Why do I read Deleuze?
I have been:

Conservative / philosopher / hippy / anarchist / drag queen / black turtle neck smoker/ lighting director / digital nerd / Professor
I now would rather become, thanks to...

Bergson movement (change) / Whitehead process / everything is image in motion
GILLES DELEUZE
(1925-1995)

• Bergsonism (1966)
• Logic of sense (1969)
• Rhizome (1976)
• Thousand plateaus (1980)
• Logic of sensation (1981)
• The movement-image. Cinema 1 (1983)
• The time-image. Cinema 2 (1985)
• What is philosophy? (1991)
And a little bird and a wasp
Rhizomatic Connection

Am I a wasp?!

Am I an orchid...?

WTF

http://www.youtube.com/watch?v=GPbWJP5PdA

http://www.youtube.com/watch?v=tJ32_iJdMLo
Dichotomischer Baum des menschlichen Wissens in Band 1 der *Encyclopédie*

„Rhizomatische“ Verweisstruktur zwischen Webseiten

Übereinandergeschüttete Ingwerrhizome – ein Geflecht ohne „Stamm“

Rhizom einer Grasplante

http://de.wikipedia.org/wiki/Rhizom_%28Philosophie%29
Why did it take me so long to find it and what did I do before?
Books / films

- Antiquity plays
- H. Balzac
- Shakespear
- H. Fichte
- F. Dostojevski
- L. Tolstoi
- H. Hesse
- Dziga Vertov
- Godard
- Lars von Trier
- Peter Greenaway
I. Kant (aesthetics)
G.F. Hegel (phenomenology)
E. Husserl (Ideas)
H.N. Castaneda (guise theory)
D. Lewis (possible world)
N. Goodmann (ways of world making)
Metaphors
Leibniz (Monads)
Self-consciousness
M. Bense (information)
C.S.Pierce (semiotics)
K. Marx (capital)

• Van Gogh
• Kandinsky
• J. Johns
• Cezanne
• Picasso
• Nake
• Bad 19th century american art
• Art Nouvo
• Postmodern architecture
• Jawlensky
• P. DeMarinis
Categories (Chapter 12)

The world is structured according to a logic we can understand. Contradictions in the logic are interpreted as impossibilities in the world. We don't question our logic.

Language

Reality

Structuralism. The world is mirrored in language. Both can change, there is no causal/necessary link. Many different structures can mirror world in different ways.
Phenomenological. The only thing we can make statements about with certainty is our consciousness (self-consciousness). We sit in a chair and meditate on our consciousness. The world is in epoché.

Post-structuralist. Knowledge and consciousness are not restricted to humans. We think in post-human terms. The world is folded, the different layers and strata form new phenomena. We understand ourselves as processors and become agents, we form rhizomes and new structures.
Studied

- Freiburg (philosophy)
- Hamburg (literature)
- Heidelberg (philosophy)
- Bremen (art science)
Learning art history in London

Tate Gallery / National Gallery
4 years Multimedia

- Enough of the ivy tower
- Dotcom bubble 2000
- Late night and pizza service
- Federal bank Germany
- Siemens Headquarter
- TV documentaries (BBC)
Chercher la famme – I.e. Writing a PhD
Digital computer art: A view from art history into the early beginnings
Christoph Klutsch (International University Bremen)

Aesthetic values
The historical coincidence of Max Bense’s (Stuttgart, Germany) and Abraham Moles’ (Strasbourg, France) “information aesthetics”, and the academic use of mainframe computers created a surrounding which has enabled: Frieder Nake, Georg Nees, and (independently in the USA) A. Michael Noll to explore new fields of visual research since 1962.

When the first public attempts at computer art were made, this new breed of people considered themselves to bridge C. P. Snow’s “two cultures”.

What started on 2/5/1965 as “generative aesthetics” at a small exhibition in Stuttgart, found its international culmination in a series of conferences in Zagreb and exhibitions in NY and London in 1968/69. The questions addressed were:

- Is it possible to write a program which would enable a computer to produce aesthetic objects with a significant aesthetic value?
- How could these aesthetic values be scientifically, psychologically, and philosophically defined?
- What kind of implications does computer art have not only on art itself, but also on society, and our self understanding as human beings?

1965 digital computer art entered the art world - “The three N’s”

Bense’s Information Aesthetics
In 1965 Max Bense published his “Aesthetics”. Referring to David Birkhoff’s Mathematical Aesthetics, Claude Shannon’s Information Theory, Italo Calvino’s “A Short History of Nuclear Warfare”, and Albert Einstein’s Cybernetics, Bense developed a new aesthetic based on ontogenesis.

The goal was to measure the value of art works by determining the ratio between order and chaos respectively, of the information and redundancy:

- The aesthetic information is part of (human) communication.
- Communication can be understood as a cybernetic process.
- Information theory measures information (Shannon).
- Artworks contain aesthetic information.
- Aesthetic information can be measured.
- Aesthetic measurement is an interplay between order and complexity (see Birkhoff) and can be described in terms of negentropy.
- The process of art is the inverse of entropy: art creates order.
- The aesthetic object is related to a process which can be understood as a sign process.
- Given the rules for generating aesthetic information, a computer can produce aesthetic objects which are perceived as signs.

Intuition in Art
Art and Machines

Generative aesthetics - ARTifical ART
Who is the CREATOR in computer art?
The artist, the programmer, or the program?

We can TALK about the aesthetic values of objects - can we MEASURE them?

A mathematical approach to aesthetics

Birkhoff 1922
Song Dynasty (960-1279)

Order and Complexity are fundamental principles in the world.
Is there an aesthetic relation between them?

David G. Birkhoff (1884-1944),

1968 \( M = c \cdot C \)

Two Cultures

25-32 March, 1968 at the M.I.T.

Birkhoff’s “Art, Technology and Communication” begins in the afternoon with Jerome Lewis, M.I.T’s prominent art critic, who then proceeds to the next generation of art critics, including the present writer.

- Computer art as a bridge?
- Is the 60’s a new collaboration of artists and engineers emerging in a new computer art?
- In the tradition of the Surrealists, industrial production merged with artistic production using the computer as a tool, and according to the present writer, aesthetic and technical industrial production.
- Furthermore, what is the role of the artist in this new computer art?
- Is there a question of aesthetics in this new computer art?

Early networking

In the January 1966 issue of “Computer and Automation”, Leslie Meltz at the University of Toronto suggested building a network for sending information electronically connected with computer art.

As a communication process:

S. Maze: A cybernetic model of aesthetic processes

In the 50’s, Wilhelm Pfeiderer analyzed the aesthetic values of painting and drawings from the last 100 years. He calculated a surprisingly large amount of statistics for each work, and for each artist, which could be used to establish a number of basic elements that contributed to a 10-dimensional result. After repeating the procedure with classical art, we were in a position to realize all possible representations of his algorithms.” (Hilde 1953)
Conferences: Talking about my ideas and meeting like minded people

- Banff, Canada
- London
- NYC
- San Francisco
- Berlin
- Shanghai
Scientific and project coordinator
The World Language of Key Visuals

Our international network of experts from the humanities, the computer and the social sciences focuses on collective visual memories and neglects. The latter are systematized and decoded by means of the concept of "Key" Visuals, which encompasses visual images and stereotypes. Our major areas of expertise are Key Visuals in the media systems of the contemporary military, political and media superpower of the United States, set into contrast with Germany, Brazil, i.e., the potential leading power of Latin America (with one of the world's biggest TV stations and significant export quota) and the uprising world power of China. By means of a comparison between selected media, in their cultural contexts, over the period of about a decade, we inquire into the accelerating Americanization, visualization and globalization of screen media.
Becoming a Professor

* I don’t want to go to Texas!
* And my wife doesn’t like Germany any more....
Things I don’t understand

- Representation
- Figure
- Monotheism
- Beauty
- Violence
What I would like to understand:

- Folding
- Process
- Connection
- Motion
- Sensation
- Immanence
art is Truth setting itself to work.

What makes Heidegger unique? Is not asking where or not there are peasant shoes? What kind of picture/image/paintings is he talking about?

Is Heidegger’s vagueness more accurate to understand than the catalog entry?

How says the painting to truth?

Can we understand world as such or does it have to be mediated?

Does this argument work for abstract art?

What is the relation between language, thing and Verstehung (comprehension)?

Form and Function - they + they are, foundation of aesthetics in a 'firstness'?
Art Systems

Critic

Artist → Object → Viewers

Institutions (Critic)

Gallery → Museum → Market

Signifiers

Interpretation

Consciousness

Relation

Signified

Memory / History
physical process
stream of consciousness

reality

meaning

Structuralism/phenomenology

debate
Surface

Another

x

ontologie

flatness

skin

Gabe
History
Who did what why and how?
Reconstruction of construction. How did the artist work?
What did he mean? Even the path of a word spirit

- Law
  - sculpture
  - thinker
  - mimesis
visual communication
  - telling the story

Medium self-reflection

Multi-perspectival view

Alternatives
- Forgotten
- History
- Surprised
The invisible

→ the in between (-)

the ephemeral

...... process......

transfiguration \( \Delta \rightarrow \nabla \)

\( / \) the other

object &

idea | concept
gaps with in media are
the condition for into media processes

Dada collage
Should I curate an exhibition?
Artists I would like to know better:

Ben Rubin and Mark Hansen
Bill Fontana
Bruce Naumann
Camille Utterback
Cy Twombly
Dan Graham
David Hall
David Rockeby
Don Ritter
Donald Judd
Douglas Gordon
Eduardo Kac
Fischli & Weiss
Frieder Nake
Gary Hill
Gene Youngblood
Gerhard Richter
Gustav Metzger
Guy Debord
Iannis Xenakis
Jasper Jones
Jean-Luc Godard
Jenny Holzer
Jim Campbell
Jodi.org
John Cage
Ken Goldberg
Nybble Engine
Paul DeMarinis
Paul Sermon
Peter Greenaway
Richard Kriesche
Richard Serra
Roy Ascott
Samuel Beckett
Schmelzdahin
Sol Lewitt
Tony Oursler
Toshio Iwai
Vasily Kandinsky
Yves Klein
Maurizio Bolognini
Knowbotic Research
Krzysztof Wodiczko
La Monte Young
Leif Inge
Luc Ferrari
Luigi Fontana
Lynn Hershmann
Making THINGS public
Manfred Mohr
Marie-Jo Lafontaine
Mark Amerika
Mark Tansey
Finding Deleuze
Kandinsky

Lack of necessity

Life

Plane of immensity

Force / movement

Artist

Abstracts / spiritual

Computer art

Rules, algorithms

Chance

Virtual

Motion

Reality

Inner necessity

Rules / psychic laws

Generative

= Life = Plane of immensity

Hardy

Delence
2. The point is divorced from its practical, purposive state, so that it stands outside the sequential chain of the sentence.

Today I am going to the cinema

In this instance, the point requires a larger empty space around it, so that its sound can resonate. Nonetheless, this sound remains delicate, modest, and is drowned by the writing surrounding it.

If the size of the point itself, and of the empty space surrounding it are increased, the sound of the writing becomes diminished, and the sound of the point gains in clarity and strength [Fig. 1].

Fig. 1

Plate 20
Line
Diagonal tensions and countertensions with a point, which causes an external construction to pulsate internally.
Fig. 9
A leap by the dancer Palucca.

Diagram of a leap (cf. the photograph opposite, Fig. 9).

Strings and clarinet.
Beethoven’s Fifth Symphony (the first bars).

Fig. 11
The same, translated into points.
Transcendence

Early computers at generative activities

Indie media/hippies

Handcrack

Computers

Non computational media

Plane of immannce

Logic of institutionalization

Delancey
What is a body (body prop, social body) in telegraphic culture?
(Lyotard, the human p. 50)

What institution has responsibility for teaching telegraphy?
(p. 57)

What is wrong with this?

\[ \text{sensor data} \rightarrow \text{telegraphy} \rightarrow \text{memory} \]

Instead: monads

Bergson: 'Mathem Manoir' (p. 102) speaks of a teleform as an analog for perception.
Learning from students
Lucan
minor style

Image

warburg - deleuze
the travel of an idea

morton feldman - duration - begin

the affected image

Hobsbawm

Hobsbawm
text

image + text

shadow
abstract
distorted

ideas

plato's
cave

shadows
of ideas
Coding and decoding are processes. The formal description coding. The DNA folds and unfolds coding. The interaction of folded DNA systems creates new codes. Perception is one code responding to other codes only as huge through time.

The DNA sequence resembles the story Turing + Begen + add a mechanism of perception. All three need a force to set the code in motion. The telegraph transmits code and anything, but how do we get to it? We can easily rate DNA vs cinema.
How Art History Changed my Perception

Dr. phil. Christoph Klütsch
Prof. Art History
SCAD Lacoste
“… the project Deleuze had long had of opening philosophy up to artist-thought (la pensée-artiste) and of aesthetically intensifying its system of interpretation in order to let in its own outside”
Connoisseur
3 roots of art history
• **Primary or Natural Subject Matter:** The most basic level of understanding, this strata consists of perception of the work’s pure form.

• **Secondary or Conventional subject matter:** This strata goes a step further and brings to the equation cultural and iconographic knowledge.

• **Intrinsic Meaning or Content:** This level takes into account personal, technical, and cultural history into the understanding of a work. It looks at art not as an isolated incident, but as the product of a historical environment. ... Essentially, this last strata is a synthesis; it's the art historian asking "what does it all mean?"
Heinrich Wölflin
(1864-1945)

1. **From linear** (draughtsmanly, plastic, relating to contour in projected ideation of objects) **to painterly** (malerisch: tactile, observing patches or systems of relative light and of non-local colour within shade, making shadow and light integral and supercedent to contours as fixed boundaries.)

2. **From plane to recession**: (from the 'Will to the plane', which orders the picture in strata parallel to the picture plane, to planes made inapparent by emphasising the forward and backward relations and engaging the spectator in recessions.)

3. **From closed** (tectonic) **form to open** (a-tectonic) **form** (The closed or tectonic form is the composition which is a self-contained entity which everywhere points back to itself, the typical form of ceremonial style as the revelation of law, generally within predominantly vertical and horizontal oppositions; the open or a-tectonic form compresses energies and angles or lines of motion which everywhere reach out beyond the composition, and override the horizontal and vertical structure, though naturally bound together by hidden rules which allow the composition to be self-contained.)

4. **From multiplicity to unity**: ('Classic art achieves its unity by making the parts independent as free members, and the baroque abolishes the uniform independence of the parts in favour of a more unified total motive. In the former case, co-ordination of the accents; in the latter, subordination.' The multiple details of the former are each uniquely contemplated: the multiplicity of the latter serves to diminish the dominance of line, and to enhance the unification of the multifarious whole.)

5. **From absolute clarity to relative clarity of the subject**: (i.e. from exhaustive revelation of the form of the subject, to a pictorial representation which deliberately evades objective clearness in order to deliver a perfect rendering of information or pictorial appearance obtained by other painterly means. In this way instead of the subject being presented as if arranged for contemplation, it avoids this effect and thereby escapes ever being exhausted in contemplation.)
Aby Warburg
(1866-1922)

Mnemosyne-Atlas, Boards of the Rembrandt-Exhibition, 1926 | Photography
History: Who did what why and how?

Reconstruction of construction: How did the artist work?

What did he mean. Even the path of a word spirit.

- Cave
- Sculpture
- Thinker
- Mimesis

Visual communication: Telling the story

Medium self-reflection

Multiperspectival view

Alternatives

Forgotten

History

Suspended

History

History
Imaginary Museum
André Malraux
1901-1976

The Imaginary Museum of World Sculpture 1952-4
But... wait a minute
Art Market and Ideology
Society of the Spectacle

guy debord
MADE IN HEAVEN

Starring: JEFF KOONS  CICCIOLINA
Magritte

thought

L'ceci n'est pas une pipe.

Fact

Sentence
DeMarinis

Written text

Logos

Speech

?
A quick history of representation through shoes

Vincent Van Gogh, Old shoes with laces. 1886

Rene Magritte (1898 –1967) 
Le Modele Rouge 1935 
(translation: "The Red Model")
depicts feet that morph into lace-up shoes.

Duchamp, Marcel, 1887-1968 
Not a Shoe (1950)

Erika Rothenberg Shoe Story (1993)

Spoerri, Daniel, 1930- As mentioned, shoes are not an issue for me (1991) bread dough and shoe 28 x 30 x 30 cm
Perception
Jeffrey Shaw - Golden Calf
1994

http://www.jeffrey-shaw.net/html_main/frameset-works.php
it so amazes the viewers that they try in vain to touch what they see. Greedy folk, especially, try to grab the coins (shown here), but in vain. There are groans and indignation when they find them to be insubstantial. The best entertainment of all is to confront a cat with its own image in the machine: for when it sees it full of an innumerable multitude of images, it thinks that they are real, and I can scarcely tell you what tricks it makes. It tries to catch them, stroke them with its tail, kiss it, and break through the obstacles in every way, striking them with its claws wanting so much to reach them: and it expresses with various
What is a body (body prop, social body) in telegraphic culture?
(Lyotard, Inhuman p. 50)

What institution has responsibility for teaching tele-graphy?
(p. 57)

What is wrong with this?

\[
\text{sensory data} \rightarrow \text{tele-graphy} \rightarrow \text{memory (Medium)}
\]

Instead, Menads

material point in interaction = image

world

mirror

Bergson 'Matter and Memory' (p. 102) speaks of a teleform as an analogy for perception
Representation

Cinematography

Photo apparatus

Filmmaking apparatus

Cinematograph

Projector
How about time?
As theorized by Vertov, film can overcome its indexical nature through montage, by presenting a viewer with objects that never existed in reality.
Mysteries of the Medium

Firebirds (2004)

Oracular flames kept captive within birdcages recite speeches of some political leaders of the twentieth century. Gas flames, suitably modulated by electrical fields can be made to act as omnidirectional loudspeakers of surprising clarity and amplitude.


Interactive electrified objects that produce sound and sensation when stroked with the hand.

The Edison Effect (1989-1993)

Ancient phonograph records, wax cylinders and holograms are scanned with lasers to produce music at once familiar and distant, like some faintly remembered melody running through the head.

http://www.stanford.edu/~demarini/exhibitions.htm
Gaps with in media art
the condition for into media processes

Data collage
Pelican in Flight
White lives on speakers
The theme of our work is sculpture made through sound. The method of this work is a white liquid jumping on a speaker. This liquid is potato starch dissolved in water.

A lot of shapes can be observed via stimulation of the starch. This piece has two modes of excitation: one is with a constant frequency applied in sound. The second is by using the changing frequencies of the viewer's brain waves, especially interactive when using alpha and beta waves. In some ways, our work is influenced by the idea of brainwave-modulated in Tarkovsi’s SOLARIS.
H. Bergson - creative evolution

- concept of nothing
  (understood through intersubjectivity)

World

- Becoming

duration

Thought

- ordinary knowledge
  apparatus (cinematograph)
Can I bridge concepts, time, algorithm, experience and the notion of duration?
Kandinsky

inner necessity

life

plane of immalance

force/movement

Computer Art

rules, algorithms

chance

virtual

motion

picture plane

resonance

rhythm

repetition

repetition

inner necessity

rules/problem

generation

= life = plane of immance

Harry

Delance

artist

abstracts/spiritual
Fritz Kahn
"Der Mensch als Industriepalast"
(Man as Industrial Palace)
(1926)
Stuttgart 1965
Max Bense

Kandinsky 1926
point line plane

Generative grammar
Chomsky 1965

Michael Noll
Mondrian 1965

Frieder Nake 1965
generative aesthetics

Stuttgart 1965
Max Bense
Fig. 9
A leap by the dancer Palucca.

Fig. 10
Diagram of a leap (cf. the photograph opposite, Fig. 9).

Strings and clarinet.
Beethoven’s Fifth Symphony (the first bars).

Fig. 11
The same, translated into points.
Origin
Deleuze
The house of art
Affect and thought
The logic of sensation
Phenomenological. The only thing we can make statements about with certainty is our consciousness (self-consciousness). We sit in a chair and meditate on our consciousness. The world is in epoche.

Post-structuralist. Knowledge and consciousness are not restricted to humans. We think in post-human terms. The world is folded, the different layers and strata form new phenomena. We understand ourselves as processes and become. We form ruins and new structures.
FIGURAL:
RENÉ MAGRITTE - FRANCIS BACON
MICHELE FOUCAULT - GILLES DELEUZE
This is the ‘book of philosophy’ which we no longer propose to replace with another form of expression and a new style – as Deleuze famously puts it in the preface to Difference and Repetition: ‘The time is coming when it will hardly be possible to write a book of philosophy as it has been done for so long: “Ah! the old style . . .”’ (Deleuze 1994: xxi). Instead, we oppose to it another regime of production which incorporates the ‘book of philosophy’ into the material milieu by plugging it into the mechanic conditions of reality of the most external and the most internal of forces. The **diagram** names this process where signs flush with material flows – and whose cutting edges of creation are ontologically affirmed and analytically assisted – turn back on philosophy’s reterritorialisation onto the concept, at the very same moment that philosophy absolutely deterritorialises capital by suppressing it as an internal limit.

Kantian and Deleuze

Reality

Picture plane

Inner necessity rules/cosmic laws

Generative

= Life

= Plane of immanence

Deleuze

Phenomenology

Episteme

Outside

Plane of immanence

Inside

Phenome

Categories / Want

Structuralism

Langue

Existentialism
Representation

Information

Matter - Information - Energy

Tony [11/10/04/04]
- can be measured (Shannon) if not measured
- structure, system, organization, chaos, order

Meaning

Signified
Signifier
Interpretant

World

Consciousness

Spirituality

Immanence

Foldings

Chida Otsuki

Hideki Hata
McLuhan

Brain = www
eyes = glasses
memories = alphabet
legs = wheel

Communication channel

sender
feedback
Decoding

Sender
Mediating
noise
Receives
Decoding

Media are extension of men (What else?)

Sign - performative sign - signal

.stop!

Medium

surface

under face

What is reading?
reality

meaning

HISTORY

alternatives

history

forgotten

SUPPRESSED

the invisible

in between

ephemeral

process

transfiguration

the other

object

idea/concept
Rhizomatic Connection

Am I a wasp?!

Am I an orchid...

WTF

Fold

Can *force* fold so as to be self-action, the affect of self by self, such that the outside in itself constitutes a coextensive inside?

(Deleuze - Foldings or the insight of thought p. 332)
“the diagram cannot be used to represent an objectivised world; on the contrary it organises a new type of reality. . . . The diagram is not a science, it is always a matter of politics. It is not a subject of history, nor does it survey history from above. It makes history by unmaking its previous realities and significations, constituting so many cutting edges of emergence or of creationism, of unexpected conjunctions, of improbable continua.” (Deleuze 1975: 1223; Eric Alliez emphasis)
Plane of Immanence
Foldings
Kulturlandschaft:
A cultural landscape, as defined by the World Heritage Committee, is the "cultural properties [that] represent the combined works of nature and of man."
The three categories extracted from the Committee's Operational Guidelines, are as follows:

1.) "a landscape designed and created intentionally by man"

2.) an "organically evolved landscape" which may be a "relict (or fossil) landscape" or a "continuing landscape"

3.) an "associative cultural landscape" which may be valued because of the "religious, artistic or cultural associations of the natural element"
The “Kulturlandschaft”

- Is this a place a higher power made for us?
- Are we locked in History?
- Are we on the path to transcendental consciousness?
What is the relation between human and nature?

- A battle?
- Harmony?
- A feedback loop?
- A fold?
- A rhizome?
- A body without organs?
60 TRANSPARENT SHEETS WITH POINTS, 80 DRAWINGS HAVING SIX DIFFERENTIATED CURVED LINES, A GRAPH (HAVING 100 UNITS HORIZONTALLY, 20 VERTICALLY) AND A STRAIGHT LINE, THE TWO LAST ON TRANSPARENT MATERIAL.

PLACE A SHEET WITH POINTS OVER A DRAWING WITH CURVES (IN ANY POSITION). OVER THESE PLACE THE GRAPH. USE THE STRAIGHT LINE TO CONNECT A POINT WITHIN THE GRAPH WITH ONE OUTSIDE.

MEASUREMENTS HORIZONTALLY ON THE TOP AND BOTTOM LINES OF THE GRAPH WITH RESPECT TO THE STRAIGHT LINE GIVE A 'TIME BRACKET' (TIME WITHIN WHICH THE EVENT MAY TAKE PLACE) (GRAPH UNITS = ANY TIME UNITS).

MEASUREMENTS VERTICALLY ON THE GRAPH WITH RESPECT TO THE INTERSECTIONS OF THE CURVED LINES AND THE STRAIGHT LINE MAY SPECIFY ACTIONS TO BE MADE. THUS, IN THE CASE OF (FONTANA MIX) TAPE MUSIC, THE THICKEST CURVED LINE MAY GIVE SOUND SOURCE(S) WHERE THE LATTER HAVE BEEN CATEGORIZED AND RELATED QUANTITATIVELY TO 20. (IN THIS CASE, THE 2 POINTS CONNECTED BY THE STRAIGHT LINE MUST PERMIT THE LATTER TO INTERSECT THE THICKEST CURVED LINE.) INTERSECTIONS OF THE OTHER LINES MAY SPECIFY MACHINES (AMONG THOSE AVAILABLE) FOR THE ALTERATION OF ORIGINAL MATERIAL. AMPLITUDE, FREQUENCY, OVERTONE STRUCTURE, tief CHANGED, LOOPS AND SPECIFIC DURATIONS INTRODUCED.

MEASUREMENTS MADE MAY PROVIDE ONE OF A NUMBER OF PARTS TO BE PERFORMED ALONE OR TOGETHER. IN MAKING TAPE MUSIC, AVAILABLE TRACKS MAY BE LESS IN NUMBER THAN THE TIME BRACKETS GIVEN BY MEASUREMENTS. FRAGMENTATION IS THEN INDICATED.

THE USE OF THIS MATERIAL IS NOT LIMITED TO TAPE MUSIC BUT MAY BE USED FREELY FOR INSTRUMENTAL, VOCAL AND THEATRICAL PURPOSES. THUS, AFTER A PROGRAM OF ACTION HAS BEEN MADE FROM IT, IT MAY BE USED TO SPECIFY A PROGRAM FOR THE PERFORMANCE OF THE OTHERWISE UNCHANGING MATERIAL. WHERE POSSIBLE TECHNICALLY, THIS CAN BE NOT ONLY SIMPLE CHANGES OF TIME (STARTING, STOPPING) BUT ALSO ALTERATIONS OF FREQUENCY, AMPLITUDE, USE OF FILTERS AND DISTRIBUTION OF THE SOUND IN SPACE.
How I learned to love diagrams

Prof. Dr. Christoph Klütsch
SCAD

1. Introduction: Rhizome
Algorithmic art
“Each painter is a restricted picture generator. So is each picture generating computer program. At all times, artists have applied the same method most computer programs employ: they tried to vary a theme as often as possible in order to attain a 'best' (in their judgment) object. This method became particularly important in recent years with Bauhaus, concrete art, New Tendencies, etc.” (Nake 1969)
Digital computer art: A view from art history into the early beginnings
Christoph Klütsch (International University Bremen)

Aesthetic values

The historical coincidence of Max Bense’s (Stuttgart, Germany) and Abraham Moles’ (Strasbourg, France) Information Aesthetics, and the academic use of available computers created a surrounding which has enabled: Frieder Nake, Georg Nees, and (independently in the USA) A. Michael Noll to explore new fields of visual research since 1962.

When the first public attempts at computer art were made, this new breed of people considered themselves to bridge C. P. Snow’s ‘two cultures’.

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- How could these aesthetic values be scientifically, psychologically, and philosophically defined?
- What kind of implications does computer art have not only on art itself, but also on society, and our self-understanding as human beings?

1965 digital computer art entered the art world - “The three N’s”

Bense’s Information Aesthetics

In 1965 Max Bense published his “Aesthetics”. Referring to David Hiltch’s Mathematical Aesthetics, Claude Shannon’s Information Theory, Isaac Asimov’s “An Aesthetics-Based Cytogenetic System,” and Herbert Simon’s Cybernetics, Bense developed a new aesthetic based on algorithmic processes.

The goal was to measure the value of an art work by determining the ratio between order and chaos in the composition, in a way that could be understandable as a cognitive process.

- The aesthetic information is part of (human) communication.
- Communication can be understood as a cybernetic process.
- Information theory measures information (Shannon).
- Artworks contain aesthetic information.
- Aesthetic information can be measured.

Art as a communication process:

Art as a communication process:

Generative aesthetics - ARTifical ART

Who is the CREATOR in computer art?
The artist, the programmer, or the program?

Intuition in Art

Art and Machines

We can TALK about the aesthetic values of objects - can we MEASURE them?

A mathematical approach to aesthetics

Order and Complexity are fundamental principles in the world.

Is there an aesthetic relation between them?

Two Cultures

20 - 22 March 1968 at the MIT

“Art Technology and Communication” begins in the afternoon with Jerome Lemann. M.I.T. is represented (11:44 a.m. 270 possibly Dumas of Communicative Physiology, removing his jacket, rolling up his sleeves, standing his back behind his ears, and using that voice he had a show job on the division between art and science ‘Twistop’ 1968)

Computer art as a bridge?

In the 60’s a new collaboration of artists and engineers emerged in the computer.

- In the tradition of the fnakun, industrial production emerged with artistic production using the computer as a tool, and
- created with the generative aesthetic, classical industrial production

- Nevertheless, while in France engineers had to fight to be seen as artists, in the USA the new software artists was seen as ‘injected’ to classic artists such as Picasso.

Early networking

In the January 1970 issue of “Computers and Automation”, Leslie Molots at the University of Toronto suggested building a network for sharing information electronically connected with computer art.

As a result, he published a bibliography on computer art in the June 1969 conference proceedings held at the University of Waterloo, Ontario, Canada.

The conference was organized by Martin Krippel, who was the first faculty at the Institute of Design at the University of Waterloo and at the Hochschule f"ur Gestaltung in Ulm, Germany.

Maurizio Bolognini: Computer sigillati (Sealed Computers), Installation (programmed computers), 1992-2004. Computer sigillati are machines (more than 200 since 1992) which have been programmed to produce unlimited streams of random images and are then left to work indefinitely without monitors. a) Museum of Contemporary Art, Villa Croce, Genova.

http://www.bolognini.org/lectures/GA04.htm