NYUSteinhardt
Steinhardt School of Culture, Education, and Human Development

Operational & Curatorial Research

LEONARDO
THE INTERNATIONAL SOCIETY FOR THE ARTS, SCIENCES AND TECHNOLOGY

Sabancı Üniversitesi

Goldsmiths
UNIVERSITY OF LONDON

VOL 20 NO 2 BOOK EDITORS **LANFRANCO ACETI & PAUL THOMAS**

EDITORIAL MANAGER **ÇAĞLAR ÇETIN**

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.

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.

Editorial Address
Leonardo Electronic Almanac
Sabanci University, Orhanli – Tuzla, 34956
Istanbul, Turkey

Email
info@leoalmanac.org

Web
» www.leoalmanac.org
» www.twitter.com/LEA_twitts
» www.flickr.com/photos/lea_gallery
» www.facebook.com/pages/Leonardo-Electronic-Almanac/209156896252

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.

Leonardo Electronic Almanac is produced by Passero Productions.

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

Sabancı Üniversitesi

KASA GALERİ

Goldsmiths
UNIVERSITY OF LONDON

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

NYU Steinhardt
Steinhardt School of Culture, Education, and Human Development

The publication of this book is graciously supported by

UNSW AUSTRALIA | Art & Design

THE UNIVERSITY OF MELBOURNE | VCA VICTORIAN COLLEGE OF THE ARTS

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.

Leonardo Electronic Almanac
Volume 20 Issue 2

 ISSN 1071-4391 ISBN 978-1-906897-32-1

ISSN 1071-4391 ISBN 978-1-906897-32-1

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 *to 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's 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 definition 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 constructed rational madness of humanity and the subjugated viewer. An element that interferes, obstructs and disrupts the carefully annotated and carefully choreographed itinerary that the viewer 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 [11] 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 *interfere*: "No, painting is not done to decorate apartments. It is an instrument of war for attack and defense against the enemy." [12]

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.

ISSN 1071-4391 ISBN 978-1-906897-32-1
ISSN 1071-4391 ISBN 978-1-906897-32-1

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 *to 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 definition 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 [1] 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." [2]

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.

ISSN 1071-4391 ISBN 978-1-906897-32-1
ISSN 1071-4391 ISBN 978-1-906897-32-1

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, Çaglar Çetin and Deniz Cem Önduygu.

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 (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.

 ISSN 1071-4391 ISBN 978-1-906897-32-1

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.

ISSN 1071-4391 ISBN 978-1-906897-32-1

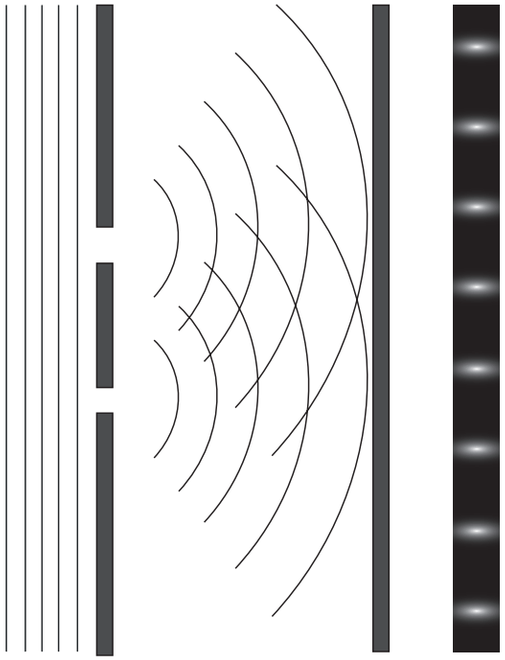


Figure 1. Diagram of the double slit experiment that was first performed by Thomas Young in the early 1800's displays the probabilistic characteristics of quantum mechanical phenomena.

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 Transdisplinary 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 nocuous 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.

ISSN 1071-4391 ISBN 978-1-906897-32-1

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", [3] 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." [4] (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.

ISSN 1071-4391 ISBN 978-1-906897-32-1

THE ART OF DECODING

n-folded, *n*-visioned, *n*-cultured

by

Mark Guglielmetti

Monash Art Design + Architecture (MADA)
Monash University
mark.guglielmetti@monash.edu

DECODING: THE NATURAL ORDER

Artificial life (A-Life) originates, so the accepted narrative goes, from the domain of science. In this discursive orientation much is underwritten by cybernetics and information theory to generate (evolve) computationally *lifelike* behaviour and the emergence of life, irrespective of material form [3] and to locate "*life-as-we-know-it* within the larger picture of *life-as-it-could-be*." [4] In this undertaking scientists simulate "biological life to evolve patterns, images, programs and more generally to formulate new strategies of control which are more adequate to the liquid space of informational capitalism." [5] The complexity of life is measured not by the metaphorical and material relays through which humans are being redefined as posthuman [6] but by observing "abstract mathematical musings" [7] and complex mathematical patterns as they are *seen* to self-organise and emerge in images.

Notwithstanding this scientific account of artificial life, there are multiple dimensions to examine artificial life. [8] [9] [10] I explore artificial life itself as constituent of the moving image specifically as visualised in three-dimensional computer generated space (3D space). Of particular interest in this examination is the view or 'window,' from the virtual camera into the artificial life computational model, and how it organises a dense field of expectations. These expectations include how the camera that frames the image is deployed to create the appearance of an unmediated reality into abstracted mathematical models which, when rendered, generate perceptible images of, what is commonly referred to as, the 'world.'

Analogous to looking through a telescope or microscope, the view into the artificial life world is monocular and often fixed in the 'world.' The success of artifi-

A B S T R A C T

Scientific modelling requires us to suspend disbelief, nowhere is this more palpable than in artificial life, an area of computational research investigating the principles that constitute a living system "without making reference to the materials *that constitute it."* [1]

This paper investigates artificial life visualisation as both a scientific concern and in relation to media arts. Of interest in this examination is the normative protocol of looking at an artificial life simulation or 'world.' Analogous to looking through a telescope or microscope, the view into the artificial life world is monocular and often fixed; in this regime we look at 'organisms.' This strategy of looking through the scientific lens to observe a 'natural world' enfolds other forms of cultural tactics that require decoding including but not exclusive to Bazin's ontology of the photographic image, Disney nature films and other "apparatus-based universes which robotize the human being and society." [2]

Subsequent to identifying these protocols in artificial life visualisation I describe a number of works which exploit normative computational procedures to align artificial life image making into optical consistency with other forms of contemporary culture and to celebrate the 'ocular madness' found in art forms such as neo-baroque image making and Islamic art.

ISSN 1071-4391 ISBN 978-1-906897-32-1
ISSN 1071-4391 ISBN 978-1-906897-32-1

cial life visualisation is dependent on observing 'lifelike behaviour' [11] within the image and deciphering emergent patterns in, the 'world'; what is perceived in the 'world' or on the screen is what there is to perceive.

The coded generators of this lifelike behaviour are often referred to as "creatures," [12] "cyberbeasts," [13] and "virtual organisms." [14] These creatures, often 'live,' 'fight,' 'breed,' 'trade' and 'die' in the virtual world; that said, rarely do they 'work,' 'shop,' 'shit,' 'fuck' or afford a 'point of view'; sticky messy descriptions that rarely pervade the imaginative and iterative loop of pattern generation. The anthropomorphic machinations of an A-Life 'world' are described through the discursive framework and nomenclature of science and economics, more so than from a personal intimate perspective of life.

This institutionalised orientation is not exclusive to the nomenclature of artificial life as a journalistic enterprise for scientific journals, academic publications and as filter for the artist's press release, but extends to other taxonomies of A-Life such as the interpretive viewing regime of the A-Life world. The normative viewing protocol through which to view an A-Life 'world' is predominantly filtered through the fixed lens of the virtual camera view into the modelled world. In this regime we look 'at' the aforementioned creatures etcetera. This tactic of looking through the instrumentality of science, the arts of reality, is parallel to looking through André Bazin's [15] 'long take' in cinema and documentary filmmaking in which we look 'at' an unmediated view of reality; in other words in looking 'at' an image of artificial life we look 'through' a non-intrinsic regime of seeing.

In the case of the artificial life, observation vis-à-vis the long take stands in reserve as the de facto protocol which functions to record (shoot) an unmediated reality of the A-Life world, perhaps for good strategic reason; when "we abandon the notion of a camera as an adversary to the world … and instead place the accent on its 'natural' connection to the world, we reach another, more orthodox version of a camera. This approach stresses the necessary, scientific links among objects, light rays, and film emulsion […] A camera comes the bearer of tokens from the world." [16] A natural order is established in service of scientific method, measurement, classification, documentation and re-presentation arbitrates fact from magic, facts are not man made. In the domain of science "it is not I [the experimenter] who says this; it is the machine." [17] Indeed, the epistemological (scientific) framework through which to legitimately measure the world vis-à-vis the camera (virtual or otherwise), originates through the complex matrix of French politics less than 15 years after Nicéphore Niépce's *View from the Window at Le Gras* (1826) was taken, when M. François Arago persuasively reasons to the government of the French July Monarchy, and confirming to the French public that, "the camera lies no more than does the thermometer, the microscope, and hygrometer, and so on." [18]

The window into artificial life worlds evokes nineteenth-century 'scientific' studies or early twentieth-century photoplays than is suggestive of either Friedberg's [19] "new space of mediated vision [which] is post-Cartesian, postperspectival, postcinematic, and posttelevisual" or the "celebration of ocular madness" [20] in other forms of neo-baroque image making. [21] [22]

The advanced expectation from practitioners of artificial life screen-based imaging is the virtual camera itself functions similar to an analogue device, such as the microscope or telescope, in that it impassively enframes the 'world' whilst it simultaneously optimises the credibility or factuality of the 'world' and like an analogue camera it records a temporal image of the 'world'; in other words, the virtual camera functions like Vertov's "microscope and telescope of time." [23]

The camera (virtual or otherwise) does not record an unmediated reality or 'world'; all cameras (virtual or otherwise) are devices that create images. That all images "are mediations between the world and human beings" [24] is an important reminder that an image is not a window into a world – it *is* an image. [25] In this, all image making is rhetorical. Flusser's description of the photographic apparatus is a critical reminder that:

> *[the] 'objectivity' of technical images is an illusion. For they are – like all images – not only symbolic but represent even more abstract complexes of symbols than traditional images. They are metacodes of texts which . . . signify texts, not the world out there.* [26]

Flusser's [27] sombre view that the "photographic universe and all apparatus-based universes robotize the human being and society," is a timely cue that the view into an artificial life world, and indeed into the broader spectrum of scientific and data visualisation, is important.

The investigation into the interpretive regimes and the technical apparatus gives only a partial dimension to the relationship between artificial life and the moving image. Other important factors under consideration are the narratives that accompany artificial life works themselves. Scientists often publish in scientific journals fictive accounts of the artificial life system that simply don't accord with the target system, as illustrated in Watson and Lovelock's [28] scientific study of an "imaginary planet [with] a very simple biosphere" in the project *Daisyworld.* After warning the reader that they "are not trying to model the Earth, but rather a fictional world," Watson and Lovelock [29] go on to describe *Daisyworld*: "Owing to a subtle change of climate, clouds appear on daisyworld [sic]. The clouds are light in colour. We will assume that the clouds form only over stands of black daisies because of the rising air generated over these warm spots." [30] To state the obvious, stylised descriptions have properties that the models don't [31] and as Michael Renov convincingly argues, all discursive forms are "at least *fictive,* this by virtue of their tropic character (their recourse to tropes or rhetorical figures)." [32]

The stories that migrate in artificial life are contemporary accounts of 'nature' whose genealogy can be traced to Disney filmmaking, specifically, the nature film (to simulate life as we know it vis-à-vis moral and political refractions) and Disney animation, which, as lead Disney animator Art Babbitt observed, "follows the laws of physics – unless it is funnier otherwise." [33] Artificial life 'world building' is formed in the shadow of Disney nature storytelling: cyberbeasts, virtual organisms and agents are organised, optimised and then observed, like the Disney animal kingdom, to trade, fight, breed and die. Moreover, similar to Disney stories that do "something far more than reveal 'nature's mysteries': they [speak] to us of a living and intelligible world beyond the fence of civilization, a world we [can] enter at will and experience in something like human time." [34] Artificial life is of its essence a dramaturgy of the fitness landscape. [35]

n-FOLDED, *n*-VISIONED, *n*-CULTURED

A high degree of artifice is involved in scientific visualisation in general, more so in artificial life 'worlds.' Take for example the virtual camera that frames the view into the artificial life world. The term virtual camera itself is shorthand to describe an array of algorithmic functions, some of which are mapped to functions that have equivalence in digital cameras. The virtual camera is also host to a large range of algorithms

ISSN 1071-4391 ISBN 978-1-906897-32-1
ISSN 1071-4391 ISBN 978-1-906897-32-1

that simply do not have physical correspondence to the world such as the 'z-buffer.' The z-buffer is a data structure unique to 3D visualisation; it establishes and determines the logical drawing order of objects and elements in 3D space in relation to the virtual camera. As illustrated in Figures 1-3, objects closer to the camera occlude objects or elements far from the virtual camera, correctly reproducing perspectival depth perception. Though the z-buffer is programmed into 3D software to create a 'realistic map' of the world it is instructive to remind the reader that 'world' is a social concept [36] and mapmaking is rhetorical. The z-buffer is just another algorithm in a database of algorithms; it too can be re-imagined as a rhetorical device. For example in my project *Laboratories of Thought,* the z-buffer is rewired to my subjective experience of the gallery the Trocadero Artspace in Melbourne, Australia. The drawing logic of three-dimensional space is reordered according to criteria other than spatial. Unlinked from conventional spatial logic the z-buffer is reconfigured along subjective lines, in this case emotional valency; what I like most about the Artspace to what I like least.

The project explores the tensions inherent in employing the mathematical rationalisation of pictorial space as a model through which to filter my emotionally and biologically mediated experience of the physical environment. By encoding the virtual camera to reorder the visual field of the 3D scene to 'what I find interesting' (emotional valency) I unpin the grammar of the image from a spatial field to a grammar of potential; what I find interesting dynamically changes from moment to moment. Mapping the grammar of my emotional valency to the visual organisation of space is of course arbitrary; any data can be used to reorder the spatial field, in fact any data could be rewired to many other virtual artefacts not just the virtual camera.

And this is the point. At stake in artificial life image making is agency. Instead of looking at creatures etc, it is incumbent upon us to examine what it means to look *through* an interpretative agent's 'point of view.' Drawing on a media ecological framework Matt Fuller asks, "What arises when two or more standard processes, with their own regimes, codes, modes of use and deportment, systems of transduction, and so on, become conjoined?" [37] Fuller's question can be restated as, what arises when the conventions, processes and protocols from artificial life are conjoined with those from film, cinema and the moving image? The closest reference point that articulates what this interpretative agent might be is situated in the grammar of the moving image – the filmmaker. This merging of discursive practices frames an examination into an artificial life 'filmmaker', as it (the system) searches for interesting themes, selects interesting shots and adapts to evolve the entire parameter space, including the z-buffer, to generate or evolve a new visual grammar or syntax of the moving image.

Travelogue: A recording of Minute Expressions (*Travelogue*) is a generative work that explores this theme. The central motif of the work draws inspiration from Islamic art and Persian carpet making. The metaphor of the Persian carpet orients both *Travelogue* and artificial life, including themes of 'emergence,' self organisation and "lifelike behavior" [38] as *de rigueur,* into the longer genealogy of the human endeavour. Though much has been made of these themes in artificial life, [39] [40] their formation precedes artificial life in that they are well-honed principles in Islamic art and Islamic carpet making. [41] [42]

The Persian carpet is a also metaphor to describe the intercultural traffic in both Islamic art [43] and the overarching research into artificial life and generative art. This seems appropriate given the trade in and migration of epistemological, institutional, financial, re-

ISSN 1071-4391 ISBN 978-1-906897-32-1

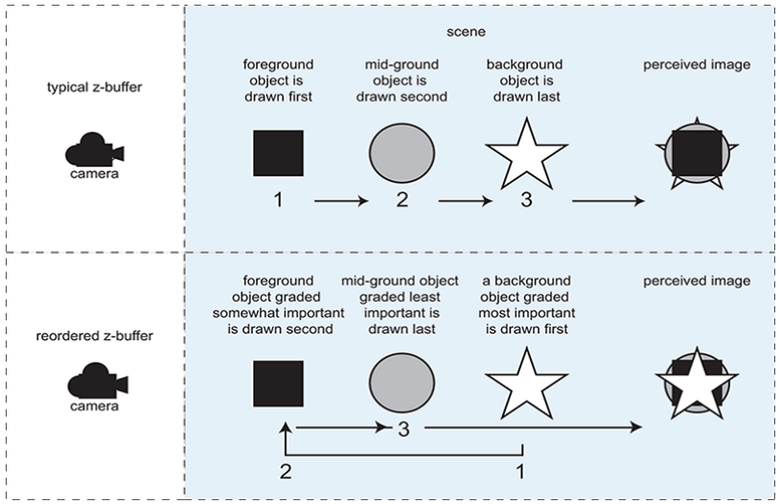


Figure 1. Schematic comparison between a conventional and reordered z-buffer. © Mark Guglielmetti, 2007. Used with permission.

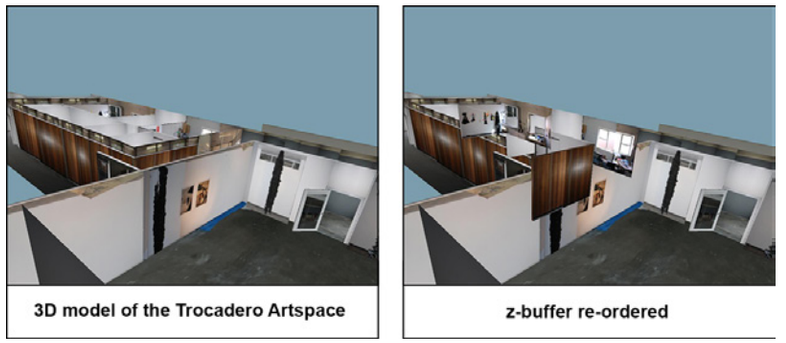


Figure 2. Architectural model of the Trocadero Artspace. © Mark Guglielmetti, 2007. Used with permission.

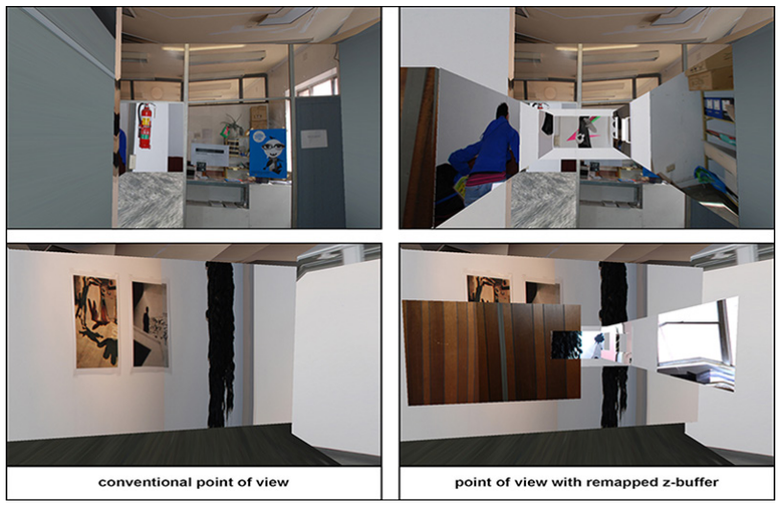


Figure 3. *Laboratories of Thought and Experimentation for Future Forms of Subjectivation*, Mark Guglielmetti, 2007. Software. © Mark Guglielmetti, 2007. Used with permission.

ISSN 1071-4391 ISBN 978-1-906897-32-1

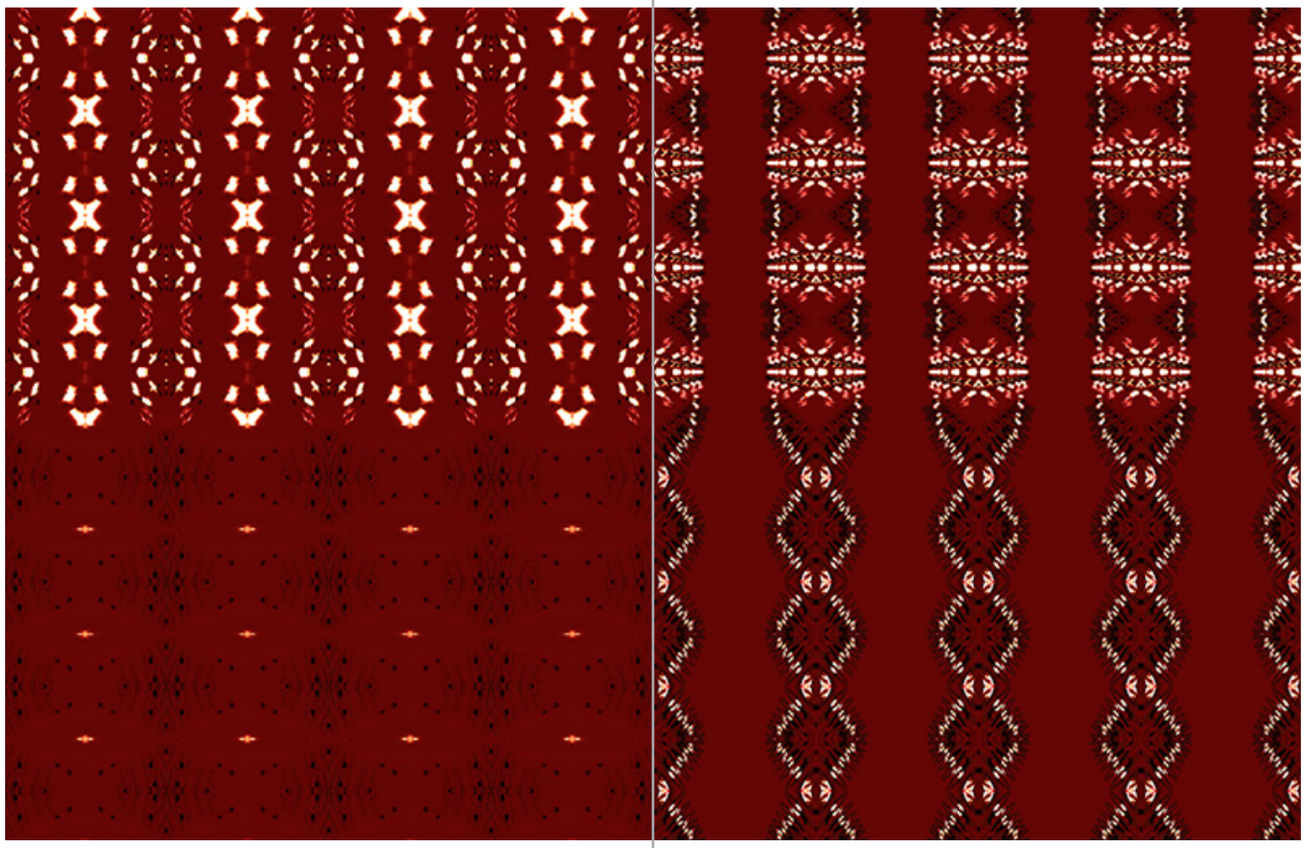
ligious and scientific discourse and artefacts in Islamic culture. In other words, *Travelogue* explores the trade in cultural artefacts, including the migration of encoded grammars and interpretative regimes and, the production of knowing subjects in "an unstill centre of a turning world." [44]

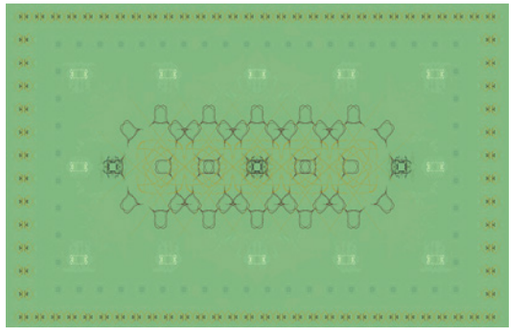
The 'world' in *Travelogue* is seeded or initialised with statistical census data on tourism in Turkey, September 2010. Data from the "monthly number of arriving foreigner visitors" provides the initial resources to populate the work. Other data, such as "$ spent per foreigner" and "number of foreigners of nationality and group of age-gender" populate other variables in the system, which are used to mathematically describe the drawing 'agents' (expressions). During 'runtime', the expressions exchange data with other expressions, but this 'interaction' is not visualised. The exchange of data between expressions provides various mathematical resources to other expressions, which enable the expressions to change scale, colour, location and number; similar functions enacted in other generative systems without personifying the expressions with slippery terms like 'fight,' 'breed' and 'die.'

The work is displayed across multiple screens. One screen displays an orthographic view of the 'world', which references Persian carpet design and provides context to the overall system. This visualisation might be described as a re-imagination of the potential enfolding tourist trade in Turkey but just as well as an expression of the system. See Figure 4.

A second screen displays a view as expressed from the virtual camera *in* the 'world.' The virtual camera draws from a variety of grammars from the moving image, such as zoom and pan but also reorganises other grammars such as the z-buffer. The virtual camera/filmmaker shoots or *n*frames what is 'interesting' to it – whatever that 'interesting' is, of course, immeasurable. See Figure 5. These views into the world render non-perspectival and *non-optical* images of the world, that is, images that do not favour or analogize the camera. See Figure 6.

In this light, the 'virtual camera' is, at best, an impoverished metaphor to describe the expressive potential for an *n* array of visual representations into and of 3D space. A more appropriate idiom for the interrelated algorithms that give rise to the view into 3D space might be "cameraless camera" [45] but this also evades the obvious, there is no camera; software mediates the view into virtual space.





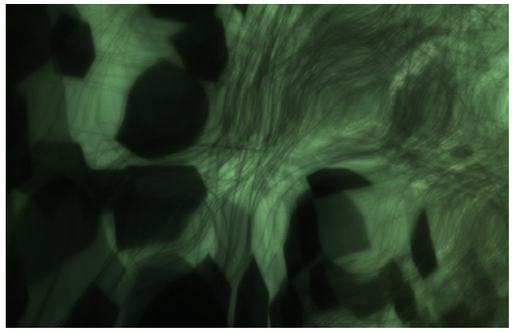


Figure 4, 5, 6. *Travelogue: A Recording of Minute Expressions*, Mark Guglielmetti and Indae Hwang, 2011. Code and software. © Mark Guglielmetti, 2011. Used with permission.

CONCLUSION

Stan Brakhage understood what is at stake perhaps better than most writing:

> *the increased programming potential of the IBM and other electronic machines now capable of inventing imagery from scratch. Considering then the camera eye as almost obsolete, it can at last be viewed objectively and, perhaps, view-pointed with subjective depth as never before. Its life is truly all before it. The future fabricating machine in performance will invent images as patterned after cliché vision as those of the camera, and its results will suffer a similar claim to 'realism', IBM being no more God nor even a 'Thinking machine' than the camera eye all seeing or capable of creative selectivity, both essentially restricted to 'yes-no,' 'stop–go,' 'on-off,' and instrumentally dedicated to communication of the simplest sort. Yet increased human intervention and control renders any process more capable of balance between sub-and-objective expression, and between those two concepts, somewhere, soul.* [46]

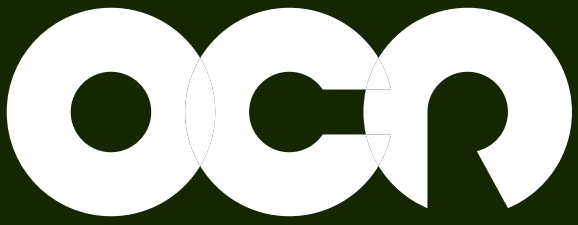
In digital media image making, there is an *n* array of potential to reorganise the visual field. From this array, I examine two, apparently disparate, research fields – artificial life and 3D simulation – both of which employ the virtual camera as the interface to 3D virtual worlds or visualisations. If artificial life is to truly generate life-like behaviour and emergence, what could be more lifelike than organising both the visual field and scopic regime/s, whatever they may be. After all, aligning the interpretive regime of artificial life image making into optical consistency with other forms of contemporary visual culture does no more, or less, than align competencies expressed in artificial life after the human endeavour. ■

ISSN 1071-4391 ISBN 978-1-906897-32-1
ISSN 1071-4391 ISBN 978-1-906897-32-1

REFERENCES AND NOTES

1. C. Adami, *Introduction to Artificial Life* (New York: Springer, 1998), 4.
2. V. Flusser, *Towards a Philosophy of Photography* (London: Reaktion, 2000), 70.
3. C. G. Langton, ed., *Artificial Life: Proceedings of an Interdisciplinary Workshop on the Synthesis and Simulation of Living Systems, held September, 1987, in Los Alamos, New Mexico* (Redwood City, CA: Addison-Wesley, 1989), 5.
4. Ibid., 1.
5. L. Parisi and T. Terranova, "Heat-Death: Emergence And Control In Genetic Engineering And Artificial Life," *CTHEORY,* 2000, http://ctheory.net/home.aspx (accessed March 27, 2011).
6. N. K. Hayles, *How We Became Posthuman: Virtual Bodies in Cybernetics, Literature, and Informatics* (Chicago: University of Chicago Press, 1999), 224.
7. Christopher G. Langton, "Introduction," in *Artificial Life II*, ed. C. G. Langton, C. Taylor, J. D. Farmer, and S. Rasmussen (Redwood City, CA: Addison-Wesley, 1992), 20, quoted in S. Helmreich, *Silicon Second Nature* (Berkeley: University of California Press, 1998), 17.
8. O. Grau, "Remember the Phantasmagoria! Illusion Politics of the Eighteenth Century and Its Multimedial Afterlife," in *MediaArtHistories*, ed. O. Grau (Cambridge, MA: Leonardo, MIT Press, 2007), 137-161.
9. L. U. Marks, *Enfoldment and Infinity: An Islamic Genealogy of New Media Art* (Cambridge, MA: MIT Press, 2010).
10. J. Stapleton, "Black Shoals: A Meditation on Cosmology, Artificial Life and the Aesthetics of Political Economy," the website of Black Shoals Stock Market Planetarium, 2004, http://www.blackshoals.net/Writing.html (accessed September 12, 2007).
11. C. G. Langton, ed., *Artificial Life: Proceedings of an Interdisciplinary Workshop on the Synthesis and Simulation of Living Systems*, 5.
12. L. Mignonneau and C. Sommerer, "Creating Artificial Life for Interactive Art and Entertainment," *Leonardo* 34, no. 4 (2001): 303-307.
13. J. Prophet, "Sublime Ecologies and Artistic Endeavors: Artificial Life and Interactivity in the Online Project TechnoSphere," *Leonardo* 29, no. 5 (1996): 339-344.
14. K. Sims, "Galápagos," Karl Sims' official website, 1997, http://www.karlsims.com/galapagos/index.html (accessed September 12, 2007).
15. A. Bazin, *What is Cinema? Volume 1* (Berkeley: University of California Press, 2005).
16. E. Branigan, *Projecting a Camera: Language-games in Film Theory* (London: Routledge, 2006), 76.
17. S. Shapin and S. Schaffer, *Leviathan and the Air-Pump: Hobbes, Boyle, and the Experimental Life* (Princeton, NJ: Princeton University Press, 1989), 77.
18. B. Winston, "The Documentary Film as Scientific Inscription," in *Theorizing Documentary*, ed. M. Renov (New York: Routledge, 1993), 40.
19. A. Friedberg, *The Virtual Window: from Alberti to Microsoft* (Cambridge, MA: MIT Press, 2006), 7.
20. M. Jay, "Scopic Regimes of Modernity," in *Vision and Visuality*, ed. H. Foster (New York: Bay Press, 1988), 20.
21. S. Cubitt, *The Cinema Effect* (Cambridge, MA: The MIT Press, 2004).
22. A. Ndalianis, *Neo-baroque Aesthetics and Contemporary Entertainment* (Cambridge, MA: The MIT Press, 2004).
23. N. Carroll, *Theorizing the Moving Image* (New York: Cambridge University Press, 1996), 213.
24. V. Flusser, *Towards a Philosophy of Photography* (London: Reaktion, 2000), 9.
25. Ibid., 16.
26. Ibid., 15.
27. Ibid., 70.
28. [A. J. Watson and J. E. Lovelock, "Biological Homeostasis of the Global Environment: The Parable of Daisyworld," *Tellus Series B: Chemical and Physical Meteorology* 35, no. 4 (1983): 284.
29. Ibid.
30. Ibid., 288.
31. R. Frigg and S. Hartmann, "Models in Science," Stanford Encyclopedia of Philosophy, 2009, http://plato.stanford.edu/archives/sum2009/entries/models-science/ (accessed May 17, 2011).
32. M. Renov, *Theorizing Documentary* (New York: Routledge, 1993), 7.
33. Art Babbitt, quoted in D. Chai and A. Garcia, "Physics for Animation Artists," *The Physics Teacher* 49, no. 8 (2011): 480. Source uncited.
34. A. Wilson, *The Culture of Nature: North American Landscape from Disney to the Exxon Valdez* (Cambridge, MA: Blackwell, 1992), 118.
35. I recall Bazin who wrote cinema is of "its essence a dramaturgy of Nature." A. Bazin, *What is Cinema?* vol. 1, 110.
36. D. Cosgrove, "Mapping the World," in *Maps: Finding Our Place in the World*, eds. J. R. Akerman, R. W. Karrow (Chicago: University of Chicago Press, 2007), 67.
37. M. Fuller, *Media Ecologies: Materialist Energies in Art and Technoculture* (Cambridge, MA: MIT Press, 2005), 98.
38. C. G. Langton, *Artificial Life: the proceedings of an Interdisciplinary Workshop on the Synthesis and Simulation of Living Systems,* 5.
39. Ibid.
40. M. Whitelaw, *Metacreation: Art and Artificial Life* (Cambridge, MA: The MIT Press, 2004), 207-237.
41. C. Alexander, *A Foreshadowing of 21st Century Art: The Color and Geometry of Very Early Turkish Carpets* (New York: Oxford University Press, 1993).
42. L. U. Marks, *Enfoldment and Infinity: An Islamic Genealogy of New Media Art* (Cambridge, MA: The MIT Press, 2010).
43. Ibid., 302.
44. S. Cubitt, "A Brief Case," in *The World Is Everything That Is The Case*, ed. V. Dziekan and P. Thomas, (Melbourne: Ellikon Press, 2011), 10.
45. The idea of cameraless image making in the visual arts has precedent. According to Kris Paulsen, Steve Beck created cameraless video by directly manipulating the basic component of video, the electron. K. Paulsen, "Direct to Video: Steve Beck's Cameraless Television," *ISEA 2011 Proceedings,* http://isea2011.sabanciuniv.edu/paper/direct-video-stephen-becks-cameraless-television (accessed September 12, 2007).
. At the same symposium Meredith Hoy (2011) assessed: "whether there are a set of principles with which [cameraless] computationally based abstractions are concerned, and what kind of 'world' is imagined through this algorithmically generated visual model. Taking into account the history of abstraction in modern art, it considers whether computational abstraction fits into a modernist narrative or whether it envisions a new call to order distinct from that set forth by 20th century modernist movements." M. Hoy, "Virtual Resistance: A Genealogy of Digital Abstraction," *ISEA 2011 Proceedings,* 2011, http://isea2011.sabanciuniv.edu/panel/arabesque-mandala-algorithm-long-history-generative-art (accessed September 12, 2007).
46. S. Brakhage, *Essential Brakhage: Selected Writings on Filmmaking by Stan Brakhage* (New York: McPherson & Company, 2001), 21-22.

ISSN 1071-4391 ISBN 978-1-906897-32-1
ISSN 1071-4391 ISBN 978-1-906897-32-1



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

ocradst.org