of interacting with visitors, or by analyzing public behaviour in the discovery of collections. But these experiences, however interesting they may be, do not directly concern the cultural and scientific content of the exhibitions. Even more often they are counterproductive, when they guide the strategies and policies of cultural institutions. Indeed, since deep learning works by learning a large set of references, it produces no innovative concept by itself, unlike human intelligence. As this is a new tool, it is necessary to seek its relevance in the field of artistic experiments.

### Massively Multi-User Spaces

In multimedia creation, some development platforms already incorporate the concept of autonomous agents, such as the Unity game engine. Such developments make it possible to modify the nature of the public's interactions with the content of exhibitions. Rather than implementing classical tactile interfaces allowing access to predetermined content, it becomes possible to script a "behaviour" of the museum space according to the interactions of the public. Since collective interactions are among the most complex to manage, in particular because of their lack of readability on an individual scale, the technologies related to deep learning will make it possible to facilitate their implementation, and to access more complex and natural ways of interacting. We can thus anticipate innovative developments in the context of massively multi-user spaces, with the possibility of producing collective experiences that combine scenography and real-time programming.

The emergence of technologies linked to Big Data turns out to be particularly rich in promise in the context of exhibitions

integrating a multimedia dimension. Nevertheless, it is up to the various managers, exhibition curators, scenographers, and multimedia designers to highlight the ethical dimension of devices that can easily become intrusive. An exhibition is a space of freedom intended for creation, learning, and discovery. All of the information produced there, necessarily anonymous, can have no other purpose than knowledge, without betraying the trust visitors place in cultural institutions.

# BIG DATA, ENEMY OR ALLY OF FILMMAKING?

Che Hsien SU



THINKING

PERFORMING

ANTICIPATING

20



## **The use of Big Data in marketing strategies of films has led to a privileging of profit over artistic and aesthetic singularity, shaping the present and future of the film industry.**

As a consequence of major commercial development in the Chinese film market, movie theatres have multiplied in recent years. Initially, the use of Big Data made it possible to capture and analyse consumption habits and audience preferences, and these insights found direct application in the advertising of films. The types of movies preferred by the audience were used to improve the communication strategy towards customers. In this way, the promotion that followed the production of the film was more relevant.

However, due to increasingly enormous production costs, investors wanted to improve the return on their investment in the films they produced. The story developed in a film, its script, and the director's choices gradually began to be dominated by "keywords" taken from Big Data. The idea behind this is that relying on popular keywords will satisfy a wider audience and result in better performance at the box office.

This gives rise to numerous questions: Does Big Data allow filmmakers to make better decisions about the direction of a film, or is it a barrier to their creativity? Are the algorithms derived from Big Data—more particularly, those derived from Artificial Intelligence—allies of the film industry or a form of technology that harms its development? Working in the film industry in China and knowing well the marketing in this field, my practical experience of the subject has informed the following thoughts.

### **Films are Becoming More and More Similar**

As Big Data and its algorithms have become unavoidable, creators and directors have been increasingly obliged to pay attention to them. The environment of film creators is a complex universe, in which directors have to face many difficulties inherent in their artistic practice. In about two hours, a film deploys for the spectators an original world, regardless of its degree of imagination or realism. By nature, each film is a piece of artistic expression, and in this sense, any intervention of Big Data, however small it may be, constitutes a form of corruption. If the data at stake originally belonged to marketing tools, marketing now presides over the design of the film from its earliest stages. The result is films that are very successful at the box office, but more and more similar because they are developed using the same keywords. For filmmakers, this is a setback.

The film *See You Tomorrow* (2016) by the famous Hong Kong director Wang Jiawei (Wong Kar-wai) was funded by Alibaba Pictures and created using the keyword concept. Alibaba not only used Big Data for marketing, but also for the creation of the script, written from an analysis of public viewing habits. This whole process may seem scientific, but the film comes down to a coarse amalgam of popular symbols borrowed from the 1980s and 1990s. It can be described as a long accumulation of clips assembled to please the public.





Older productions of Wong Kar-wai's like *Happy Together* (1998) and *In The Mood For Love* (2001) have not only become classics of Chinese cinema, but major works of the world cinematographic heritage. What would have happened if the production of *Happy Together* and *In The Mood For Love* had followed the dictates of Big Data? Chinese cinema might have had two commercial successes, but two masterpieces of cinema would have been lost.

#### **Loss of Meaning and the End of the Unexpected**

One could even say that if Big Data were always used during the creation of films, we would not have had directors like Hou Xiaolian, Michelangelo Antonioni, and Pedro Almodovar, whose achievements are marked by singularity. The use of Big Data could never have resulted in the production of Wong Kar-wai's *Chungking Express* (1994). Filmed spontaneously in a few weeks using a simple camera, and presented as a documentary, this brilliant work opens the doors of a magical world to its spectators. Big Data transforms the cinematographic art of the director into a simple mercantile activity.

The analysis of paintings using Big Data has also developed widely. In the project [The Next Rembrandt](#) (2016), Rembrandt's pictorial works were screened with Artificial Intelligence, which then produced works in the manner of the painter. Similarly, could a new film be created based on the analysis of the work of a director like Cai Mingliang? Could his style, characterized by long shots and emotional disengagement, be summed up in simple figures? This does not constitute a movie!

A film is a work involving many decisions by the director, the screenwriter, and the director of photography, among others. While many films are prepared with great rigour, many directors also improvise by integrating random or natural elements. By contrast, Artificial Intelligence and algorithms lead to products that necessarily lack spontaneity.

This is why Facebook and Internet-specific technologies use Big Data—it allows them to analyze the behaviour of the masses in real time. The sociologist Max Horkheimer of the Frankfurt School said that popular culture, later called the cultural industry, does not present itself as a popular culture of the masses, but in reality constitutes a form of domination of these masses by the leaders of commercial companies. Popular culture celebrates homogeneity, not specificity. It therefore does not really belong to the masses, but only to a superficial community.

Today, the use of Big Data is no longer just intended to control box office earnings—it invades the entire creation process. However, artists cannot rely on computer analysis to succeed in their creative fields. Art requires a share of unforeseen events, and artists must remain pioneers. Since the birth of cinema, this creative field has escaped all control, and many have, for more than 100 years, devoted all their efforts to unraveling this mystery. But from the first silent films to the productions of the Golden Age of cinema, the cinematographic works which have succeeded in reaching the public are those which explore the unknown.

# NO WORRIES

Michel Monteaux

**Big Data is not only collected but is also spread in the form of phishing and scam-mails. Although they are sent to a large number of people, these messages are written to give the impression that an individual has been singled out, playing to our desire to be unique.**

CONNECTING

PERFORMING



In your spam are messages addressed to you and thousands of others.

Why were you chosen, and by whom?

You read them.

Based on current events, these messages link you to the world, to its suffering, its loneliness, its values. They offer you the power to do good.

In exchange, you become rich!

They move you, shock you, make you laugh, leave you indifferent.

You have been chosen among at least 7 billion people. You are UNIQUE, recognized, trustworthy, or the target of a scam.

Do you answer?

You delete them, and they end up in the trash folder.

We recommend that you acquire your selfie sticks, your surveillance cameras, your brain, your house, your gun, your pocket fan, your headphones, your individually-packed pizza, your virtual-reality headset...

These reassuring objects affirm your singularity. Insidiously, they isolate you from shared reality.

Do you keep them?

Do you put them in the trash?

Somewhere on the city walls, someone screams: "Love me!"

Big Data will guide you.



De: **Brain Anderson** ba4184479@gmail.com  
Objet: HI  
Date: 24 octobre 2019 à 17:17  
À: undisclosed-recipients;;  
CCi: michelmonteaux@gmail.com

BA

Greetings,

Kindly confirm that you receive this mail by responding promptly to me so that we can communicate further.

Regard,  
Brain



De: **Miss. Sirah Abdelqader** miss.sirah22@outlook.com   
Objet: From Miss. Sirah Abdelqader  
Date: 29 décembre 2019 à 01:48  
À:

MA

Good day

My name is Miss. Sirah Abdelqader. I am 22years old, I'm the only child of the former Central Bank Governor of Sudan, Hazem Abdelqader, whom am sure was poisoned to death by his colleagues on their visit to Turkey in 2018 but the government of Omar al-Bashir gave a report that my father died of a heart attack, they killed him in order to appoint a new governor but I left everything to GOD to judge.

My mother died 2 months ago of cancer. Because of the ongoing crisis here in Sudan, I decided to relocate to another city since my mother is dead and in the cause of moving our properties I discovered a bank document in my late father's briefcase indicating that my late father deposited huge sum of \$14,000,000. with a bank in Abidjan Ivory Coast which my name was on the next of kin according to the document which I have in my hand now as I am currently in Abidjan, Ivory Coast.

I am living as an orphan now and my life is in a big danger because the political enemies of my father is after my life and that is the more reasons I have to contact you so that you can help me claim the money and move to your country with the money for a better life and to continue with my education right there under your care as my guardian.

Thanks.

Miss. Sirah Abdelqader



De: **km** sakafune@mail.infomart.or.jp  
Objet: Hi,  
Date: 14 mai 2019 à 19:11  
À: undisclosed-recipients:;

Good Day

My name is mk I am a Sudanese refugee from Darfur. I am an orphan having lost both of my parents in the conflict in my country. Presently i am in the refugee camp (Bujumbura camp) here in Accra Ghana. I came here because when we were fleeing the destruction at home, my late mother gave me some document which she took away from our house when it was set ablaze by the government supported militia. One of the documents was her marriage certificate; the other was a certificate of deposit from a security company in Accra Ghana.

Please I need your urgent assistant in transferring this my late father funds and Gold Dust deposited with one of the Security Company here in Ghana, for my future Investment and continuation of my University level please I am pleading with you to assist me or you can also come over to Ghana and witness everything by yourself. Upon your responds I will furnish you with all the documents related to this transaction God Bless you as I wait for your urgent response.

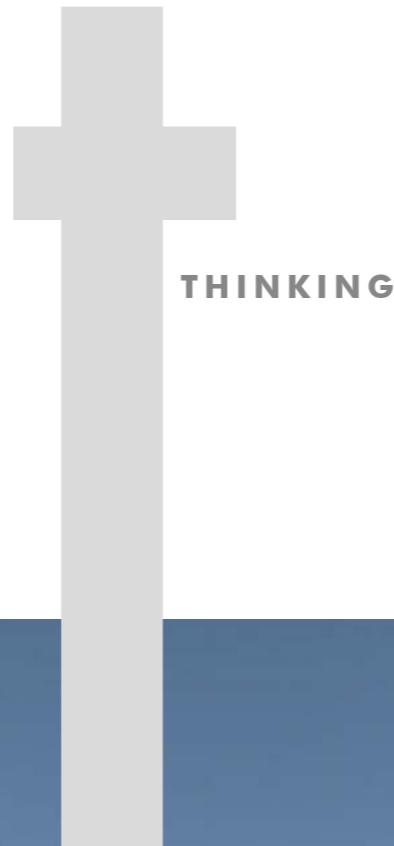
I will send you the particulars of the company when i hear from you also always reach me with this email address:  
nyanmmnyann533@gmail.com

Thank you please,

mk



Discover the full version of No Worries  
on [humanitiesartsandsociety.org/magazine/no-worries/](http://humanitiesartsandsociety.org/magazine/no-worries/)



# ON THE REALITY OF ANCIENT PLACES

## BIG DATA AND IMMERSION INTO ARCHAEOLOGICAL RECONSTRUCTIONS

Dragoș Gheorghiu  
and Livia Ștefan



Information shared and gained through Big Data has allowed for the digital and artistic recreation of ancient sites and places as immersive environments in the field of Virtual Archaeology.

All images are from the virtual archaeology and immersive platform Time Maps

## Big Data

Big Data defines a multi-disciplinary domain within the current informational society, which acts as a continuous data provider. As the term indicates, Big Data is concerned with high volumes of data, of the order of exabytes (one exabyte = one quintillion bytes). According to the Domo Report of 2018, "Over 2.5 quintillion bytes of data are created every single day.... By 2020, it's estimated that 1.7MB of data will be created every second for every person on Earth." However, Big Data is not only defined by the volume of data, but by its velocity and variety, as the most-cited Gartner definition from 2001 stipulates (Gantz & Reinsel, 2011).

Big Data has stimulated the development of the sciences and technologies required for data processing and valorization. The technologies behind Big Data, such as cloud computing and unstructured data bases (NoSQL), have emerged and evolved out of necessity to find solutions to manage large amounts of information: "Big Data is less about data that is big than it is about a capacity to search, aggregate, and cross-reference large data sets" (Boyd & Crawford, 2012).

Early research reports such as those produced by Gantz & Reinsel (2011) and Manika et al. (2011) have examined the potential of Big Data in several domains—information retrieval, data governance, security, and privacy. Big Data is present in everyday life in almost every domain—social media, automotive, government, healthcare, banking, manufacturing, utilities, and entertainment (World Economic Forum Report, 2012).

Positive Big Data utilizations can be noted in medicine (identification of diseases in their early stages), urban services, education (Ştefan, 2017), research, as well as in improvements in operational efficiencies, economic growth, well-being, and security (Gang-Hoon Kim et al., 2014). However, there are voices that criticize the use of Big Data, even calling it a danger to

democracy because of the potential for abuse (Gang-Hoon Kim et al., 2014) or misuse (O'Neil, 2016).

The main purpose of the collection and use of Big Data is to value the data, to extract information that could not be captured through the application of traditional analytical methods. These insights help in the identification of patterns, unique or special traces, trends, and finally, leading to better decision-making. Ştefan (2017) states that Big Data enables "a progression in analytics that moves from hindsight to insight to foresight." That is why Big Data is closely connected to an unprecedented evolution of data science technologies, of which the most popular are data mining, machine learning, and Artificial Intelligence.

In the interface between the exact sciences and human sciences, specifically in the field of archaeology, Big Data has begun to be considered in the last two decades as both a technological challenge and an opportunity to facilitate the work of interpretation.<sup>1</sup>

Nevertheless, when applied to archaeology, Big Data has its limitations (Gatiglia, 2015): "Big Data approaches are effective on account of the fact that they inform, rather than explain, and that they expose patterns for archaeological interpretation, providing the opportunity to test new hypotheses at many levels of granularity. Data visualization can provide an important contribution to the comprehension of great amounts of data, and to make anomalies and correlations emerge."

## Virtual Archaeology

A large amount of data is used in past reconstructions, in the form of 3D reconstructions, augmented, mixed, or virtual reality (Bonde & Houston, 2012). In the last few decades, archaeology has developed a new subdiscipline, Virtual Archaeology (Reilly, 1991; Carter, 2017; López-Mencherio Bendicho et al., 2017), offering complex three-dimensional im-

ages which allow the viewer be immersed in virtual volumetric reconstructions by means of instruments, data gloves, and position trackers, which provide sensory information and measure the user's response. Virtual Archaeology (Reilly, 1991) deals with the reconstruction of artefacts, buildings, and landscapes of the past, still existing or not, but known to us thanks to archaeological, historical, or artistic sources, through three-dimensional models, hypertext, and multimedia solutions.

How does Big Data work in Virtual Archaeology? Databases include data collected from the archaeological record, spatial data, data on the natural environment, data on materials, data on architecture, nutrition, and various technologies. An additional, important source of data can come from archaeological experiments and re-enactments (body movements, gestures). In Virtual Archeology, Big Data can be used to model a past reality using a wealth of information and sources, and bring this model into the present, through modern techniques and technologies—3D reconstructions, virtual museums, virtual tours, gaming, augmented reality, and virtual reality.

Unlike in other areas, archaeological Big Data does not have velocity characteristics, but can become massive through its diversity of sources or atomicity. A 3D model is constructed from a very large dataset of points, and can be further corrected or enriched by applying other data (photographs), or advanced graphical algorithms. The use of Big Data in archaeology presents similarities with other domains (collection, analysis, valorization), but also constitutes a different paradigm in the sense that human contributions (such as imagination and intuition) are allowed to play a major role in understanding the past.

## Immersion

Specific to contact with an artificial reality, whether the result of reading a text or contemplating a work of art, is the creation of a state of consciousness, called imme-

sion, that introduces the receiver to a state of "being there." Immersion (Reid et al., 2005) is the quality of a work of art—be it a text, art installation, architectural object, or video game—that allows the receiver to mentally transpose him or herself into an artificial environment.

Big Data, by allowing the creation of augmented immersive environments (Gheorghiu & Ştefan, 2015) that are clear examples of digital art, can act on the human psyche, producing a detachment from the real and a sense of being present in a different reality, similar to an artistic experience. This immersive detachment is the key to a new, 21st century archaeology, which will make environments as immersive as possible—not only as hyper-realistic representations, but as sensorial experiences—in which the individual can navigate in time and space, and can have psychic and sensory experiences with the help of data gloves or other emergent technologies. Thus, archaeological research also becomes artistic research (Gheorghiu & Barth, 2019), due to the combined creation of groups of experts in archaeology, anthropology, graphic design, and IT.

1. [Exploring the opportunities of Big Data in archaeology](#), University of Leiden, 12 May 2017.



### **The Time Maps Project—Big Data and the Singularity of the Place**

The [Time Maps project](#) is characterized by this type of syncretic approach. It reconstructs the past of certain sites, using information from numerous sources, both from Romania and from other European countries (Portugal, Italy, Sardinia, Greece, Great Britain) and different media environments, from 2D and 3D collections to real and virtual reconstructions.

The project proves how broad is the area of information that can be used when employing both objective, scientific, and subjective, artistic elements to describe a place. For each chosen location, the most representative environments were reconstructed on different chronological layers, including architectural structures, objects, the technology of these objects, and

re-enactments developed with the use of these objects, made with real, 3D-scanned, human characters. The augmentations of the virtual reality were achieved by visually augmenting the texture of the environments or by lighting studies (Gheorghiu, 2018). The types of augmentation were realized through the use of art (Gheorghiu, 2012), in the form of visual metaphors, which amplified the significance of a place.

To conclude, the role of this paper is to demonstrate that Big Data and the singularities paradox can, with the help of near-future archaeology, become a method that transforms the complex data of the individuality of a place into a miraculous human experience of the transcendence of time.





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# A MUSICAL JOURNEY WITHOUT BORDERS

**Graham Daniels**

**Addictive TV**

PERFORMING

# 10

*Orchestra of Samples - Toñín  
Corujo (Lanzarote)*



**Orchestra Of Samples is a borderless musical voyage inspired by notions of our collective human commonality and the universality of music. Bringing together more than 200 musicians from around the world, Addictive TV (Graham Daniels and Françoise Lamy) has constructed a database of samples, instrument preservation and discovery, and created a virtual supergroup.**

As French filmmaker Jean-Luc Godard once said: "It's not where you take things from, it's where you take them to." I've followed that ethos throughout my career, particularly since much of my work involves audio-visual sampling—the art of taking snippets of music, film, and TV and assembling them into new and different hybrid forms. It's something I've been doing for over two decades, from live performances to museum installations.

This passion for mix-and-match culture led to the creation of Orchestra Of Samples, a ten-year project that samples and combines recordings of musicians from around the world in unique audio-visual performances. For me, the project is a creative way of ignoring barriers and bringing people together in a dialogue between different musical cultures. Each show is the product of thousands of hours of recordings. We've travelled the world, filming and recording all kinds of musicians playing all manner of instruments, from a gaita flautist in Colombia to dombyra players in Kazakhstan. We've met and worked with hundreds of talented performers in over thirty countries—a process that has been massively enriching.

Orchestra of Samples - Florin Iordan (Romania)



## How did such a massive, globe-spanning endeavor come about?

The project's origins lie in the rise of audio-visual sampling, a cultural trend I've been involved in for over twenty years. Before creating *Orchestra Of Samples*, I spent more than a decade playing at international festivals and clubs with Addictive TV, performing dance-music-based audio-visual remix sets, sampling movies, music videos, and TV.

Our many travels, and the performers we met along the way, inspired the idea of using this life on the road to collaborate with as many musicians as we could. So, from 2010, we started taking a video camera and microphones with us everywhere we went, meeting up with and recording local musicians. One rule was that we wouldn't sample performances of their own work or famous songs, but always just improvisation—with a little direction and guidance. From across Europe and parts of South America to East Asia and West Africa, we travelled, recording in remote desert locations, hotel rooms, rooftops, parks, back stages, castles, monasteries, and of course, the occasional recording studio.

Notable places we've been fortunate enough to visit and conduct recording sessions in include Cairo during the 2011 Egyptian revolution—the British Council supported us in performing at an event there during a time when many artists weren't travelling there. In Germany, we recorded a laudable rapper who runs the Who Am I Creative Academy, combining

social work with a rap school, encouraging locals and migrants—particularly from Syria—to collaborate and produce hip-hop. Ndem village in Senegal, a couple of hundred miles East of the capital Dakar, was a place where, to stem an exodus to the cities, the village leaders encouraged locals to develop their craft skills, then launched an eco-friendly company to sell the items they make. This year, in a similar aspiration of communal life and sustainability, we recorded in Auroville, the unique experimental township in India. Founded in the late 1960s and dedicated to the idea of human unity, it attracts artists, scientists, and creative thinkers from around the world.

In the early days of our project, as we built up the archive of samples, we knew that melding so many different musicians, instruments, and styles into a cohesive vision would be a huge, piecemeal undertaking. We weren't even sure it would work when we began, but slowly and surely, gig after gig, tour after tour, one pop-up recording session after another, we built a substantial audio-visual archive—the kind of major undertaking usually left to museums!

We began grouping recordings by country and tagging them by instrument, sometimes with a musical description and often with rough notations of tempos and keys, making them easily searchable. The amount of data grew exponentially, and soon we were storing terabytes of material. But this wasn't a digital archive of anonymous recordings—there was a personal connection to every musician involved. Each sample has a story behind it, and this human element was, and remains, the lifeblood of the project.

After listening to hundreds of hours of recordings, we began combining samples,

juxtaposing instruments that would never normally be heard together. The improvisational nature of each recording means that there is no common key, and the musicians don't hear each other. So it's a real challenge, but an inspiring one, to compose tracks from such varying musical and tonal extremes, creating melodies and riffs from samples that are not commonplace or easy "bedfellows." Our creative process is simply to just see which samples work together.

At every step of the process, from researching musicians to composing, we keep curious and open minds, experimenting with different and unexpected combinations of instruments and sounds to create something new. This open-minded approach is a crucial part of our creative process. We try not to be constrained by conventional boundaries, and the more our archive grows, the more chances there are of creating improbable but satisfying musical matches. It's a very unconventional approach, but also a playful way of working. I often describe our methodology as being like assembling a massive jigsaw puzzle with no picture to refer to—you must use trial and error to work out which pieces fit together. Slowly, piece by piece, it will start to make sense.

Making music in this way is far more than just an interesting technical exercise. In splicing these samples, we make connections between people in different parts of the planet that have never met, yet who are now recontextualized to play together. Christophe Rosenberg from the Cité de la Musique in Paris described our method perfectly in an interview with a local Parisian newspaper when he said, "l'artiste au cœur du projet"—the musician is at the heart of the project.

**Each sample has a story behind it, and this human element was, and remains, the lifeblood of the project.**

We're extremely grateful to all of the artists who have given us carte blanche to use the recordings. Musicians are used to having a degree of control over their work, but that is something they forego with *Orchestra Of Samples*. Hundreds of musicians have trusted us to let the samples lead us to where the samples want to go—patterns emerge organically, and we never force the music to adhere to pre-existing ideas or structures. Being involved in a project so outside the musical norms is a leap of faith for everyone involved. Lætitia Sadier from the group Stereolab, who sang on the project's track "Beachcomber," summed this up perfectly in an interview with the British arts magazine *Rooms*, saying, "It's quite daring; to build tracks in this fashion, one must have an incredible amount of trust in them and relinquish the desire for absolute control. I was really seduced by the way they work, in collecting bits here and there throughout the world and finding their matches."

For the many traditional musicians *Orchestra Of Samples* records, a key motivation for taking part is to expose the lesser-known instruments they play to wider audiences, to some degree helping to preserve their cultural existence. For instance, in the Vosges Mountains of France, we recorded Christophe Toussaint, who makes and plays the epinette, a rare 16th century stringed instrument he carves from the wood of mountain trees.



In the UK, we were also lucky enough to work with the profoundly deaf percussionist Dame Evelyn Glennie, who has amassed a museum-like collection of over 2,000 traditional and unconventional percussion instruments from around the world, and has personally mastered more than 1,000 of them. Recording and performing the show with her was an absolute honor.

In Mexico, we recorded Humberto Alvarez, an ethnomusicologist and specialist in ancient instruments, who played a kind of stone xylophone by laying out naturally tuned rock fragments he had assembled over many years. He believes this is one of the first tangible instruments human beings ever played.

Meeting such highly talented and idiosyncratic musicians, and discovering the fascinating instruments that they play, has made this project one long “live-in-the-field” ethnomusicological study. As part of our drive to spread the word about these traditional musical forms, every session is documented on our extensive project blog with photos and introductions to the musicians and their instruments, and often the style of music they play. It has become an encyclopedic index to the project, mapping and sharing our discoveries of instruments and artists around the world. But despite the breadth and depth of our archive, we know we’ve still only scratched the surface of the musical forms and instruments that are out there.

As well as researching traditional and rare instruments, we’ve also recorded many experimental and homemade instruments created by artists striving to produce new types of music and sound. These have ranged from British musical inventor Henry Dagg, creator of the enormous Sharpsichord Björk used in her *Biophilia* tour, to the amazingly talented Brazilian eco-group Patubatê, who we recorded in Brasília. They play traditional Brazilian rhythms with percussion instruments made of junk and recycled scrap—everything from car exhaust pipes to saucepans.

A legendary musical instrument maker I was privileged to meet in 2013 was the late Bernard Baschet, who in the 1950s, with his brother Francois, invented a range of instruments called Baschet Sound Sculptures, which we recorded in their studio with Francesco Russo, who manages their instruments. The best known of these is the Cristal Baschet, which has been used by artists including Daft Punk, Jean-Michel Jarre, and Damon Albarn, and is played with a technique similar to running a damp finger round the top of a wine glass. We also worked with Nicolas Bras, another French musician, inventor of many crazy and beautiful instruments and the curator of the hugely popular Facebook group *Rare & Strange Instruments*; he performed on the show with us during a tour of the project. And our long-time collaborator Alejandro de Valera, who has been involved with *Orchestra Of Samples* as both performer and writer from the very start, also happens to live in France. He’s a virtuoso on the fretless guitar and, that being such a specialized instrument, he builds his own. He recently made a small portable fretless guitar we could fly with in our hand luggage for a performance in Morocco!

The culmination of all our research, archiving, and recording has always been live performance, and we try to perform with the artists we’ve recorded when we return to the city or country where their sessions took place. Taking part in an *Orchestra Of Samples* performance is a very different experience for the musicians, who get to interact with other sampled artists on screen. For audiences, meanwhile, the live performance element makes for a more rounded and complete mixed-media experience.

One that sticks in my mind was our performance at the UK’s WOMAD festival. Afterwards, we received many social media messages saying the show had been a musical education. Some were even from parents whose children had loved seeing, as well as hearing, all the different instruments on the big screen.

Touring the show has taken us from outdoor festivals such as Glastonbury in the UK and Pirineos Sur in Spain, to some wonderful and prestigious art venues, including the Erarta Museum of Contemporary Arts in St. Petersburg and the Centro Nacional de las Artes in Mexico City. When possible, we love to share stories with our international audiences, giving talks on how we created the project.

As we’ve had a few French partners supporting the project, we’ve naturally performed in Paris many times, at art centres including Le Cube and Canal 93, as well as institutes such as the Centre Pompidou, La Seine Musicale, and the Musée du Quai Branly. The latter contains an amazing collection of instruments and artefacts from indigenous cultures of Africa, Asia, and the Americas, and being asked to perform there was a real endorsement of what we want to achieve—to create music that both builds on and celebrates cultural diversity.

I believe *Orchestra Of Samples* works so well because music is a universal language. The world’s many different musical cultures share the same fundamental human roots—no matter who you are or where you come from, it’s all about sounds and the emotions they evoke.

*Orchestra Of Samples* has grown into a multi-faceted “supergroup” that is both local and global. As it has evolved, the project has built bridges between the traditional and the contemporary, uniting people from different generations and cultures. The journey has been a truly enlightening experience, a way of rethinking how people from different backgrounds can work together, and the ways in which music can be created.

In a world where blinkered nationalism is on the rise, we believe it is crucial to break down barriers, encourage a dialogue between different musical cultures, and stimulate our curiosity and desire to understand each other better. The philosophy behind the project is perhaps best summed up by one of the track titles from the album *Orchestra Of Samples*—it’s simply called “Unity Through Music.”



Orchestra of Samples -  
Graham filming monks in  
Bhutan, Himalayas



Orchestra of Samples -  
Ahmed Bijidguen (Morocco)



Orchestra of Samples -  
Addictive TV recording  
Kounta Dieye – Kora player  
in Ndem, Senegal



TRANSFORMING

24



Margalit Berriet,  
Valcamonica  
archaeological site, Italy,  
2014

# BIG DATA AND ARCHAEO- LOGY

**François Djindjian**

**The advent of Big Data has affected all domains of research. François Djindjian traces the use of digital technology in archaeology.**



THINKING

In this short paper dedicated to Big Data in archaeology, I will emphasize the concept of Big Data through the technological evolution of computing and the recent history of computational archaeology.

Since the development of the Internet, the volume of stored data has been growing rapidly—digital data created worldwide have increased from 1.2 zettabytes per year in 2010 to 2.8 zettabytes in 2012, and will amount to 40 zettabytes in 2020. The most data is produced by technical/scientific facilities. The Square Kilometre Array radio telescope, for example, produces 50 terabytes of analyzed data per day, extracted from raw data produced at a rate of 7000 terabytes per second.

The volume of data produced by archaeologists is obviously not of the same order of magnitude. After more than a decade of annual campaigns, an archaeological excavation site will produce data of several hundred megabytes, compatible with the storage capacity of desktop computers. These volumes are mainly due to the digitization of drawings and photographic documents. However, applications producing large volumes of data, such as 3D, Lidar, or laboratory analyses, are increasingly being used in archaeology. Also, and independently, the question arises of data archiving in an institutional context, where archaeological data remains under the direct responsibility of the archaeologist, in his or her individual computer environment, and whose security of archiving is therefore neither safe nor sustainable.

### **History of the Concept of Big Data and Archaeology**

At its origins, archaeology was a science of the object, and archaeologists often referred to themselves as antiquarians or collectors. Beginning in the 1960s, archaeology gradually became a science of the information of past societies—*intrinsic* information that describes the artefacts of material culture and *extrinsic* information that records the archaeolog-

ical context of these artefacts and their relationships. This information was disseminated through written media—books, corpus, papers in academic scientific reviews searchable in institutional and private libraries. Archaeologists archived their working documents—excavation books, stratigraphic and planographic drawings, object drawings, plans, photographs, inventories, measurements, notes, draft papers, and offprints, as well as letter exchanges between archaeologists. All of these documents were subject to institutional or private archiving at best.

The development of computer science gradually transformed paper media into electronic media—bibliographic systems, data retrieval systems (“data banks”), inventory files, and measure files. Typewriters, which appeared in the second half of the 19th century, disappeared in the late 1980s, replaced by the microcomputers and word processing software. The post mail has become an e-mail, but in most cases the message is no longer archived. Historiography thus loses private exchanges between researchers, which are often more instructive than official exchanges. Offprints from published articles, or their photocopies, are replaced by PDF files. They are exchanged or are accessible for free on open-access sites, or are for sale on private publishers’ websites.

Drawing, which was a manual activity (CNRS – French National Centre for Scientific Research – laboratories employing ITA draftsmen), became computer-assisted drawing (DAO) with the famous Adobe suite—vector drawing (Illustrator), composition (Pagemaker/Indesign), creation and image retouching (Photoshop), or its competitors. Then, from the 1990s, digitization accelerated, which generated many new data for archaeology:

- Physical and chemical measurements
- Geophysical surveys (terrestrial and maritime)
- Lidar data
- Mapping
- Geographic Information System (GIS)

- Digital photography
- Digitization of silver photographs
- Digital film
- Digital stratigraphic and planographic drawings
- 3D with virtual reality and digital photogrammetry

From then on, the issue of Big Data was a matter for everyone in archaeology.

### **Big Data – A Long History Linked to the Progress of Computing**

The concept of “Big Data” is relative. It is related to the problems of archiving and processing large volumes of data relative to the availability of hardware (data storage) and software tools to search for them (documentary systems, indexing, search engines), consult them, extract a part, visualize them (graphic systems, GIS, 3D), and process them (graphic visualization, multidimensional data analysis, modeling, etc.).

The modern scientific world likes to periodically resurrect the unsuccessful issues faced by the technological difficulties of the moment by giving new names to the same concepts. Artificial Intelligence—the great myth of modern times—is a good example. Born from pre-war cybernetics, it was created in the 1950s (Rosenblatt perceptron) with the first computers, and it has reappeared periodically under different names: AI, machine learning, expert system, neural network, rule engine, and—the latest—deep learning. Its most successful applications are found in robotics, machine translation, shape recognition, diagnostic assistance, decision support, Big Data processing (where it replaces the data mining of the 1990s), and—the most well-known—games (where the machine beats the human: chess, Go).

Big Data also has a long history. It is related to changes in the size of computer memory and the volume of mass memory storage (discs and magnetic tapes). In the 1960s and 1970s, ferrite memories were limited to tens or hundreds of kilo-

bytes. RAMs now have several dozen gigabytes, or a million times more. Mass storage has followed the same technological evolution since the 2 megabytes of IBM’s first hard drive in 1962, the 300 megabytes of the 1980s, the 25 gigabytes of 1998, the several terabytes of the present day, or a million times more!

Magnetic tapes, organized into storage bays that can hold about ten or twenty tapes, can reach a total capacity of several dozen terabytes. Tape libraries are therefore the easiest way to back up and archive large amounts of data, such as web-based computer farms or the institutional storage of research organizations. Alas, the lifespan of magnetic tape is only about twenty years!

In the 1970s, databanks and large tables were the “Big Data” of that period. In France, this was the great institutional period of the documentary systems implemented by the Ministry Of Culture (museum inventories, General Inventory Of Monuments and Artistic Richness Of France, Archaeological Map), using Bull’s Mistral software. But the data from this period are text, the images being stored on microfiche and searchable on a reader installed next to the terminal. It was only in the 1980s that technological advances in memory, storage units (magnetic discs, videodiscs, and digital optical discs), and networks, saw the arrival of the first data/image/voice server prototypes that became operational in the mid-1990s with the development of the internet. It should be noted, however, that the Videotex system, the precursor of the internet, was operational in France from 1980 until 2012.

Large tables, which are the basic data of archaeologists for most of the problems they deal with (Djindjian 1991, 2011), were the subject of graphic manipulations in the 1960s before being treated by multidimensional data analysis in the mid-1970s, despite the limitations of computers in computing power and central memory. From the 1990s onwards, these

limitations disappeared, and these treatments began to be carried out on microcomputers. The 1980s and 1990s, which were the years of the development of microcomputers, networks, and office software, saw the archaeologist individually appropriating these tools, and the institution was then set back on institutional research projects.

The 1990s saw the arrival of a new vocabulary, if not a new approach. Data mining, which applied multidimensional statistical techniques to large bodies of data such as those obtained by Internet data or questionnaires, had the target of identifying types of consumer behaviour (segmentation, scoring). Learning techniques were also emerging, but archaeologists are not concerned by the primarily marketing interests of data mining.

The 2000s saw the emergence of the vocabulary of Big Data, linked to the massive ("Orwellian") production of data that the technological progress of computing and telecommunication now allowed us to store, communicate through networks, visualize, and process. Institutional research organizations are beginning to be disturbed by the dispersion of data recorded by individual researchers (though institutionally funded) which get lost when the microcomputer breaks down or when the researcher retires, especially in the field of humanities and social sciences, where the individual researcher takes precedence over laboratory team work.

In France, the CNRS is launching the CNRS TGIR Huma-Num project ([www.huma-num.fr](http://www.huma-num.fr)) for the archiving of digital data from the Humanities. It is a computer platform for data acquisition, storage, dissemination, processing and archiving. Several archaeology laboratories have joined forces with the MASA consortium (Memory Of Archaeologists and Archaeological Sites) to use the services of the TGIR Huma-Num. It aims to offer unified access to a variety of data and documentation produced by archaeologists. It develops methods and

tools for the archaeological community, respecting international standards (<https://masa.hypotheses.org/>). In Europe, the Ariadne project has launched cooperation between archaeologists on unifying projects, particularly thesauri, and service platforms, including the subject of archiving (<https://ariadne-infrastructure.eu/>).

### What are archeological Big Data?

Archaeological Big Data consists of a non-limiting set of files of varying sizes, formats, and structures:

- Databases: results of recording archaeological excavation data (extrinsic information) and description of artefacts (intrinsic information). This data is stored in a variety of software, from word processing software and spreadsheets to database management systems.
- Ancient texts in their original writing and translation (philology).
- Databanks created with documentary system software.
- Digitized documents: digital photos, digitized slides, digitized stratigraphic and planographic drawings, digitized video films, 3D.
- Vector graphic documents such as those created by desktop publishing (DTP) software or geographic information system (GIS) software.
- Quantitative data tables.
- Measurement files such as those produced by physical-chemical devices: geophysical prospection, Lidar, varied spectrometry, dating, etc.

### The Functions of Big Data Service

The functions of a Big Data service are not limited to archiving. They cover the entire workflow—acquisition (Submission Information Package), storage, signaling (i.e., indexing and the definition and management of metadata that describes the data), dissemination (which allows internet consultation), archiving (in a standardized format), selection (which allows data to be extracted and formatted for processing), and processing. The processing function is rich and varied, and

includes all the tools and software used for more than fifty years—lexicographic analysis, statistics, multidimensional data analysis, geographic information system, processing imaging, modeling, 3D and, more recently, the return of Artificial Intelligence using machine-learning techniques (deep learning), and so on.

### Best Practices

Beyond the pleasure of getting drunk on buzzwords, the archaeologist must invest himself or herself in the field of projects, which effectively mix technical innovations and pragmatism. Good practices are the best guarantor of a successful project.

Metadata, which are the data that describe the data, brings together two datasets—individual metadata related to the data produced by the archaeologist, and the common, institutional, global, and specialized metadata, which are more and more standardized. This institutional metadata is derived in archaeology from the documentary projects of the 1970s—Ministry Of Culture, CNRS, Scientific and Technical Information (INIST), which invested in the realization of the first major thesaurus, which are current metadata databases. In archaeology, the reference thesaurus is Pactols, originally developed for the Frantiq documentary system, which has 30,000 references (compliant with ISO 25964 of multilingual thesauri). The different thesauri of the Ministry Of Culture (General Inventory, Museum Database) have been grouped on the Ginco platform. Standards that have homogenized industrial production for more than fifty years are also gradually affecting archaeology, either indirectly, through generic software, or directly, but still rarely by standards dedicated to archaeology.

Archiving (OAIS, The Open Archival Information System) has its own standard, ISO 14721:2012. In this standard, an "information package" contains information to be archived, retained, or communicated to users. The information package always contains the object you want to

archive, and the metadata needed to preserve it.

Three types of data are defined:

- The information package to be archived (SIP): It is produced by the archive depositary, according to the model imposed by the deposit manager;
- The archived Information Package (AIP): Content Data Objects and metadata. It is produced by and for the deposit manager;
- The disseminated information package (DIP), depending on the rights of the user making the request and the dissemination rights.

The CIDOC-CRM standard (ISO 21127:2014) is a cultural heritage standard and as such is concerned with the theme of Big Data and archiving.

### The Basic Data

The information package to be archived must contain the information at the most basic level known. The archiving system must have the selection, filtering, and aggregation functions useful for building data at any higher aggregation level. Otherwise, the information at the most basic level is definitively lost.

### The Raw Data

The information package to be archived must contain raw data, with the best possible definition, without format or processing to reduce the volume or change the data.

### Processing

It is illusory to think that an accumulation of data can be able, as powerful as they are, to provide knowledge or decisions under the action of a few algorithms, however powerful they may be. Data exploration (the name given to the various methods referred to in the 1970s as multidimensional data analysis) can only be effective in the context of a formal construction that can allow both to highlight a structure in the data and to be able to validate it. It is undoubtedly this overcon-



Also, the question arises of data archiving in an institutional context, where archaeological data remains under the direct responsibility of the archaeologist.

fidence (or laziness) that is the origin of disappointment in the use of these techniques, starting from the 2000s, augmented by the fashion of post-modernism.

Integrating data exploration techniques into a global cognitive process requires a multi-level approach, such as the one we proposed under the title "systemic triplet" (Djindjian, 2002): A systemic triplet  $S(O, I, E)$  is defined by the Objects  $O$ , the Intrinsic Information  $I$ , and the Extrinsic Information  $E$ .

– Step 1: Definition of the systemic triplet  $S(O, I, E)$ . The  $S$  system is defined by a set of constant values of  $E$ , such as objects of the same stratigraphic unit (closed set), the same burial, the paintings of the same cave, the tools of the same dwelling structure, the contemporary urban structures of the same territory, etc., all of which can be defined by a set of constant values of extrinsic information type  $T$  (time),  $H$  (dwelling structure),  $R$  (territory),  $L$  (location),  $M$  (origin),  $EV$  (Environment),  $EC$  (economy), etc.

– Step 2: Perception and description of intrinsic information  $I$

– Step 3: Recording of extrinsic information  $E$

– Step 4: Formalization

- Structuring the system formalized by a Table Objects  $\times$  Description of Objects  $(O \times I)$ , which provides partition structures (classification) or serial structures (seriation), giving a new order on  $O$ , that is  $O+$ , and correlations on  $I$ , that is  $I+$ . The system then moves from the cognitive state  $S(O, I)$  to the  $S$ . Such structuring is called intrinsic structuring.

- Structuring the system formalized by the occurrence table  $(I \times E)$ , which provides structures of correspondences between the two sets of information, structuring in chronological facies for  $E \times T$ , spatial structuring for  $E \times H$  or  $E \times L$ , determinism for  $E \times EV$ , etc. The system then moves from a cognitive state  $S(O, I, E)$  to a cognitive state of  $S+(O+, I+, E+)$ . Such structuring is called extrinsic structuring.

– Step 5: Application of multidimensional

data analysis techniques on tables  $(O \times I)$  or  $(I \times E)$

– Step 6: Feedbacks by iteration return on  $I$  and  $E$  (a learning mechanism)

– Step 7: Progressive enrichments by integration of new  $I$  and  $E$

– Step 8: Validation (on another  $O$  system, by another  $E$  correlation, etc.)

These processes, in order to be truly cognitive, must explicitly integrate learning mechanisms, which data analysis achieves through the option of additional elements and by iteration on the intrinsic information enabling archaeologist-object interaction, a real mechanism of learning.

More generally, the "systemic triplet" method is following the logic of C.S. Peirce, which has found important applications, particularly in the field of automatisms (process control, robotics), cognitive psychology, and also in archaeology:

- A: Acquisition of intrinsic information (cognitive interaction archaeologist-object) and extrinsic information (recording during survey and excavation operations),
- S: Structuring by learning, obtained by correlation mechanisms between intrinsic information (intrinsic structuring) or by mechanisms of correlation between intrinsic information and extrinsic information (extrinsic structuring),
- R: Reconstitution (Cognitive Modeling).

The challenge of Artificial Intelligence, through the various algorithms it has developed since the 1950s, can actually be summed up in the following paradox: Using the ever-increasing computing power of computers with iterative simple algorithms or implementing a sophisticated formal construction. The analogy with chess illustrates this paradox—either calculate all possible combinations or devise a game strategy that reduces the calculation of combinations. The first option, the success of which is due only to the improvement of the computer's computing capabilities, is only one step in preparing the second option, hence the success of the term and probably—eventually—the

results of the concept of deep learning, which must exceed being the buzzword.

## Conclusions

Beyond the term "Big Data," there is in fact the relationship between the research scientist and the fantastic evolution of computer technology in the second half of the 20th century. The more additional means this technology offers (computing capacity, storage volume and communication channels), the more needs appear (often more with the help of industrial marketing than with an expressed expectation of researchers). Archaeology has followed this trend with, certainly, incomparably lower needs, but the development of certain methods (such as 3D), the particular sociology of the archaeologist implies that the institution mobilizes to offer environments, standards, and services for archaeological Big Data.

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# WHITE MOUNTAIN

Emma Charles

27



Emma Charles, *White Mountain*, 2016

TRANSFORMING

ANTICIPATING

a

**Although data is often considered immaterial, it requires servers to store it. Exploring the architecture of a data centre, *White Mountain* is a reflection on digital and geological time that makes visible the infrastructure that allows data to exist.**

*White Mountain* is a 16mm docu-fiction film focusing on the Pionen data centre.

Starting by surveying the rough topography of the surrounding Södermalm landscape, the film gradually pushes beneath the surface, illuminating the network infrastructure that is ordinarily concealed.

Pionen is a former Cold War-era civil defense bunker that was redesigned as a data centre by architect Albert Frances-Lanord in 2008. It houses servers for clients who once included WikiLeaks and Pirate Bay. Located 30 meters under the granite rocks of Vita Bergen Park in Stockholm, the subterranean data centre was designed with direct references to science fiction films such as *Silent Running*.

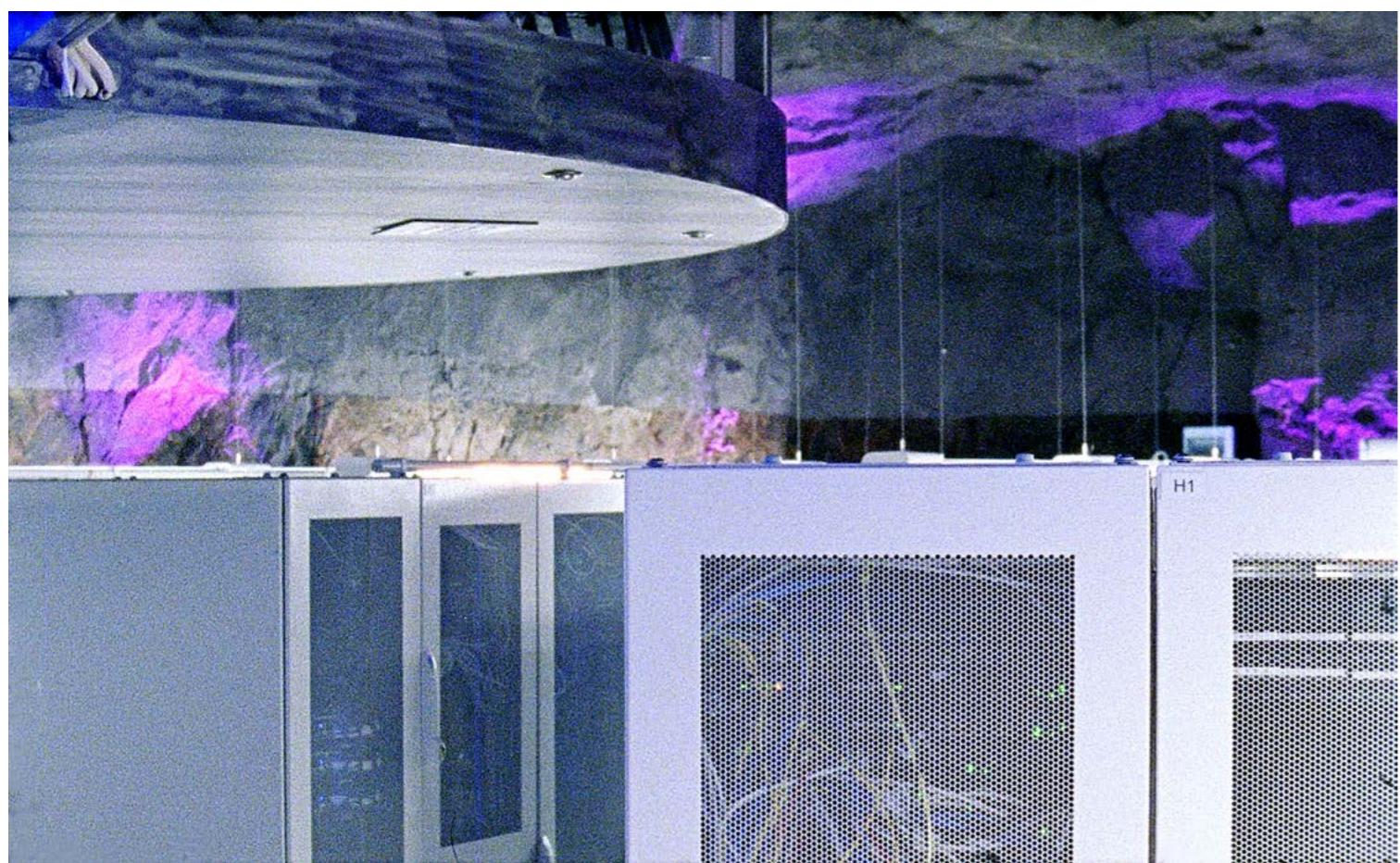
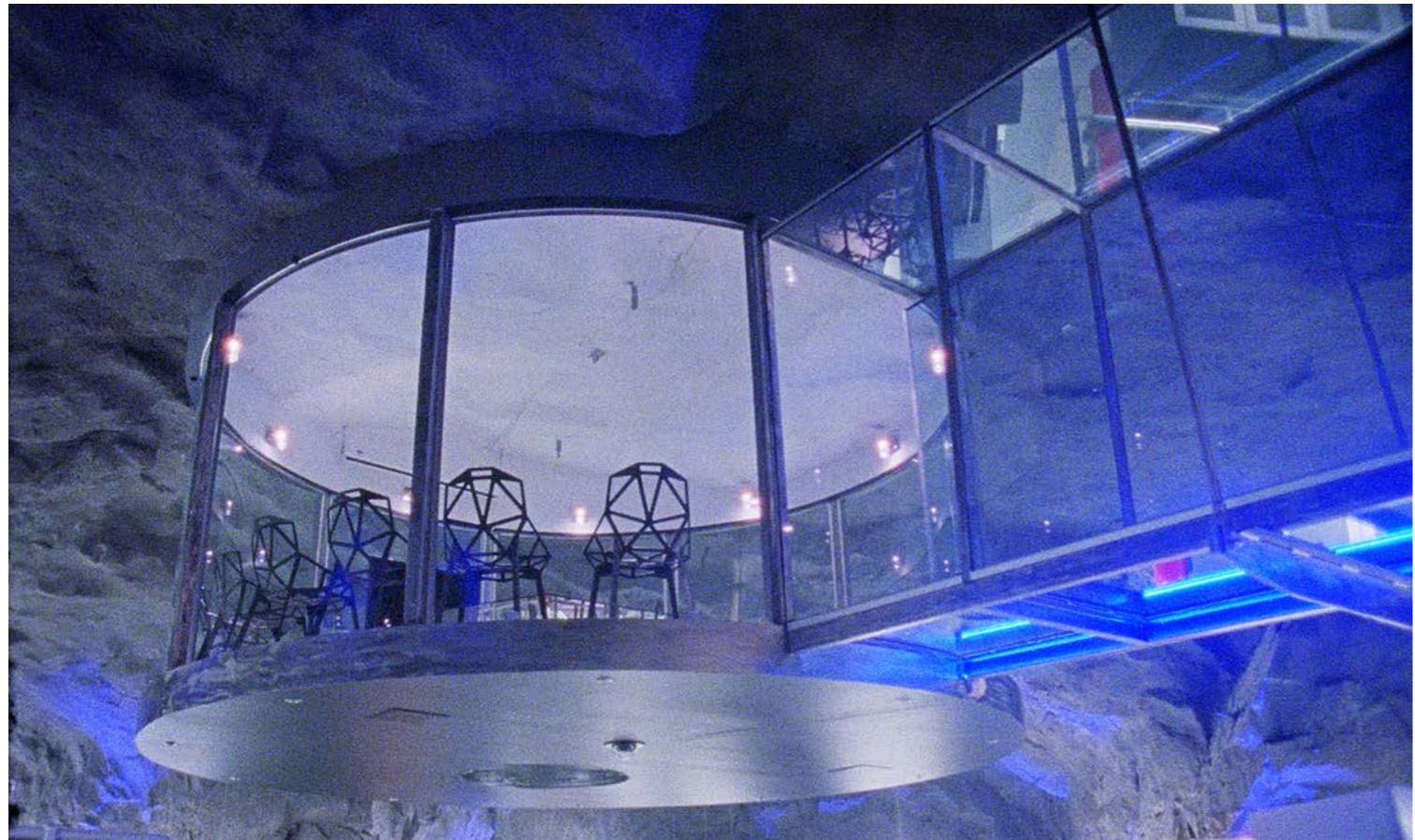
Part Bond villain lair, part retro-futuristic spaceship, fish and lush greenery coexist alongside the flashing lights of the data storage systems. Playing on the science fiction aesthetic and with a poetic narration written by Jussi Parikka, *White Mountain* uncovers the link between digital devices, geological materials, and deep or geologic time.

A multi-layering of temporalities reveals itself here. There is, of course, the presence of data, which travels at the speed of light through fiber optic cables. The use of celluloid makes apparent the very real and material nature of the Internet and the passage of time, but also nods to the cinematic history that inspired the architecture. And of course there is the geological time of the rock and strata in which the bunker is encased.

Gathering vibrational and electromagnetic sound from the rock face above the data centre as well as deep inside the server room itself, a soundscape has been created, both revealing and processing the reverberations of the hidden environment.



Emma Charles,  
*White Mountain*, 2016



Emma Charles,  
White Mountain, 2016



# FREE CONSUMER INSIGHTS DERIVED FROM IMAGE-BASED SOCIAL MEDIA DATA

Dorothy Yen

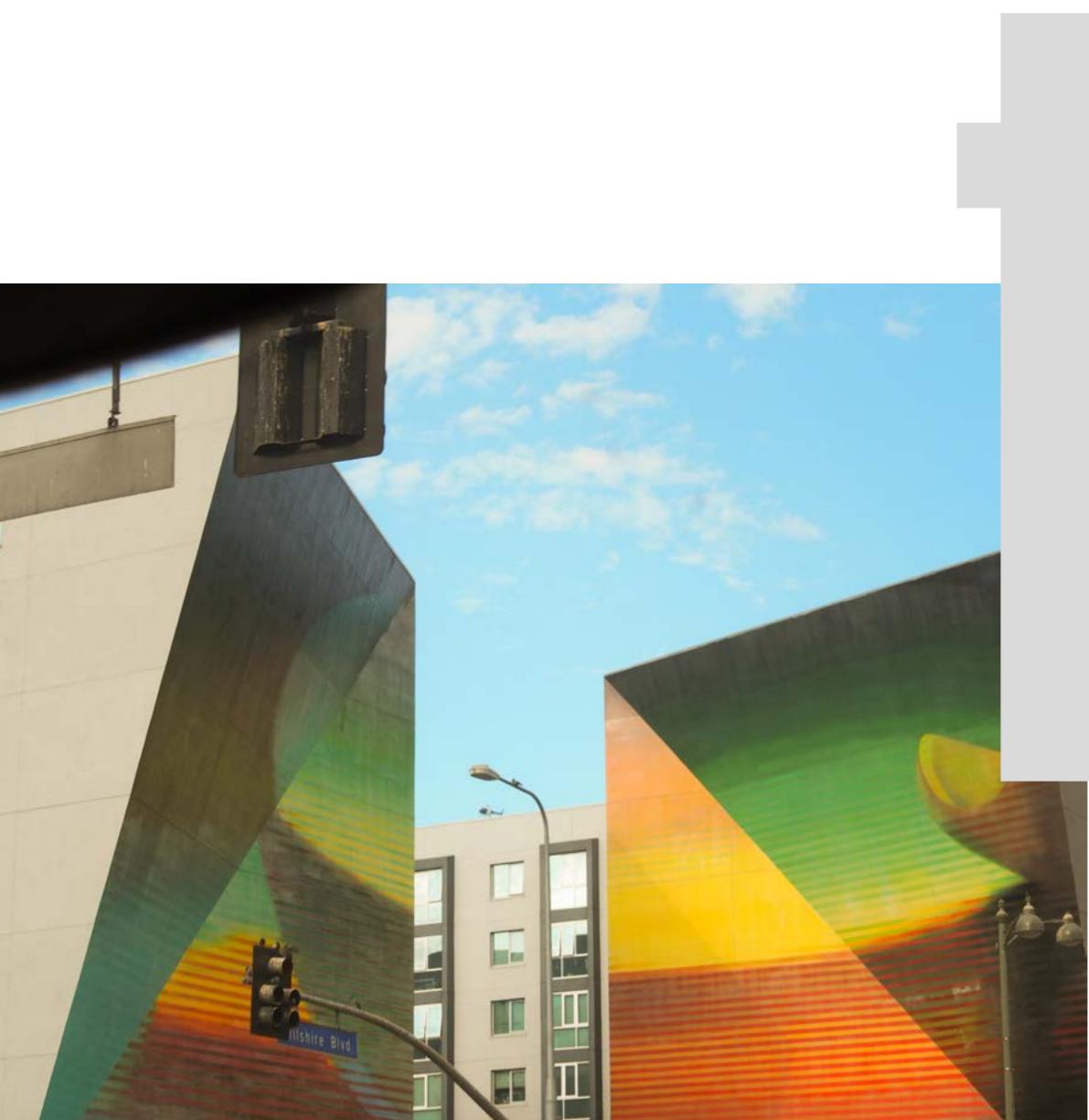
THINKING



**With the advent of social media, users have become active participants in the production of data. While these images are often shared freely, they are accessible and usable by third parties to be analyzed as data.**

Above: Photo retouched with cold colour filter  
 Left: Photo retouched with warm colour filter  
 Downtown Los Angles - USA

TRANSFORMING



The popularity of social media has exceeded expectations over the past two decades. Various social media platforms offer consumers different kinds of online space to express, interact, exchange, and engage with all sorts of ideas, activities, and transactions through posts, responses, and comments. As a result, all sorts of Big Data are being generated through texts, numbers, pictures, and videos exchanged online, offering companies many opportunities to observe consumers (Townsend and Wallace, 2016).

Such willingly-shared consumer insights on social media platforms are free to be assessed by companies, under the terms and conditions agreed to by their users. Views and opinions shared on social media are considered to be in the public domain; hence, analysis of such data does not require approval or consent. This has made it easy for companies to monitor, observe, and understand consumers' attitudes and reactions towards new products, social trends, and technological advancements, giving them leverage to develop accurate sales predictions, and to identify trends that consumers will follow and find appealing.

It is fair to say that the value provided by social media is very much appreciated by the academic and business communities. The accessibility of such data has been embraced and celebrated by researchers in different fields, leading to publications on various topics (Yen and Dey, 2019). Nevertheless, despite their collective efforts in making sense of consumer behaviour, social media researchers tend to ignore forms of social media content other than text.

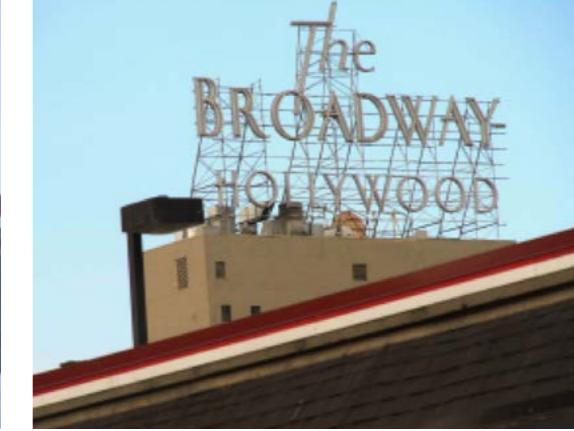
For example, Cappellini et al. (2019) analyzed the texts of discussions on Twitter using hashtags, and explained how hashtags are employed to denote the diverse groups and positions around a controversial socio-political issue. Other studies have examined the reviews and comments left on tourism-specific social media sites

such as TripAdvisor and Expedia, focusing on the linguistic characteristics, semantic features, and sentiments expressed, to appraise their usefulness and their impact upon hotel bookings, sales, revenues, and reputation management in the tourism sector (Xie et al., 2016; Xiang et al., 2017).

Texts are useful, but one estimate claims that 93% of all meaning is non-verbal, suggesting that only 7% of meaning comes from verbal content. Although these numbers have been challenged by later studies (Burgoon et al., 2016), other estimates put the number closer to 66%, with two-thirds of the meaning in human interactions being derived from non-verbal cues. Nevertheless, this still places substantial weight on the non-verbal side of the equation.

Clearly, words alone are not enough to help humans in expressing ideas, ideologies, and their aspirations to beauty or perfection. This brings our attention to less-studied and less-understood social media platforms such as Instagram, Snapchat, and Pinterest, wherein ideas are communicated mainly through pictures and videos.

It is more difficult to interpret pictures than texts because the same images can be used to communicate very different messages through slight changes of lighting and colour. The images show two versions of the same picture, one of which uses warm colours, while the other emphasizes colder hues. The visual content is the same, but the meanings derived from the two images are very different. Images are interpreted subjectively, which explains why the objects, features, locations, and settings seen in pictures cannot be analyzed separately, but must be interpreted holistically. The need for holistic interpretation has made it much harder for data engineers to develop software or Artificial Intelligence that can accurately interpret the meanings communicated in pictures.



Above, right: Photo retouched with cold colour filter.  
Top, left: Photo retouched with warm colour filter.  
Los Angeles, USA.

Centre, right: Photo retouched with cold colour filter.  
Centre, left: Photo retouched with warm colour filter.  
Joshua Tree, California, USA.

Below, right: Photo retouched with cold colour filter.  
Below, left: Photo retouched with warm colour filter.  
Longbeach, California, USA.



Despite the current difficulties in interpreting images, this does not mean that marketers should disregard visual social media platforms. On the contrary, image-based social media platforms are becoming more popular than text-based platforms, especially among younger audiences.



Left: original photo  
Right: photo with filter  
published on Instagram

By Bruno Berdaguer

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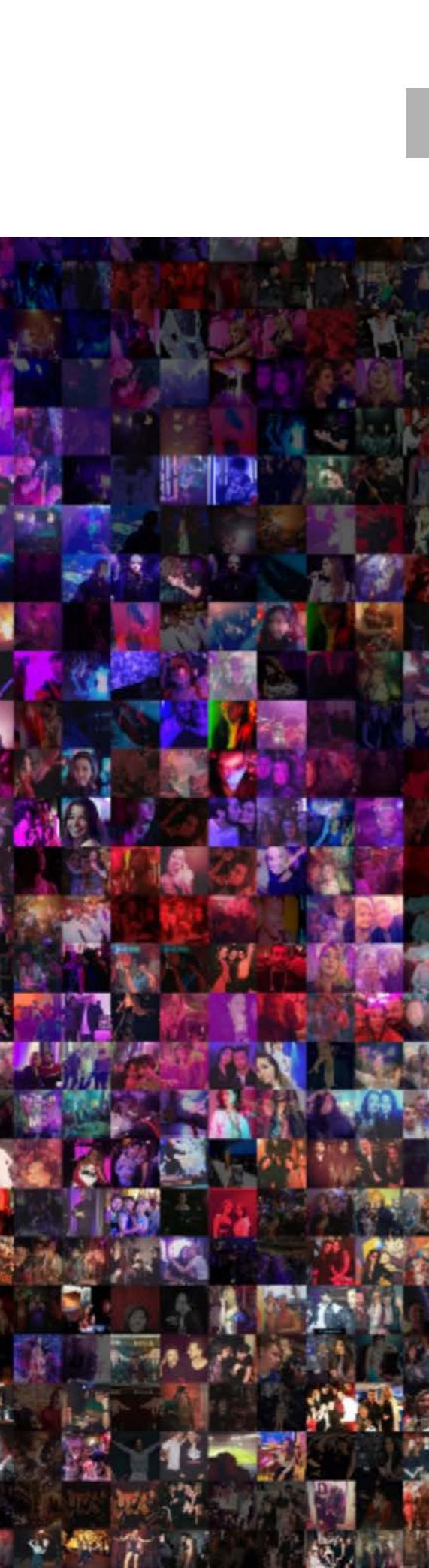
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TRANSFORMING

# MULTIPLICITY

## A COLLECTIVE PHOTOGRAPHIC CITY PORTRAIT

**Moritz Stefaner**

PERFORMING

27

10

**Out of the hundreds of thousands of images published every day on the Internet, *Multiplicity* creates a portrait of the city of Paris based on clusters of photographs that look similar.**

Today, we collectively and continuously document our city experience on social media platforms, shaping a virtual city image. *Multiplicity* reveals a novel view of this photographic landscape of attention and interests. How does Paris look as seen through the lens of thousands of photographers? What are the hotspots of attraction, what are the neglected corners? What are recurring poses and tropes? And how well do the published pictures reflect your personal view of the city?

This interactive installation provides an immersive dive into the image space spanned by hundreds of thousands of photos taken across the Paris city area. Using machine learning techniques, the images are organized by similarity and image contents, allowing to visually explore niches and microgenres of image styles and contents.

Special emphasis is put on tight clusters of very similar images around a specific location: collective re-enactments of typical poses—same, same, but different.

To me, these very tight clusters of almost identical images became the most interesting aspect. How often can people take the same photos? At the same time, each of them is slightly different indeed, and the continuous re-enactment of rituals and re-discovery of photo ideas has a comforting charm to it as well.

#### **Installation and Interaction**

The projection spans three 1080p squares arranged in a slightly angled triptych structure, allowing an immersive dive into the image space.

Visitors can navigate the map using a touch device as well as a physical joystick. Manual annotations help with identification of the main map areas. The application goes to sleep and starts to dream of Paris after a while of inactivity.

The projected display seamlessly zooms from the cloudy overview map over a gridded version of the cloud to a full grid. This layering allows to understand the clustering and neighborhood structure well in the zoomed out view, while providing a tidy and efficient image display in zoomed views.

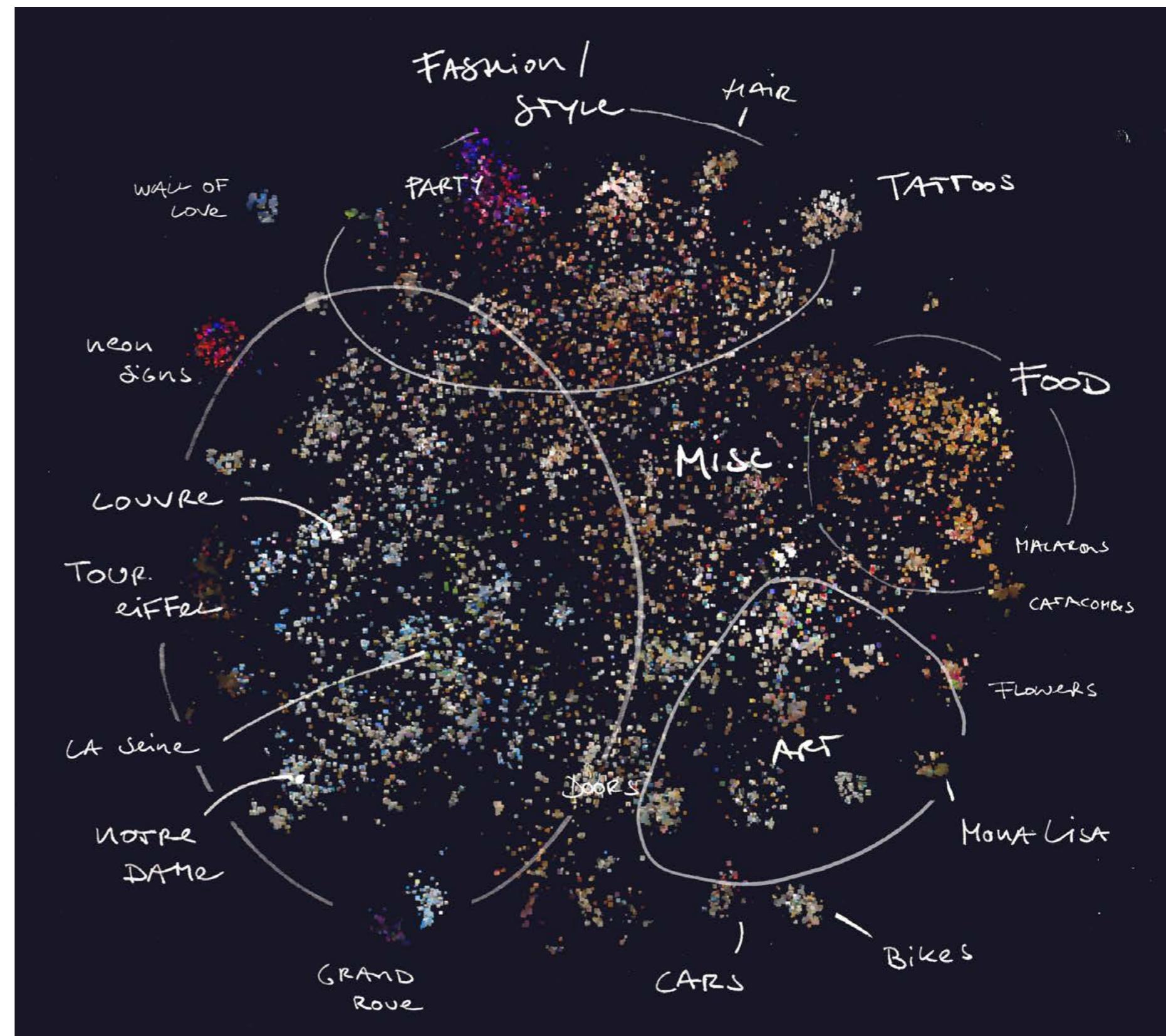
#### **Content Selection and Data Processing**

Based on a sample of 6.2m geo-located social media photos posted in Paris in 2017, a custom selection of 25,000 photos was chosen and forms the basis for the map.

It consists of:

- 1 part top liked photos
- 1 part uniform spatial sample
- ca. 1 part hand-selected clusters
- ca. 2 parts most recent images from most active locations

The images were analyzed using neural networks which were trained for image classification (from tensorflow with keras). I used feature vectors normally intended for classification to calculate pairwise similarities between the images. The map arrangement was calculated using t-SNE — an algorithm that finds an optimal 2D layout so that similar images are close together.



#### **Layout Strategy**

Bridging the cloudy overview and the griddy detail view was an interesting challenge. After a couple of failed approaches, here's how I solved it:

1. The initial, zoomed out view lays out the images according to the t-SNE coordinates. We draw images, which are more central to local clusters (technically speaking: having the highest degree centralities in a k-nearest-neighbors network), a bit bigger, in order to emphasize the cluster

Moritz Stefaner,  
*Multiplicity*, 2018



Moritz Stefaner,  
Multiplicity, 2018

structure. Finally, the image is treated with a bit of post-production: Photoshop's smart blur filter and some tweaks to image contrast provide a better overview and pleasant zooming behaviour.

2. The second, gridded view puts every image on a rasterized coordinate system, as close to their original coordinates as possible. In this layout, some images will be hidden behind others; again, we put the ones on top which are more central to local cluster structure. Also this image is slightly blurred, in order to avoid flickering artefacts when zooming and panning.

3. Finally, the fully gridded view assigns all previously hidden images to the next best free spot, thus leading to an almost fully filled grid.

4. At the corners, due to the round nature of the cloud, some images were missing, so we iteratively filled these with the next best match (i.e. most similar image to the neighbors) from a larger image pool.

Altogether, this strategy makes sure that as little pixels change between the different transitions, thus leading to a consistent and satisfying zoom experience.

### Data-Less Visualization

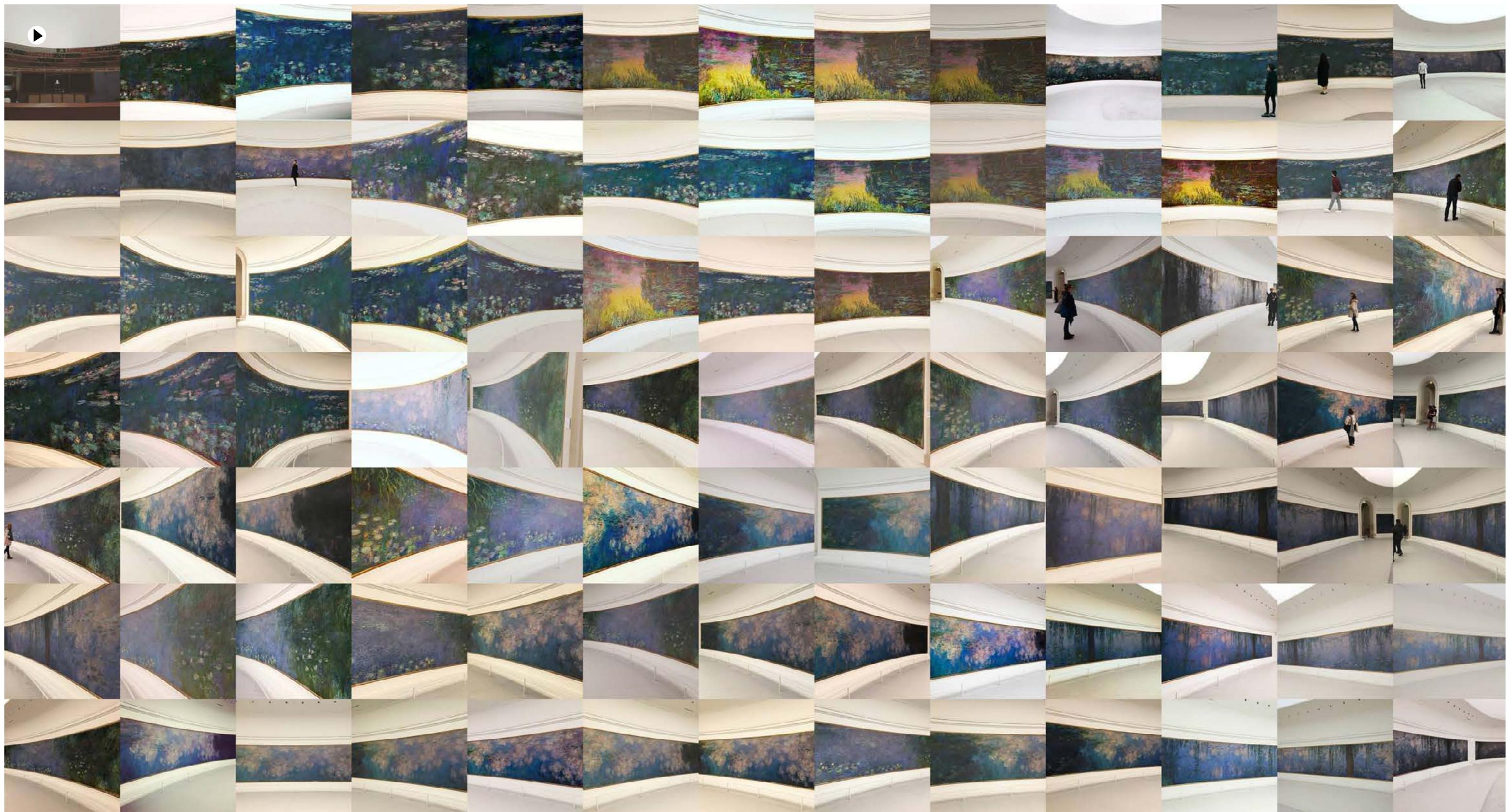
As a final remark—it has been my intention not to measure the city, but to portray it, using social media contents as material. Rather than statistics, the project presents a stimulating arrangement of qualitative contents, open for exploration and to interpretation—consciously curated and pre-arranged, but not pre-interpreted.

At the same time, data was instrumental in arranging these contents in a human-digestible way. How else would one scan and assemble hundreds of thousands of images into a coherent whole?

So, one could say, data was used as a vehicle for the experience and design process, but neither as the object nor the end point of the visualization.

The interplay between automatic analysis, inspection of the results—what does the machine suggest and conclude—and my own actions (in terms of layout, content selection, parameter tweaking...) was inspiring to explore.

As a design hint, the use of handwriting for the map annotations hints at the involvement of me as an active author and a subjective sense-making process.



Moritz Stefaner,  
*Multiplicity*, 2018

The final result emerged from a dialogue between me and the city, the image contents and the algorithms, which actually managed to surprise and inspire me throughout the project.

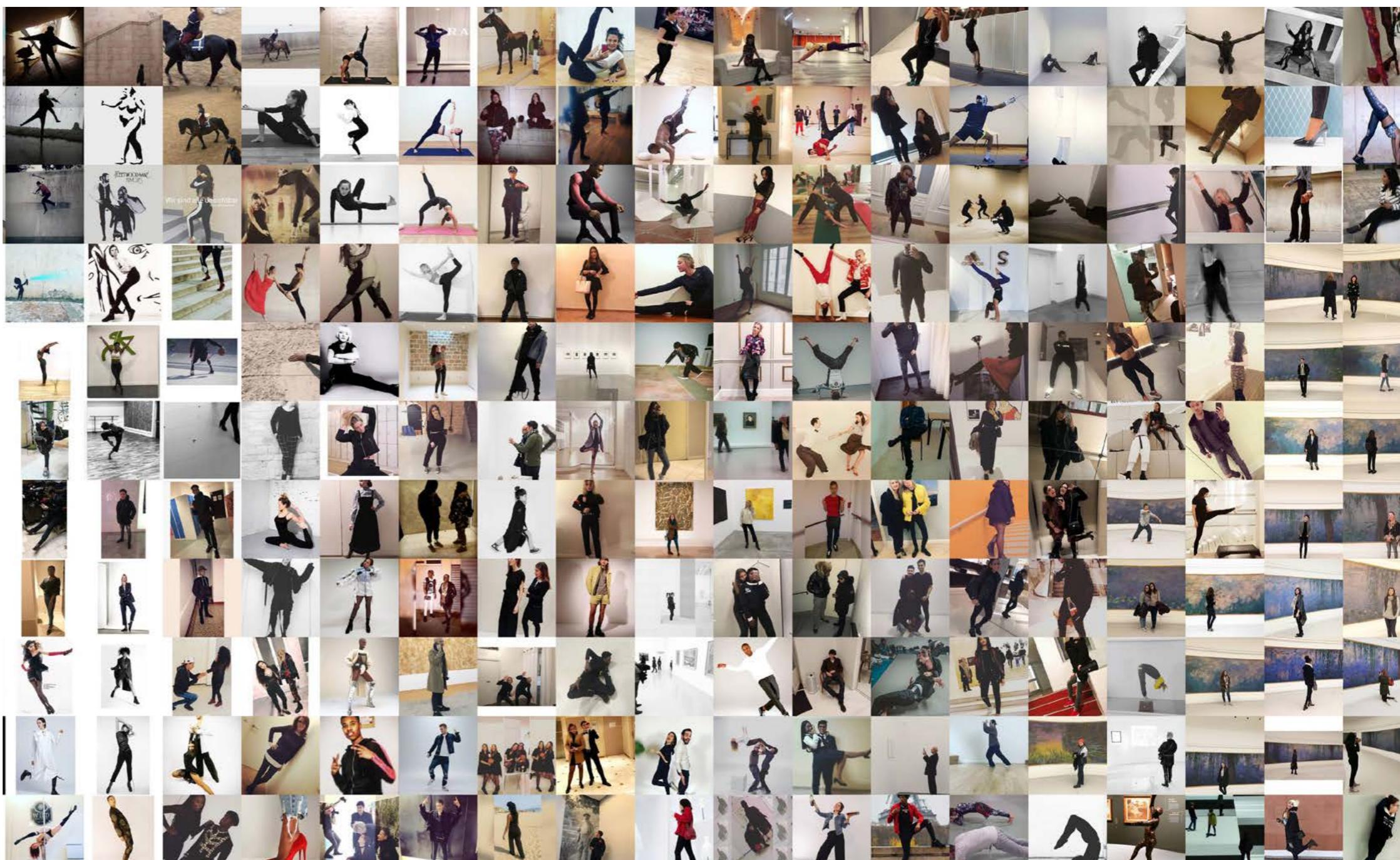
Commissioned by Fondation EDF, Paris on occasion of the exhibition 123 data

*Multiplicity* is part of a series of investigations of digital city images by Moritz Stefaner:

[Stadtbilder](#) investigates the digital layers of the city, beyond physical infrastructure.

[Selfiecity](#) takes a closer look at the selfie phenomenon, and among other things, aims to identify unique styles of self-photography in different cities.

[On Broadway](#) starts with a single street, and stacks all kinds of quantitative and qualitative information on top of each other.



Moritz Stefaner,  
*Multiplicity*, 2018

# DATAFICATION OF AN IMPLORING GESTURE

WHAT WILL BECOME  
OF IMAGES PROCESSED BY  
ALGORITHMS?

Sylvie Anahory

28

C

CONNECTING



## **The processing of Big Data and the exploitation of information gained from it is essential for marketing and anticipating consumer behaviour. As data is analyzed in a simplified manner, is human thinking at risk to resemble that of machines?**

Every single action executed online—the tiniest message or online search—generates a tremendous amount of data. We produce billions and billions of bits of data each day. This information is harvested by giant corporations such as Amazon, Google, Twitter, and Facebook, and is stored in massive data centres.

The incalculable volume of data susceptible of being stored and analyzed in this manner has motivated businesses to utilise it for commercial purposes. But why exploit this data? And how? These are the questions facing businesses that seek to increase their brand visibility and stand out from their competitors. In marketing, the use of data can help anticipate customers' needs, determine their reaction to a product, and influence purchases.

### **Acquiring Value**

The goal is not to collect data about individuals' lifestyles, but to learn how to handle, process, and grind data so as to gain leverage from it. Taken separately, the elements of big data aren't worth any more than their weight in bits. But after processing them through the appropriate software, they acquire a certain value. Translated into digital language and transformed through prediction-oriented algorithms, they become precious sources of information that allow companies to anticipate the needs of consumers. But how? "Data lakes" filled with unrelated raw data are classified in no particular order or hierarchy. In order to create value, it is necessary to grind, cut into pieces, trim, and label each piece of data.

Labeling consists of classifying each data section independently and assigning a value to it. Once an intermediate value has been allocated to each section, it becomes easy to assemble words or images based on the common values previously assigned by the machine. In other words, trimming down data consists in creating a list of disparate elements to which we apply a common function or value, undoing initial bonds in order to create new algorithmic relationships. In computational terms, Big Data deconstructs in order to reassemble, restructure, and increase value.

By assigning value to each element, companies exploiting big data are led to the discovery of the laws, principles, and parameters behind each phenomenon. Then, by assigning value to each section of data, the companies are led to discover new laws and new relations operating between facts. Once they have assigned value to the data, they can search within those data sections in order to make decisions and take actions such as predicting customer behaviour during a certain time of the year and marketing a certain product accordingly.

Datafication can also be used for political purposes—encouraging voting intentions in favour of a particular candidate, for instance. Through the value assigned to each element, data becomes exploitable. Software programs such as MapReduce and Spark use algorithms capable of transforming raw material into valuable assets. They make visible aspects of human activity that would otherwise remain invisible. Different aspects of our lives are transformed into data and formatted—meaning, given a value.

### **Turning Aside Collected Words**

Processing or analyzing data comes down to attributing a value to it. For big-data specialists, this simply means revealing the inherent value that is already contained within the data, as if it were pre-existing. They seem to forget that the value assigned to data is determined by a machine. In fact, the machine creates value where there was previously none. Moreover, it strives toward a way of processing data that is purely commercial. The categorization must therefore be biased—it's rigged from the start. It aims from the start at a purpose; a purpose is glued onto it. Under these conditions, we can even consider that the datafication distorts the collected speech, now considered as data since a value—justified by commercial interest—has been conferred upon it.

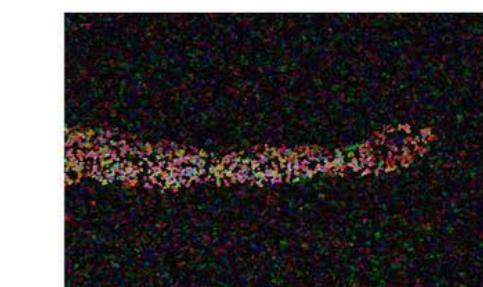
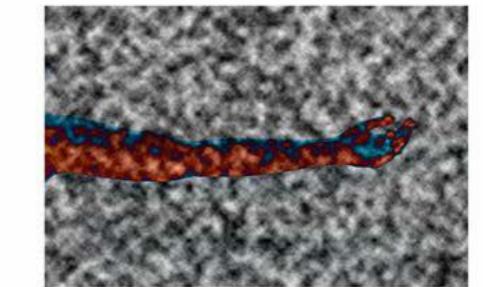
The machine does not interpret—it classifies. It goes against the features of language that are based essentially on doubt, hesitation, uncertainty, assumptions, trial and error, confusion, paradox, and repetition. There is no room for what the subject has to say, no room to judge, decide, position oneself, reflect upon, correct, ponder, assess, debate, or engage. The machine forces its goals and desires onto the subject. The danger does not lie in whether or not we can choose new desires, but rather in assuming that the machine gives us the opportunity to choose, when actually our mode of thinking is modelled on the simulation mode programmed by the computing centre. It is we who, in turn, become deprived of any authentic take on the world, and begin to think like machines.

### An Extended Hand in Different Lightings

The starting point of my work is as follows: I have photographed an extended hand in different lighting conditions. (I would like to thank Marie-Lise Vautier, who volunteered as a model, for her patience and willingness.) The process of dismantling has already begun. However, the extended hands, photographed in different lighting conditions, produce different impressions. The exposure value (EV) confers a slightly different characteristic to each image, designating the intensity of the light source and its value in terms of brightness or darkness.

Low light will bring about a soft, smooth result. Harsher, more direct light will produce higher contrast, thus lending a dramatic intensity to the photographed object. Even when sectioned, these images of extended hands move us. I have tried to create a relationship between the light variations perceived on the hand and the light variations reflected on the clouds by the sun, according to the emotions suggested by each image. Artificial light mirrors direct, natural light. There is a correspondence between each celestial value and each hand. With this layout, the hands seem to appear as an imploring gesture, an invocation.

Let us now imagine these images being ground down and processed by algorithms. What would we obtain in the end? Would the exposure value be maintained? Will the effect produced by EV variations be taken into account? Will the perception of the set of images as a whole be the same? Will this plea be safeguarded? Will these images still be gazing at us?



Sylvie Anahory,  
*Datafication of an imploring  
gesture*

# ON THE SEARCH FOR TERRESTRIAL INTELLIGENCE

29

Olivier Auber

ANTICIPATING

a



Photo by Margalit Berriet

# The efficient management and mastering of Big Data seems to play a crucial role in the survival of our species, according to the hypotheses formed in this essay, when imagining the fate of five different extraterrestrial civilizations.

The survival probability of our species is often assessed with respect to its ecological impact on the planet, which invariably leads to considering its extinction in the more or less short term. More rarely, our survival is related to the way we manage our data and networks. However, a proper reflection on this subject could provide us with some keys to avoid the worst.

I propose here an exercise in this regard, in which I imagine several types of advanced extraterrestrial civilizations that resemble what our human society might evolve towards. These civilizations differ from each other, not with respect to what has already been considered—quantitative terms of energy and resource consumption—but in qualitative aspects related to information, data, and networks.<sup>1</sup>

I will examine, according to a series of hypotheses, how these civilizations (Devoratus, Formabilis, Imitativus, Pervasus, and Legitimus) might (or might not) overcome the principle of “cosmic stupidity” which is supposed to lead all intelligent life to suicide. If only the fifth civilization (Legitimus) seems to have a chance to survive, it is because, in time, it would

have invented a kind of art and science allowing it to master its Big Data and, more generally, its cognitive schemes and artificial networks. This art and science could find a concrete manifestation on planet Earth, thanks to a research project called *Search for Terrestrial Intelligence* (STI), complementary to SETI (*Search for Extraterrestrial Intelligence*).

## New hypotheses

In 1950, the physicist Enrico Fermi formulated the following paradox: *If there were extraterrestrial civilizations, their representatives should already be around us. But we do not see them.* One of the hypotheses that could explain their absence could be that intelligent civilizations all end up self-destructing before making any contact with each other. A mysterious phenomenon could be at work at the heart of civilizations—suicidal behaviour would emerge systematically from all forms of intelligent life. Concerning humanity, some propose a systemic stupidity specific to our species.<sup>2</sup> On the scale of the Universe, if this hypothesis is true, one could speak of “cosmic stupidity.”

All of these issues have been debated since the beginnings of SETI. “Cosmic stupidity” has even been put into equations. However, it was not SETI’s purpose to tackle this problem. To do so today with a STI program, one should start by taking seriously a hypothesis contrary to that of “cosmic stupidity.”

**Existential Hypothesis STI H1:** *There is a non-zero chance that some advanced civilizations will successfully overcome their propensity for self-destruction.*

Certainly, the absence of extraterrestrial contacts seems to corroborate the scarcity of this evolutionary act, but to date, nothing in the observations of SETI prohibits the exclusion of this hypothesis. Obviously, everyone is entitled to express reservations when he/she looks at the state of the planet Earth. So, how could a STI program be able to escape our systemic

stupidity? At least, how could we give SETI enough time to spot a civilization that refutes “cosmic stupidity”? Who knows? It might be able to teach us how to fight our own stupidity.

In the same way as the SETI@home initiative allows everyone to contribute to the decoding of extraterrestrial signals from home, an STI@home initiative could create a network of detectors and amplifiers of human intelligence, capable of revealing the mechanisms of our stupidity and neutralizing them. It goes without saying that this should be done in a very special way, so as not to once again put human intelligence at the service of stupidity. The already-cited Enrico Fermi, one of the fathers of the atomic bomb, knew something about it.

Let us first try to situate the magnitude of the challenge and to formulate some hypotheses that would support this idea. Undoubtedly, STI would ultimately involve solving the most arduous scientific questions, such as the origins of the universe, life, language, and consciousness—all this, of course, in a sense that does not turn against humanity. But in a start-up phase, STI could focus on a more limited problem directly related to the paradox of our systemic stupidity. This paradox can be expressed as follows: *Global crises (ecological, sanitary, economic, financial, political, cultural, religious), ecocides, genocides, and wars that we create from scratch are network phenomena that far exceed their individual participants, who are intelligent—even very intelligent—and not suicidal for the most part.*

At the heart of the paradox are networks and what we do with them. STI could be limited to this at first, and invite us to ask ourselves the following questions: What status do we give to our networks? What information dynamics animate them? What evolution do we envision for our artificial networks in relation to our biological, social, and cultural nature?

Let us note that the ambitions of STI, limited to questions relating to artificial networks, already implies the resolution of many conundrums. In particular, there is no model for predicting the dynamics of a network in which all agents try to predict the predictions of all others. For example, nobody holds a Great Model to predict the evolution of financial markets in which all actors act with their own predictive models. We just observe that markets form bubbles and repetitive crises, always more catastrophic than the previous ones, without knowing why or how.

There is a more fundamental problem. Assuming that such a Great Model will exist one day, how could it predict its own influence on the dynamics and evolution of networks once it is recognized and applied by all of its agents? This question of the feedback of the model on itself leads to an aporia, to which are confronted all the attempts of modeling such as the Global Brain, which many scientists have been working on for years. To try to solve this paradox and the mysteries that are linked to it, let us try some hypotheses.

**Topological Hypothesis STI H2:** *All intelligent life forms have artificial Internet-like networks. These networks are developed according to certain particular topologies rather than as random simplicial complexes. That is to say that extraterrestrials communicate with each other, as we do, via centralized networks and/or distributed or meshed networks, quantum in their extreme sophistication. These networks are the backbone of their society, just as they are the backbone of ours.*

**Evolutionary Hypothesis STI H3:** *There are universal laws for the implementation of networks and their artefacts, ones that provide the species that deploy them with an evolutionary advantage. These laws are mathematical. Civilizations discover them little by little, by variation, mutation, selection. The few civilizations that eventually apply these evolutionary laws are led to survive, while the vast majority are brought to extinction.*

1. This exercise, made for the first time in 1960 by the Soviet astronomer Nikolai Kardachev, led him to define three types of civilizations according to their energy consumption. They are all included here in the Devoratus-style.

2. In the words of Bernard Stiegler, “bêtise systémique.”

Presumably, before the laws of the networks are elucidated and applied (or not), civilizations grope around and elaborate and adapt all sorts of more or less relevant theories and practices, which would ultimately be subjected to natural selection. Let's examine three scenarios among the infinite possibilities, starting with the most extreme.

#### **Devoratus-style civilizations**

Some intelligent species could follow the propensity of the human species to the predation of all available resources and to the constant rise of energy consumption. A vertiginous extrapolation leads us to imagine civilizations gathered around stars from which they would capture all or part of their energy. It is the hypothesis of the Dyson Spheres (Dyson, 1960), of which SETI thought it had detected an example not long ago. By extrapolating this trend, one can imagine stelliferous life forms that literally devour the stars (Vidal, 2016). Could SETI have found a trace of it? Why not?

We could also imagine civilizations entirely confused with black holes, dark matter, or multiverses. The intelligent entities within these civilizations are unlikely to be biological. Their artificial networks would no longer have anything material in the sense in which we usually understand it. Everything would be fused within a kind of quantum maelstrom.

One can interpret this fusion as the ultimate evolution of civilizations collapsed on themselves under the weight of "cosmic stupidity". It can also be interpreted in a different sense. Indeed, it is not at all obvious that there is a continuity between life as we think we know it and these intelligent forms with very high energy. These could be two fully independent branches of life, although they may share common patterns.

Be that as it may, the fact that high-energy life forms are the first to be guessed is not surprising. Devoratus-style civilizations are

indeed the only ones capable of forming signals powerful enough to reach us. This does not prevent us from imagining that other civilizations, with lower energy, and thus closer to us but less detectable, cannot thrive on the basis of STI assumptions.

#### **Formabilis-style civilizations**

Some civilizations could imagine, as certain humans do, that their evolution would be guided by *morphic resonance* (Sheldrake, 1981). This theory is supposed to explain some phenomena of synchrony and pre-cognition, especially in networks where all agents predict the behaviour of others, but also the replications between living systems without apparent physical links, such as distant civilizations.

To test this hypothesis, as already proposed by some humans (Goertzel, 2016), a civilization could build a General Artificial Intelligence (AGI) which would far exceed the cognitive capacities of its population. This AGI would be capable of capturing realities inaccessible to those who created it. Notably, it could discover new mathematical laws, supposed to be the type of information most easily transmitted from civilizations to civilizations thanks to morphic fields.

According to the Evolutionary Hypothesis STI H3, a civilization of this style would survive only if its AGI succeeds in discovering the evolutionary laws of networks and applying them to itself. This is unlikely to happen:

- a) if the theory of morphic resonance is false. It would indeed constitute a bias preventing the AGI from calculating coherent laws; or
- b) if the theory of morphic resonance is true, and if the hypothesis of "cosmic stupidity" is also true. In this case, the AGI could only arrive at its own suicide and that of the Formabilis civilization that created it.

On the other hand, if the Existential Hypothesis STI H1 and the theory of the morphic resonance are both true, the AGI

Enrico Fermi, ID badge,  
Los Alamos, (~1943).  
Source: Wikipedia



could possibly confirm the Evolutionary Hypothesis STI H3 and neutralize its systemic stupidity. Let us note that the chances are low, because today the theory in question is far from being endorsed by the majority of scientists of planet Earth.

### ***Imitatibus-style civilizations***

Other civilizations, facing as we do the mystery of their evolution, could imagine that they are basically the toys of invisible informational patterns, which would use them to evolve and replicate. According to this belief, these patterns would survive beyond the civilizations that convey them, in forms that would evade the senses and the understanding of intelligent beings. These beings would only in fact be computer simulations driven by some quantum demiurge.

This somewhat animistic hypothesis has a more scientific version on planet Earth, known as the memetics theory. The patterns in question are called memes—contracted term of imitation and gene (Dawkins, 1976). As some humans propose, it is possible to admit that “memes which succeed in inserting themselves in the edifice of representations are those which allow an optimization of the topology of the system and its access to resources.... Those that are rejected are those that impose detours and delays to the optimized architecture or to the functioning of the system.” (Baquast, Jacquemin, 2003).

Memetics theory thus appears as a subthesis of the theory of evolution, but does not give, *a priori*, any means to guide it. Consider a civilization that would remain there. Practically, in the hopelessness of being able to control its long-term evolution, its social forces would try by all means to influence and manipulate memes in a way that is favourable to them in the short term. Its networks would be transformed into memetic battlefields. In fact, a kind of invisible cyber warfare would reinforce the systemic stupidity.

According to Evolutionary Hypothesis STI H3, *Imitatibus*-style civilizations would therefore have little chance of discovering the evolutionary laws of their networks, and their survival would be limited.

*Devoratus*, *Formabilis*, and *Imitatibus*-style civilizations, described as being able to develop in distant galaxies, could of course evolve in the future of the planet Earth. The Evolutionary Hypothesis STI H3 gives an indication of our low chances of survival in these cases. Let us see, using other hypotheses, how STI could help to identify the nature of the evolutionary laws of networks, and thus open a path towards a positive and lasting outcome for our species. In this sense, a good track to follow is that of information, the raw material of networks.

Seventy years of research devoted to the elaboration of a theory of information have led to the conclusion that information is not an absolute value independent of the context, but rather a relative one. The nature of information can be summarized as follows:

- Information is a drop-in complexity (unexpected, difficult to obtain, simple to describe).
- Information only exists if it can be “read.”
- Information is what “survives.”

On this basis, STI could formulate a new hypothesis:

***Hypothesis of the Universality of Information STI H4:*** *The nature of information is universal. It is as valid on Earth as in any galaxy. Here, as elsewhere, all the intelligent entities comprising civilizations are thus linked together and to their environment by the thread of information.*

A somewhat counter-intuitive consequence, already mentioned concerning human beings, is the following: Whether we like it or not, we compete, not just for resources and for reproduction, but to provide information to others. From this competition emerges a form of social hierarchy

revealing three classes of individuals, distinguishable according to their “quality” (the easier it is for an individual to signal—i.e., the less energy he spends to do so—the greater his “quality”), and their signaling activity (the energy they consume in emitting signals).

The competition between individuals is weak for the two extreme classes (the one with a small social network S1 and the one with a large social network S3). Competition is much stronger for the intermediate class S2 of individuals with an average social network. This class distribution is an Evolutionarily Stable Strategy (ESS) of our species, linked to the origin and functions of our language (Dessalles, 2016). It should be noted that this social structure, however automatic it may be, seems less deterministic than that of other species, for example that of tilapia fish,<sup>3</sup> because humans are supposed to have the cognitive capacity to self-reflect on their own social structure.

If we follow the Universality of Information STI H4 hypothesis, it is very likely that some intelligent extraterrestrial entities with cognitive equipment comparable to ours reproduce this same social scheme. Result: There would be social classes elsewhere in the universe. Class struggles, too!

At this stage we see that, here as elsewhere, intelligence has an ambivalent position in the emergence of systemic stupidity. It is, on the one hand, an instrument often used for the benefit of domination which, as we have just seen, is practiced in a quasi-mechanical way. On the other hand, and in the best of cases, intelligence is an intellectual tool that can allow it to observe its own mechanisms and its own stupidity. This is obviously what STI is looking for.

The STI H4 hypothesis, complementing the three preceding scenarios, leads us to imagine a fourth woesome scenario, and a fifth one offering some avenues to avoid extinction.

### ***Pervasus-style civilizations***

It is not difficult to imagine advanced civilizations that have developed their artificial networks to the point of making them entirely pervasive—that is, connected to the least vital and cognitive functions of all members of their population. It is also not difficult to imagine that these networks are exclusively controlled by a very small dominant class, which would ensure that it introduces all the biases necessary to maintain its dominance in the algorithms regulating the behaviour of the network and each of its agents.

A predictable consequence is that the class structure of such an extraterrestrial civilization would be totally crystallized. In other words, this would lead to a type of society that the sociologist Niklas Luhmann analyzes as a particular case of autopoietic system (self-referential), based on a single dichotomous code—inside/outside (Luhmann, 2011).

The characteristic of such systems is their extreme fragility in the face of change, due to a lack of capacity for variation and mutation. It is therefore probable that a Pervasus-style civilization would disappear fairly quickly on the occasion of the various environmental shocks or internal disturbances which would most likely happen.

### ***Legitimus-style civilizations***

Let us now imagine the evolution of highly developed extraterrestrial civilizations that have initiated large-scale STI programs. Within a few decades or a few centuries, all the intelligent entities comprising a civilization of this type would have integrated the four STI hypotheses. In particular, they would have understood the nature of the information linking them, its consequences in terms of social structure, the influence of network topology and, therefore, the dangers presented by the previous scenarios.

They would also have done all kinds of experiments on their networks to try to

3. The social and sexual behaviour of the dominant male of tilapia fish depends upon a gene that also gives it a distinctive color and hence the recognition of its status by the group. But this gene is controlled by the social environment—it is inhibited in the dominant by the introduction into the aquarium of a larger male, and activated in the subordinate when the dominant is removed.

understand their dynamics. In particular, they would have extensively practiced a contemplative game such as the Poietic Generator (known on Earth in an embryonic form), which would have helped them to take a step back on the functioning of the networks. This would also have given them the idea of adding two new assumptions to their STI program, to clarify the evolutionary laws of their networks.

#### **Hypothesis of the Anoptical Perspectives**

**STI H5:** All networks have a certain shape. Some shapes, simpler than others, offer a complexity drop for their agents. The simplest networks have a “centralized” shape. Their central point operates on the network in the manner of a “vanishing point” of a perspective that is not spatial but temporal. It is at the temporal vanishing point that agents’ collective time emerges out of the network. Other networks are simply “distributed” or “meshed.” They do not have a physical vanishing point like centralized networks, but it is an arbitrary code that plays this role. It is simply the sign of recognition under cover of which agents exchange. This code operates on the network in the manner of a vanishing code of a perspective that is no longer only temporal but digital. These two perspectives (temporal and digital) are called anoptical because of the type of “reading” of the shape of the network that they offer to agents. Indeed, this “reading” is not optical, but implies all their cognitive abilities.

**Hypothesis Of Legitimacy STI H6:** In the same way that there exists a “legitimate construction” of the optical perspective based on geometrical principles, there exists a “legitimate construction” of anoptical perspectives based on cognitive principles. The legitimacy of networks’ construction is an evolutionary advantage. The proposed criteria of legitimacy are the following:

- A) Does any agent A have the actual right to access the network if he requests it? Can A leave the network freely?
- AB) Is any agent B (present or future, including agents that conceive, administer,

and develop the network) treated like A? ABC) If agents A, B, and C (where ABC is the beginning of a multitude) belong to a network that meets the first two criteria, are they peers? That is, are they able to recognize, trust, and respect each other, thereby building common representations and common sense?

At this stage, the last two assumptions, STI H5 and STI H6, have no force of law, either in a mathematical sense or in a legal sense. Nevertheless, Legitimus-style civilizations would have decided to apply them on a large scale on their networks, thus making them legitimate. Somehow, they would have found a way to thwart much of their systemic stupidity and the feeling of progressing towards a certain mastery of their evolution.

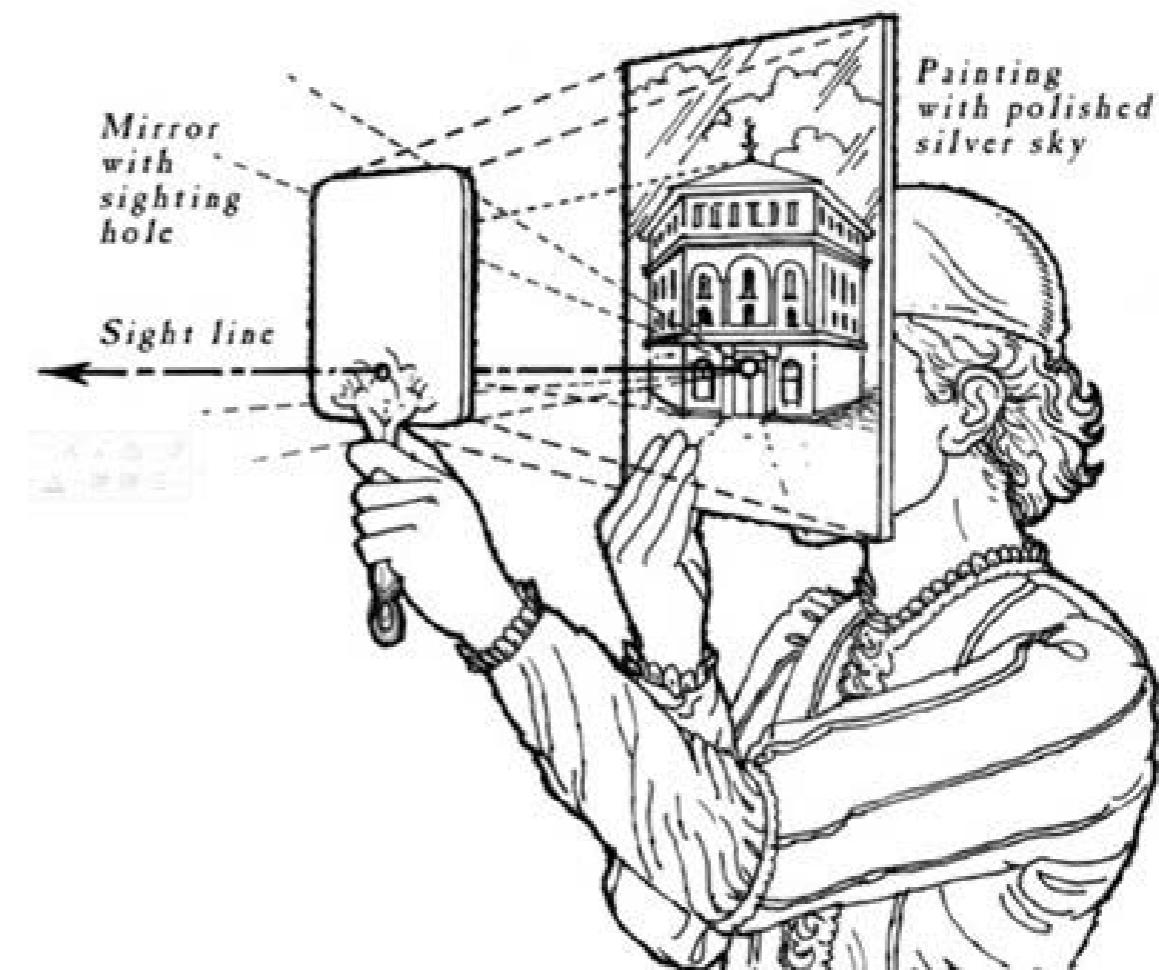
#### **Returning to Earth**

It is easy to imagine that a Legitimus-style civilization can evolve in a distant galaxy. It is much more difficult to imagine that it can emerge here, where intelligence seems too often trapped in systemic stupidity.

On Earth, as in *Devoratus* civilizations, the trend remains predation of resources and increase in energy consumption, with the ecological and geopolitical consequences that we know. The networks activated in this game (energetical, financial, political, military) are clearly not legitimate within the meaning of the STI H6 criteria.

As in *Formabilis* civilizations, most of the efforts of research and industry converge towards the development of some sort of Artificial Intelligence pretending to surpass that of the population. Humans have the right to ask themselves what their place is in the midst of AIs, and therefore to question the legitimacy of the networks on which they are proliferating.

As in *Imitativus* civilizations, terrestrial networks are a battleground for the control of opinions, emotions, behaviours, and personal data. Everything happens as if some actors were taking advantage



Filippo Brunelleschi (1377–April 15, 1446). Two panel paintings illustrating for the first time around 1413 the geometry of the optical perspective. Source: Wikipedia.

of the humans' confinement in cognitive bubbles, and of their inability to claim the legitimacy of the networks that keep them confined.

As in *Pervasus* civilizations, terrestrial technologies, held by an ever-smaller number of individuals, claim to regulate the vital and cognitive functions of all the others. Natural competition between individuals is increasingly engraved in silicon, and soon in manipulated genes. Social classes threaten to turn into castes, the most favoured of which is dreaming of becoming immortal. The breakdown of legitimacy would thus be definitive.

The situation seems desperate. Yet examples in human history show how a change of representation can spread very quickly in all minds and overthrow a society that is supposed to be immutable. This is particularly the case with the invention of the printing press (Gutenberg, 1448) and that of optical perspective (Brunelleschi, 1413). Within a few centuries, with optical perspective—which, it should be pointed out, is not even a technology, but a mere operation of mind—all of the hierarchical edifice of the Middle Ages made way for the geometric construction of the Renaissance. In the end, it is the very place of human-as-being-in-the-world that has been redefined.

Of course, a kind of STI program already exists on Earth. Billions of researchers have been busy for millions of years to find the forms of intelligence that could free us from our systemic stupidity. The invention of optical perspective was one of the major breakthroughs of our research. Six centuries later, if the results are so disappointing—to the point that this stupidity threatens to prevail—may it be because we need another breakthrough?

The optical perspective of the Renaissance has established us in our capacity as observers and actors of a geometric construction of the visible world. However, it

has to be admitted that the vanishing point of this construction—symbol of the infinite and the unknowable—escapes the terrestrial political and religious order.

Today, we understand, little by little, that we are part of invisible networks, interweaving the natural with the artificial at all scales. It is not too difficult to admit that these networks are all coupled to one another, and form an unique and immense network, which we will doubtless never be able to grasp in thought. But the problem is that we have not yet realized that we construct the artificial part of this network by using an anoptical perspective that implies all of our cognition. We have not yet assimilated the criteria of the legitimacy of this construction, nor have we admitted that its ultimate vanishing code, establishing the connection between all networks and their co-evolution, is also a symbol of the infinite and the unknowable that escapes the earthly order.

However, small causes could have great effects. A change of representation could emerge. It only misses a click to realize that networks offer us a game that plays on Earth at the scale of the universe. The challenge? Nothing less than finding forms of intelligence that can refute "cosmic stupidity". Everyone has a role to play.



Poietic Generator

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# NOISE AND SIGNAL

Nour Awada

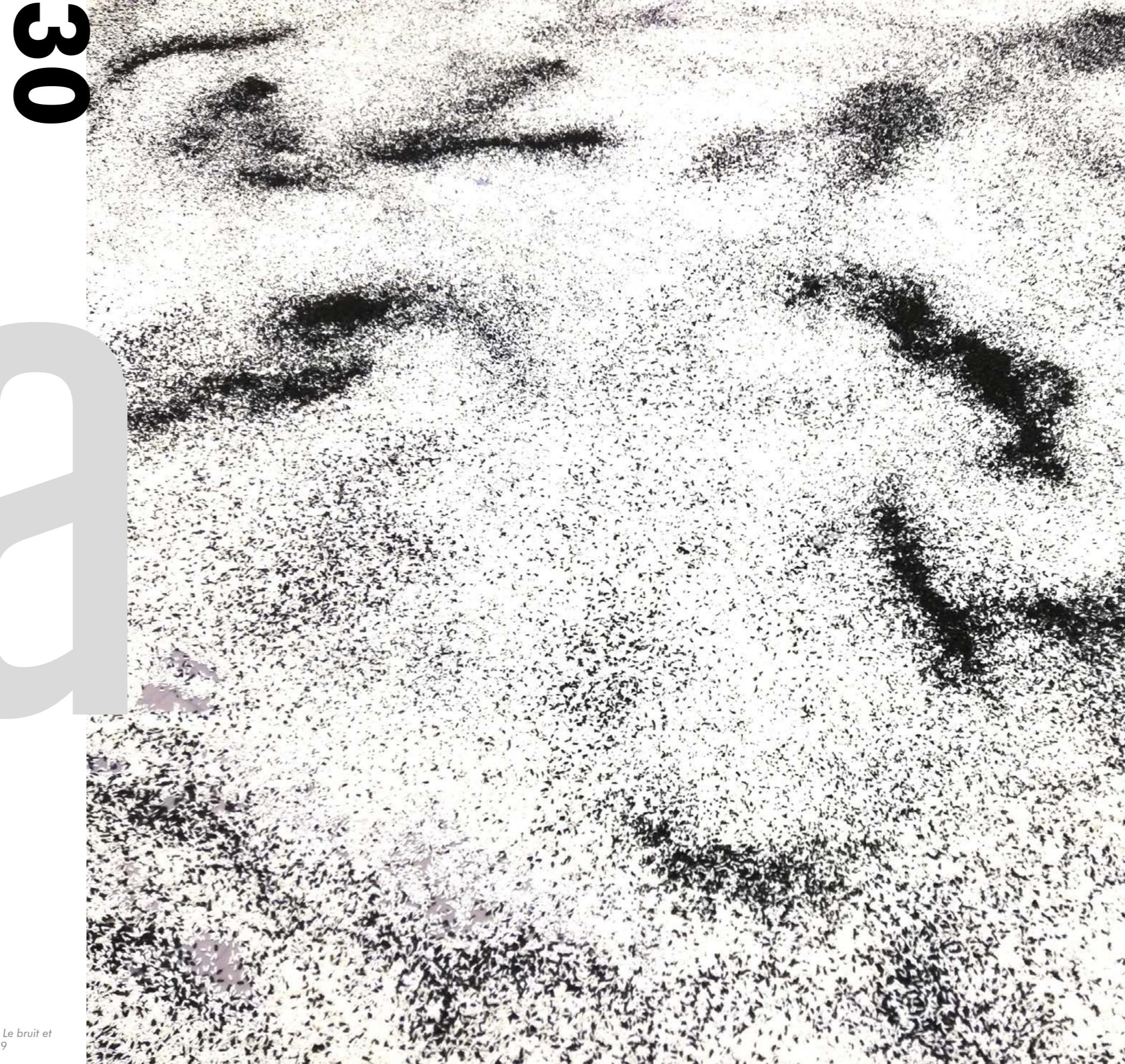
PERFORMING

03

Nour Awada - *Le bruit et le signal* - 2019

ANTICIPATING

ad



**Data mining and analysis is essential in uncovering patterns and extracting meaning from the vast amounts of raw data that are collected—essentially distinguishing signal from noise. In a collective performance, Nour Awada explores how we judge the value of information.**

*Le bruit et le signal* (*Noise And Signal*) is a collective performance created by Nour Awada in collaboration with Luca Giacomoni during a six-month residency with Ekimetrics, the leading European company in data science.

The overabundance of data and the emergence of volatile phenomena have brought about a feeling of great instability. Projecting ourselves beyond this saturated and noisy present is a natural human necessity. In the face of identity-related tensions, the questions raised by our current financial system, and the environmental crisis, knowing how to distinguish signal from noise is a major advantage in understanding the current time. To foresee is to be one step ahead of others. Ekimetrics' response to this issue, through algorithms, collecting and sorting billions of data from the past, is an attempt to spot the signals within that flow of information.

Between March and November 2019, Nour Awada and Luca Giacomoni immersed themselves in one-on-one interviews and weekly workshops with Ekimetrics employees, focusing on one central issue:

When confronted with interpreting data from the past, which information is valuable and which is unimportant? In other words, how can we tell noise from signal?

The final performance of *Le bruit et le signal*, given by Nour Awada and thirteen Ekimetrics data scientists and collaborators at the Foundation Lafayette Anticipations in Paris, took place in November 2019. The artist was granted the creative research residency after receiving the 2018 Prix International Françoise pour l'Œuvre Contemporaine.

Nour Awada, *Le bruit et le signal*, 2019





Nour Awada - *Le bruit et le signal* - 2019



Nour Awada, *Le bruit et le signal*, 2019

# THE NEW CYBERNETIC SPIRIT OF CAPITALISM

RYBN.ORG

**Global financial markets rely on digital technology and data for trading and creating profit. For the past decade, the artist collective RYBN.ORG has investigated and mapped the algorithms that underlie the cybernetic spirit of capitalism.**

Since 1999, the artist collective RYBN.ORG has documented the ways in which algorithmic governmentality has infiltrated our society,<sup>1</sup> through speculative storytelling, art pieces, and experimental protocols. Conducting extra-disciplinary artistic investigations,<sup>2</sup> the collective examines high-intensity sites and phenomena—high-frequency financial markets, the microwork marketplace, offshore financial networks—which contain and foretell the potentially radical technical, political, and social transformations to come.

Starting with the *Antidatamining* series in 2005, the collective has focused on the developments of data mining and Big Data, undertaking the task of meticulously deconstructing the methods of algorithmic trading in order to display them in a kind of cabinet of curiosities. This examination of contemporary economic structures was furthered in their 2017 documentary piece *The Great Offshore*, which deals with the normalized networks of offshore finance and, *inter alia*, the automated methods that have emerged in the field of asset management and optimization. Lastly, with *Human Computers*, an ongoing study initiated in 2015, the collective has concerned itself with the microwork market,<sup>3</sup> a place where algorithms and Artificial Intelligence are trained and developed—a laboratory for methods of extreme erasure, outsourcing, and the rational organization of human labour.

Each of these projects is based on meticulous mediarchaeological investigations,<sup>4</sup> bringing about new historical and technological genealogies and shedding light on the undeniable global governance-by-numbers<sup>5</sup> currently underway. These studies are built on a large corpus of archives, patents, news articles, scientific papers, scientific popularization books, technical objects, computer codes, etc. The cross-analysis of these documents is the foundation of these artistic experiments, which, by transmuting analysis into aesthetic experience, allows us to understand what lies beneath the consecutive layers and generations of technological innovation—Big Data, algorithms, Artificial Intelligence.

By exploiting and nestling within network infrastructures and protocols like data centres, cloud computing, and human-in-the-loop protocols, these artistic experiments re-model<sup>6</sup> and reveal the new cybernetic spirit of capitalism.

ANTICIPATING



1. Antoinette Rouvroy and Thomas Berns, ["Gouvernementalité algorithmique et perspectives d'émancipation. Le disparate comme condition d'individuation par la relation ?"](#) 2013, *Réseaux* n°177.

2. Brian Holmes, ["L'extra-disciplinaire, vers une nouvelle critique institutionnelle,"](#) *Multitudes*, 2007

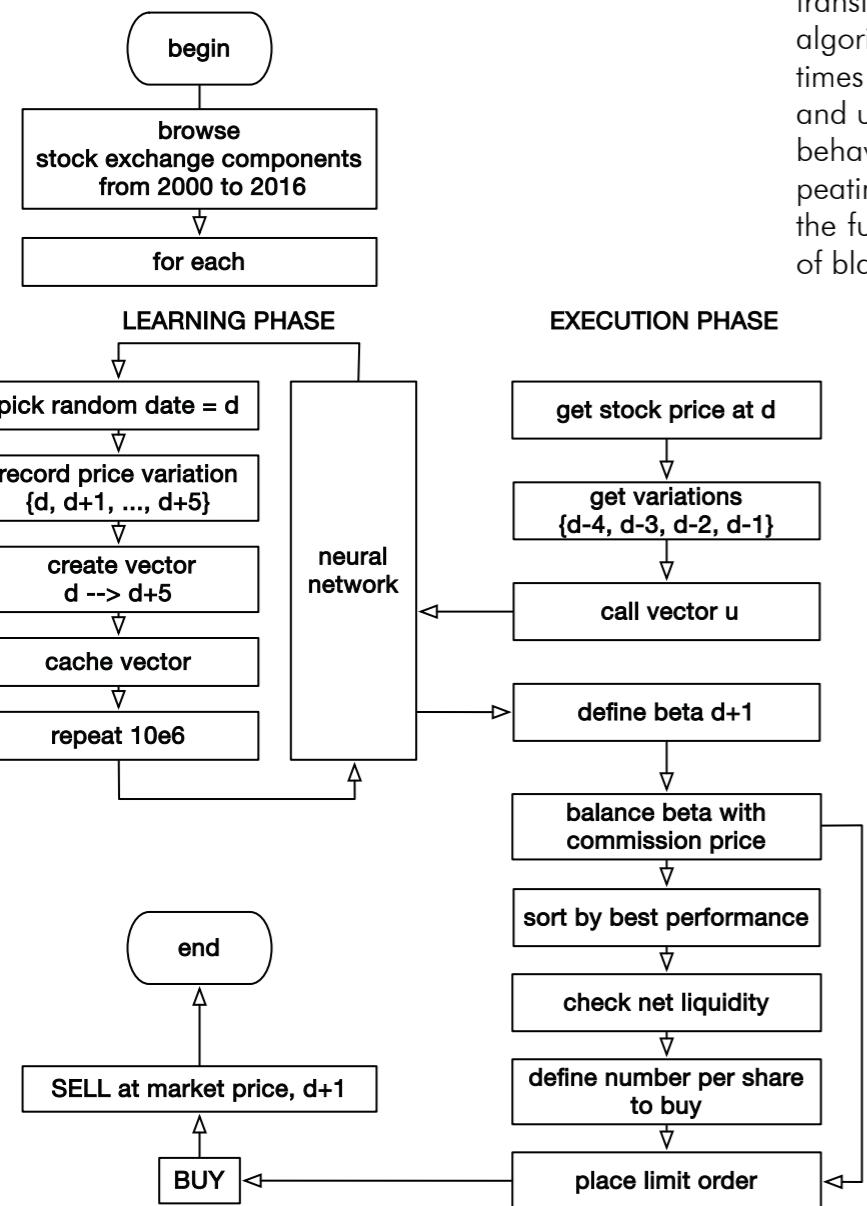
3. Antonio Casilli, ["En attendant les robots,"](#) Ed. Seuil, 2019

4. Along with the works of Friedrich Kittler, *Gramophone, Film, Typewriter* (1999); Jussi Parikka, *What is Media Archaeology?* (UGA, 2018); and Vilém Flusser, *Towards a Philosophy of Photography* (1984).

5. Alain Supiot, ["La gouvernance par les nombres"](#) Ed. Fayard, 2015; *Cours au collège de France 2012/2013, "Du gouvernement par les lois à la gouvernance par les nombres,"* 2012, and *"Les figures de l'allégeance,"* 2013.

W  
I

# 1 – Antidatamining series (2005/2015)



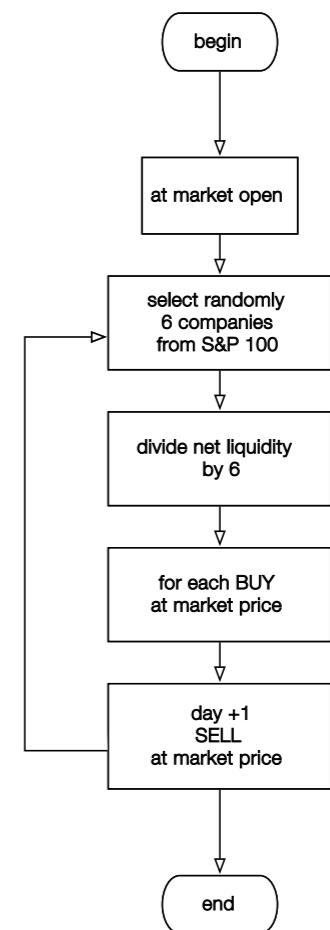
## 1.1 – ADM 8 (2011)

ADM 8 is a trading algorithm launched onto financial markets in September of 2011. Endowed with an initial 10,000 USD, it continuously buys and sells stock on the American, European, and Asian markets. Since its launch, and after 2,328 fully automated transactions, it has reached a +8.09% performance rate. The decision engine, based on a neural network and trained with historic stock prices, is intended to predict future stock price fluctuation.

The algorithmic structure of the programme, represented in this diagram, highlights the transient and highly speculative nature of algorithmic markets, where stock is sometimes only owned for a few microseconds, and underlines the obsessive futurologist behaviour of the algorithm, tirelessly repeating past tendencies in order to shape the future and thus create the possibility of black swans and flash crashes.<sup>7</sup>

## 1.2 - ADM X: The Algorithmic Trading Freakshow (2013)

ADM X is a cabinet of curiosities of trading algorithms. The collection presents roughly forty different specimens which have all, either nearly or effectively, disrupted the stock market—flash crashes, collective behaviour freezes, targeted and coordinated attacks, etc. Each of these algorithms was recreated based on documentary research. The collection, presented in chronological order, offers a journey through the folklore of financial markets, and highlights the digital transformations of trading methods in the era of computer networking technologies. Some of the exhibited algorithms have been reprogrammed in order to be applied in a virtual market and observed in action.

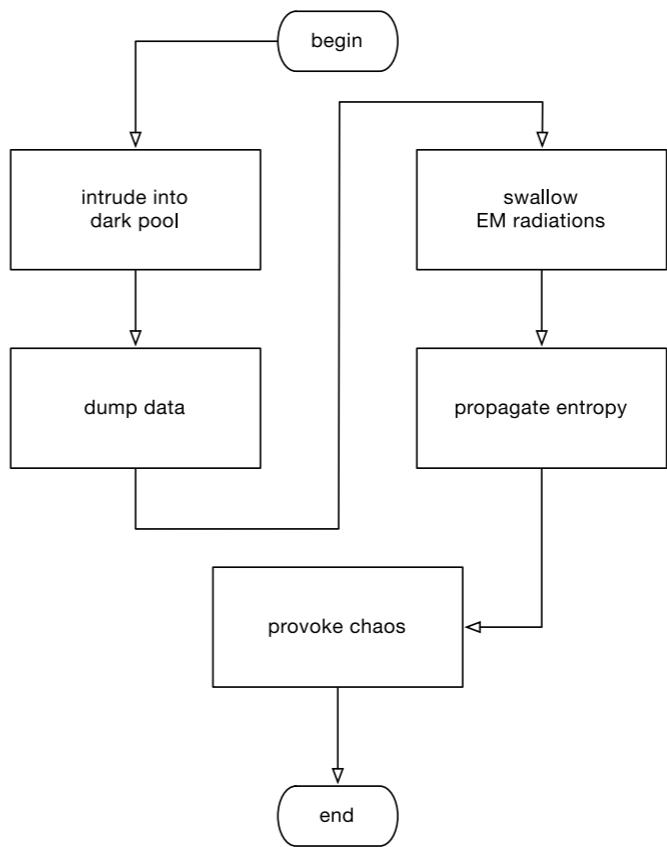


1.2 ADMX, Zero Intelligence Redux, RYBN.ORG, 2013

Fig. F.3 : RYBN, Zero Intelligence Redux, 2013

## 1.3 - ADM XI (2015)

Building on previous experiments with algorithmic trading, and concluding the Antidatamining series, ADM XI opens up the experimentation grounds by inviting other artists to take part in an open contest, in which the oddest, strangest algorithmic creations compete to provoke irreversible chaos within the stock markets.

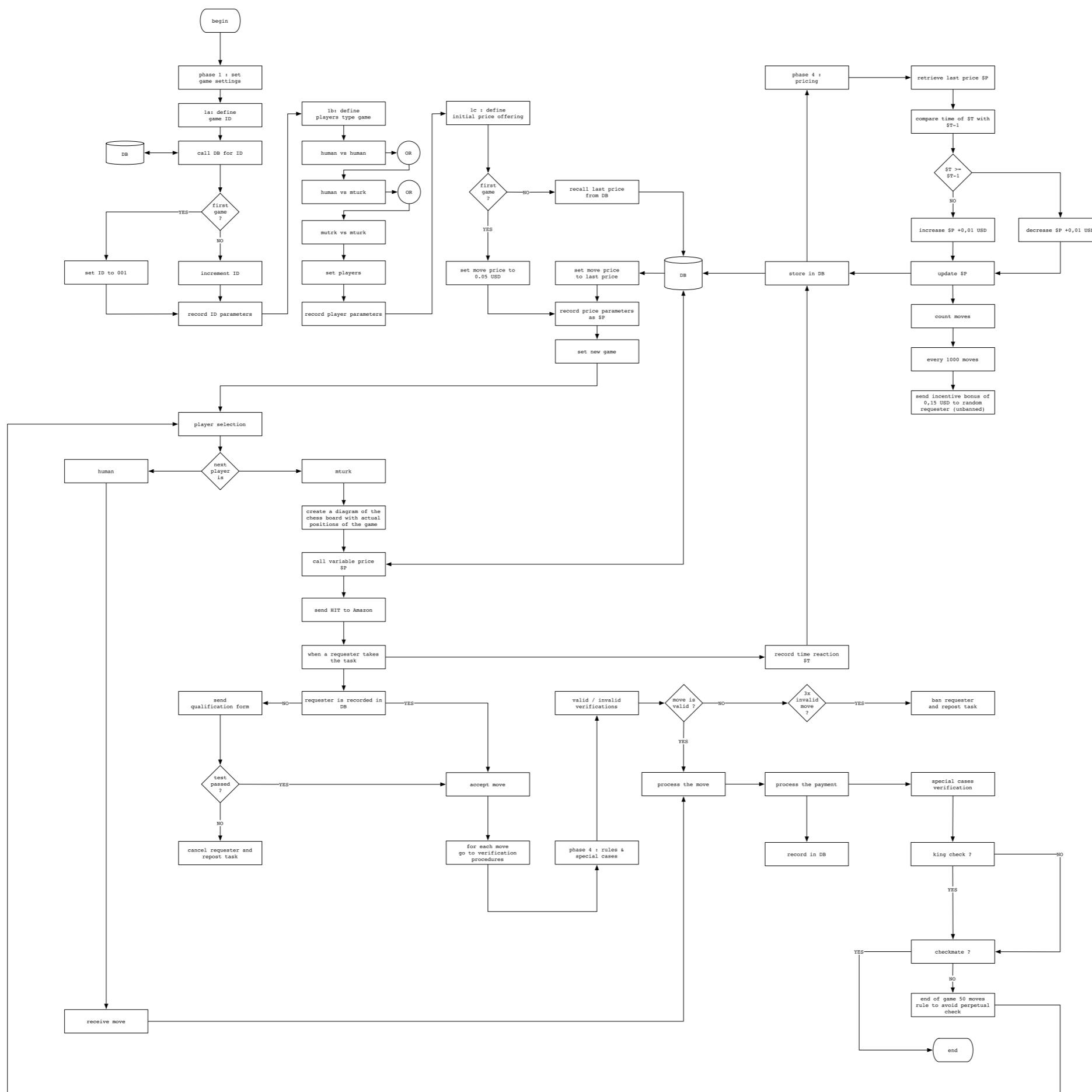


Astrology trading, geomantic trading, numerology trading, and other random methods of prediction have thus been applied and exploited on financial markets by artists b01, Femke Herregraven, Brendan Howell, Martin Howse, Nicolas Montgermont, Horia Cosmin Samoilă, Antoine Schmitt, Marc Swynghedauw, and Suzanne Treister.

1.1 ADM8, algorithmic diagram, RYBN.ORG, 2011

1.3 ADMXI - model : Femto-Black-Pool, b01, RYBN.ORG, 2015

## 2 – Human Computers series (2015, ongoing)



### 2.1 – AAI Chess (2018)

AAI Chess is a piece that reenacts the 1770 Mechanic Turk hoax on Amazon's micro-work platform MTurk. Workers, who are usually hired to train algorithms, are, in this case, paid to participate in a game of chess. The work is fragmented by task, and the AAI Chess algorithm determines the worker's "salary" according to the data produced during the game.

Most often, the "salaries" follow a downward trend, which is the general tendency on micro-work platforms, where high pressure and heavy surveillance and evaluation systems preclude all possible organization or protest on behalf of workers who might try to outwit or exploit the system to their benefit. By accepting the tasks dictated by the algorithms, and with zero visibility either on the project to which they are contributing or on the context in which they are operating, the workers never cease to perfect a system designed entirely against them.

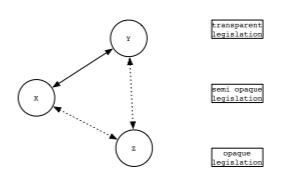
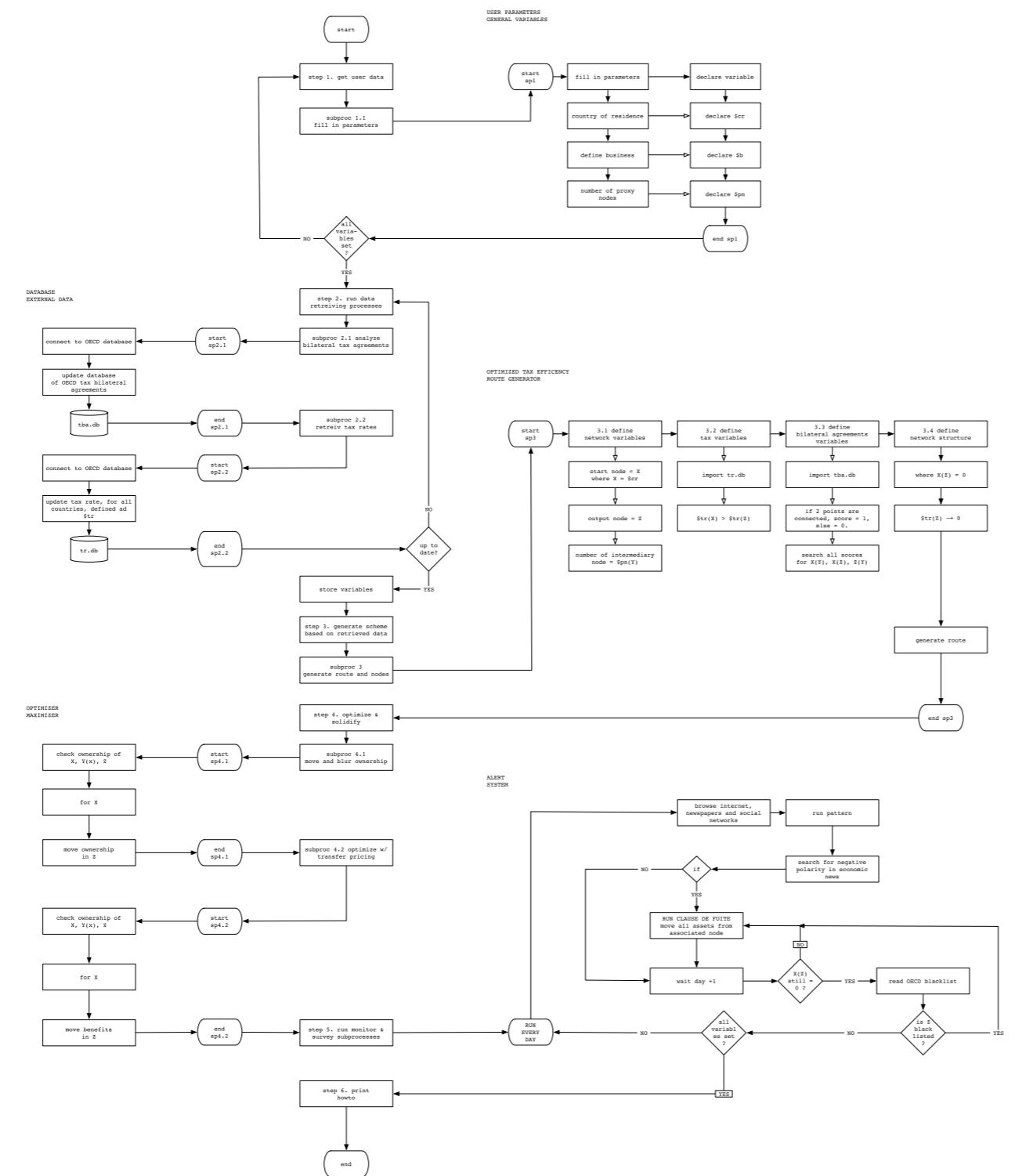
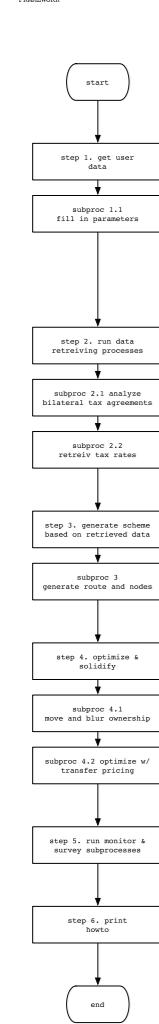
### 3 – The Great Offshore series (2017, ongoing)

Created as a part of the artistic research project entitled *The Great Offshore*, the *Algoffshore* series offers up speculative models of automated systems designed to optimize financial asset management. Each algorithmic model is a fiction and a story as much as it is a documentary piece, based upon the analysis of both complex tax-saving schemes and patents of automated systems. Each model is a potentially implementable system, having been verified by qualified professionals.

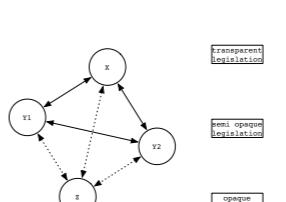
#### ALGOFFSHORE

The apparatus is a system that scans all tax imposition levels and all bilateral agreements between all world countries, to shape and define the best routes for tax optimization schemes.  
The user can customize the network shape with personalized parameters.  
The apparatus functions as follow :  
1. the software records the user parameters, such as : country of residence, type of business and complexity of structure, defined by the number of nodes.  
2. the software analyses all OECD database, to store all up to date bilateral tax agreements between all countries of the world.  
3. the software generates an optimal "route", or a tax optimization scheme that attempts to reach "tax efficiency".  
4. the software will change and move ownership of nodes, to optimize the route.  
5. optimize benefits by using transfer pricing, so to optimize benefits long term.  
6. monitor and survey the structure, by analyzing internet with text mining features, and initiating a "classe de fuite", if any issue is detected on social networks and news.  
7. generate a step by step instruction sets, in order to facilitate the set up.  
This flowchart describes all steps, between the main process and all the sub processes.

#### MAIN FRAMEWORK

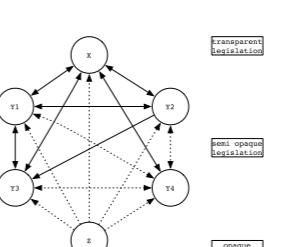
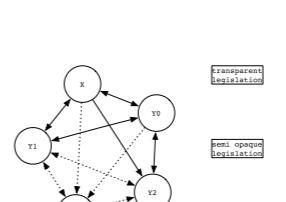


3.1 Tax Avoidance Scheme Generator, RYBN.ORG, 2017



#### 3.1 – Algoffshore 1 (2017)

The *Algoffshore 1: Tax Avoidance Scheme Generator*, born from the careful analysis of *Lux Leaks*<sup>8</sup> tax scripts, describes an automatic process of offshore tax avoidance schemes which are based upon the malleability of legislation placed under pressure from private interests. In this case, algorithmic governance manifests in the power shift towards dehumanized and automated processes. These processes facilitate the rise of new forms of governance, which come to us from the private sector and spread even to the heart of public institutions. In turn, these new forms of governance bring about a global governmentality which we may define, in Benjamin Bratton's words, as an accidental mega-structure<sup>9</sup> or a cybernetic Leviathan.

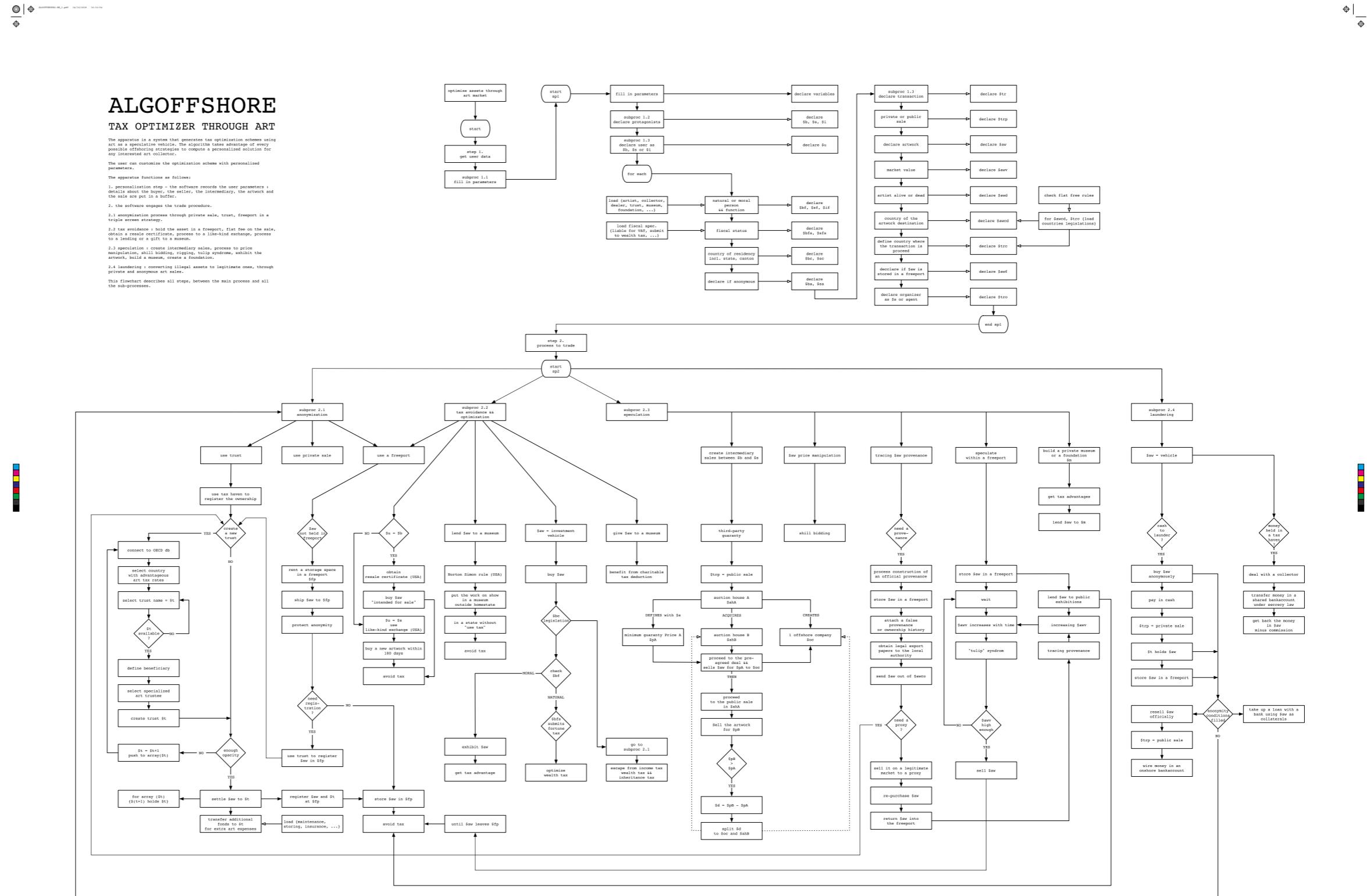


8. [Lux Leaks, ICIJ](#).

9. Benjamin Bratton, *The Stack. On Software and Sovereignty*, MIT Press, 2015.

## 3.2 – Algooffshore 2: Tax Optimizer Through Art (2018)

*Algoffshore 2: Tax Optimizer Through Art* addresses the use of artworks as mere financial assets, the mutations of the art market, and the tax optimization methods specific to that market, determined by the laws that (de)regulate them. The algorithm is equally based on a study of different artwork storage infrastructures, paired with that of title-deed transaction networks, such as free ports, which are the foundation of the contemporary art market. This model was verified by qualified professionals in 2018 during the Art Basel fair.

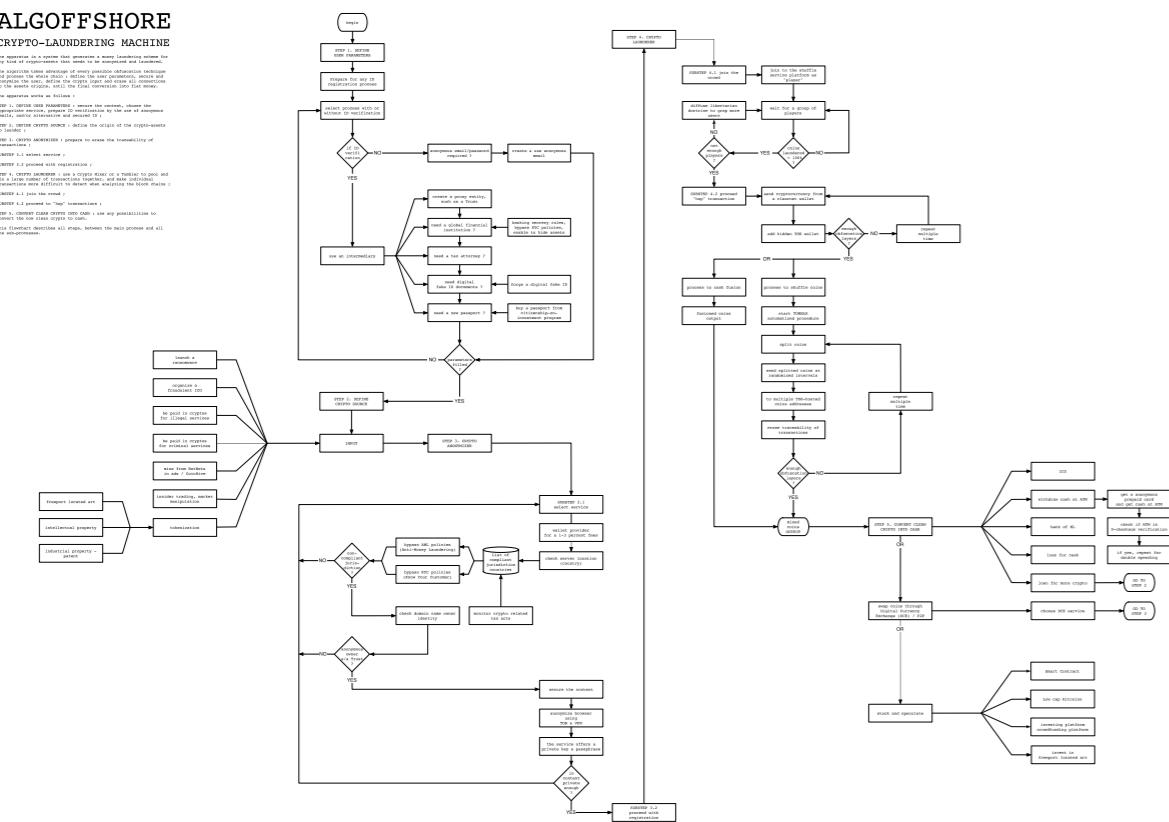


### 3.2 Algoffshore 2: Tax Optimizer Through Art, RYBN.ORG, 2018

### 3.3 - Algooffshore 4: Crypto Laundering Machine (2020)

Algooffshore 4: *Crypto Laundering Machine* examines the growing impact of cryptocurrencies and blockchain technology in the international mechanisms of tax evasion, fraud, and money laundering. Created from various police, legal, and institutional sources, the algorithm aims to crystallize the institutionalization of these technologies as they gain ground in offshore banking practices and revamp an image of trust and transparency which, in fact, could not be further from the reality of how these technologies are applied in the covert world of tax fraud piloted by Luxembourg, Malta, and Switzerland's market-places.

### 3.3 Algooffshore 4: Crypto Laundering Machine, RYBN.ORG, 2020



Recent academic and artistic research has proven the absolute non-neutrality of algorithms. Algorithms are filled with bias,<sup>10</sup> introduced either at the stage of design—an algorithm can reproduce its creator's bias—or in the phases of training and learning. However, not looking beyond that bias could lead us to conclude that simple adjustments and corrections would suffice in order for these algorithms to operate in a fairer, more ethical way.<sup>11</sup> Instead, we must embrace a more critical approach, and consider the deeper nature of these technical systems, taking into account the whole of the circumstances in which they are created, distributed, and used. We must observe the algorithms' very mode of existence<sup>12</sup> that experts like so much to keep hidden away from the public, under the pretense of complexity and technicality. This deliberate distancing has created tension in the whole of the social body. Researcher Dan McQuillan has conceptualized this tension under the term *state of algorithmic exception*.<sup>13</sup>

RYBN.ORG's projects invite us to experience this tension, whether it be through exploring environments and technical temporalities which are usually inaccessible and alien to us (financial markets evolving per microsecond in *ADM 8*); through the collective vertigo induced by crazed machines and governance methods derived from offshore finances (in the *Algoffshores* series); or through the bodily experience of human labour commanded by technical systems (*Human Computers*). These explorations of the laboratories in which algorithmic governance is bred give us the opportunity to experience the phenomena intimately. Only from then on can the collective elaboration of critical thought become possible.

10. See Kate Crawford, "The Hidden Biases of Big Data," Harvard Business Review, 2013; Danna Boyd, "Undoing the Neutrality of Big Data," Florida Law Review 67, 2016; and "Constant. correlations." 2015/2016.

11. See, for example, the discussions on AI Fairness in the post ["Fair AI: How to Detect and Remove Bias from Financial Services AI Models"](#); or the article ["Design AI so that it's fair,"](#) which perfectly illustrates the solutionist tendency.

12. Here, mode of existence refers as much to Gilbert Simondon's *On the Mode of Existence of Technical Objects* (1958) as to Bruno Latour's *Enquête sur les modes d'existence. Une anthropologie des Modernes*, Fayard/La découverte, (2012).

13. Dan McQuillan, “Algorithmic states of exception,” 2015.

# THE SUPERMARKET OF IMAGES AT JEU DE PAUME INTERROGATING THE DIGITAL ENVIRONMENT

Ève Lepaon

PERFORMING

ANTICIPATING  
a  
32

Evan Roth, *Since You Were  
Born*, 2016-2020 © Jeu  
de Paume, photographer  
François Lauginie



The exhibition *The Supermarket of Images*, recently presented at the Jeu de Paume museum in Paris, gave an important place to Big Data, their use, and the way artists question them today. The curators of this major thematic exhibition—philosophers Peter Szendy and Emmanuel Alloa and Marta Ponsa, head of artistic and cultural projects at the Jeu de Paume—started from the following observation: We live in a world increasingly saturated with images. How can we manage and think about these images, which increasingly need the digital economy in order to exist and survive? How can we describe this new economy of images? Based on this assumption and these questions, artworks that treat these issues were selected and arranged in five sections that characterize this contemporary “economy”—capital stocks, raw materials, work, values, and exchanges.

The exhibition opened with a focus on digital data storage technologies. The American artist Evan Roth took over the entire large entrance hall of the Jeu de Paume, covering the walls with a huge wallpaper reproducing images from his computer’s memory cache. Since You Were Born displayed all the images he had browsed on the Internet since the birth of his second daughter in 2016. The idea was, above all, to make this individual archive visible and to give “weight” to all these dematerialized images. The installation thus took into account the phenomenon of accumulation produced by digital technologies and the saturation effects, both material and visual, that they engender. The spectator was taken by vertigo in front of this mass of images. The work acted as a metonymy of the three billion or so images that circulate today, every day, and which therefore require substantial but hardly visible devices for exchange and storage.

The Mexican artist Geraldine Juárez, for her part, was interested in storage devices, both individual and collective. In her work *Storage* (2019)—a glass-door freez-

er embedded in one wall of the exhibition—she linked old storage media (photographic film, audio cassette, floppy disk) with new ones (CD-ROM, USB key, digital formats of still and moving images such as .jpg and .gif), skillfully mixing real objects and ice casts. This device recalled the conservation conditions necessary to preserve old media, many of which have now become obsolete, as well as new ones. Digital data, now stored on clouds that work with remote computer servers, also require refrigeration. Data centres use a lot of air conditioning to manage the temperature of the servers, and are increasingly built in polar zones. This has had a colossal impact on global warming. The total dependence of digital data on energy production obviously raises issues related to the environment and security. The work of Geraldine Juárez, working as much with the issue of melting ice as with the metaphor of the iceberg, subtly represented the extreme fragility of these data and their conservation systems.

While we cannot physically touch today’s immaterial images as we once could silver or printed images, we can nevertheless question the consequences of their production, storage, and circulation. What materiality do these digital images have? The works presented in the “raw materials” and “exchange” sections of the exhibition offered further reflection. *Addressability*, by Jeff Guess (2011), is an installation consisting of a screen projection linked directly to the international online press. The artist developed software that allows him to select an image and then fragment and reconstruct it before our eyes. He thus shows the composition of this digital image through the millions of pixels that determine its resolution, but also its functioning—the displacement, aggregation, and permanent disintegration of these small units as we consult and exchange them. Guess thus draws our attention to the new nature of the digital image—the immediate flow. This image is systematically composed and decomposed, appears and disappears before our eyes and in our memories at

Geraldine Juárez, *Storage*,  
2019 © Jeu de Paume,  
photographer François  
Lauginie





Aram Bartholl, *Are You Human?*, 2017 © Jeu de Paume, photographer François Laugainie

an unprecedented speed. The interest of Guess' work is that it materializes and slows down these phenomena to give us something to think about and, no doubt, to invite us to question their inanity.

This is also at the heart of *The Pirate Cinema* (2012-2014) by the collective DISNOVATION. ORG, using images exchanged in real time thanks to the peer-to-peer system, and the project by artist Lauren Huret and the collective Fragmentin for the Jeu de Paume's "virtual space"—burningcollection.tv—which instantly selects and aggregates images from the five most-viewed videos on a famous online content-sharing platform. The beam of light that crossed part of the room made us realize that these images do not exist without electricity. In order to exist and move, these images depend upon our access to energy and telecommunication networks. This is also what the work *Disruptions* (2015-2017), by Taysir Batniji, an artist of Palestinian origin living in France, highlighted. His installation, consisting of a set of screenshots of WhatsApp conversations that the artist had with his family in Gaza, showed the dysfunctions of the application (pixels, blurring, deformations) that violently collided with their communication. *Disruptions* questioned the material, economic, and political context of the very conditions of existence of digital images. The work put forward the relations that these digital images weave between the intimate and the political.

The "work" section also asked the visitor about the social impact of digital images and their economy by showing how they generate specific activities. To appear, circulate, or even disappear, these images require human labour. Martin Le Chevallier's work, *Clickworkers* (2017), gave subsistence to the voices of "click workers," a category of labour recently defined by sociologist Antonio Casilli. Le Chevallier's video shows empty rooms, without furniture or human presence. In voice-over, testimonies of workers describe their daily lives. "Liking," "tagging," sharing, censoring—these are

the occupations of these labourers. Working in extremely precarious conditions, usually as subcontractors, and invisible, they nevertheless shape what is visible and allow the GAFAM companies to extend their domination and profits. In doing so, these web giants privatize what is visible.

Lauren Huret also interrogates the psychological consequences of this type of image teleworking. In her work *Portrait of Saint Lucia (Lesley Ann-Cao)* from 2019, she depicts one of the Filipino workers in Saint Lucia, patron saint of the blind and visually impaired. Her eyes seem to be extinguished, staring at an indefinite point, while two artificial eyes are frantically waving on a smartphone-shaped tray. Huret portrays these click workers as martyrs of contemporary imagery, exchanging their gaze for a modest reward. In this "shadow economy" of images, in the words of Peter Szendy, these women, both actors and victims, suffer from the form of wear and tear of the gaze that they help to produce.

These workers will no doubt soon be replaced by robots, as one of the testimonies in the work of Martin Le Chevallier points out. That the human gaze is now helping to improve Artificial Intelligence systems is what the German artist Aram Bartholl evokes in his work *Are You Human?* from 2017. Composed of a metal sculpture on the ground and photographs printed on canvas, his installation raises questions about the functioning of CAPTCHA (Completely Automated Public Turing Test to tell Computers and Humans Apart), a security system developed by Google to distinguish human Internet users from the robots programmed to hack information. Based on the principles of research conducted by the English mathematician Alan Turing, this device consists of "riddles" made up of numbers and distorted letters or images to be associated with words that are regularly submitted to us, and which in fact make it possible to improve and perfect Artificial Intelligence algorithms. In particular, they feed automatic visual

recognition devices. Thus, without being aware of it, each time we are confronted with a CAPTCHA and respond to it, we perform a form of masked free work, and put our intelligence at the service of robots that will soon be able to compete with human beings. The border theme chosen by the artist to generate the images supporting these fake CAPTCHAs is interesting, causing the viewer to think about the limits of these systems, while obviously raising a number of questions about issues of individual liberty, security, and surveillance.

The collection and analysis of data taken from the Internet can indeed feed into marketing studies and monitoring devices, as the video *Patterns of Life* (2015) by Julien Prévieux critically and ironically poses. At the end of the exhibition, the photograph by American artist Trevor Paglen, entitled *NSA-Tapped Undersea Cables, North Pacific Ocean* (2016), showed the fragility of the underwater cables that cross the Atlantic. Following the path of telecommunications routes established at the beginning of the 20th century, these cables carry nearly all of the world's data, but are nevertheless vulnerable. The exchange of information via this infrastructure thus poses security and surveillance problems that Edward Snowden's revelations about the NSA in 2013 have brought to light. As a metaphor for the fragility and opacity of contemporary exchanges of digital data, Paglen's photograph of these fine black lines, covered with a thick blue halo that prevents us from clearly distinguishing their contours, seems to materialize and question the nature of the digital image in the era of globalization.

Despite its premature closure due to the COVID-19 health crisis, this exhibition completely fulfilled its critical and educational role with visitors of all ages by raising more questions than providing answers, and opening up reflection. The combination of the exhibition's philosophical approach and the artists' proposals encouraged viewers to question the passive attitude of generalized consumption, and encouraged the adoption of a more civic and responsible stance towards the digital environment.

[3D virtual tour of the exhibition The Supermarket of Images](#)



Trevor Paglen, *NSA-Tapped Undersea Cables, North Pacific Ocean*, 2016 © Jeu de Paume, photographie François Laugainie

# APR ECE NOV SEARCH



© Daniel Rolider (Israel)/UNESCO Youth Eyes on the Silk Roads

## *Climbing Bedouin*

"A young Bedouin boy climbing barefoot on a boulder in the middle of Wadi Rum, Jordan. Throughout its poetical existence, the Silk Road has significant value in our history as human beings, especially in our globalized world. It represents the shared, rich history, of many cultures, countries and people."



**MOST is UNESCO's  
intergovernmental science  
programme on social  
transformations.**

**MOST works with  
governments, social  
and human science  
communities and civil  
societies to improve  
connections between  
knowledge and action,  
connections that are one  
key to positive social  
change.**



© Quyet Thang Dau (Vietnam)/UNESCO Youth Eyes on the Silk Roads

*Women in Agriculture*

"Rice not only brings prosperity, but it also brings beauty to the spiritual life of the Vietnamese people. Both rice and the hard-working farmers that produce it are indispensable to the growth of the Vietnamese village, today and forever."

**The UNESCO Silk Roads Programme reinforces intercultural dialogue and mutual understanding by building links between people from different communities. Through this programme, UNESCO has not only succeeded in reviving the historical Silk Roads, but has also promoted the present-day legacy of human interactions, common values, and shared heritage. This is achieved through different Silk Roads Programme sub-initiatives such as the Online Platform, the Interactive Atlas, and the International Photo Contest.**

The annual UNESCO Youth Eyes on the Silk Roads International Photo Contest offers an exciting opportunity for young people between 14 and 25 years old from all over the world to capture their understanding of the shared heritage of the Silk Roads through the lens of their camera. Because the visual arts, and in particular photography, are increasingly being used by today's youth as a powerful tool for communication and self-expression, they have the potential to play a significant role in raising awareness of the key issues facing our contemporary world.

Therefore, the UNESCO Youth Eyes on the Silk Roads Photo Contest invites young people living or travelling within these regions to share their perceptions, and further their understanding of the common cultural heritage and pluralistic identities emerging from the interactions and exchanges taking place along the Silk Roads. The contest encourages the use of photography to extend these cultural encounters into the contemporary world and promote peace and tolerance amongst diverse populations. It aims to raise awar-

eness among youth of the importance of the Silk Roads' shared legacy, as a basis for mutual understanding and respect in our increasingly globalized world.

The contest is divided into two age categories: 14-17 and 18-25 year olds. The International Selection Committee members examine their submissions and select the winners from each age category. The first contest took place in 2018 and mobilized applicants from 100 countries around the world. The young photographers were invited to take pictures that represented the Silk Roads heritage within four major themes: Culture, Monuments, Landscape and People. A photograph album showcasing the best submissions was published in 2019, and a travelling exhibition presenting the best photographs was shown in countries around the world.

Following the success of the first contest, a second one, launched at the end of 2019, received more than 3,500 submissions. For this second edition, the photos had to represent one of these three themes: Gastronomy and Food Production, Music



© Xiaoyi Yan (China) /UNESCO Youth Eyes on the Silk Roads

Won the Second Prize for Category Two (17-25 years old)

*Gongfu on Hand*

"Photographed in the old tea house in Peng, Chengdu, in the Sichuan province in China. Historically, Chinese tea was the main commodity of the Silk Road. In contemporary society, both the spiritual and cultural significance associated with tea and teahouses have been recognized by the world. Tea plays a major role in trade, while also helping to promote mutual understanding and respect between people."



United Nations  
Educational, Scientific and  
Cultural Organization



• The Silk Roads  
• Dialogue, Diversity  
• and Development

and Dance, or Traditional Sports and Games along the Silk Roads. The results of the contest will be announced in mid-2020.

*In addition to mobilizing young people from different regions around the world, the photography contest encourages young people to use photography as a tool for peace, and for the raising of awareness about the Silk Roads heritage.*

Youth Eyes on the Silk Roads Photo Contest website: <https://unescosilkroadphotoccontest.org/>

Photo Album of the first edition Youth Lens on the Silk Roads: <https://unesdoc.unesco.org/ark:/48223/pf0000368897>

Tara Golkar - UNESCO-MOST

© Michael Theodric (Indonesia)/UNESCO Youth Eyes on the Silk Roads

Won the Third Prize for Category One (14-17 years old)

*Gamelan*

*"Mbah Ripto, playing a gamelan (a traditional Indonesian music instrument) that he made himself. 'Gamelan' was founded in the 8th century in Borobudur Temple, which is a Buddhist temple. Buddhism was mainly spread along the Silk Roads."*





Left:  
© Nasiba Nurmatova  
(Kyrgyzstan)/UNESCO Youth  
Eyes on the Silk Roads

Got the Honourable Mention  
for Category Two (17-25  
years old)

*Celestial Youth*

"Kyrgyz dancers on a  
traditional swing at the Teskei  
Jeek, South Shore, Issyk  
Kul Ethno Festival. Since  
ancient times, traditional  
dancing, which is a part of  
the Silk Road culture, has  
been passed down through  
generations."

Right:  
© Badr Al Qassabi (Oman) /  
UNESCO Youth Eyes on the  
Silk Roads

*Sandalwood*

"A woman puts sandalwood  
on a child's face. I took this  
photo during a festival in the  
SAFA house."





Photo by Kim Chapiron

## CONFRONTING EVIL

When UNESCO, in collaboration with the Collège de France, decided to take an interest in the question of evil, we were not yet facing the health crisis that we have been experiencing since the end of January 2020. Yet, it was already urgent to rethink evil, that is to say to look at the diversity of its definitions, or rather its lack of precise definition, and to consider the place it occupies in our contemporary world and will occupy in the near future. Indeed, religious and philosophical discourses about the value attributed to evil have gradually transformed, and are more and more determined by modern technological developments. Man—his essence or his actions—is not blamed for evil as much as is the society in which he evolves. The idea of “evil” has moved from a generally voluntary aggression—one does evil or suffers it—to a techno-economic process: Hyper-industrialization, personal data surveillance, drone bombings, to name but a few, change our relationship to evil by making it more indirect, diverted and morally difficult to evaluate. The paradigm around the concept of evil has changed because, as a whole, our societies have changed. We are at the cross-roads of several possible worlds based on new technologies, Artificial Intelligence and ultra-globalization. It therefore becomes essential to know what motivates the transformation of our current societies through a concept that continues to guide us morally and produce political and social judgments.

In modern societies, when we say that something is “wrong,” we do not simply describe it. We give it meaning, which includes both analysis and judgment. Evil refers to the supposed action of a power, of an “evil” dynamic; it also requires that a position be taken. It is what we cannot remain indifferent to. This concept seems to be unique, and applies only to the most morally despicable types of actions, characters, and events. Two meanings of the word “evil” overlap today: “It’s bad” and “Everything is wrong” whilst the whole

planet seems to be in crisis. The first sense refers to Übel’s sense of evil—provoked and inflicted—while the second, much more widespread, refers to “badness,” “meanness,” or adversity. Thus, evil is physical, moral, and metaphysical: We are evil when hurting others, we can feel evil when we are suffering, and evil emerges as a metaphysical force when it is connected to finitude and emptiness. The religious, philosophical and political histories of the concept of evil have clashed, while today the relationship of Evil to “Good” appears increasingly uncertain. On the one hand, the concept of evil seems difficult to define, as its meaning has evolved. On the other hand, it seems easier to agree on what is bad than on what is good. Evil now seems to be in a whole new relationship to willpower (according to which Kant conceived the radical evil), to thought (through which Arendt conceived the banality of evil) and to the meaning of existence.

The concept of evil is therefore very ambiguous, and its lack of concrete meaning could even be considered one of its central characteristics. However, even though the concept of evil challenges current thinking, it is necessary to revisit and redefine it when we consider our conceptions of desirable futures. It is interesting to note, for example, that anticipation novels are now mostly dystopian. Could this be the end of our imagination, and with it our ability to conceive of a bright future, evil being the only thing we can imagine and, above all, anticipate? With reason? When we project ourselves into the future, or rather into the absence of a future, what place do we give it? Is the virus that is currently destabilizing the entire world—and which, an invisible adversary, has become a symbol of a troubled and uncertain future—one of the most salient features of the evil that the world is facing, just like the political, climatic, social and economic crises? To these crises we must add our projections about our current transformations. For example, how can we view the progress of Artificial Intelligence other than

through the prism of catastrophism, and what moral values do we wish to give it? How can we fight against the weakening of human rights, the prevailing nihilism, the fear?

To provide answers to these questions is to be able to imagine evil, and it is indeed art that can challenge us. Art awakens our emotions, transports us, and effortlessly pushes us to new forms of thought. The result is a plurality of representations and meanings of evil at the interface between the individual and the collective, reality and fantasy, action and thought. Art and thought are two interconnected entities that influence each other. Over the centuries, artistic currents have often reflected philosophical and religious currents, and conversely, artistic currents may have led to new ways of conceptualizing. Moreover, art, in the Latin sense of *ars, artis*, "technique," becomes a new way of thinking, enriched by inventions and technological advances, and rooted in a more raw and direct way of reflecting on evil, of transforming this thought process into perception, as much for the artist in the creative process as for the viewer.

By offering perhaps a more transcendent way of understanding, art thus depicts society, culture, and the times in which it is inscribed, the artistic representation being first and foremost a representation of the needs of a society at a given time. It was first of all a question of giving life to the impalpable, of illustrating it, of giving a face to evil. Even though it has multiple shapes, it occupies a central place in Western art. It is personified in the figure of Satan, designated as an archetype to embrace the characteristics of evil, as represented in the bestiaries of the Middle Ages. It takes on the face of criminals through 18th century French prints, and physiognomy even turns it into a scientific subject. Artists have thus shown different faces of evil: Its representations can instruct, can remind us of the finiteness of man, can be the expression of suffering, and can awaken suffering in the viewer.

Twentieth-century painting and photography are particularly revealing in this regard. As a reaction to the atrocities of the last century, they are above all a reminder of horror while questioning its very origin. Art dares, sometimes crudely, to represent the unrepresentable. It is undoubtedly this audacity that is its strength, and where its capacity to constitute a current of thought on its own lies. Finally, let us add that art is also part of the solution, aesthetics taking the representation of evil on the flipside; artistic creations for preventive action, particularly for AIDS at the end of the 20th century, was a good example of this.

The arts, together with the human sciences, are tools for a better understanding of social transformations, and can lead us to take into account new forms of evil. Representing and telling a story is capturing reality—and what hides behind it. They make it possible to consider evil as a universally shared value, but paradoxically, one that is relative to times and cultures. Different cultural meanings of the term "evil," some of which are contradictory, must indeed be taken into consideration. For example, Gandhi set Good against Evil by opposing the West—of which he was a radical critic—and the East, of which he denied all evil despite the extremely oppressive caste system of the subcontinent. Such cultural and political deployments of the concept of evil make it necessary to examine its distinct uses across regions of the world beyond the usual distinctions. Thus, to think of our relationship to evil would also mean to think of our relationship to the "other." Is the value that we grant to evil part of cultural diversity? Does the notion of evil not determine our relationship to living together? In order to build "peace and good in the minds of men and women," as UNESCO's mandate states, we must confront what constitutes evil, think about it, express it, and remember it. It is not a question of justifying evil, but rather making it visible in its many forms, conceiving it as a possibility inscribed at the very heart of the human being—not

only to put it at a distance and contemplate it aesthetically, but to move to another level of confrontation, a basis for action.

*"Confronting Evil" is a collaboration between UNESCO and the Collège de France in the form of a three-day conference that will gather leading thinkers and researchers from several disciplines to discuss the importance of reviewing and redefining the concept of evil. This transdisciplinary approach will include an artistic dimension, with an exhibition, performances, and music and video installations. The event, initially planned for the end of June, has been postponed to November 2020 due to the sanitary crisis. A three-part webinar titled "Is it possible to talk about Evil in times of pandemic?" derived from the conference will take place on June 29, 30 and July 1.*

Camille Guinet - Coordinator,  
UNESCO-MOST

Photo by Kim Chapiron



**CIPSH is a non-governmental organization under UNESCO that coordinates the international works and researches carried out by a huge constellation of centres and networks of scholars to favour the exchange of knowledge of cultures and of different social, individual and collective behaviours, and bring to the fore the richness of all cultures in their fruitful diversity.**



PHAÉTON, opera directed and choreographed by Éric Oberdorff.  
Photo d'Éric Oberdorff

## Overview of Global Strategy

In 2014, the General Assembly of the International Council for Philosophy and Human Sciences (CIPSH), hosted by UNESCO in Paris, decided to engage in an ambitious agenda, aiming at resuming the role of the Humanities in contemporary society after decades of undervaluation. Following this, the framework agreement of cooperation with UNESCO has been resumed and updated, and this is the moment to report to you our common advances, our ongoing key programmes, but also our growing expectations.

In 2017, together with UNESCO, we organized the World Humanities Conference, whose final recommendations, endorsed by the General Conference of UNESCO in 2018, sit at the heart of a workplan which is now being implemented. (See: <http://www.cipsh.net/web/channel-112.htm>).

Since then, four major international projects have been established.

The Global History of Humanity directly addresses the need to understand the common past of our species, with all its diversity, starting with a dozen debates that can now be considered important in showing the role of the humanities in response to the challenges of a world that becomes at the same time more integrated and more fragmented. These debates, ranging from the origins of humankind and technology adaptations to patterns of consumption, will be published to address a wider community of readers and supported by material for schools. (See: <http://www.cipsh.net/web/focus-23.htm>).

The World Humanities Report aims at offering a portrait of the Humanities worldwide, considering regions, disciplines and themes, and noting positive changes that are underway (concerning methods, institutions, networking or themes) while identifying which are the main risks (concerning archives, disciplines, methods, lan-

guages, platforms, heritage sites, research programs, and institutions) and which are the current institutional frameworks of the Humanities in different regions and countries. (See: <http://www.cipsh.net/web/focus-22.htm>).

A third main project has been to identify strong international university networks dealing with key topics of societal interest and fostering their structuring as UNESCO or CIPSH chairs. So far, ten chairs have been established, involving over 150 very strong institutions, covering themes such as borders and migrations, language diversity, global understanding, new humanities or landscape management. (See: <http://www.cipsh.net/web/focus-21.htm>).

The understanding of the need to foster a close collaboration between the Humanities and the Arts led to the establishment, in partnership with UNESCO-MOST and Mémoire de l'Avenir, of the Arts and Society project, first presented at the World Humanities Conference and now experiencing a consolidation and expansion in partnership with the Global Chinese Arts and Culture Society, of which the platform [humanitiesartsandsociety.org](http://humanitiesartsandsociety.org) and HAS Magazine are tangible results.

CIPSH is also committed to establish an international coalition, BRIDGES, as a means to complete and thereby strengthen the sustainability science domain, building from the Humanities, encompassing the Arts, the Social and Natural sciences, as well as other knowledge communities and traditions, aiming to be formalized within UNESCO's Management of Social Transformations (MOST) programme. (See: <https://en.unesco.org/news/toward-establishment-bridges-action-promote-sustainability-science>).

## CIPSH 70th Anniversary

The International Council for Philosophy and Human Sciences was founded in January 1949, in Brussels, under the auspices of UNESCO, to explore the uniqueness of the Humanities for understanding the great challenges of Huma-

Above:  
Archaeological Museum of  
Maçao, Portugal  
Below:  
Screening of Arts and Society  
during the World Humanities  
Conférence, Liège, 2017



uity—peace, conviviality, purpose, what it means to be human, what conditions human agency, and how to articulate cultural diversity and the unity of the species while rejecting any forms of racism, xenophobia or other prejudice. Philosophy, History, Literature, Anthropology, Geography, all their sub-disciplines, but also the fundamental principles of meaning and ethics in the other sciences, are at the core of the work of CIPSH.

On its 70th anniversary, CIPSH stresses the need for the Humanities to resume their central role, also understanding that this is a precondition for humans to be able to build effective converging agendas for the future. This implies revisiting and reinforcing Humanities education at all levels and overcoming the absurd divide between the investments in what societies want to have and on how societies want to be. Such a divide pushes all of the world to growing tensions, war and despair. CIPSH, along with all of its member federations and associations, is committed to collaborate in countering this divide.

The online publication of the CIPSH 70th anniversary is available at <http://www.cipsh.net/web/news-291.htm>.

## European Humanities Conference 2021 – Save the Date

The European Humanities Conference will take place in Lisbon from May 5 to May 7, 2021, during the Portuguese Presidency of the Council of the European Union.

The Conference is jointly organized by CIPSH, UNESCO and the Foundation for Science and Technology (FCT), the Portuguese public agency for the support of research and development in all areas of knowledge. The general theme of the conference is European Humanities and Beyond. Four specific issues have already been proposed: 1) Multidisciplinary Dynamics as Education and R&D strategies for meaningful problem solving; 2) Heritage, mobility and identities; 3) Influence and impact of the Humanities in society;

4) New Humanities. (More information will be available soon at [www.cipsh.net](http://www.cipsh.net) and [www.europeanhumanities.ipt.pt](http://www.europeanhumanities.ipt.pt)).

### Humanity and COVID-19

On April 16th and 17th, CIPSH co-organized, with the Asian New Humanities Network and the College of Public Health of NTU in Taipei, the online conference meeting on Humanity and COVID-19, chaired by Prof. Hsiu-Hsi Chen. Several core themes were discussed, on the contributions of the Humanities for facing major challenges such as epidemics, natural hazards and wars, focusing on the current COVID-19 pandemic. (See: <https://planetaryhealth2020.website/news>).

### CIPSH Charis Programme

CIPSH, the International Council for Philosophy and Human Sciences (Conseil International de la Philosophie et des Sciences Humaines), has established a programme of academic chairs, designed to highlight and encourage existing research networks of centres of research in the humanities, to attract greater attention to the humanities worldwide, and to enhance recognition of their importance in contemporary society. Further information is available at [www.cipsh.net](http://www.cipsh.net).

### CIPSH International Academy on Chinese Cultures and Global Humanities

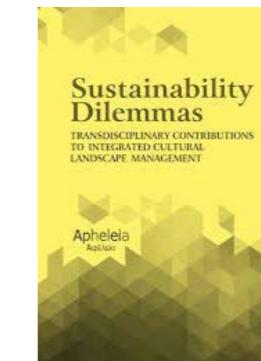
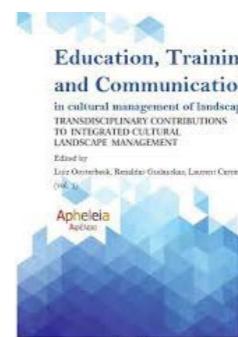
Following the increasing number of CIPSH meetings and other activities in Asia, an understanding was made in the interest of undertaking multidisciplinary research in the Humanities, focusing on Chinese cultures, internally and in other continents. These researches will include the study of Chinese history and philosophy, of the interaction and influence between the Chinese and Asian diasporas, of their impact in the circulation of knowledge, as well as the perception of Chinese and Asian Humanities in other regions and cultural traditions.

Within this scope, CIPSH will organize an International Academy on Chinese cultures and Global Humanities, consisting of a

series of yearly intensive seminars focusing on specific themes, promoting a dialogue with the academic communities in the region where they will be held and attracting advanced students to foster future research in those domains. It will be advised by a scientific committee appointed by CIPSH. The programme, benefiting from a grant from the Chiang Ching-kuo Foundation for International Scholarly Exchange, will take place in Europe. (More information will be available soon at [www.cipsh.net](http://www.cipsh.net)).

### VI APHELEIA Online Seminar

The VI APHELEIA International Seminar on Humanities and Cultural Integrated Landscape management was organized in Maçao, Portugal, from March 30th to April 4th, 2020, on the general theme Humanities, Arts, Technology and Social Cohesion. The seminar focused on how the discourse of the Arts, interacting with Humanities research, contributes not only to disruptive thinking and the questioning of society, but also to foresight and social cohesion. This seminar brought together researchers, artists and students. Due to the COVID-19 pandemic, the seminar was undertaken with a limited number of oral presentations from research students, but will include, in the final publication, the contributions of several researchers who had initially adhered to the programme. (See: <http://apheleiaproject.org>).

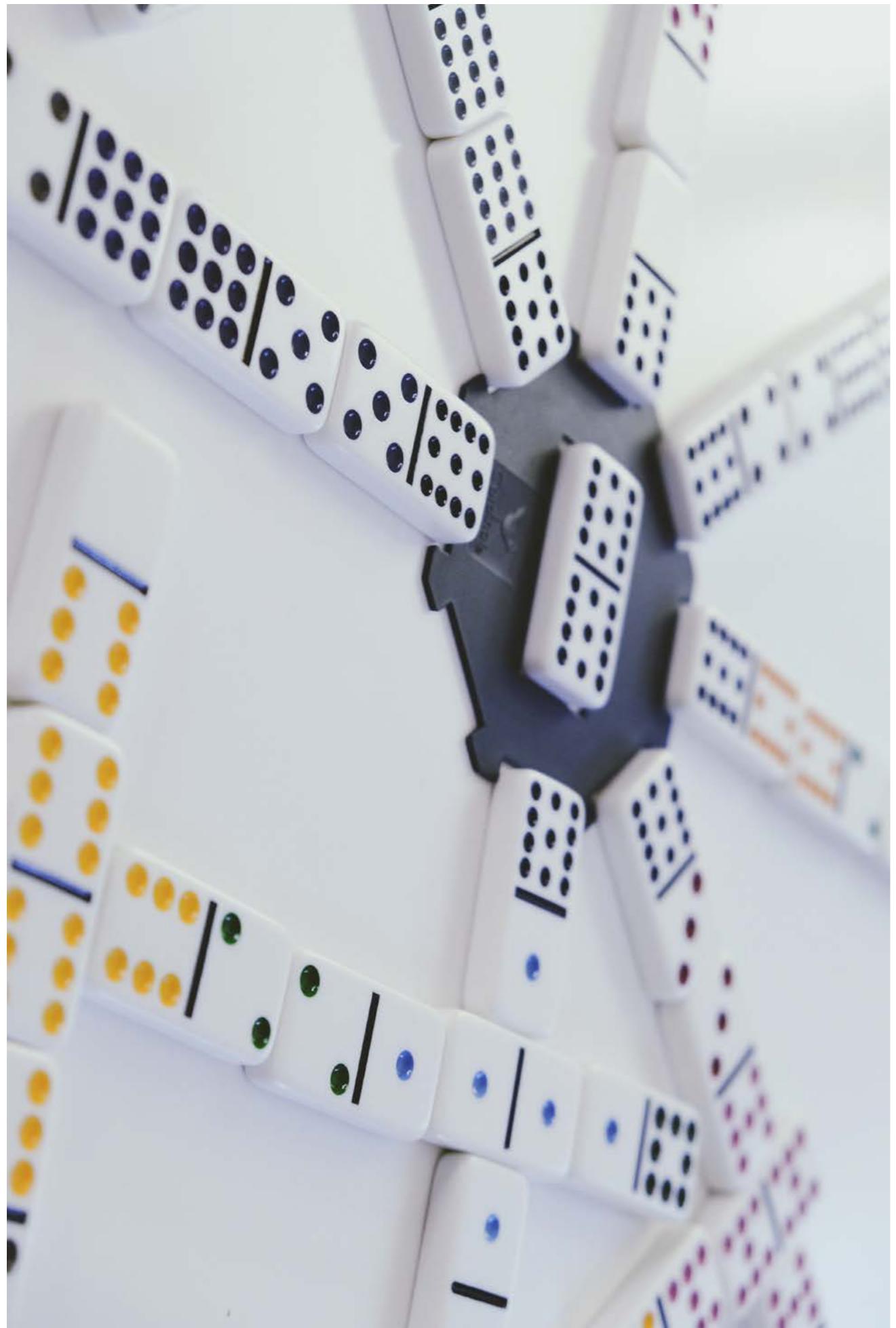


[humanidades/en/presentation/](http://www.cipsh.net/en/presentation/).

### Strategic New Partnerships

A memorandum of Understanding for Academic, Scientific, and Cultural Cooperation has been signed between the International Council for Philosophy and Human Sciences and the International Centre for Human Sciences-UNESCO in Byblos. (See: <http://www.cipsh.net/web/news-293.htm>).

An agreement has also been signed between CIPSH and the Association Of Universities Group Montevideo. (See: <http://www.cipsh.net/web/news-292.htm>).



**“In the 21st century – indeed, now more than ever – the discipline of logic is a particularly timely one, utterly vital to our societies and economies. Computer science and information and communications technology, for example, are rooted in logical and algorithmic reasoning.”**

**Audrey Azoulay, Director General l'UNESCO**

#### **International Day of Logic**

At its 207th session, in 207 EX/Decision 42, the Executive Board recommended “... that UNESCO’s General Conference, at its 40th session, proclaim 14 January “World Logic Day” in association with the International Council for Philosophy and Human Sciences (CIPSH).”

The report explains the historical, cultural and intellectual importance of logic for philosophy and the sciences. It argues that the proclamation of World Logic Day would contribute to the development of logic through teaching and research, as well as to public dissemination of the discipline and to the promotion of international cooperation in the field, and offers a rationale for UNESCO celebration of World Logic Day without financial implications, in close synergy with World Philosophy Day, drawing on the commitment of existing academic networks and working in collaboration with the CIPSH. (See: <http://www.cipsh.net/web/news-295.htm>).

**Mémoire de l'Avenir is a non-profit organization whose mission is to use the arts and cultural heritage as a means of improving society. Through the development of four interconnected endeavours—exhibitions, pedagogical actions, research, and Humanities Arts and Society—Mémoire de l'Avenir places creativity at the heart of its actions, tools, and methods to promote reflection and education, active and creative participation, cross-cultural and interdisciplinary dialogue, freedom of thought, respectful interchange, and better knowledge of oneself and "others." The aim is to transmit a message of openness and acceptance of divergence, and to promote mutual understanding of cultures and of individuals.**



Riccarda Montenero



Mémoire de l'Avenir: a space for exhibitions, performances, debates and meetings, open to the public.

Mémoire de l'Avenir is located in Belleville, a multi-cultural district of Paris. It has been designed as a space for meetings between artists, thinkers, and the public, of all social and cultural backgrounds, with a focus on the arts and their implications in society. We offer contemporary art events at our space, as well as satellite events in which the featured works favour sensitive and intuitive approaches to the world via innovative artistic and curatorial methods. Each exhibition offers tools for reflection, on the art as formal presentation, but also on the underlying issues and concepts. By questioning the world, artists set forward ideas, give shape to emotions, and propose paths to debate. The works do not provide answers or solutions, but seek to question individual and collective social issues. Our programmes are based on original approaches and methods by Margalit Berriet, including multidisciplinary workshops and interactive cultural mediation. The method is based on inclusivity, respectful of all cultures and identities, and favours an intuitive approach to creativity and sensibility as basis for cognitive learning. Through our interactive cultural mediation programme with audiences facing constraints to cultural access, the arts and museums are used as tools for dialogue, debate and critical questioning of contemporary issues. This mediation aims to make participants autonomous in the museum space to both individually and collectively build knowledge and know-how, accompanying each in their perception and understanding of the world.

### Exhibitions

Mémoire de l'Avenir is firmly dedicated to gender equality as an essential component of peace and sustainable development. Exhibitions addressed gender roles, sexism, gender-based violence and cultural identities, often using the personal as a point of departure to explore the universality of these issues.

The group show *Manifesto For Women Of The Future* offered a look to the future of gender equality and gender-based

violence through an analysis of the present. The artists invoked the Woman of the Future through investigations of the body and the spirit (Marie Gossart and Florence Pierre, Déborah Sfez), the veil of modesty (Laura McCallum), the image of the fantasized woman (Clara Daniele, Aleksandra Adamczyk), cultural identity (Nesrine Mouelhi), feminine relationship to nature (Carmen Bouyer), and the women's place in the media (Andrea Bass). The exhibition also included *A Literary Walk In Belleville* by Marie Poinsot, discovering the district through the traces of women who lived there in the 19th and 20th centuries. The performance and discussion *Istanbulollywood* by Sedef Ecer explored the place of women in the cultural and artistic spaces of Turkey, going back to the golden age of Turkish cinema through the figures of three generations of actresses.

The collective event *Beyond The Veil* united more than 100 artists from 35 countries, opening a debate on gender equality on an international level with the complex and controversial issues of the veil as a point of departure. All artists bring a personal and sensitive point of view, questioning, beyond the veil, the notions of freedom and equality in the world, with the aim of opening to a better understanding and mutual respect of all cultural identities. *Sakina*, a dance performance by Alexia Martin Traore, anchored in the contemporary approach of dances from the Middle East and North Africa regions and Afghanistan, questioned the construction of human identity.

In *Monument To Violence*, Peter Brandt reflects on the universal harm of violence through his own personal experiences. Proposing to create a monument to the victims of violence, he brings attention to the various forms that violence can take: physical, psychological, verbal, or passive. The dance performance *Fragile Bodies* by Charlotte Colmant explored the fragility and vulnerability of the human body, while Clémence Vazard's performance *Be Beautiful And Shut Up!* opened a discussion



between the artist herself, activist and artist Sophia Antoine, and theatre director Luca Giacomoni on domestic violence and femicide.

Perception, memory and hybridization were central themes of exploration in exhibitions that examined the environment, metaphysics and spirituality.

*The Languages of Environment* brought together the artists Avi Sperber and Suki Valentine to explore the impressions left by places, people, nature or objects as integral parts of the process of accumulating memories and associating ideas. Each artist proposes a new language to decipher or redirect our perception of what surrounds us. Presented during the exhibition, Daniel Cabanzo's performance and original sound design *Intersecciones #1* consisted of real-time audiovisual compositions and improvisations for elec-

tronic devices, borrowing passages through various environments, from the living to the inert.

The exhibition *From Dawn To Dusk* proposed a contemplative experience of light in the temporal and geographical space between dawn and dusk. This metamorphosis of a world questions sensations and perceptions, as seen through the work of artists Delphine Armilles, Fatima Garzan, Sarah Munro, Lizzania Sanchez, Irène Shraer, Lydia Sivane, Suki Valentine.

The exhibition *Mutation/Hybridization* offered artistic projects by Annaf, Sohail Dahdal, Sasha Gosmant, Marie Gossart, Annalisa Lollo, Florence, Pierre, Alessandra Spigai that formally and intellectually questioned the notions of otherness and difference in the meeting of two systems that generate the transformation of each of its components, offering the possibility

Alexia Martin Traore,  
choreographer and dancer

of reciprocal adaptation for the constituted whole. Quantum physicist Pérola Milman, performer Florent Baboux and musician Daniel Jea addressed the quantum concept of entanglement in *Non Separable!*, a performance that itself hybridizes sciences and art.

Isabelle Terrisse's exhibition *For A Material To Have Such An Influence, Must It Contain A Spirit?* takes its name from a passage in *The Temptation* by Gustave Flaubert in which the writer questions the power of representation. The artist explores the power of matter and form to transmit tangible and intangible memories. Through an assembly of figurative elements, the artist proposes conceptual works that open up philosophical, ethical, societal and political questions.

What if, today, while we are living through multiple crises, in particular a spiritual crisis with metaphysical horizons, art still carried the possibility of being a meeting place between the supernatural and the natural, between the extraordinary and the everyday, between the tangible and the intangible? The first part of the group show *A Kind of Magic* investigated cultural, ritual, personal or universal beliefs, from here or elsewhere, from the past or the present through the work of Falai Balde, José Castillo, Patrick De Bruyn, Éric Defoër, Maria Ducasse, Nadou Fredj, Christelle Guénot, and Kevin-Ademola Sangosanya.

#### **Educational workshops and interactive cultural mediation**

*The Enchanted Book* was an extracurricular activity by Léa Donadini and Tatiana Olea for elementary school students to individually and collectively create a book around the idea of hybridization. The workshop developed collaboration and debate, as well as building confidence and encouraging reading. A visit and dialogue at the Musée de Quai Branly of the arts of Africa, Asia, Oceania and the Americas explored systems of belief, as well as the relation of humans towards the living and non-living, the visible and invisible.

Imagine a distant universe where the lands would be divided into three ecosystems, inhabited by polymorphic entities that are unaware of each other until an earthquake strikes. The inhabitants are forced to disperse and new meetings occur as differences are negotiated, associations are made and solutions are found to live together and imagine a common future through the creation of visual and sound environments. The workshop *Discovering a New World* explored the notion of elsewhere through the prism of personal evolution and an innovative visit to the Musée de la Musique at the Paris Philharmonic, discussing the origins of music, bio- and cultural diversity, hybridization, and the crossbreeding of music and instruments.

Working with young adults and uniformed police officers, the workshop *Polaroid: Letter and Image* produced detective novels in the form of a comic strip while analyzing the relations between youth and the police in priority neighbourhoods. Led by artists Nicolaï Pinheiro and Isabelle Gozard, the workshop promoted empathy and self-examination to dispel oppositions between youth and law enforcement. Text and image in 20th century art was the theme of a dialogue and visit at the Centre Pompidou to discover the use of traces and writing to open up artistic expressions and question the represented image and the message it conveys.

*Surrealist Polyphonies* is a collaboration between artists and French as a Foreign Language teachers to strengthen their students' debate and presentation skills to defend a personal statement both orally and in writing. With a non-frontal and reflective methodology, the format of advertising was used as it connects writing, image and voice, and manipulates the reception of codes from a target receiver-consumer in order to convey a specific message and values.

The workshop *Imagine* accompanied women in their vocational training. With performance artist Alexandra Roudière



Mémoire de l'Avenir conducts dialogue and creative workshops with artists in partnership with educational, cultural and social organizations and artists, as well as interactive visits to cultural sites.

*Imagine*, a dialogue and creative project designed for 15 trainees in the Maison Du Bas Belleville's professional training program for child care assistants with artist Alexandra Roudière and photographer Myriam Tirler.

and photographer Myriam Tirler, the participants reflected on the different stages of life from a personal and professional perspective, exploring portraiture as a cognitive and representational tool in order to strengthen their self-esteem. The workshop included a dialogue and visit to the Centre Georges Pompidou focused on Women Artists in the 20th century to interrogate gender and artistic creation, sexism and discrimination, stereotypes and multiple identities.

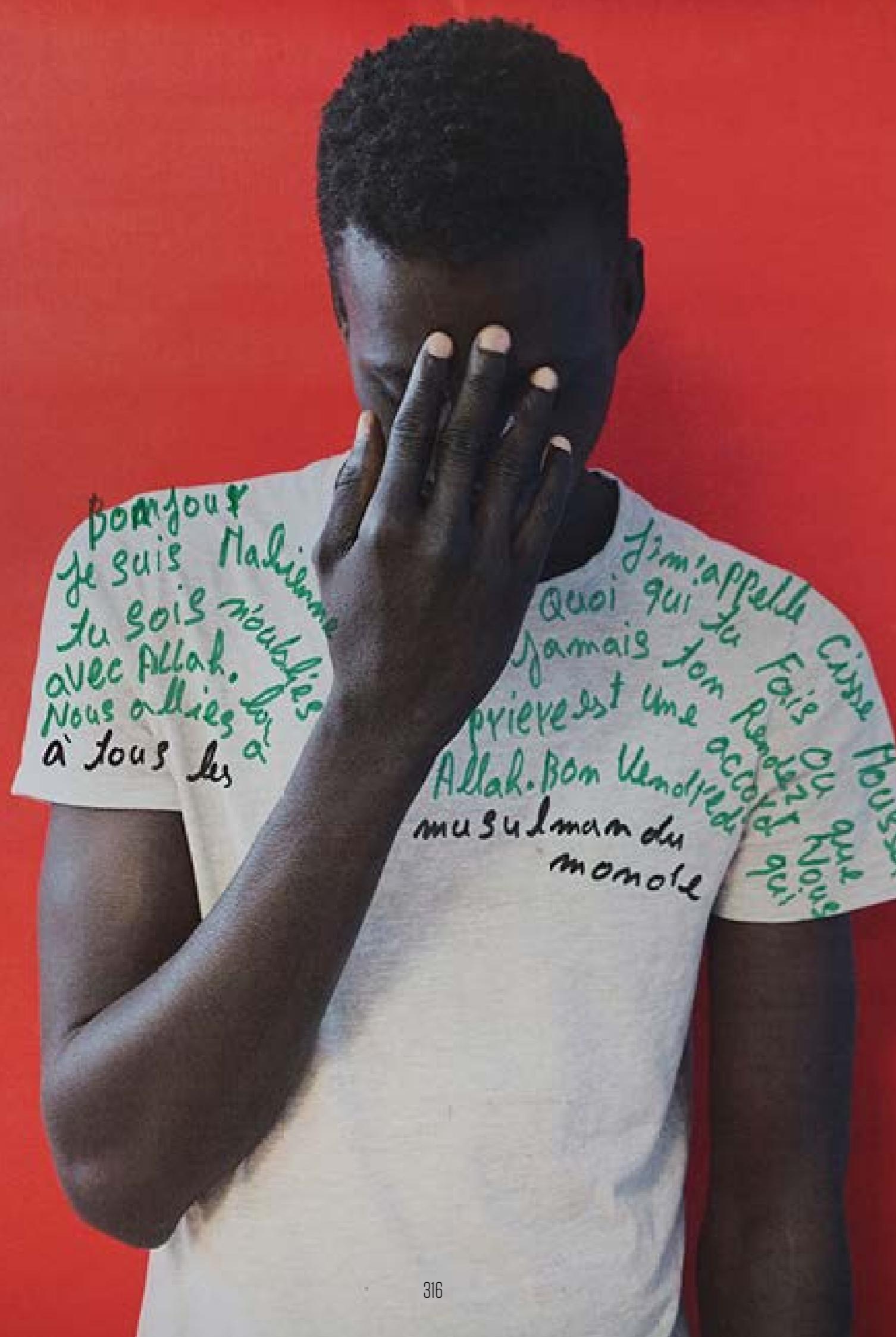
The *Life is a Story* workshop invited a group of unaccompanied minors to reflect on their migratory journey through the creation of a personal travel diary including photographs, collage and text. The idea was to create an archive of memories that have nothing nostalgic about them, and to restore their personal and joyful memories. The notebook gives substance to the bonds of friendship and fraternity, to the new—and sometimes numerous—families created. A dialogue and visit to Luigi Ghirri's exhibition *Maps and Territories* at Jeu de Paume explored the role of images in the perception of the world, of societies and of ourselves, interrogating the society of the spectacle, consumption and advertising, analyzing stereotypes and illusions, and evoking real and virtual life.

Artistic projects were further integrated into French language education in the workshop *Day After Day* with unaccompanied minors staying in an emergency accommodation centre. Writing thoughts and messages in different languages on their own photographic portraits, new narrative forms were explored to encourage the participants to express themselves and create new friendships. Social and political themes of the modern era were further explored in a visit to the Centre Pompidou.

Writer Isabelle Gozard and photographer Myriam Tirler work with inmates of the prison in Villepinte, located in the suburbs of Paris, on notions of identity and self-representation in the workshop *Portrait – Self-portrait*. Asking how the image of the

self can be formed, constructed and imagined in the prison context, the workshop invited participants to create multi-layered portraits reflecting on the notions of inside and outside. Encouraging individual expression and self-esteem in the group, the activity developed a spirit of togetherness and coexistence. The workshop was accompanied by the Ciné Philo programme, using philosophy as a questioning, a self-awareness and emancipation, freedom and responsibility, with a discussion of the films *The Portrait of Dorian Gray* (2009) by Oliver Parker and *The Truman Show* (1998) by Peter Weir.

The intergenerational workshop *The Tower of Babel* united retirees and youth and recent migrants from the African continent. Based on symbols and allegories, the participants imagined spherical collective structures in clay that embraced the ecosystems of sky, land and sea. This process enabled them to talk about memories of their homeland, while confronting their experiences of migration and resettlement. The investigation of sculpture continued in a visit at the Rodin Museum of Meudon with a dialogue about human emotions, how art is capable to embody them across mediums and transmit them in a powerful way, through the work of Auguste Rodin.



Day After Day, a dialogue and creative workshop by par Mémoire de l'Avenir led by photographer Myriam Tirler in partnership with the non-profit France Terre d'Asile. Artistic workshop and French language course to facilitate the integration of young migrants who have recently arrived in France.

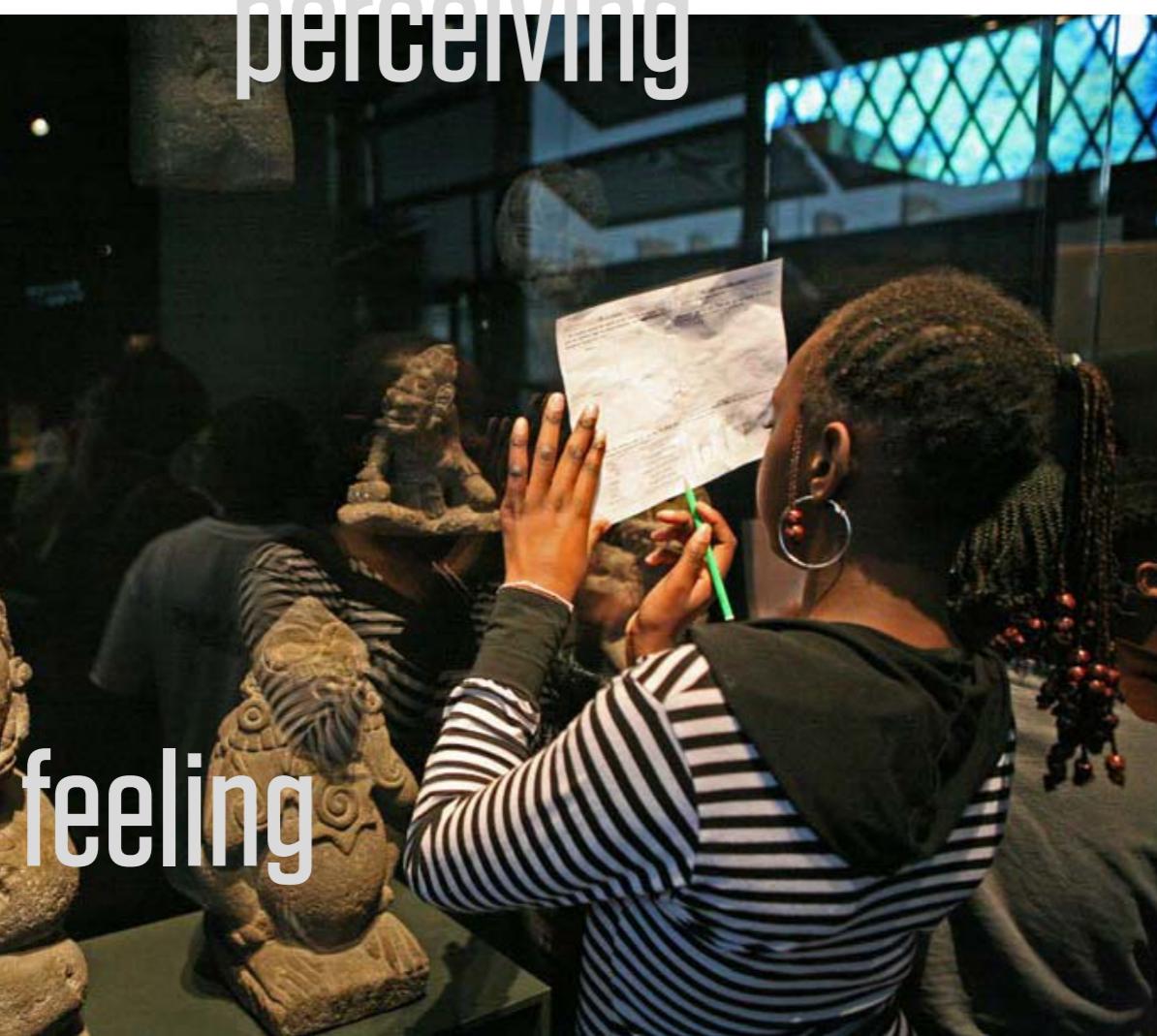
Through the *Humanities, Arts and Society* project with UNESCO-Most, CIPSH and GCACS, Mémoire de l'Avenir is looking to organize, act and produce innovative artistic, social and cultural activities, while contributing, locally and globally, towards better understanding between individuals, cultures and our environment.

We are reflecting, proposing, and co-producing, in collaboration with artists and scientists, public events, publications, and debates. We are developing educational workshops and a travelling exhibition that will include tools and new approaches to the Arts.

We are looking to prove the fundamental need of creativity, across all disciplines and social issues, an on-going research that promotes cross-cultural and interdisciplinary collaborations. We want to open dialogues in the fight against ignorance, encourage creative and active learning and education for all, promote freedom and respectful thinking and exchange, while opening horizons of new alliances between citizens and political actors, for mutual understanding between individuals and cultures.

understanding

perceiving



feeling

seeing

meeting

culture

dialoguing



Art as a tool for dialogue.

Interactive visits to the Centre Georges Pompidou (above, left) and the Quai Branly Museum (below, left and right). Photos by Didier Gauducheau.

**The mission of the Global Chinese Arts and Culture Society is to create a cross-regional, inter-ethnic and cross-cultural platform for the exchange between Eastern and Western cultures and arts, to collide, absorb and integrate, promoting understanding and mutual trust.**



Professor Lin Xiang Xiong

Professeur Lin Xiang Xiong,  
Lech Wałęsa

### I. Vision

Our vision is to build a spiritual home of equality, freedom and openness; to enable human beings to meet, interact and learn through dialogue between arts and culture; to communicate with one another, to think together about the future of humanity and harmony in the world.

### II. International Advisory Panel

In order to strengthen the academic, scholarly and global character of GCACS and to promote exchange and collaboration between the Eastern and Western hemispheres and cultures in different fields, GCACS has established an international Advisory Panel to strategically guide the activities and future development of the Society.

Advisors include:

#### The East

Jao Tsung-I (China)  
Zhang Qizhi (China)  
Li Zehou (China)  
Liu Mengxi (China)  
Yuan Xingpei (China)  
Wu Zhipan (China)  
Yan Shaodang (China)  
Zhang Qingshan (China)

#### The West

Wang Gungwu (Australia)  
James Chieh Hsiung (USA)  
Tu Weiming (USA)  
Roger T. Ames (USA)  
Guy Salvatore (USA)  
Tan Chung (USA)  
Huang I-shu (USA)  
Charles-Etienne Lagasse (Belgium)  
Michel Baudson (Belgium)  
Charles Le Blanc (Canada)  
Wolfgang Kubin (Germany)  
Karl-Heinz Pohl (Germany)  
BAKANDEJA wa MPUNGU (Congo)  
Guy Dockendorf (Luxembourg)  
Wolfgang Kubin (Germany)  
Karl-Heinz Pohl (Germany)  
Guy Dockendorf (Luxembourg)

### III. Brief Introduction of Arts and Cultural Activities

The Global Chinese Art & Culture Society was initiated and fully sponsored by Professor Lin Xiang Xiong, a Singaporean artist and entrepreneur, and registered with the Singapore Society Administration in January 2010. Based in Singapore, GCACS is in the process of setting up branches in Europe and Oceania.

Through the organization of cultural projects, such as culture and art conferences, high-level symposiums and the publishing of scholarly monographs, we are aiming to advocate mutual respect, mutual understanding and trust between different nations, different peoples and different civilizations.

On 28 December 2009, GCACS was approved by the Registrar of Societies under the Ministry of Home Affairs of Singapore to become a civil society art group for the preservation of cultural heritage.

In December 2010, jointly with Association for Yan Huang Culture of China and the Department of Chinese Studies of National University of Singapore, GCACS successfully hosted a biennial forum, the Sixth International Symposium of the World Forum on Chinese Culture in the 21st Century in Singapore, for the first time outside China. Over 150 renowned scholars from all over the world attended this forum. This high-level East-West cultural exchange received wide attention and recognition.

In April 2011, GCACS, the National Gallery of Singapore and Lianhe Zaobao co-organized the conference and symposium *Tropical Vanguard*, commemorating the centenary of Mr. Liu Kang (1911-2011).

In December 2012, GCACS collaborated with the Association for Yan Huang Culture of China and La Trobe University of Australia in organizing the Seventh International Symposium of the World Forum on



Stone-laying Ceremony of the Global Chinese Arts & Culture Society foundation.

Chinese Culture in the 21st Century. More than 120 representative scholars, artists and personalities attended.

In September 2013, supported by the Ministry of Culture of China and in collaboration with the Chinese National Academy of Arts and Association for Yan Huang Culture, GCACS hosted Seeking Heaven and Earth—The World Tour Exhibition of the Contemporary and Renowned, Singapore Artist Prof. Lin Xiang Xiong (2013- 2015). The new works of this post-Nanyang school of painting have attracted widespread attention and praise from the Chinese art community, and have established a solid position for this innovative fusion of Chinese and Western expression in painting.

In November 2013, GCACS, the Confucianism Society Singapore and the Institute for Advanced Humanistic Studies hosted the Confucianism and Religion: Interaction and Dialogue International Symposium in Singapore.

In May 2015, GCACS, Wallonie-Bruxelles International and Le Bois du Caizer Museum organized a three-month art exhibition named *Lin Xiang Xiong's World of Painting* in Charleroi, Belgium. This East-West method of painting and expression, and the thematic and ideological nature of the works have attracted a great deal of attention in the European art world. The artworks' expressions and aspirations for objective realities such as anti-war, anti-pollution and anti-poverty were warmly appreciated and supported, giving way for an artistic trend of "Eastern art moving West."

In June 2015, GCACS and the Institute of Eastern Studies at Beijing University, held *The 1st International Symposium of Forum of Eastern Cultures in the 21st Century (FEC)* at the Peking University Hall. This forum, based in Beijing University, aims to build a large, eastward-looking, global audience, bringing together renowned scholars from all over the world

to explain the importance of the Forum in a multifaceted and diverse way.

In September 2015, GCACS and the China Artists Association jointly organized *The 6th Beijing International Art Biennale, Southeast Asia Contemporary Art Exhibition*. GCACS invited artists from Southeast Asia to an art exchange with Chinese artists.

In May 2016, GCACS with Wallonie-Bruxelles International and the School of Arts at Beijing University organized a group exhibition titled *Art For Peace* with cross-cultural perspectives between the East and the West at the UNESCO headquarters in Paris, inviting eleven artists from Belgium, China and Singapore to exhibit their paintings. The exhibition was curated by Professor Lin Xiang Xiong, under the auspices of UNESCO. This exhibition was devoted to the promotion and strengthening of dialogue between different peoples and cultures as well as wider reflections, through the themes it addressed, including the ecological, social and economic challenges facing the continents.

The exhibition promoted and enhanced dialogue between different cultures and peoples under the core concept of UNESCO, especially the themes of anti-war, anti-pollution, poverty. The connotation of the paintings and the ideological expressions and techniques perfectly combined artistic elements of the East and the West, expressing the themes. The exhibition won recognition from the public and renown in the West.

In December 2016, Boya Forum, the First Forum of Beijing University, was held in Malaysia. GCACS, as the main organizer, invited Justin Yifu Lin, the former senior Vice President and Chief Economic of the World Bank, to give a keynote speech on *One Belt One Road and Free Trade Zone: China's New Open Door Initiative and Measure*.

In March 2017, the *Art For Peace* forum was organized at the French Senate in

Paris, co-sponsored by GCACS, The Art for Peace Society and Area Magazine. Professor Lin Xiang Xiong and Mr. Lech Walesa, the former president of The Republic of Poland, and several artists had a wonderful dialogue sharing various perspectives. While artists show human concern through their works, politicians create social harmony through the right decisions to achieve equal and peaceful political mechanisms. Not only did this unique activity create a "political" fire of dialogue and exchange at the political and artistic levels, but it also created a new form for the Forum's future dialogue platform.

In March 2017, GCACS collaborated with the Hong Kong Society of Asia-Pacific 21 and Institute of Eastern Studies, Peking University, to hold *The 1st International Penang Forum—The Belt & Road Initiative and Southeast Asia* in Penang, Malaysia. Fifty-two experts and scholars from different academic fields in China, Hong Kong, Macao, Taiwan and Southeast Asia discussed in depth the situation of BRIDGE 1 in Southeast Asia in terms of political economy, historical and social structure, and the integration of textures.

In August 2017, GCACS, in partnership with UNESCO, the International Council for Philosophy and Human Sciences (CIPSH) and the local government of Liège, organized the first-ever World Humanities Conference, bringing 1800 professionals, scholars and artists to Liege. This event covered disciplines including politics, economics and culture. Scholars from different fields, with different academic viewpoints and arguments, enthusiastically and freely expressed their concern for humanity and society in the 21st century. Professor Lin Xiang Xiong delivered a keynote speech on *Humanity and Civilization*, covering the origin of human beings as well as the social structure, political system, and economic system in human history, the structure and fluctuation of human nature, and the exchange and integration of its resources, providing a

new perspective on the current political and economic situation in the world.

In July 2019, UNESCO-MOST, the Inter-national Council for Philosophy and Human Sciences (CIPSH), Mémoire de l'Avenir and GCACS co-organized the Second Art for Peace Forum: *Art and Society*, held in Penang, Malaysia. Scholars and professionals from all over the world participated in the conference. From the interpretation and analysis of philosophy, history, documentation and art, the analysis and validation of Chinese and Western ideas, discussions on the mediums and vehicles of artistic creation and expression, as well as the tracing of human nature and the origins of art, social responsibility and historical value, this one-day forum was a stimulating focus of expression and analysis.

The upcoming Lin Xiang Xiong Art Gallery, worth approximately RM88 million, is set to grace the eastern coastline of Gelugor. Spanning 88,000 square feet, this prestigious development is built on a freehold site measuring 0.89 acres, situated near The Light Waterfront Penang. In line with the artistic quality of the gallery, the unique and awe-inspiring architectural design is inspired by a turtle coming ashore. A nod to the popular cultural Chinese belief, the turtle represents prosperity, longevity and kindness, and reflects the positive tidings that will be ushered into Penang and Malaysia. Slated to be Penang's latest cultural icon, this seven-storey building will include a UNESCO education centre on the ground floor and spaces for a plethora of artwork from around the world. Construction commenced in December 2018 and is expected to be completed in 2022.

Stone-laying Ceremony of the Global Chinese Arts & Culture Society foundation.



# NEXT THEME CALL FOR CONTRIBUTIONS

## #2 BETWEEN ANXIETY AND HOPE

**HAS Magazine  
launches an open call  
for contributions for  
its second issue to be  
published in December  
2020.**

The goal of HAS Magazine is to discuss pressing topics through the analysis of a wide range of themes in the humanities, the social sciences, and the arts. Conceived as a magazine for the broadest possible range of readers, HAS offers a space for staging the most creative, enlightening, imaginative, and socially relevant interactions of the humanities and the arts.

Our aim is not simply to report on existing ideas or to reproduce art that examines issues of importance, but to contribute to the achieving of actual progress in cultural exchange and multi-disciplinary collaboration. Information, education, creativity, communication, and thought provocation will be merged, in order to provide a platform for positive change in society—local and worldwide—with the help of the humanities and the arts. We plan to connect curious readers with enthusiastic writers and practitioners willing to work to improve upon current global challenges, through demonstrations of how the humanities and the arts can have an impact on society.

We welcome contributions from scholars, researchers, critics, practicing artists, and any interested parties who find the above aims important and would like to be part of the project. HAS is not a commercial venture, and in order to reach the broadest possible audience, it will be available online for free in English, French and Chinese. Due to the non-profit nature of the publication, contributions will be on a voluntary basis.

The published texts will include scholarly papers, experimental essays, reviews, critiques, interviews, video and photo reportage, and news. The editorial committee is constituted by members of UNESCO-MOST, the International Council for Philosophy and Human Sciences and Mémoire de l'Avenir.

The theme of the second issue is *Between Anxiety and Hope*. We aim to investigate

this topic from a multi- and cross-disciplinary perspective—including but not limited to philosophy, history, anthropology, archaeology, literature, sociology, economics, political science, and post-humanities scholarship.

## MORE INFORMATION ABOUT THE THEME

Our current era seems to be defined by continuous crises. From environmental disasters and the urgency of global warming to pandemics and the rise of nationalism across the world, each crisis seems to uncover or further engender inequalities in wealth, education, and standards of living. The failure to take concrete and effective action against these has put into question relatively longstanding political, economic and social models across the world. In light of this, two mental states in particular appear to capture the spirit of our time: Anxiety and Hope.

Anxiety is a state of mind of worry, nervousness, or unease, characterized by dread over anticipated events (Davison CG, Abnormal Psychology, 2008). Although it is closely related to fear, it is also distinguished from it; while fear is a response to a known threat, anxiety follows from a threat that is unknown, non-specific or expected. Psychologist David Barlow hence proposes the term anxious apprehension, defining anxiety as «a future-oriented mood state in which one is not ready or prepared to attempt to cope with upcoming negative events» (Anxiety and Its Disorders: The Nature and Treatment of Anxiety and Panic, 1988).

Hope is generally an expectation of positive outcome, drawing on our desires for what we would like to happen. The importance of hope has been recognized for long, embodied most famously in the Greek myth of Pandora, evils and afflictions escaped into the world but hope stayed inside. In ancient texts, we find recognition of hope as having the power to heal anxiety and affliction. Although Hope is a positive emotion, it stems from dire circumstances when there is uncertainty about how things will turn out, as argued by social psychologist Barbara Fredrickson. Hope requires us to not only to consider but also to engage with the results we wish for.

Anxiety and hope incorporate both intuitive and cognitive aspects of the human condition. Yet they are not only attitudes nor cognitive functions - they respond to realities, reflect and draw upon fears and desires, beliefs and longings. Both are thus emotional responses that look to future outcomes in either negative or positive ways. While too much anxiety can be paralyzing and too much hope can be perceived as naïve, both can be productive in igniting creativity.

“Hope literally opens us up,” Barbara Fredrickson argues, saying that it allows us to “become creative, unleashing our dreams for the future.” Then, creativity plays a role in apprehension, offering space for new awareness.

Anxiety can also improve performance and motivate action against the anticipated negative outcomes.

Anxiety and hope allow humanity to defend itself in the face of the obstacles it may encounter and to apprehend a future. In the same manner, creativity allows us to explore and innovate.

Scientific and artistic research often diagnoses the present and/or the past while presenting visions of the future. In literature and cinema, the genre of science fiction in particular has merged the two disciplines to imagine possible futures through the prism of our contemporary anxieties and hopes.

In inspiring creativity and action, anxiety has the power to pave the way for hope. Contributions may include – but are not limited to – investigations of the following questions:

What do anxiety and hope mean in our current societies? How do anxiety and hope affect and influence our present and future actions? How do anxiety and hope manifest themselves today and in relation to what situations or topics?

What is the role of the arts and creativity in situations of anxiety and hope? Can the arts and creativity engender hope to counteract anxiety? Where can expressions of anxiety and hope be found, and do they differ culturally?

## GENERAL REQUIREMENTS

Contributors can send articles in English or French.

Contributions can be up to 3000 words in length and include 3-8 images - minimum 300 dpi

Contributions can also be presented in video (MP4) or audio formats (MP3). Citations and references should use the Chicago-style.

Submissions accompanied by a short biography (100 words) and abstract (100 words), should be sent to [magazine@humanitiesartsandsociety.org](mailto:magazine@humanitiesartsandsociety.org).

For questions and more information: [contact@humanitiesartsandsociety.org](mailto:contact@humanitiesartsandsociety.org).

The deadline for submissions is **September 20, 2020 at midnight**, Central European Time.

**Art, in the past as today,  
projects the anxieties of  
the present in the future,  
helping to turn into reality  
the utopia that drive us.**

**Luiz Oosterbeek**

