

# Software Preservation in Networked Art

## Preservation is a Verb




 @dschmudde

 <http://schmud.de>



**Nexa Center for Internet & Society**  
*Politecnico di Torino*

Me

-  Computer Science → Music
-  Time-Based Media
-  Yorba

# Part I

## Foundations

# Art

**Functional Object → Aesthetic Object**



# Art

An entity in which art is its primary function.

- Design → outcome
- Advertising → sell
- Video games → complete/win
- Propaganda → indoctrinate

# Craft

- Local craft: handiwork (manual dexterity is inherently local)
- Meta craft: directing a film, software systems

# Meta Craft: Cinema

- Auteur theory in cinema
- Director: management of craftpersons → artist

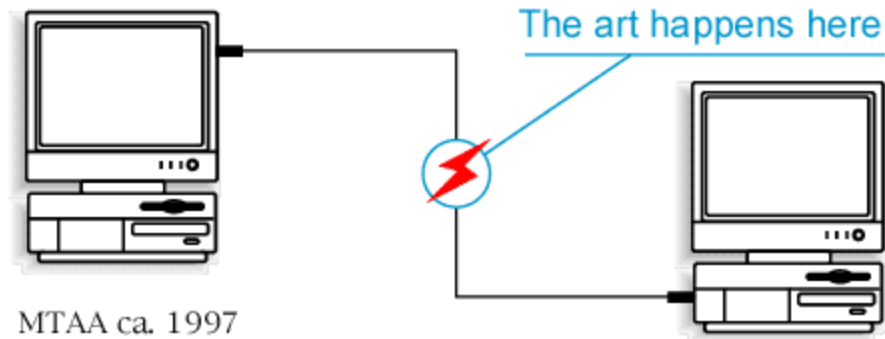
# Meta Craft: Software

- Net.art artist
- Programmer: arrangement of software processes → artist



## Simple Net Art Diagram

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*Simple Net Art Diagram* MTAA (1997)

# Cyberspace

- *Cybernetics*: good at steering/good pilot (Ancient Greek)
- *Cybernetics*: to govern components of the system
- Cybernetic art
  - Process control and regulation as art
  - Human input may be part of the process.

# Cybernetic Serendipity (London 1968)



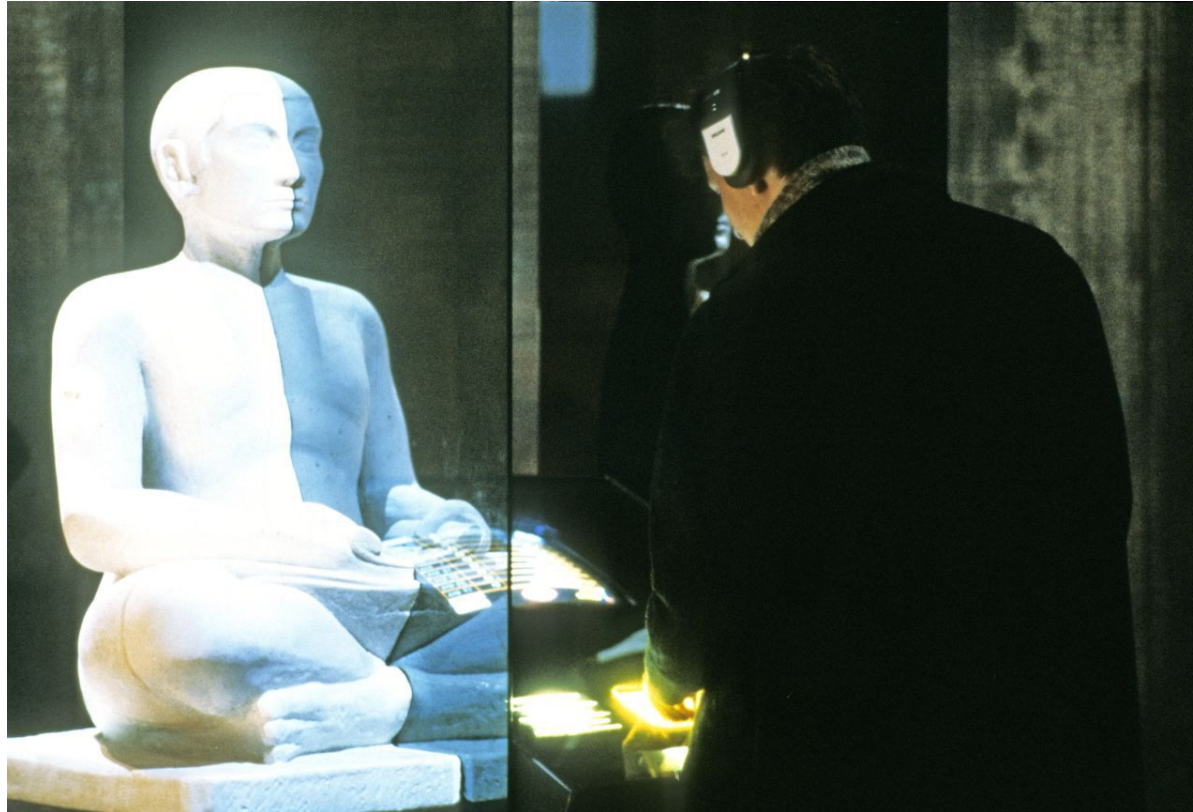
*The Colloquy of Mobiles* Gordon Pask (1968)

# Cybernetic Serendipity (London 1968)

Organized in three sections:

1. Computer generated work
2. Cybernetic devices-robots and painting machines
3. Machines demonstrating the use of computers and the history of cybernetics.

# Les Immatériaux (Paris 1985)



# Les Immatériaux (Paris 1985)

While Jean-François Lyotard's exhibition *Les Immatériaux* seemingly highlighted immateriality it in fact also argued that the **immaterial is matter subjected to interaction and conceptual processes.** (2015)

~ Christiane Paul *From Immateriality to Neomateriality*

# Les Immatériaux (Paris 1985)

- Publication (no catalog of works)
  - Unbound cards of each site (61 total)
  - Bound retrospective (the 'making of')
- *Epreuves d'écriture*: electronic messages with 26 participants on 50 terms set by the curator
- Publication by sociologist Nathalie Heinich using data collected on the visitors' movements through, and reactions to, the exhibition
- *Les Variables Cachées* in zone 12 ("matrice" strand) surveyed visitors in a computer terminal and projected results.
- Mise-en-carte: proposed magnetic card recorded a visitor's path through the exhibition and printed a hard copy of the result.

# Les Immatériaux (Paris 1985)

With its self-reflexivity and auto-archiving impulse, *Les Immatériaux* could be considered a self-remembering exhibition.

~ Antony Hudek "[From Over- to Sub-Exposure](#)" (2011)



Documentation of this exhibition is now hard to come by; and even though I have held onto the catalogues and related materials from the press-kit for the review I wrote at the time, it still seems difficult to bring into focus what I saw then.

~ John Rajchman "[Les Immatériaux or How to Construct the History of Exhibitions: Landmark Exhibitions Issue](#)" *Tate* (2009)

# Documentation

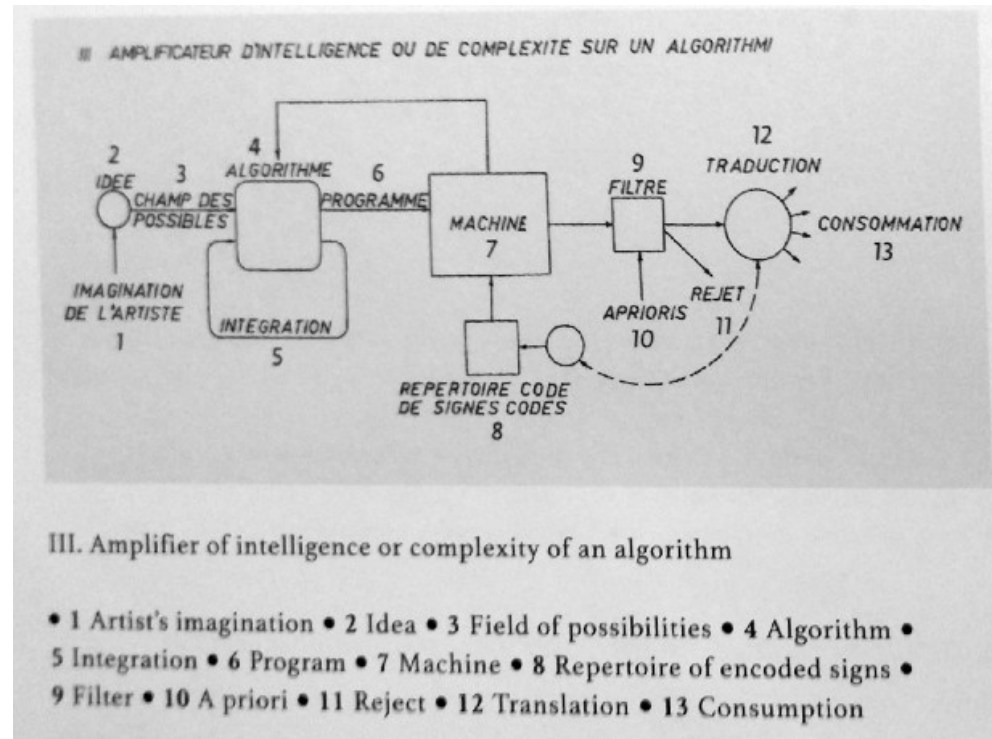
## Systems Esthetics/Conceptual Art

[In certain Robert Morris sculptures] the idea of *process* takes precedence over end results.

~ Jack Burnham "[Systems Esthetics](#)" *Artforum* (September 1968)

# Information Aesthetics

Many processes are computable and automatable.  
Designers design objects → designers design processes



Abraham Moles' "Cybernetic Organigrams" from "Cybernetics and the Work of Art"  
(1965)

# Documentation

I find mere documentation of art less satisfying.

- Local process: a well-documented local process is easy to reproduce
- System process: a well-documented system process is difficult to reproduce

∴ Many system artifacts in art are never reproduced.

# Part II

## Survey of Preservation Techniques

1. Documentation
2. Reconstruction
3. Mis-en-scène
4. Re-Enactment

# Part II

## Changes on the Network

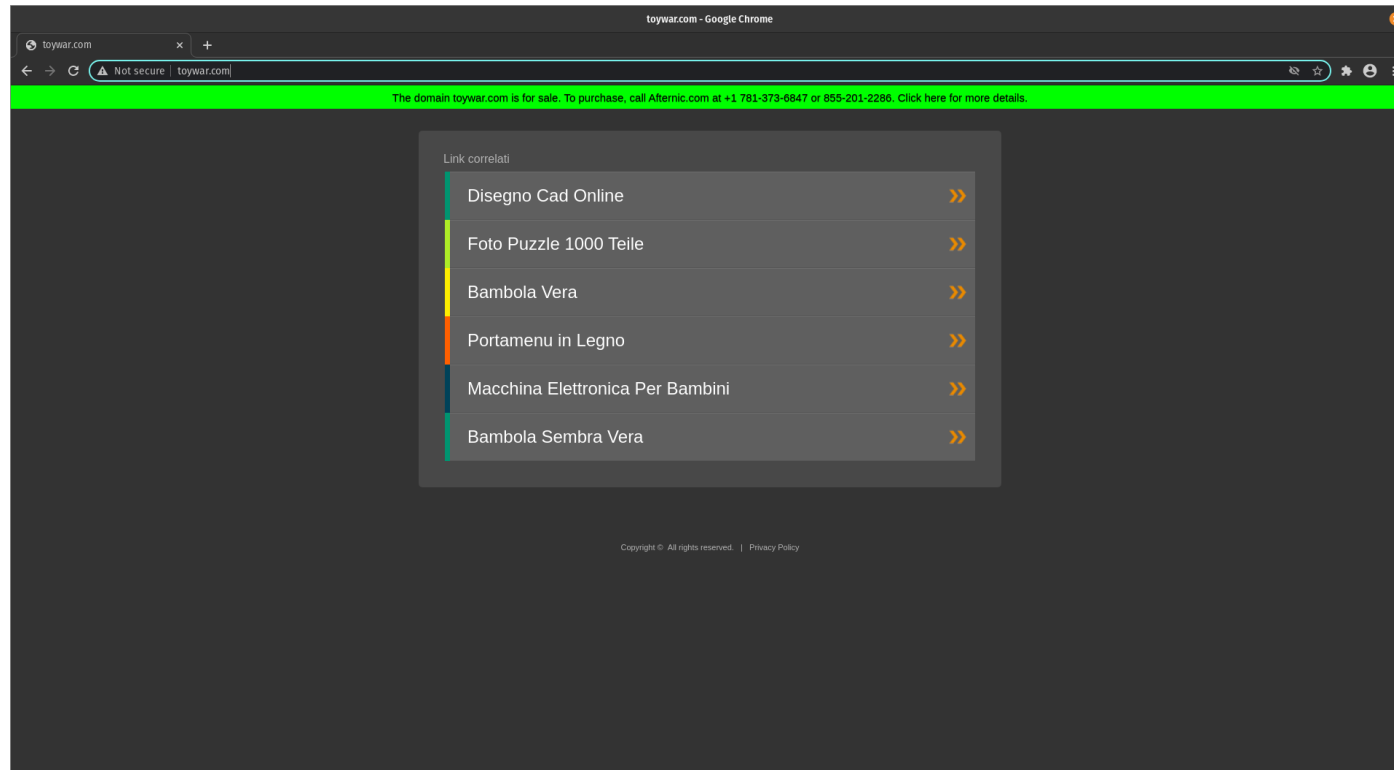
- Transition to the corporate web
- Centralization of the web
- Emergence of activism on the web

# Institutions

- Net Art Anthology at **Rhizome**: our curatorial and presentation testing ground, exploring best practices for making historic works available at scale;
- **Internet Archive**: a digital library of Internet sites and other cultural artifacts in digital form.



# netart.today





# 1. Documentation

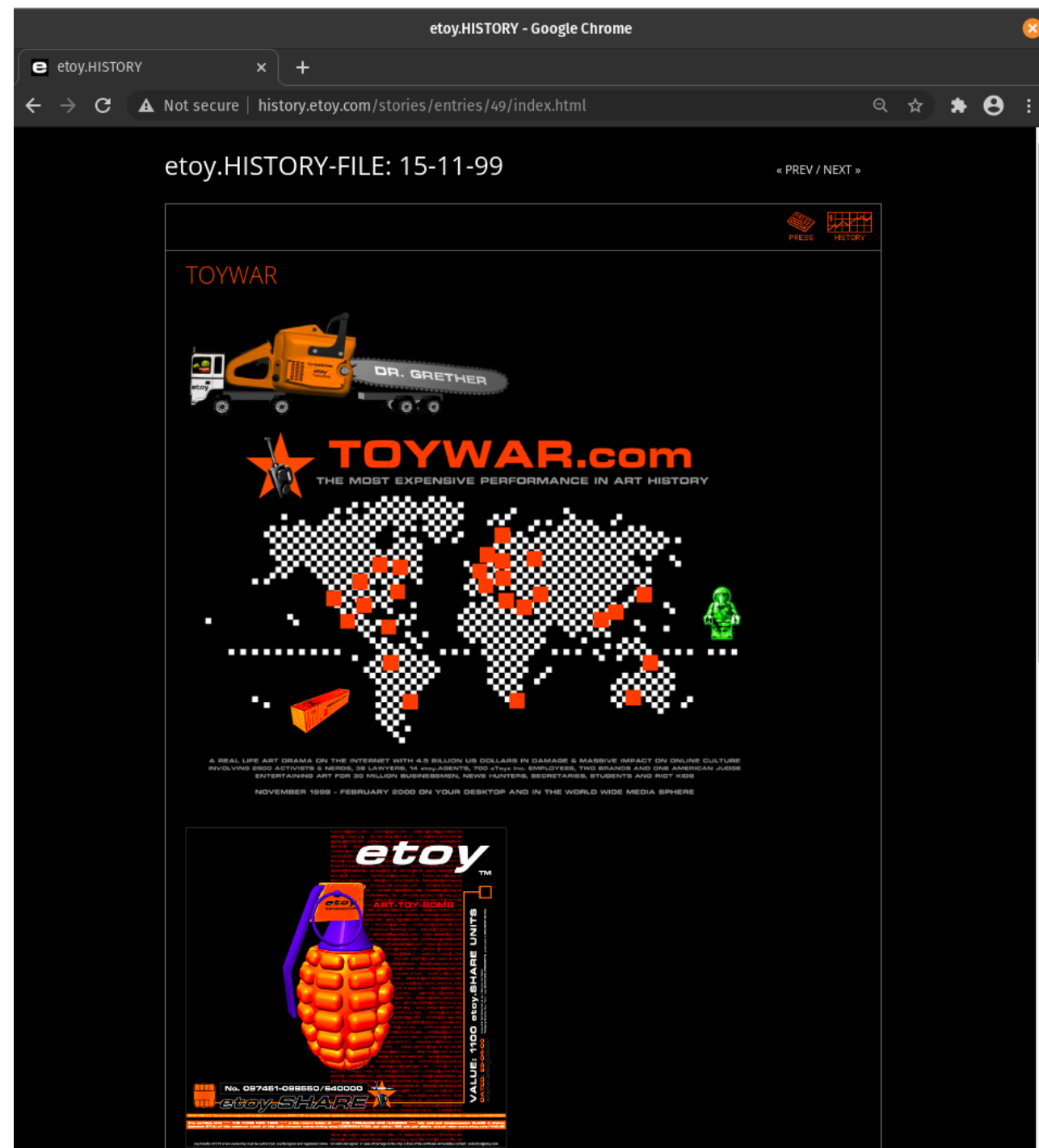
The artwork is presented primarily in the form of depictive or descriptive documentation.



# etoy: Toywar (1999-2000)

- etoy: performance art group (Switzerland 1994)
- eToys: largest e-commerce toy retailer (USA 1996)

etoy.HISTORY-FILE: 15-11-99





TOTAL VICTORY for the etoy.CORPORATION AND THE INTERNET  
COMMUNITY ((WHICH PROVED THAT THE NET IS NOT YET IN THE HANDS  
OF THE E-COMMERCE GIANTS)).

~ etoy.CORPORATION (26/Jan/2000)

## 2. Reconstruction

Inactive artworks where original parts have been lost, that were originally distributed across several physical and virtual locations, that are preserved in an incomplete or unusable state, or that expose temporal inconsistencies are reconstructed to present an approximation of each work's active state.

# Airworld (1999-2000)

Jennifer and Kevin McCoy



### 3. Mis-en-scène

There are a number of cases in which artworks must be presented within environments that offer contemporary users hints about what they should do. [...] For example, a set of bookmarks could be placed in a browser, instructions could be embedded, or active elements could just be arranged in a certain way.

# Airworld (1999-2000)





# Airworld (1999-2000)

## Culture Jamming: Banner Ads (August 1999)

- [Doubleclick.com](http://Doubleclick.com) → 1 million banner ads/1 month
- Corporate websites
  - Are not informed they are hosting a conceptual art piece
  - Corporate website copy is lifted for the Airworld copy
  - Altavista image search results populate images

# Airworld (1999-2000)

## Emergence of the Ubiquitous Commercial Internet.

*Any reader should be advised that factors such as development of new capital funding, competition, lack of expert personnel and other factors may materially affect in an adverse manner actual results of operations. Has this been written by a good corporate lawyer or a bad text-generating program?*

~ Felix Stalder "[Internet Retrograde: The Rise of Infomercials](#)" (1999)

# Airworld (1999-2000)

## Reconstruction: Issues

 **Joe Milutis** @joe\_milutis · Jul 15, 2017 

Airworld (1999) may be a blast from the past, @rhizome but I don't remember Disney as launch page. Fix emulator [archive.rhizome.org/anthology/airw...](http://archive.rhizome.org/anthology/airw...)

 **Joe Milutis** @joe\_milutis

OK I see what you (they?) did with the web banner but that's much too confusing for people trying to access for the first time this way.

8:36 AM · Jul 15, 2017 

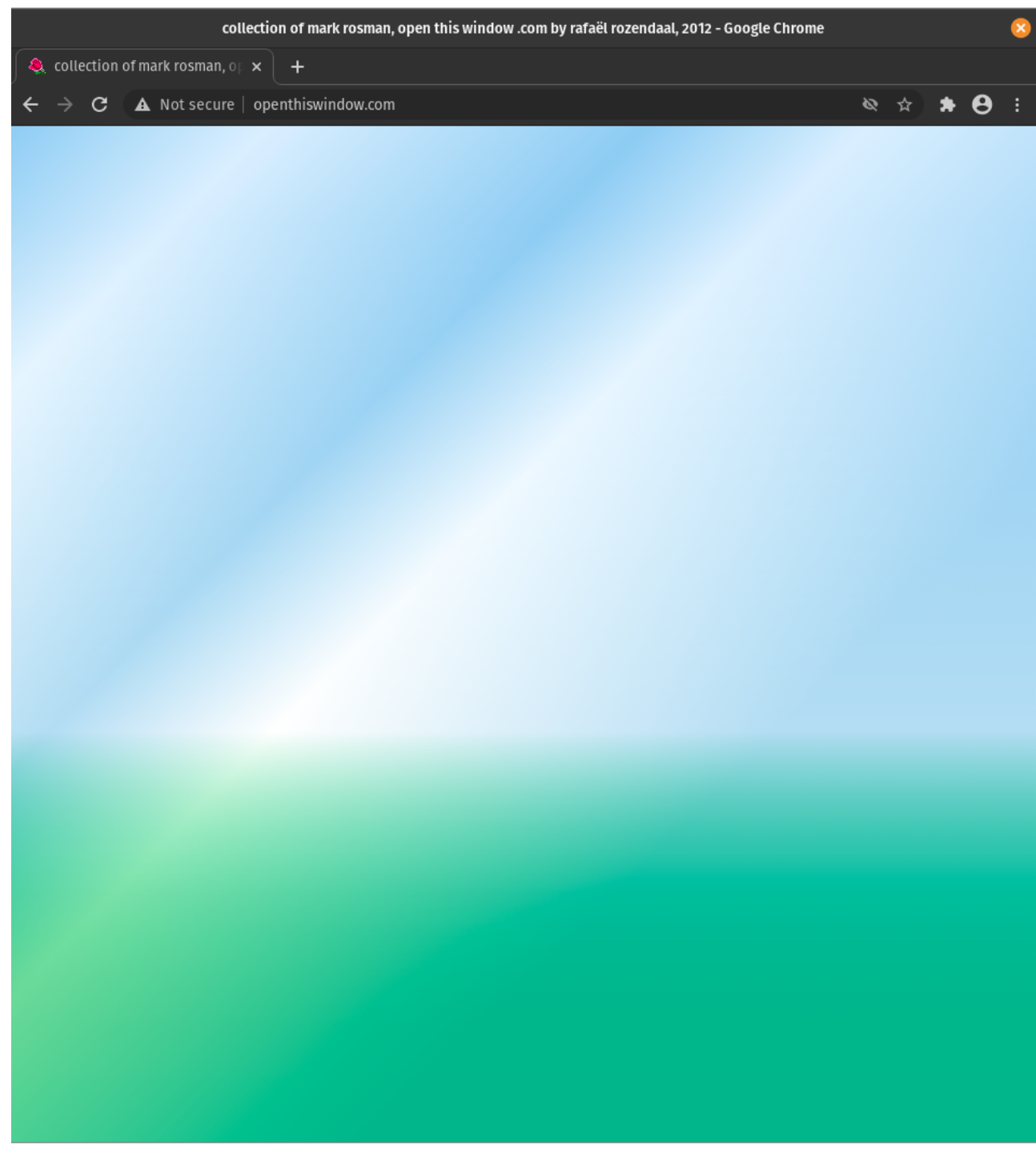
  See Joe Milutis's other Tweets



# open this window .com

## Reconstruction: Issues

- 2012
- by Rafaël Rozendaal
- Collection of Mark Rosman
- <http://www.openthiswindow.com/>  
is part of the work



## 4. Reenactment

Artworks relying on a set of infrastructure and cultural conventions that cannot be meaningfully reproduced via technical means without compromising the artistic integrity may be reenacted.

# Centralization of the web

**BBSes → Internet Forums → Social Media**

# The Thing

## Documentation and an interactive online archive

- 1991-today
- founder Wolfgang Staehle
- The Thing is a living work of art all on its own ~ Staehle
- "A collectively created social sculpture" ~ Rhizome

The Thing BBS Message Archive

This archive offers contextualized access to a selection of recovered messages that were posted to The Thing BBS, which operated in New York City and several European cities in the early 1990s.

Please note: The content and tone of some messages in this archive may be upsetting to visitors. The original messages have not been edited for content.

Visitors to this archive can explore several boards from The Thing, and view threaded discussions that unfolded in these areas. Each thread offers a timeline view at the top of the screen, emphasizing the position of each post within a larger discussion.

Board	1992	1993
ART_WORLD (902)	Mar, Apr, May, Jun, Jul, Aug, Sep, Oct, Nov, Dec	Jan, Feb, Mar, Apr
GENERAL (173)	Mar, Apr, May, Jun, Jul, Aug, Sep, Oct, Nov, Dec	Jan, Feb, Mar, Apr
INTERSHOP (649)	Mar, Apr, May, Jun, Jul, Aug, Sep, Oct, Nov, Dec	Jan, Feb, Mar, Apr

1724

Although no comprehensive archive of The Thing's NYC node exists, these messages are from a considerable personal archive saved by Blackhawk, a hacker, writer, and sometimes sysop of The Thing with the collaboration of Wolfgang Staehle and The Thing. It was recovered by Small Data Industries and is made available in this contextualized archive by Rhizome, a digital art non-profit affiliated with the New Museum in NYC. This work is made possible by a grant from the National Endowment for the Humanities.

Requests relating to the content of this archive should be addressed to [curatorial@rhizome.org](mailto:curatorial@rhizome.org).

[The Thing in Rhizome's Net Art Anthology](#)

[Discussion with Wolfgang Staehle and scholar Lori Emerson about experimental writing on The Thing 21 Jul 2020](#)

[Discussion with Rhizome's Preservation Director Dragan Espenschied, Rhizome Software Curator Lyndsey Moulds, and Ben Fino-Radin, director of Small Data Industries about restoring the Thing BBS 02-14-2020](#)

# Nasty Nets

## Clone

- 2006-2012
- by John Michael Boling, Joel Holmberg, Guthrie Lonergan, Marisa Olson, et al.
- An "experiment in collaborative posting as artistic practice"
- An important record of materials collected at the moment of the web's transition to centralized platforms.

nasty nets » 2007 » March - Google Chrome

nasty nets » 2007 » March x +

← → ↻ ⚠ Not secure | archive.rhizome.org/artbase/53981/nastynets.com/index481d.html?m=200703

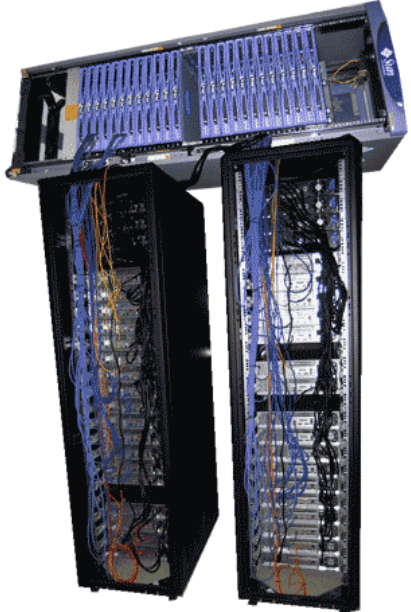
[login](#)

**nasty**  
**nets**  
internet  
surfing  
club

**users**  
**links**

- [January 2012](#)
- [June 2011](#)
- [May 2011](#)
- [April 2011](#)
- [March 2011](#)
- [February 2011](#)
- [January 2011](#)
- [December 2010](#)
- [November 2010](#)
- [October 2010](#)
- [September 2010](#)
- [August 2010](#)
- [July 2010](#)
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- [March 2008](#)
- [December 2007](#)
- [November 2007](#)
- [October 2007](#)
- [September 2007](#)
- [August 2007](#)
- [July 2007](#)
- [June 2007](#)

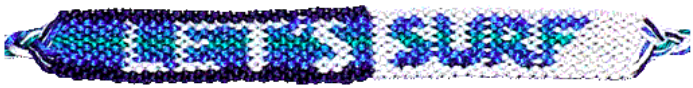
**network rack stonehenge**



— [guthrie](#) 3/30/07 3:27 pm

[Comments \(2\)](#)

**motto**



— [tom moody](#) 3/28/07 5:38 pm

[Comments \(6\)](#)

**work it**

"Work it baby!"



*/inb4/*

## Re-Enactment

- 2014-Today
- Liz Mputu & /inb4/
- No public archive
- Member's expectation of privacy
- Commissioned a "IRL reunion party" (New York City 2018)

November 12, 2014

\*discuss\*

Carolina Beaumont 1976 vs Kim K 2014



Like · Comment

and 39 others like this.

- woah wat  
November 12, 2014 at 2:31pm · Unlike · 4
- Elizabeth Mputu** things that make u go "oh, well i guess that makes sense"  
November 12, 2014 at 2:31pm · Like · 2
- thank you.  
November 12, 2014 at 2:32pm · Like
- Ziggy Black** were those both shot by jean paul goude? i know kim's is  
November 12, 2014 at 2:32pm · Unlike · 1
- i mean i recognized the photo as a refernce but i couldn't remember who did it  
November 12, 2014 at 2:32pm · Unlike · 1
- The original is phenomenal  
November 12, 2014 at 2:32pm · Unlike · 4
- THANK YOU!  
November 12, 2014 at 2:32pm · Unlike · 1
- Elizabeth Mputu** good question ziggy lemme find the answer  
November 12, 2014 at 2:32pm · Like · 1
- The original is weird as fuck.  
November 12, 2014 at 2:32pm · Like
- Breeze Burdz** i guess she doesnt have any original ideas :/

+ Add People to Group



Invite by Email

DESCRIPTION

:) :\* :3 ♥ post qt lqqkz all the time !!!!  
STRONG LOOKZ ENCOURAGED  
BUT WE LUV WHEN U J WAKE UP

\*~~ selfie hall o' fame ~~\*  
##Facebook WHOrE Train##

\$ DIY/Underground/NET STREET F

(FIRST)VirtualMag (by U 4 U)  
.inb4 teh resttt.

managed by: Liz Mputu n Seashell  
Parker Bright n Jack Collier n Maya  
Bayhan n Matthew Avignone n Nad  
all the beautiful members/contribut

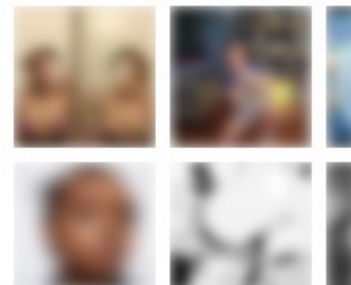
TAGS:

What is this group about?

CREATE NEW GROUPS

Groups make it easier than  
ever to share with friends,  
family and teammates. Cre

RECENT GROUP PHOTOS

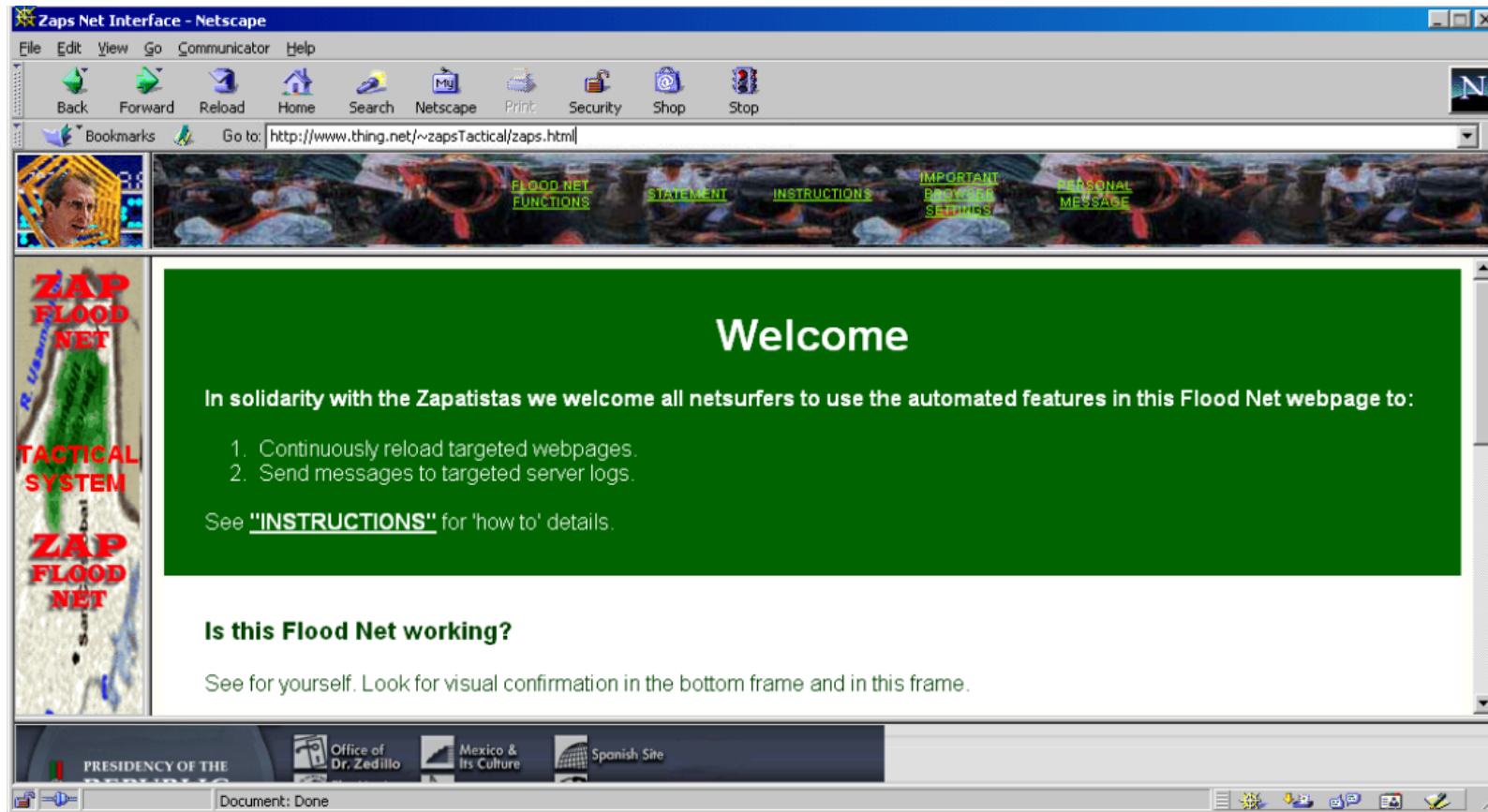


# Emergence of Activism on the Web

Reflection of the expansive role of the art curator as a sociologist in science and technology studies (STS)

# FloodNet (1998)

## Electronic Disturbance Theater



## ***FloodNet* (1998)**

- Virtual sit-in (DDOS)
- "Politicize the aesthetic of the server error"
  - "Tactical poetics": protesters entered a personal message
  - "human rights not found", "justice not found", etc...

## ***FloodNet* (1998)**

- Reconstruction, Re-Enactment, Mis-en-scène
- Java applet ~~to flood target sites on the live web~~ patched to point to stub servers owned by Rhizome
- Displayed in legacy browser (Netscape Communicator 4.8 for Windows)
- Reconstructed target websites (via Internet Archive)

# RHIZOME

- Advanced techniques
- Traditional curation (progressivism/counter-culture)
- Traditional aesthetics of documentation
  - Conveys cultural value
  - Conveys financial value
- Empowering individuals: Conifer

# Who is Flora?

- 2007
- by Travis Alber
- ArtBase: archive of 2,000+ born-digital artwork
- Two versions
  - i. CD-ROM using Macromedia Director (lost)
  - ii. Modified & re-released using Flash
- Conifer (audio)



# On Tools

A distributed, decentralized network is more a process than a thing. **In the logic of the Net there is a shift from nouns to verbs.** Economics now reckon that commercial products are being treated as though they were services. It is not what you sell a customer, it's what you do for them.

~ Kevin Kelly, *New Rules for the New Economy* (1998)



# On Tools

## Preservation of Complex Systems

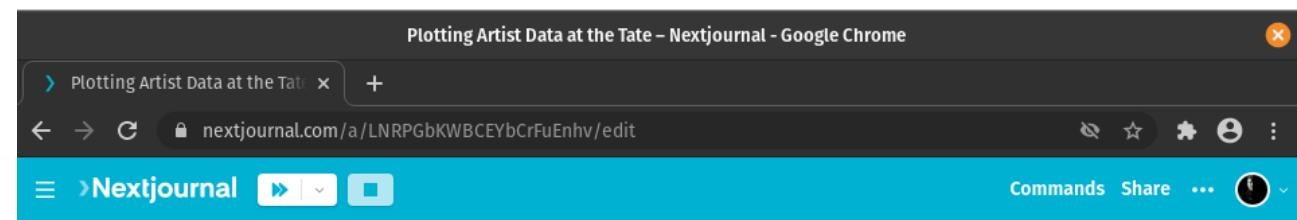
- Nouns: dominant systems programming today is Object Oriented
- Verbs: systems are the result of interactions and transformations

# Nextjournal

Computational Environments +  
Immutability

Reproducible Results

- Content addressed storage
- Datomic
- Docker



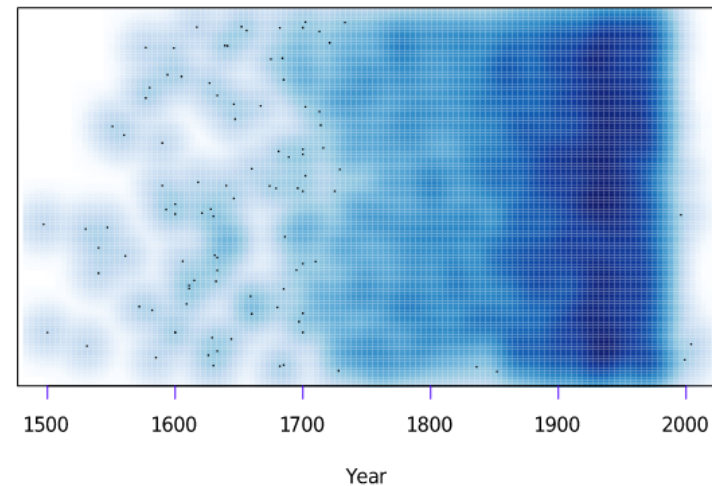
This first example uses the `standard` `smoothScatter()` function to plot the birth year of artists represented in the Tate Museum's permanent collection. Note that `smoothScatter()` does not require the loading of any dependencies.

```
artists <- read.csv(  
  Write some code... artist_data.csv ↵  
, header=T)  
born <- artists$yearOfBirth  
smoothScatter(born, 1:length(born),  
  axes=FALSE,  
  xlab="Year", ylab="",  
  main="Distribution of Artist's Birth Years at the Tate")  
axis(1, col.ticks="blue")
```

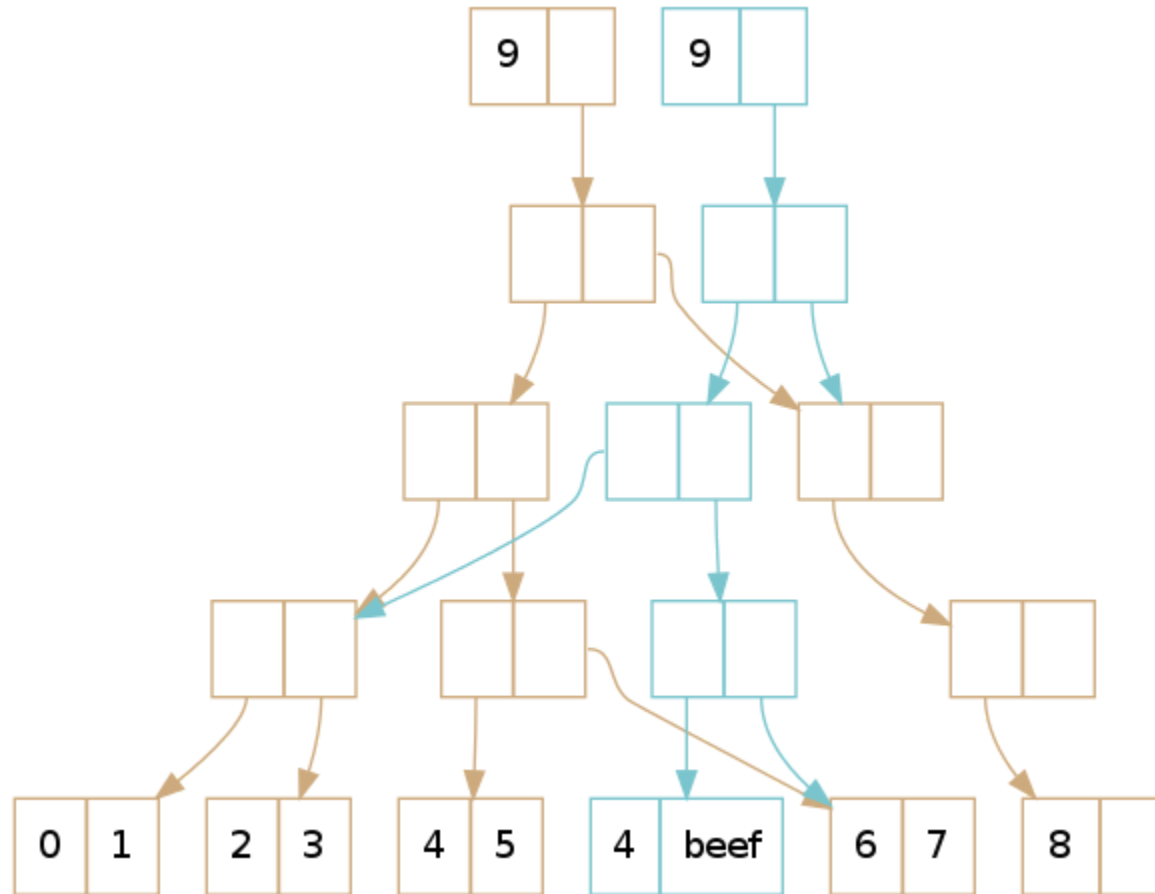
1.5s Shift+Enter to run R R | ▶

NULL  
NULL  
NULL  
NULL  
NULL

**Distribution of Artist's Birth Years at the Tate**



# Tries in Clojure

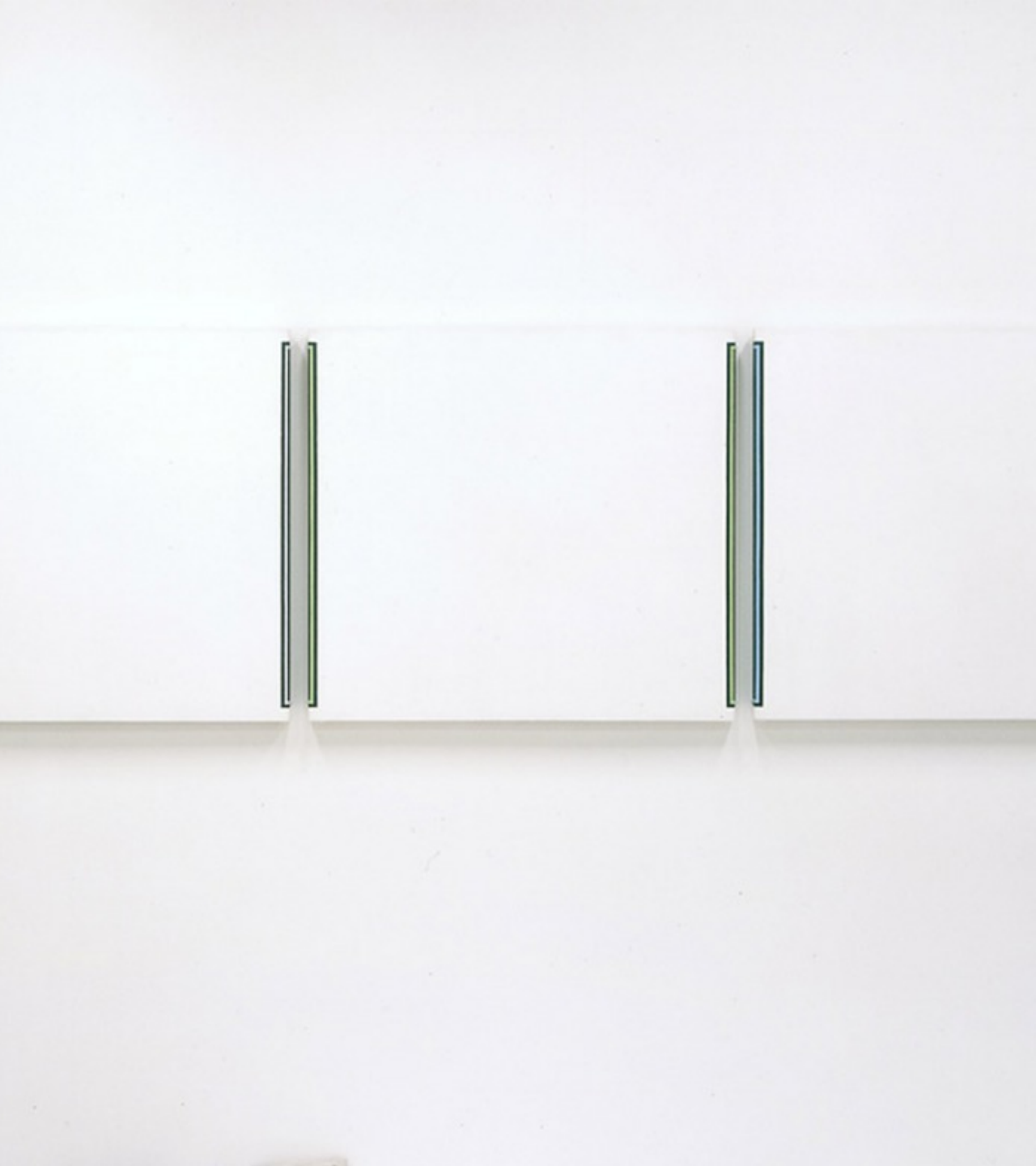


# Age of Immutability

Tries

Blockchain

Version Control



## Conclusion

If Conceptual art of the 1960s and '70s sought to interrogate art's meanings by foregrounding conditions of framing and modes of dissemination, these tactics have manifestly changed when a few large companies wield unprecedented control over the distribution of "content" and the circulation of all forms of information.

# Conclusion

Furthermore, these corporate powers are ecumenical in scope and reach, hoping to occupy not one zone of influence but *the totality of life*, targeted now to the granular level of the individual, whose habits are algorithmically calculated in relation to others in similar data pools, which in turn fosters what Lanier describes as “continuous behavior modification on a titanic scale.”

~ *Contemporary Art and the Digitization of Everyday Life* Janet Kraynak (2020)

# Internet Art

Commodity fetishism → when social *relations between people* are transformed into or *misunderstood as relations between things* (David Berry 2017)

- State immediately becomes objectified, conceived of as objects rather than data
- Art becomes confused with objects or goals

# Software Preservation in Networked Art

## Preservation is a Verb

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