

L

BOOKS

VOL 20 NO 2 BOOK EDITORS LANFRANCO ACETI & PAUL THOMAS

EDITORIAL MANAGER ÇAĞLAR ÇETİN

In this particular volume the issue of art as interference and the strategies that it should adopt have been reframed within the structures of contemporary technology as well as within the frameworks of interactions between art, science and media. What sort of interference should be chosen, if one at all, remains a personal choice for each artist, curator, critic and historian.

# INTERFERENCE STRATEGIES

LEA is a publication of Leonardo/ISAST.

Copyright 2014 ISAST

Leonardo Electronic Almanac

Volume 20 Issue 2

April 15, 2014

ISSN 1071-4391

ISBN 978-1-906897-32-1

The ISBN is provided by Goldsmiths, University of London.

#### LEA PUBLISHING & SUBSCRIPTION INFORMATION

#### Editor in Chief

Lanfranco Aceti lanfranco.aceti@leoalmanac.org

#### Co-Editor

Özden Şahin ozden.sahin@leoalmanac.org

#### Managing Editor

John Francescutti john.francescutti@leoalmanac.org

#### Art Director

Deniz Cem Önduygu deniz.onduygu@leoalmanac.org

#### Editorial Board

Peter J. Bentley, Ezequiel Di Paolo, Ernest Edmonds, Felice Frankel, Gabriella Giannachi, Gary Hall, Craig Harris, Sibel Irzik, Marina Jirotko, Beau Lotto, Roger Malina, Terrence Masson, Jon McCormack, Mark Nash, Sally Jane Norman, Christiane Paul, Simon Penny, Jane Prophet, Jeffrey Shaw, William Uricchio

#### Cover

Deniz Cem Önduygu

#### Editorial Address

Leonardo Electronic Almanac

Sabancı University, Orhanlı – Tuzla, 34956

Istanbul, Turkey

#### Email

info@leoalmanac.org

#### Web

- » [www.leoalmanac.org](http://www.leoalmanac.org)
- » [www.twitter.com/LEA\\_twitts](https://www.twitter.com/LEA_twitts)
- » [www.flickr.com/photos/lea\\_gallery](https://www.flickr.com/photos/lea_gallery)
- » [www.facebook.com/pages/Leonardo-Electronic-Almanac/209156896252](https://www.facebook.com/pages/Leonardo-Electronic-Almanac/209156896252)

Copyright © 2014

Leonardo, the International Society for the Arts,  
Sciences and Technology

Leonardo Electronic Almanac is published by:

Leonardo/ISAST  
211 Sutter Street, suite 501  
San Francisco, CA 94108  
USA

Leonardo Electronic Almanac (LEA) is a project of Leonardo/ The International Society for the Arts, Sciences and Technology. For more information about Leonardo/ISAST's publications and programs, see <http://www.leonardo.info> or contact [isast@leonardo.info](mailto:isast@leonardo.info).

Leonardo Electronic Almanac is produced by  
Passero Productions.

Reposting of this journal is prohibited without permission of Leonardo/ISAST, except for the posting of news and events listings which have been independently received.

The individual articles included in the issue are © 2014 ISAST.

LEONARDO ELECTRONIC ALMANAC, VOLUME 20 ISSUE 2

# Interference Strategies

BOOK EDITORS

**LANFRANCO ACETI & PAUL THOMAS**

EDITORIAL MANAGER

**ÇAĞLAR ÇETİN**

The Leonardo Electronic Almanac acknowledges the institutional support for this book of



The publication of this book is graciously supported by



The book editors Lanfranco Aceti and Paul Thomas would especially like to acknowledge Su Baker for her continual support of this project and Andrew Varano for his work as conference organiser.

We would also like to thank the Transdisciplinary Imaging at the intersection between art, science and culture, Conference Committee: Michele Barker, Brad Buckley, Brogan Bunt, Edward Colless, Vince Dziekan, Donal Fitzpatrick, Petra Gemeinboeck, Julian Goddard, Ross Harley, Martyn Jolly, Daniel Mafe, Leon Marvell and Darren Tofts.



# Interference Strategies: Is Art in the Middle?

If we look at the etymological structure of the word **interference**, we would have to go back to a construction that defines it as a sum of the two Latin words *inter* (in between) and *ferio* (to strike), but with a particular attention to the meaning of the word *ferio* being interpreted principally as *to wound*. Although perhaps etymologically incorrect, it may be preferable to think of the word *interference* as a composite of *inter* (in between) and the Latin verb *fero* (to carry), which would bring forward the idea of *interference* as a contribution brought in the middle of two arguments, two ideas, two constructions.

It is important to acknowledge the etymological root of a word not in order to devalue or strike academic exercise, but in order to clarify the ideological underpinnings of arguments that are thematically and characteristically defined by a word.

This book, titled *Interference Strategies*, does not (and in all honesty could not) provide a resolution to a complex interaction—that of artistic interferences—that has a complex historical tradition. In fact, it is impossible, for me, when analyzing the issue of interference, not to think of the Brechtian *Maker* (also known as *Daniela Wolferra*) and the coverings that the painter followed in 1959 on commission from Pope Paul VI to ‘reorder decent’ the naked bodies of Michelangelo to Buonarroti’s fresco in the Sistine Chapel. That act, in the eyes of a contemporary viewer, was a wound inflicted in between the relationship created by the artwork and the artist with the viewer (*intentional*).

*interferentia* is a word that assembles a multitude of meanings interpreted according to one’s perspective and ideological constructs as a meddling, a disturbance, and an alteration of modalities of interaction between two parties. In this book, there are a series of representations of these interferences, as well as a series of questions on what are the possible contemporary forms of interference—digital, scientific and aesthetic—and what are the strategies that could be adopted in order to actively interfere.

The complexity of the strategies of interference within contemporary political and aesthetic discourses appears to be summed up by the perception that interference is an necessarily active gesture. This perception appears to exclude the fact that sometimes the very existence of an artwork is based on an interfering nature, or on an aesthetic that has come to be as non-conscious to and, hence, interfering with a political project.

Interfering artworks, which by their own nature challenge a system, were the artworks chosen for the exhibition *Entartete Kunst* (1937). The cultural and ideological underpinnings of the National Socialist German Workers’ Party could solely provide an understanding of aesthetic that would necessarily imply the defini-

tion of ‘degenerate art’ produced by ‘degenerate artists’. That was not addressed by the grandeur of Germany could not be seen by the Nazi regime as anything else but ‘interfering and hence degenerate,’ since it questioned and interfered with the ideal purity of Teutonic representations, which were endorsed and promoted as the only aesthetic of the National Socialist party. Wilhelm Heinrich Otto Dix’s *War Cripples* (1920) could not be a more critical painting of the Body Politic of the time, and of war in general, and therefore had to be classified as ‘degenerate’ and condemned to be ‘burnt.’

Art in this context cannot be and should not be anything else but interference, either by bringing something in between or by wounding the Body Politic by placing something in between the perfectly constructed rational madness of humanity and the subjugated viewer. A moment that in interference, obstructs and disrupts the carefully amotated and carefully choreographed itinerary that the viewers should be expected to follow. In this case interference is something that corrupts, degenerates and threatens to collapse the vision of the Body Politic.

In thinking about the validity of interference as a strategy, it was impossible not to revisit and compare the image of Paul J. Goebbels viewing the *Entartete Kunst* (*Degenerate Art*) exhibition to the many images of pompously shouting corporate CEOs and billionnaires in museums and art fairs around the globe, gleaning with pride over the propaganda, or—better—over the breed that they have commissioned artists to produce.

Today’s contemporary art should be interfering more and more with art itself, it should be corrupted and corrupting, degenerate and degenerating. It should be producing what currently it is not and it should create a wound within art itself, able to alter current thinking

and modalities of engagement. It should be—to quote Pablo Picasso—‘an instrument of war’ able to *interferir*: “No, painting is not done to decorate apartments. It is an instrument of war for attack and defense against the enemy.”

If art should be a strike or bring something apart of what has been a long aesthetic conversation that preceded the Avant-garde movement or the destructive fury of the early futurists. In this particular volume the issue of art as interference and the strategies that it should adopt have been reframed within the structures of contemporary technology as well as within the framework of interactions between art, science and media.

What sort of interferences should be chosen, if one at all, remains a personal choice for each artist, curator, critic and historian.

If I had to choose, personally I find myself increasingly favoring art that does not deliver what is expected, what is obvious, what can be hung on a wall and can be made to tapstries. Nor can I find myself able to favor art that should propagate or business under a veil with the name of art repeatedly written in capital letters all over it. That does not leave very much choice in a world where interference is not longer acceptable, or if it is acceptable, it is so only within pre-established contractual cooperative frameworks, therefore losing its ‘interference value.’

This leaves the great conundrum—can interference still possible? There are still spaces and opportunities for interference, and this volume is one of these remaining areas, but they are interesting spaces and are shrinking fast, leaving a overwhelming Bauhausian descent produced by the conspirators of art and made of a multitude of breeds.

# Interference Strategies: Is Art in the Middle?

If we look at the etymological structure of the word **interference**, we would have to go back to a construct that defines it as a sum of the two Latin words *inter* (in between) and *ferio* (to strike), but with a particular attention to the meaning of the word *ferio* being interpreted principally as *wound*. Albeit perhaps etymologically incorrect, it may be preferable to think of the word interference as a composite of *inter* (in between) and the Latin verb *fero* (to carry), which would bring forward the idea of interference as a contribution brought in the middle of two arguments, two ideas, two constructs.

It is important to acknowledge the etymological root of a word not in order to develop a sterile academic exercise, but in order to clarify the ideological underpinnings of arguments that are then summed up and characterized by a word.

This book, titled *Interference Strategies*, does not (and in all honesty could not) provide a resolution to a complex interaction - that of artistic interferences - that has a complex historical tradition. In fact, it is impossible, for me, when analyzing the issue of interference, not to think of the Breeches Maker (also known as Daniele da Volterra) and the coverings that he painted following a 1559 commission from Pope Paul IV to 'render decent' the naked bodies of Michelangelo Buonarroti's frescoes in the Sistine Chapel. That act, in the eyes of a contemporary viewer, was a wound inflicted in between the relationship created by the artwork and the artist with the viewer (*intentio operis*

and *intentio auctoris* with *intentio lectoris*), as Umberto Eco would put it. Those famous breeches appear to be both: a form of censorship as well as interference with Michelangelo's vision.

Interference is a word that assembles a multitude of meanings interpreted according to one's perspective and ideological constructs as a meddling, a disturbance, and an alteration of modalities of interaction between two parties. In this book, there are a series of representations of these interferences, as well as a series of questions on what are the possible contemporary forms of interference - digital, scientific and aesthetic - and what are the strategies that could be adopted in order to actively interfere.

The complexity of the strategies of interference within contemporary political and aesthetic discourses appears to be summed up by the perception that interference is a necessarily active gesture. This perception appears to exclude the fact that sometimes the very existence of an artwork is based on an interfering nature, or on an aesthetic that has come to be as non-consonant to and, hence, interfering with a political project.

Interfering artworks, which by their own nature challenge a system, were the artworks chosen for the exhibition *Entartete Kunst* (1937). The cultural and ideological underpinnings of the National Socialist German Workers' Party could solely provide an understanding of aesthetics that would necessarily imply the defini-

tion of 'degenerate art' produced by 'degenerate artists.' Art that was not a direct hymn to the grandeur of Germany could not be seen by the Nazi regime as anything else but 'interfering and hence degenerate,' since it questioned and interfered with the ideal purity of Teutonic representations, which were endorsed and promoted as the only aesthetics of the National Socialist party. Wilhelm Heinrich Otto Dix's *War Cripples* (1920) could not be a more critical painting of the Body Politic of the time, and of war in general, and therefore had to be classified as 'degenerate' and condemned to be 'burnt.'

Art in this context cannot be and should not be anything else but interference; either by bringing something in between or by wounding the Body Politic by placing something in between the perfectly construed rational madness of humanity and the subjugated viewer. An element that interferes, obstructs and disrupts the carefully annotated and carefully choreographed itinerary that the viewers should meekly follow. In this case interference is something that corrupts, degenerates and threatens to collapse the vision of the Body Politic.

In thinking about the validity of interference as a strategy, it was impossible not to revisit and compare the image of Paul Joseph Goebbels viewing the *Entartete Kunst* (*Degenerate Art*) exhibition <sup>1</sup> to the many images of pompously strutting corporate tycoons and billionaires in museums and art fairs around the globe, glancing with pride over the propaganda, or - better - over the breeches that they have commissioned artists to produce.

Today's contemporary art should be interfering more and more with art itself, it should be corrupted and corrupting, degenerate and degenerating. It should be producing what currently it is not and it should create a wound within art itself, able to alter current thinking

and modalities of engagement. It should be - to quote Pablo Picasso - an instrument of war able to *inter-ferio*: "No, painting is not done to decorate apartments. It is an instrument of war for attack and defense against the enemy." <sup>2</sup>

If art should either strike or bring something is part of what has been a long aesthetic conversation that preceded the Avant-garde movement or the destructive fury of the early Futurists. In this particular volume the issue of art as interference and the strategies that it should adopt have been reframed within the structures of contemporary technology as well as within the frameworks of interactions between art, science and media.

What sort of interference should be chosen, if one at all, remains a personal choice for each artist, curator, critic and historian.

If I had to choose, personally I find myself increasingly favoring art that does not deliver what is expected, what is obvious, what can be hung on a wall and can be matched to tapestries. Nor can I find myself able to favor art that shrouds propaganda or business under a veil with the name of art repeatedly written in capital letters all over it. That does not leave very much choice in a world where interference is no longer acceptable, or if it is acceptable, it is so only within pre-established contractual operative frameworks, therefore losing its 'interference value.'

This leaves the great conundrum - are interferences still possible? There are still spaces and opportunities for interference, and this volume is one of these remaining areas, but they are interstitial spaces and are shrinking fast, leaving an overwhelming Baudrillardian desert produced by the conspirators of art and made of a multitude of breeches.

In this introduction I cannot touch upon all the different aspects of interference analyzed, like in the case of data and waves presented by Adam Nash, who argues that the digital is in itself and *per se* a form of interference: at least a form of interference with behavioral systems and with what can be defined as the illusory realm of everyday's 'real.'

Transversal interference, as in the case of Anna Munster, is a socio-political divide where heterogeneity is the monster, the wound, the interfering and dreaded element that threatens the 'homologation' of scientific thought.

With Brogan Bunt comes obfuscation as a form of blurring that interferes with the ordered lines of neatly defined social taxonomies; within which I can only perceive the role of the thinker as that of the taxidermist operating on living fields of study that are in the process of being rendered dead and obfuscated by the very process and people who should be unveiling and revealing them.

With Darren Tofts and Lisa Gye it is the perusal of the image that can be an act of interference and a disruption if it operates outside rigid interpretative frameworks and interaction parameters firmly set via *intentio operis*, *intentio auctoris* and *intentio lectoris*.

It is the fear of the unexpected remix and mash-up that interferes with and threatens the 'purity' and sanctimonious fascistic interpretations of the aura of the artwork, its buyers, consumers and aesthetic priests. The orthodoxical, fanatic and terroristic aesthetic hierarchies that were disrupted by laughter in the Middle Ages might be disrupted today by viral, amorphological and uncontrollable bodily functions.

My very personal thanks go to Paul Thomas and the authors in this book who have endeavored to comply

with our guidelines to deliver a new milestone in the history of LEA.

As always I wish to thank my team at LEA who made it possible to deliver these academic interferences: my gratitude is as always for Özden Şahin, Çağlar Çetin and Deniz Cem Öndüğü.

**Lanfranco Aceti**

*Editor in Chief, Leonardo Electronic Almanac*  
*Director, Kasa Gallery*



#### REFERENCES AND NOTES

1. "Reichsminister Dr. Goebbels auf der Ausstellung 'Entartete Kunst,'" February 27, 1938, in the Das Bundesarchiv, Bild 183-H02648, [http://www.bild.bundesarchiv.de/cross-search/search/\\_1414849849/?search\[view\]=detail&search\[focus\]=3](http://www.bild.bundesarchiv.de/cross-search/search/_1414849849/?search[view]=detail&search[focus]=3) (accessed October 20, 2014).
2. Herschel Browning Chipp, *Theories of Modern Art: A Source Book by Artists and Critics* (Berkeley and Los Angeles, CA: University of California Press, 1968), 487.

# Interference Strategies

The theme of 'interference strategies for art' reflects a literal merging of sources, an interplay between factors, and acts as a metaphor for the interaction of art and science, the essence of transdisciplinary study. The revealing of metaphors for interference "that equates different and even 'incommensurable' concepts can, therefore, be a very fruitful source of insight." 1

The role of the publication, as a vehicle to promote and encourage transdisciplinary research, is to question what fine art image-making is contributing to the current discourse on images. The publication brings together researchers, artists and cultural thinkers to speculate, contest and share their thoughts on the strategies for interference, at the intersection between art, science and culture, that form new dialogues.

In October 1927 the Fifth Solvay International Conference marked a point in time that created a unifying seepage between art and science and opened the gateway to uncertainty and therefore the parallels of artistic and scientific research. This famous conference announced the genesis of quantum theory and, with that, Werner Heisenberg's uncertainty principle. These events are linked historically and inform interesting experimental art practices to reveal the subtle shift that can ensue from a moment in time.

The simple yet highly developed double slit experiment identifies the problem of measurement in the quantum world. If you are measuring the position of a particle

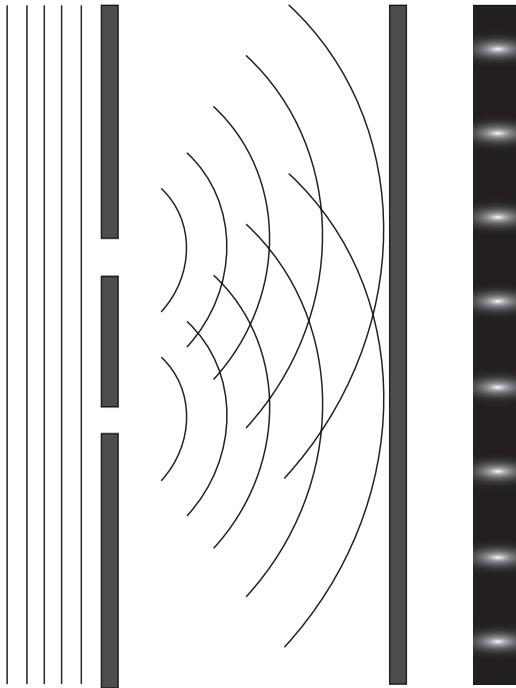
you cannot measure its momentum. This is one of the main theories that have been constantly tested and still remains persistent. The double slit experiment, first initiated by Thomas Young, exposes a quintessential quantum phenomenon, which, through Heisenberg theory, demonstrates the quantum universe as a series of probabilities that enabled the Newtonian view of the world to be seriously challenged.

*If the measurement intra-action plays a constitutive role in what is measured, then it matters how something is explored. In fact, this is born out empirically in experiments with matter (and energy): when electrons (or light) are measured using one kind of apparatus, they are waves; if they are measured in a complementary way, they are particles. Notice that what we're talking about here is not simply some object reacting differently to different probings but being differently.* 2

In the double slit experiment particles that travel through the slits interfere with themselves enabling each particle to create a wave-like interference pattern.

The underlying concepts upon which this publication is based see the potential for art to interfere, affect and obstruct in order to question what is indefinable.

This can only be demonstrated by a closer look at the double slit experiment and the art that is revealed through phenomena of improbability.



**Figure 1.** Diagram of the double slit experiment that was first performed by Thomas Young in the early 1800's displays the probabilistic characteristics of quantum mechanical phenomena.

When particles go through the slits they act as waves and create the famous interference pattern. The concept is that one particle going through the slit must behave like a wave and interfere with itself to create the band image on the rear receptor.

Interference Strategies looks at the phenomenon of interference and places art at the very centre of the wave/particle dilemma. Can art still find a way in today's dense world where we are saturated with images from all disciplines, whether it's the creation of 'beautiful visualisations' for science, the torrent of images uploaded to social media services like Instagram and Flickr, or the billions of queries made to vast visual data archives such as Google Images? The contemporary machinic interpretations of the visual and sensorial experience of the world are producing a new spectacle of media pollution, obliging the viewers to ask if machines should be considered the new artists of the 21st century.

The notion of 'Interference' is posed here as an antagonism between production and seduction, as a

redirection of affect, or as an untapped potential for repositioning artistic critique. Maybe art doesn't have to work as a wave that displaces or reinforces the standardized protocols of data/messages, but can instead function as a signal that disrupts and challenges perceptions.

'Interference' can stand as a mediating incantation that might create a layer between the constructed image of the 'everyday' given to us by science, technological social networks and the means of its construction. Mediation, as discussed in the first Transdisciplinary Imaging conference, is a concept that has become a medium in itself through which we think and act; and in which we swim. Interference, however, confronts the flow, challenges currents and eulogizes the drift.

The questions posed in this volume, include whether art can interfere with the chaotic storms of data visualization and information processing, or is it merely reinforcing the noxious nature of contemporary media? Can we think of 'interference' as a key tactic for the contemporary image in disrupting and critiquing the continual flood of constructed imagery? Are contemporary forms and strategies of interference the same as historical ones? What kinds of similarities and differences exist?

Application of a process to a medium, or a wave to a particle, for example, the sorting of pixel data, literally interferes with the state of an image, and directly gives new materiality and meaning, allowing interference to be utilised as a conceptual framework for interpretation, and critical reflection.

Interference is not merely combining. Interference is an active process of negotiating between different forces. The artist in this context is a mediator, facilitating the meeting of competitive elements, bringing together and setting up a situation of probabilities.

In response to the questions posed by the conference theme, presentations traversed varied notions of interference in defining image space, the decoding and interpretation of images, the interference between different streams of digital data, and how this knowledge might redefine art and art practice. Within that scope lies the discourse about interference that arises when normal approaches or processes fail, with unanticipated results, the accidental discovery, and its potential in the development of new strategies of investigation.

In "[t]he case of Biophilia: a collective composition of goals and distributed action",<sup>3</sup> Mark Cypher highlights the interference in negotiations between exhibit organisers, and space requirements, and the requirements for artist/artworks, resulting in an outcome that is a combination generated by the competition of two or more interests. As part of the final appearance of *Biophilia*, the artwork itself contained elements of both interests, an interference of competing interests, comprising a system in which the artist and the artwork are components, and the display a negotiated outcome. Each element interferes with itself as it negotiates the many factors that contribute to the presentation of art. In this sense the creation of the final appearance of *Biophilia* is the result of the distributed action of many "actors" in a "network."<sup>4</sup> (To put this in another form all actors are particles and interact with each other to create all possible solutions but when observed, create a single state.)

In summing up concepts of the second Transdisciplinary Imaging conference, particularly in reference to the topic of interference strategies, Edward Colless spoke of some of the aspirations for the topic, entertaining the possibilities of transdisciplinary art as being a contested field, in that many of the conference papers were trying to unravel, contextualise and theorise simultaneously.

The publication aims to demonstrate a combined eclecticism and to extend the discussion by addressing the current state of the image through a multitude of lenses. Through the theme of interference strategies this publication will embrace error and transdisciplinarity as a new vision of how to think, theorize and critique the image, the real and thought itself.

**Paul Thomas**

REFERENCES AND NOTES

1. David Bohm and F. David Peat, *Science, Order and Creativity* (London: Routledge, 2000), 45.
2. K. Barad, *What is the Measure of Nothingness? Infinity, Virtuality, Justice*, Documenta 13, The Book of Books, 100 Notes, 100 Thoughts, (Ostfildern: Hatje Cantz, 2012), 646.
3. Mark Cypher, "The case of Biophilia: A Collective Composition of Goals and Distributed Action," (paper presented at the Second International Conference on Transdisciplinary Imaging at the Intersection between Art, Science and Culture, Melbourne, June 22-23, 2012).
4. Ibid.

ACKNOWLEDGEMENTS

Special thanks to researcher Jan Andruszkiewicz.

# Interference Wave

# DATA AND ART

*The organism that would be the supposed subject and intentional origin of forces is an effect of impersonal potentials, and it is precisely the technical object that can expose the power of potentials to act beyond the organism's capacities.*

— Claire Colebrook <sup>1</sup>

## DATA, DISPLAY, MODULATION

**The artist working in the digital medium must attend to the intrinsic qualities of the digital medium.**

Stiegler, Kittler, Manovich and Hansen, among others, have all meditated on what I characterise as the separation between digital data and its display. These writers tend, broadly, to characterise this separation in terms of technics and media. Such a characterisation owes much to the Platonic concepts of *amnesia* and *hypomnesia*. Kittler takes the dichotomy to its extreme and posits that there are no longer any media: “with numbers, everything goes [...] a digital base will erase the very concept of medium.” <sup>2</sup> Kittler wants to move beyond the concept of the medium as a result of digital convergence because it transcends differentiation between media, a differentiation that is constitutive of the concept of media. Without differentiation between different media, there are no media, and since the convergence of all media into the digital removes any differentiation between media, in the digital era there are no media. Thus, when he concedes that there ostensibly still *are* media in our world,

## A B S T R A C T

*This article investigates the nature of digital data as a medium for art. Specifically, what are the qualities and specificities unique to the medium of digital data, and how can artists working with this medium create work that cannot be created in any other medium? References are made to Friedrich Kittler, Mark B. N. Hansen, Marshall McLuhan, Gilles Deleuze, Anna Munster and Claire Colebrook to establish a bivalent ontological model of digital data. This bivalence is described in terms of ‘data’ and ‘display,’ where ‘data’ exists in an indeterminate state inaccessible to human perception until a determining operation is performed to modulate the data into a ‘display’ state, where ‘display’ does not necessarily imply visual display. Such a model suggests, in McLuhanist and Deleuzean terms, a medium that retroactively virtualises all previous media. This model is compared in detail to Gilbert Simondon’s ontological model of transductive individuation. Finally, modulation - in the form of parameter selection - is presented as the defining work of the artist in the digital medium.*

he sees them as comprehensible in McLuhanist terms, where the content of one medium is always another medium. The digital is singular, post-convergent, formless and plastic, and the differentiation that constitutes media occurs when digital data is modulated into some display state.

This way of thinking about the digital can be of practical use to the artist working with digital data. It has the advantage of unproblematically incorporating McLuhanist considerations - not only in what McLuhan calls the “rear-view mirror” operations that constitute so much of digital culture today, but also in the sense that McLuhan’s concept of media-as-content

itself becomes content in the digital medium. <sup>3</sup> So, for this discussion of the role of art and interference in the digital era, it is important to recognise the distinction between plastic, formless, generic digital data and specific instances of display, where digital data is modulated from its state of data-as-data into a state of display, such as when a digital photograph is visually displayed on a screen, or a digital audio recording is audibly displayed through speakers. Before this act of modulation into display, there is no possible distinction between the photograph and the sound, since they are both generic, formless digital data. This act of modulation - between data and display - is the work of the digital artist.

by

Adam Nash

adam.nash@rmit.edu.au

Mark Hansen argues against Kittler's extreme version of the consequences of digitisation, seeing it as an overly literal, or formalist, reading of Claude Shannon's foundational work in information theory, where information is separate from meaning. Hansen is keen to show that the differentiation of media is a more complex assemblage involving what he calls *embodiment*, in the sense of being "inseparable from the cognitive activity of the brain."<sup>4</sup> In this, he relies partially on an alternative theory of information, contemporaneous with Shannon's, espoused by Donald McKay, where what we might call the non-technical interpretation of information is inseparable from its technical structure. But Hansen does not deny the technical fact of the levelling nature of digital data, and nor does he deny the subsequent generic translatability of digitised media. Rather, he is attendant to the framing, or subjectification, that he sees as a necessary driver of the consciousness that perceives the modulated display of digitised data. In some ways, Hansen's attitude can be seen as extreme as Kittler's, in that neither are prepared to consider the digital medium as a medium in its own right – a move that would allow them to consider the formal and intensive qualities and implications of the medium, using McLuhanist techniques to investigate what can be done in this putative new medium that cannot be done in any prior medium. Even though he, like Kittler, acknowledges that convergence into the digital renders all prior media undifferentiable, Hansen's privileging of the image is perhaps why he doesn't logically extend the McLuhanist gesture all the way to the conclusion that the digital convergence not only profoundly enacts W. J. T. Mitchell's assertion that "there are no visual media,"<sup>5</sup> from the constitutive side instead of the "sensory modality" standpoint, but so totally incorporates all prior media as to subsume the very concept of differentiated media into a recursive subset of itself, and, *contra* Kittler, it does this as a medium, contributing operations in excess of all the media and semantic sources

being digitized, constituting a whole that is comprised of all prior media plus the digital excess, a whole that completes McLuhan's project while offering a new medium that differentiates itself through its own constitutive, ontological, excess.

We can identify two elements and one principle that constitute the digital medium as a medium. The two elements are data and display, and the principle is modulation. Working with digital data is a constant process of modulating data back and forth between a display state and the state of data-as-data. Display does not necessarily mean *visual* display, but it may, and in this sense, 'display' may be thought of as 'expression', or perhaps even 'actualisation'.

Any distinctions between discrete media and any distinctions between discrete mediatic actions are collapsed in the digital. All media are virtualised in the digital, and then simulated in display, so that any distinction between them holds only in a nostalgic sense, in the rear view mirror. Precisely because the digital contains all prior media, virtualised as content, it is possible to analyse these media separately, but only nostalgically, in a McLuhanist manner, and only when modulated into a state of display, enacted as a simulation of media. As Justin Clemens and I put it in Thesis 4 of our *Seven Theses on the Concept of Post-Convergence*:

*'All that is solid melts into data.' Alternatively: all is data. This is evidently an ontological thesis. What matters is data, but data isn't actually anything. Data is data. Data is absolutely not a phenomenological thing. It cannot be experienced as such, like Aristotelian prime matter. Unlike Aristotelian prime matter, however, we can manipulate data with ease; in fact, it is integrally available as manipulable. Marx claimed that human beings do indeed make history, but not as they please; today, we*

*make data and just as we please. Data is us. However, this is not the pure freedom that it may seem, nor does it lead to any triumph of the will. This is because data is only available to finite humans as filtered, as interpretation. These interpretations are, precisely, inscribed in display (whether audio, visual, haptic, what have you). Whatever is inscribed in display is always already modulated, and this modulation emerges from 'a formless soup of meaninglessness,' that is, a hyperchaos of data.*<sup>6</sup>

The invitation, therefore, for the artist working in the digital realm, is to recognise that the work is modulation. A significant factor in the work of modulation is parameter selection. But this post-convergent medium virtualises everything, and so the concept of parameter selection itself becomes a parameter to be selected, at the same time as retroactively highlighting the latent cruciality of parameter selection in all prior media. This potentially overwhelmingly complex situation can elicit an extreme rear-view-mirrorism in practice, and such is the situation we often see with deterministic data visualisations and data-driven visual artworks.

#### VIRTUAL ART

In calling on the concept of the virtual, I am not equating it with technology or the digital, though of course in the contemporary era it rings with echoes of popular usage in the sense of a 'virtual friend' or 'virtual sex' or 'virtual environment.' Rather, I am evoking the Deleuzian sense that Anna Munster, in her book *Materializing New Media*, describes thus:

*[T]he virtual dimension for corporeal experience evoked here lies in the way it poses the potential for embodied distribution as a condition of experience for information culture (original emphasis) by*

*dislocating habitual bodily relations between looking and proprioception. Virtual forces are vectors that pulse through the contours and directions of matter.*<sup>7</sup>

In a fine study of the nature of the relationship between the digital and the material, and the virtual and the actual, Munster talks of these inter-relationships as "actualizations of virtual subjectivity,"<sup>8</sup> and encourages us to see virtualisation as "an expanding and contracting field of differentiation."<sup>9</sup> This is a very useful tool for understanding the nature of the digital medium in relation to Kittler's proclamation of the movement beyond medium. Her convincing and nuanced argument can also be seen as extending McLuhan's famous extensions in a richer and more practical way than Hansen or Kittler, and is particularly useful for artists or practitioners of the digital attempting to come to terms with its intensive, and extensive, qualities and specificities. Her argument allows us to comprehend the ostensible contradiction between the collapsing, or levelling, nature of the digital and the specific differentiations required to interact with it. It does this by seeing all points of the digital - semantic sources, technical protocols and parameters, specific display instances and subjectification - as interdependently transformative negotiations of flows rather than assimilations of one thing into another. This may offer an approach to thinking the capacities of the immanently digital entity that differentiates both within and without its material manifestation, that both is and is not digital, without a semantic material provenance.

In a similar vein, but in specific relation to images and visual art, Claire Colebrook calls on Deleuze and Guattari's concept of *desiring machines* to understand the nature of the undifferentiated digital. She writes:

*It is naive and uncritical to see the analogue as a pure and continuous feeling or bodily proximity that is then submitted to the quantification of the digital, a digital that will always be an imposition on organic and vital life. There is, however, an in-organic mode of the analogue that is not a return to a quality before its digital quantification, but a move from digital quantities or actual units to pure quantities, quantities that are not quantities of this or that substance so much as intensive forces that enter into differential relations to produce fields or spaces that can then be articulated into digits.*<sup>10</sup>

Both Munster and Colebrook are trying to think about the consequences of the digital in terms of Deleuze's concept of life beyond the organic. As Colebrook characterises it, Deleuze thinks of "a technical or machinic potentiality that enbaes organic life,"<sup>11</sup> and both she and Munster can see a relationship between this and the operations of the digital, without equating the digital with this putative potentiality. In this, they (and Deleuze) are influenced by the thought of Gilbert Simondon, whose philosophy of ontogenesis requires us to "understand the individual from the perspective of the process of individuation rather than the process of individuation by means of the individual."<sup>12</sup> He talks of a preindividual state from which the individual being emerges but, in its individuation, not only "does not exhaust the potentials embedded in the preindividual state,"<sup>13</sup> but continues to exist in a state of relations with its milieu, a milieu that includes the preindividual state.

Therefore, according to Simondon, being "does not possess unity of identity which is that of the stable state in which no transformation is possible: being possesses transductive unity."<sup>14</sup> This concept of transductive unity, or transduction, is crucial to Simondon's philosophy:

*By transduction, we mean a physical, biological, mental, or social operation, through which an activity propagates from point to point within a domain, which is operated from place to place: each region of the constituted structure serves as a principle of constitution for the next region.*<sup>15</sup>

This aspect of Simondon's philosophy can be a useful tool for analysing the operation of the digital, particularly in the post-convergent terms of data, modulation and display. When existing as digital data, we can see a preindividual state from which a medium (e.g. a "photograph") individuates or, in the terms we are discussing, is differentiated by being modulated into a display state. This state of display, though, has a "relative reality, occupying only a certain phase of the whole being in question,"<sup>16</sup> crucially in ongoing symbiotic relations with its digital milieu, comprised of all the conceptual (protocols, software, etc) and physical (electrical, ferromagnetic, etc.) interactions that go to make up a working digital system.

As alluded to above, in the quote from Justin Clemens and myself, what is of interest to artists (and philosophers) is that, with the digital, we are eminently able to manipulate these systems of relations and individuation. More precisely, we are able to actively engage with these systems. In this sense, we can see alignments between Simondon's concept of transduction and what I am calling modulation.

It is important to note that Simondon's philosophy is in no way a surrender to cybernetics or information theory, and by following Simondon we are able to avoid a crude reductionist view of the digital and its relation to life. As much as he was interested in the thinking of the first wave of cyberneticists, he was equally alarmed at their attempt to rationalise all life in terms of the working of the machine – such a mechanistic view entirely goes against Simondon who

is, if anything, more likely to see a machine in terms of the working of an organism. But this would be a gross oversimplification of Simondon's ontological thinking, which entirely rejects any form of dichotomous thinking or substantialist division, along the lines of mind/body or human/machine, whilst still being perfectly capable of acknowledging the difference between these things.<sup>17</sup> Simondon sees no opposition between biology and technology, rather they are a continuation of each other. In this sense, there is a resonance with McLuhan's "extensions," but Simondon is far more egalitarian, seeing no hierarchy where human activity is more important or genuine than technological activity, a determinism which is perhaps implied in McLuhan's notion of extensions as applied to media.

Simondon's philosophy is very concerned with what we might call the recursive or even reticulated nature of systems, i.e., that transduction is a constantly cooperative process where elements influence and are influenced by each other and their milieu in interaction, which is a genuine *interaction*, rather than a one way line of cause and effect, each interaction both subject to and contributing to the nature of the system and thus the individual itself (and it is easy to see how such a philosophy appealed to Deleuze). So it is with modulation of digital data into a display state, a constantly recursive process of interaction between a myriad of physical (electricity, ferromagnetic particles, plastic, metal, silicon, nervous system, hand, eye) and conceptual (protocols, software, ideas, intentions) elements each engaging in a participatory process of individuation. Digital data is constantly being modulated into a display state in order to engage with another element in the system, whether that element be human or technical, then remodulated back into digital data, only to be modulated into another display state and so forth. With every modulation occurs a modification, of every element, of the interaction itself, of the modulation itself, a recursive, reticulated system of

de- and re-modulation, or what Simondon calls "recurrent causality,"<sup>18</sup> crucially engaged with and engaging its internal and external milieu.

We might think of this, as alluded to in the title of this essay, as a constant process of interference, a standing wave of interference. The artist hoping to work with the digital, and hoping to effect some kind of interference with the received values and standards of their milieu, must attend very closely to this process of modulation since it is the only action available to them that can truly be called "digital," without rehearsing pre-digital notions of art that scan only in the rear view mirror, and therefore are more likely to confirm rather than question the contemporary hegemony of libertarian digital capitalism. Such a hegemony relies on pre-digital notions, particularly of the individual, and encourages users to see the digital through the rear-view mirror. This is in order to distract from the Simondonian processes the hegemony itself engages with to exploit its worldwide workforce of individual users, bewitching them into tirelessly labouring to produce its commodity (digital data), not only for free, but enthusiastically. This is of course exemplified by the so-called personalisation movement, a drive towards total solipsistic consumption-as-production. This shows that the processes that Simondon identifies, and that are mirrored in the digital, are not necessarily anthropocentric ideological processes, but can be utilised towards any pre-digital anthropocentric ideology by engaging with its processes to exploit Cartesian subjectivity or any other dualist or substantialist ideology that sees technics as external to the human experience. Such is the method employed mercilessly by contemporary global digital capitalists, with outrageous hegemonic success. Thus it is beholden upon artists, wishing to attempt to interfere with such hegemonies, to investigate the implications of genuine engagement with these Simondonian digital processes, inserting themselves by experimenting with param-

eter selection, thereby participating in the modulation process without succumbing to a subjectivist attempt to determine the teleology of the work.

In other words, since the digital opens up Simondon's concepts of technical beings and individuation, the artist must try to enter into relations with this digital process of modulation, allowing themselves, their ideas and their will to modulate – for example, through parameter selection – and be modulated. This means being mindful of avoiding any teleological impulses towards an artwork, rather opening up the work process to the recursive affectivity of the digital, so that the process of art in the digital is not formulated in terms of individual artworks. The process should be a part of the recursively relations-based nature of digital systems, engaged completely in the recurrently causal modulation process. In this sense, the artist's process becomes a node in the reticulated process of modulated individuation that characterises the digital process, constantly in changing, influencing and influenced relationship with the process and its milieu, which in this case, since the artist's process is an element within the system, includes both the internal and networked workings of the digital system as well as the artist's own milieu, which presumably includes the artist's social context, history and desires – desires both individual and social.

Colebrook's very important point about the inorganic mode of the analogue reminds us of the crucial difference between the digital and the numeric or mathematical. Kittler, Hansen and Deleuze all practice this conflation of the digital and the numeric. In fact, the digital is not numeric, it is purely binary, an enacted logic of switches. This widespread conflation is perpetuated by the popular misconception of the digital being constructed from “zeroes and ones,” which is in fact simply a symbolic placeholder for the boolean logic of on/off or yes/no or is/is-not. Once we ac-

cept the numerical, or mathematics, as simply another parameter selection used to effect the modulation between data and display, we may be able to comprehend the move to pure quantities and even think the relationship between the contemporary technical interdependence of virtual/material and the Deleuzian interdependence of virtual/actual. In other words, we will have moved closer to Munster's exhortation to see the virtual as expanding and contracting fields of differentiation. In the digital, we as artists may see a tool for consciously or explicitly engaging with Simondon's transductive process of individuation where the individuated remains in dynamic interaction with the pre-individual, which is never exhausted.

#### IMMANENTLY DIGITAL ENTITIES

We have established that there is no longer any meaningful differentiation between discrete media, except as they relate to a display state. Now we can analyse the display of digitised entities that have a recognisable material (non-digital) provenance. For example, it is easy to see much contemporary data visualisation as a straight forward modulation of data into the visual display register using parameters selected along the lines of McLuhan's rear view mirror. Given that this act of modulation is already a formalised kind of interference, it is clear that to achieve the kind of interference that might also be considered an artist-led disruption (itself a rear view mirror kind of concept), the artist must take care to select parameters that cause the modulated display to visually question its own display. This might include questioning the veracity of the data's provenance or the assumptions made in the digitising of the data in the first place, or the scale of the data and so on.

But what of immanently digital entities? In other words, digital entities that have no recognisable se-

mantic material source. This is the question that my colleague, John McCormick, and I are investigating in our ongoing project called *Reproduction*. The work involves experimentation in audiovisual, performative, evolving, virtual entities spawning and reproducing in virtual environments, capable of intercommunication with the material world via various systems of motion and data capture. Loosely based on principles of artificial evolution, the parameters that we as the artists initially selected are, rather than the standard artificial evolution parameters like strength and fitness, all audiovisual performative parameters like red, green, blue, opacity, rhythm, timbre, tempo, tone (pitch) and so on. The entities evolve, reproduce, live and die over thousands of generations according to a constantly emergent evolution of these crude parameters that is informed, but not determined, by both their interaction with humans in the material world and with their interactions with each other. In other words the original parameter set becomes, after the first generation, virtualised content for the next emergent generation. All the while, the entities are organising (or perhaps socialising) and improvising movements and “songs” amongst themselves, whilst observing and improvising with any human visitors to their “space.” The space in this case means both their digital virtual environment (accessible by humans via an online multi-user environment) as well as the physical space of wherever the work happens to be exhibited. In the latter case, motion and data capture are used by the entities to perceive humans, while a modulated audiovisual display allows humans to perceive the entities. Our desire, as artists, is to engage - using sound, music, movement and dance - in what we might call a “genuine” improvisation with these digital entities, by which we mean the human and digital performers share equal responsibility and value in the emergence of the improvised performance, dynamically building a shared performative vocabulary by learning from each other's nuances, gestures and performative suggestions.

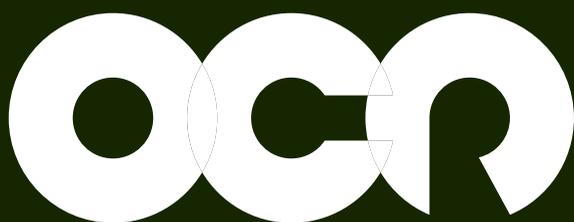
In this way, we are attempting to enact some of the possibilities raised by Simondon's ontogenetic philosophy of technical being that is in a recurrently causal, constantly evolving, relationship with human beings where, while remaining ontologically distinct, neither has primacy over the other.

We might be asking, at the insistence of Kittler, if there is life beyond the medium. The inter-relationships of flows investigated by Anna Munster, or the pure quantities posited by Claire Colebrook may be at work in the emergent and evolving persistent performance of *Reproduction*. Certainly, Munster calls very explicitly for media artists to move beyond what she calls “the twin premises of disembodiment and extension in space.”<sup>19</sup> Accordingly, this work attempts to improvise in real time an enactment of these beyonds. And since we have established that the image cannot exist in the digital, perhaps we can leverage Colebrook's thinking when she writes “we might aim to think beyond the body as an extended substance receiving the world only in terms of its bounded actuality? An image can be experienced as such, not as a proper body or imperative.”<sup>20</sup>

Of course it is possible to rationalise any interaction with or display of these entities in terms of the original human-selected parameter set, but this is no more meaningful than saying that any living material organism is nothing more than its originary DNA combination, and this is the potentially reductionist danger that informs some contemporary thinking around embodiment, framing and subjectification, especially in relation to the digital. This is where Simondon's philosophy, on its own and in relation to its influence over Deleuze, Colebrook and Munster, can come in very useful, so that there is a chance to rigorously examine the potential, in our interactions with the immanently digital, for the emergence of what Claire Colebrook calls “sense beyond the actual.”<sup>21</sup> ■

## REFERENCES AND NOTES

1. Claire Colebrook, *Deleuze and the Meaning of Life* (London: Continuum, 2010), 126.
2. Friedrich Kittler, *Gramophone, Film, Typewriter* (Stanford: Stanford University Press, 1999), 2.
3. Marshall McLuhan and Quentin Fiore, *The Medium is the Massage: An Inventory of Effects* (Corte Madera: Gingko Press, 2001), 75.
4. Mark B. N. Hansen, *New Philosophy for New Media* (Cambridge, MA: MIT Press, 2004), 3.
5. W. J. T. Mitchell, "There Are No Visual Media," *Journal of Visual Culture* 4 no. 2 (2005), 257-266.
6. Justin Clemens and Adam Nash, "Seven Theses on the Concept of 'Post-convergence,'" the website of Australian Centre of Virtual Art, [http://www.acva.net.au/blog/detail/seven\\_theses\\_on\\_the\\_concept\\_of\\_post-convergence](http://www.acva.net.au/blog/detail/seven_theses_on_the_concept_of_post-convergence) (accessed June 20, 2012).
7. Anna Munster, *Materializing New Media: Embodiment in Information Aesthetics* (Lebanon, NH: Dartmouth College Press, 2006), 90.
8. *Ibid.*, 114.
9. *Ibid.*
10. Claire Colebrook, *Deleuze and the Meaning of Life*, 124.
11. *Ibid.*, 125.
12. Gilbert Simondon, "The Genesis of the Individual," in *Incorporations*, ed. J. Crary and S. Kwinter (New York: Zone Books, 1992), 300.
13. *Ibid.*
14. Gilbert Simondon, *L'individu et sa genèse physico-biologique* (Presses Universitaires de France, 1964; Éditions Jérôme Millon, 1995), 30, quoted in Muriel Combes, *Gilbert Simondon and the Philosophy of the Transindividual*, trans. Thomas LaMarre (Cambridge, MA: MIT Press, 2013), 6.
15. *Ibid.*, 30.
16. Gilbert Simondon, *The Genesis of the Individual*, 300.
17. Thomas LaMarre, "Afterword: Humans and Machines," in Muriel Combes, *Gilbert Simondon and the Philosophy of the Transindividual*, trans. Thomas LaMarre (Cambridge, MA: MIT Press, 2013), 90.
18. *Ibid.*, 95.
19. Anna Munster, *Dematerializing New Media*, 179.
20. Claire Colebrook, *Deleuze and the Meaning of Life*, 128.
21. *Ibid.*, 127.



**Operational &  
Curatorial Research in**  
Contemporary Art, Design,  
Science & Technology

[ocradst.org](http://ocradst.org)