Title  Soft Cinema OS

Genre  Software/Installation

Applicant's Role in Production  software design coordination, media database (videography, 2D and 3D animations, narratives), editing rules, image processing software, sound design, screen layout, installation design coordination.

Production Format

Anticipated Length  software generates movies from a large media database in real time, therefore the program can run indefinitely.

Color/BW  color

Sound/Silent  sound

Brief Project Description

Soft Cinema OS explores 4 concepts:

1. "Algorithmic Cinema." Using systems of rules, software controls both the layout of the screen (number and positions of frames) and the sequences of media elements which appear in these frames.

2. "Database Cinema." The media elements are automatically selected from a large database to construct a potentially unlimited number of different narrative and non-narrative films.

3. "Macro-cinema." Soft Cinema OS imagines how moving images may look when the Net will mature, and when unlimited bandwidth and very high resolution displays would become the norm.

4. "Multimedia cinema." In Soft Cinema OS video is used as only one type of representation among others: 2D animation, motion graphics, 3D scenes, diagrams, etc.

Soft Cinema OS is an interactive and Open Source version of the already completed project Soft Cinema. We have developed custom software which I use as an authoring tool to generate movies presented in an installation format. I propose to further develop software, document it, and make it available as Open Source; and also to develop an interactive version of software which will allow installation visitors to manipulate the rules controlling movies' generation.
Soft Cinema - Architectural Translation Concept

In order to translate the algorithm used to generate the video pattern into an architectural space for the installation of the project, a simple rule is used:

1 pixel = 5mm

This simple rule generates a series of modules which can be used to measure out the space of the installation.

The basic screen, 720x480, generates a simple wall-module, 3.60 x 2.24 m. This module is used to build all the walls of the project and to fill the walls with a series of materials recreating the layering of images generated by the Soft Cinema database.

The table below provides a series of sample dimensions translated using this rule.

These units are built for the installation. Units A and B are "loosely" 2.24 x 2.24 m, high with enclosed roofs (noted as grey roofs) and containing plasma screens with the video. Unit C has no roof but is instead an open system, "breaking apart" and showing the images from both sides as an invitation to lounge inside. All three units are a series of "softness" or lounge-objects, designed to invite the visitor to relax and experience Soft Cinema.

### Soft Cinema Dimensioning Table

<table>
<thead>
<tr>
<th>Pixels</th>
<th>Meters</th>
</tr>
</thead>
<tbody>
<tr>
<td>720</td>
<td>3.60</td>
</tr>
<tr>
<td>448</td>
<td>2.24</td>
</tr>
<tr>
<td>336</td>
<td>0.90</td>
</tr>
<tr>
<td>144</td>
<td>0.90</td>
</tr>
<tr>
<td>46</td>
<td>2.24</td>
</tr>
<tr>
<td>480</td>
<td>1.56</td>
</tr>
<tr>
<td>272</td>
<td>2.65</td>
</tr>
</tbody>
</table>

©2002 thinkbuildgroup
SOFT CINEMA

for
LEV MANOVICH
at the ZKM

ARCHITECT
JASON DANZIGER

DRAWING
2- ELEVATION (A)

SCALE
M 1:100

DATE
13 SEPTEMBER 02

©2002 thinkbuildgroup

Soft Cinema, Facade Material Key

The boxes will be built with 4 materials of varying translucency according to the following key:

- transparent plexiglass
- translucent (sand-blasted) plexiglass
- translucent double-ply
- grey-painted (opaque) medium density fiber board (MDF)

GENERAL NOTE ON THE LAYOUT OF UNITS B AND C

The system as expressed in Unit A should be used as an example and guide to design and construct the facades for Unit B and for Unit C as well. Locate patterns for the facades using the Layout Generation Algorithm.

Unit C will be composed of three wall modules (see plan drawing 1) and will "pull apart" to a much larger extent, as per the example of the folded panel in Unit A.

The folded panels in Unit C will vary according to need and should include spaces for text/leaflet brochures, as well as a bar and other spaces for seating, setting, and otherwise physically interacting with the structure.

The hole screen should be fixed to or hanging above Unit C in a pattern matching a "generated" layout.
Title Soft Cinema

Year 2002

Technical Info

<table>
<thead>
<tr>
<th>Original Format</th>
<th>Format Submitted for Viewing</th>
<th>Preferred OS</th>
</tr>
</thead>
<tbody>
<tr>
<td>X. Software</td>
<td>Software</td>
<td>Windows</td>
</tr>
<tr>
<td>Web</td>
<td>Web</td>
<td>Mac</td>
</tr>
<tr>
<td>X. Installation</td>
<td>Installation</td>
<td>Unix</td>
</tr>
<tr>
<td>__ Other________</td>
<td>__ Other__VIDEO TAPE (VHS)</td>
<td></td>
</tr>
</tbody>
</table>

Web Info (answer only if sample work is in Web format)

URL ...........................................................................................................(if more than one please list them below)

__ Browser requirement __________

__ Plug-in requirement __________

__ This sample requires broadband connection (fast Internet Connection)

__ A local copy of the sample work has been included with the application

Special Information For Viewing:

total length of the sample is 9 minutes

_____________________________________________________________________

Description of Work (use an additional sheet if necessary)

For the complete description of the work, screen shots and QuickTime samples, go to
www.manovich.net/softcinema

Soft Cinema is my "personal" version of the project which will be further developed into
Soft Cinema OS (Open Source). This version uses my own media database, narratives,
and editing rules.

summary
Soft Cinema is a (potentially unlimited) collection of short movies in different styles. Some are in the tradition of “film essays,” some are fictional narratives, and some are non-narrative ambient music videos. While the sound track of each movie is fixed by the author, the visual track is constructed by software. The software decides what appears on the screen, where, and in which sequence. The decisions are based partly on a system of rules, and are partly random. In short, Soft Cinema can be thought of as a semi-automatic VJ—or more precisely, a FJ (Film Jockey).

The source material for the visual track comes from a large database. Each video clip in the database follows Dogma 95 rules: it was shot in continuous takes without edits using a hand-held camera. Most of the clips have been recorded by the author while in Berlin, Tokyo, Moscow, San Paolo and other locations between 1999 and 2002; the rest of the clips are simulated (i.e. a still image was animated to look like a video shot on location).

The length of each movie corresponds to the typical length of a music track (2 - 6 minutes).

**concepts**

Soft Cinema explores 4 concepts.

The first is algorithmic editing of media materials. Each video clips used in Soft Cinema is assigned keywords which describe both the "content" of a clip (geographical location, presence of people in the scene, etc.) and its "formal" properties (dominant color, dominant line orientation, contrast, camera movement, etc.). Some of the keywords are generated automatically using image processing software while others are input by hand. The program (written in LINGO) assembles the video track by selecting clips one after another using a system rules (i.e. an algorithm). Different systems of rules are possible: for instance, selecting a clip which is closest in color or type of motion to the previous one; selecting a clip which matches the previous one party in content and party in color, repalcing only every other clip to create a kind of parallel montage sequence, and on on.
The second idea is **database narrative**. Rather than beginning with a script and then creating media elements which visualise it, I investigate a different paradigm: starting with a large database and then generating narratives from it. In Soft Cinema, the media elements are selected from a database of a few hundred video clips to construct a potentially unlimited number of different short films.

The third idea is what I call **macro-cinema**. While filmmakers such as Peter Greenaway and Mike Figgis have already used a multi-screen format for fiction films, thinking about the visual conventions of Graphical User Interface as used in computer culture gives us a different way to do macro-cinema. If a computer user employs windows of different proportions and sizes, why not adopt the similar aesthetics for cinema? In Soft Cinema, the generation of each video begins with the computer program semi-randomly breaking the screen into a number of square regions of different dimensions. During the playback different clips are assigned to different regions. In this way, software determines both temporal and spatial organisation of a work, i.e. both sequencing of clips and their composition.

The fourth idea is to create a true **multi-media cinema**. In Soft Cinema video is used as just one type of representation among others: 2D animation, motion graphics (i.e. animated text), stills, 3D scenes (as in computer games), diagrams, etc. In addition, Soft Cinema supplements a "normal" video image with other types of lens-based imagery commonly used today by industry, science, medecine and military: the low res web cam image, an infrared image, edge-detected image as employed in computer vision, etc. While some music videos and artist videos already mix some of these different types of imagery in one work, Soft Cinema assigns each type of imagery to a separate window in order to dramatize the new status of "normal" video, photographic and film image today – no longer the dominant but just one source of visual information about reality among many others. The additional inspiration for using different representation of the same scene next to each other comes from the display setups used in medecine, aviation and other contemporary workplaces. Finally, rather than simply using these different types of representation for a purely visual effect, Soft Cinema investigates the possibilities of using them together for fictional narration.
Narratives

Texts used for voice in some Soft Cinema movies come from Global User Interface [GUI], a collection of short stories.

Each story takes place in a different location: Texas, Hamburg, Kiev, Mongolia, etc. (In writing the short stories, I tried to follow the principle that they can only take place in locations that I have never visited.)

Typically, a story have been divided into a number of sequential parts, each part becoming a short movie. At the beginning of each segment, the software generates a new screen layout, which can be comprised of two to six different windows. Soft Cinema also selects which video clips and animations will play in these windows and in what order. This process is repeated for each part of the narrative. Following the same modular logic, different voices are used for different parts of each story.

The small window that always appears in the bottom left corner identifies the part of the story currently playing (for instance, texas_01.txt, texas_02.txt, etc.) A narrow, horizontal window presents scrolling sentences selected from the same story segment.

While the narratives make reference to the processes of globalization and their related effects on subjectivity, the visual track makes similar references, but in different ways. Since most clips show typical urban activities, Soft Cinema at first can be thought of as belonging to the genre of "city films" defined by such classics as A Man with a Movie Camera, and A Symphony of a City. However, in contrast to these earlier films which included expressive shots of various forms of industrial labor, Soft Cinema repeatedly returns to the same bland image of information labor: a person in front of a computer. In addition, since we often see clips that were shot on different continents side by side, Soft Cinema can be more properly thought of as a "global city film."
If you are sending more than one sample, please copy this page. Sample(s) must be cued: indicate how long each sample should be viewed for a COMBINED viewing time of no more than 15 minutes. If slides are included in this application, please list the title and year of the work on this form.

Title Anna and Andy

Year 2002

Technical Info

Original Format

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<thead>
<tr>
<th>Software</th>
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<th>Other</th>
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<th>Installation</th>
<th>Other</th>
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</table>

Preferred OS

<table>
<thead>
<tr>
<th>Windows</th>
<th>Mac</th>
<th>Unix</th>
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Web Info (answer only if sample work is in Web format)

<table>
<thead>
<tr>
<th>URL</th>
<th>(if more than one please list them below)</th>
</tr>
</thead>
</table>

Browser requirement tested with IE 5.1 (MAC) and Netscape Communicator 4.75 (MAC)

Plug-in requirement Shockwave

This sample requires broadband connection (fast Internet Connection)

A local copy of the sample work has been included with the application

Special Information For Viewing:

Description of Work (use an additional sheet if necessary)

Summary

ANNA is Anna Karenina.

ANDY is Andy Warhol.

ANNA AND ANDY uses Tolstoy's novel as a script which drives a computer-generated re-creation of Warhol's "Screen Tests."

Description

ANNA KARENINA. This heroine of Lev Tolstoy's great nineteenth century novel exemplifies the modern idea about the emotional depths of psyche.
ANDY WARHOL. About a hundred years later this American artist visualizes a new understanding of a subject. She is defined not by emotional depths but by her media surfaces, by her response to media machines of photography, film and television.

SCREEN TESTS. In the mid-1960s Warhol films dozens of Screen Tests. He positions regulars and visitors to Factory in front of a movie camera and films them, one by one. They don't speak or move, just face the camera. It is as though Warhol attempts to rob the subjects of their subjectivity by making them face the disinterested camera.

PATTERN MATCHING. Anna and Andy uses one of the most basic computer algorithms: pattern matching. Since the 1950s, the military have used computer pattern matching to monitor various communications. In particular, during the Cold War, the U.S. used computers (or at least, tried) to monitor Russian media, radio, and other communications. (It is believed that today a massive international project Echelon coordinated by the U.S. uses networks of computers to monitor global communications in mass for particular keywords as specified by various agencies involved.) The same techniques makes possible search and replace commands of all computer software, such as Microsoft Word, as well as Web search engines.

ANNA AND ANDY. The project uses the same computer techniques to scan the complex text of Anna Karenina for a set of keywords. Whenever any of the keywords is encountered, the face animation in the right window advances to a different image.

In this way, the emotional content of the novel is used as data which brings to life still face images.

The computer program extracts the passions of Anna to bring to life a subject robbed of emotional depth by modern media machines.
Title  Little Movies

Year  1997

Technical Info

Original Format  Format Submitted for Viewing  Prefered OS
__Software  __Software  __Windows
X_Web  X_Web  X_Mac
__Installation  __Installation  __Unix
__ Other  __ Other

Web Info  (answer only if sample work is in Web format)
__URL________www.manovich.net/ little-movies________________ (if more than one please list them below)
__ Browser requirement __tested with IE 5.1 (MAC) and Netscape Communicator 4.75 (MAC)
__ Plug-in requirement __QuickTime__
X__ This sample requires broadband connection (fast Internet Connection)
__ A local copy of the sample work has been included with the application

Special Information For Viewing: 

Description of Work  (use an additional sheet if necessary)

[written in 1997]

Exactly one hundred years after its birth, cinema is being reborn on a computer screen. CD-ROM technology has progressed from a slide show format, to the superimposition of small moving elements over static backgrounds, and finally to full-frame moving images.

This evolution repeats a similar nineteenth century progression: from sequences of still images (magic lantern slides presentations), to moving characters over static backgrounds (for instance, in Reynaud's Praxinoscope Theater), to full motion (the Lumieres' cinematograph).

Moreover, the introduction of QuickTime in 1991 can be compared to the introduction of the Kinetoscope in 1892: both were used to present short loops, both featured the images
approximately two by three inches in size, both called for private viewing rather than collective exhibition.

The Lumieres' first film screenings of 1895, which shocked their audiences with huge moving images, eventually found their parallel in 1995 CD-ROM titles where the moving image finally fills the entire computer screen. Thus, during cinema's centennial, it was reinvented on a computer screen.

"Little Movies" is a lyrical and theoretical project about the aesthetics of digital cinema, and a eulogy to its earliest form—QuickTime. Beginning with the supposition that every new medium relies on the content of previous media, "Little Movies" features key moments in the history of cinema as its logical subject.

As time passes, the medium becomes the message, that is, the "look," more than the content of any media technology of the past is what lingers on. "Little Movies" reads digital media of the 1990's from a hypothetical future, foregrounding its basic properties: the pixel, the computer screen, the scanlines.

In the early 1890's the public patronized Kinescope parlors where peep-hole machines presented them with the latest marvel—tiny moving photographs arranged in short loops. Exactly a hundred years later, we are equally fascinated with tiny QuickTime movies—the precursor of digital cinema still to come. Drawing a parallel between these two historical moments, the "Little Movies" are explicitly modeled after Kinetoscope films: they are also short loops.

The project was begun in 1994 when the World Wide Web was just beginning to gain mass exposure. From the beginning, my intention was to create cinema for the Web. I wanted to turn the network limitations into a new aesthetic. Is it possible to create films with the resolution of 1 pixel? Is it possible to have a meaningful and an emotional experience under 1 MG in size?

2.

I grew up in the U.S.S.R. where the material resources were quite scarce and I often had to travel from one end of Moscow to another because every art supply store would only carry a few colors at a time. So I would buy black paint in one store, get on the metro to travel to
another end of the city, buy white and blue paints at another store, get on the metro again, and so on.

Faced with the abundance of material and computation resources of the U.S., my reaction is to work against it. I don't need faster networks, more storage, more multimedia, more processing power—I want to figure out first what can be done with just a few pixels.

You can call this approach digital minimalism. Or perhaps digital materialism, DIAMAT for short. Ironically, the official Marxist philosophy in the U.S.S.R was also called DIAMAT—which was an abbreviation for "dialectical materialism."

An aesthetic analogy can also be made with the structural filmmaking movement of the 1960's which defined the material elements of film media as their subject matter. In "Little Movies," I thematize the material elements of digital media such as pixels, scanlines, compression artifacts, computer screen.

I also feel an affinity with Moscow conceptualism of the 1970's and 1980's (Komar and Melamid, Kabakov and others). In contrast to Western conceptualism these artists did not want to deny the materiality of an art object; they combined an emphasis on ideas with the traditional form of easel painting.

Similarly, I investigate the historical, social, and economic specificity of digital media as well as its unique perceptual and experiential effects. "Little Movies" is an attempt to approach all of these aspects simultaneously.
LEV MANOVICH – ARTIST STATEMENT

I was born in Moscow where I studied fine arts, architecture and computer science. In 1981 I moved to New York; since 1984 has been working with computer media as an artist, computer animator, designer, programmer, educator, critic, and theorist. In the 1980s.

My work is focused on investigating the new aesthetic possibilities of new media, particularly in the area of a moving image. I believe that new media opens up many exiting opportunities to redefine cinematic language. I am particularly interested in the possibilities of deriving a narrative from a database, algorithmic editing, and multi-frame formats. The project Soft Cinema OS submitted in this application is my largest new media project to date, and it is designed to investigate these possibilities.

My projects to date include little movies, the first digital film project designed for the Web (1994), Freud-Lissitzky Navigator, a conceptual software for navigating twentieth century history, and Anna and Andy, a streaming novel (2000). My works has been included in many key international exhibitions of new media art. In November 2002 ICA in London will present my mini-retrospective entitled the title Lev Manovich: Adventures of Digital Cinema.

I function both as an artist and as a theorist/critic. My book The Language of New Media (The MIT Press, 2001) has received over 40 reviews and is being translated into Italian, Korean, and Chinese. According to the reviewers, this book offers "the first rigorous and far-reaching theorization of the subject" (CAA reviews); "it places [new media] within the most suggestive and broad ranging media history since Marshall McLuhan" (Telepolis). I have also written over 50 articles on new media that have been published in 28 countries.

My recent awards include Guggenheim Fellowship 2002-2003, Mellon Fellowship from Cal Arts, 2002 Digital Cultures Fellowship from UC Santa Barbara, and 2002 Fellowship from The Zentrum für Literaturforschung.
DESCRIPTION

Soft Cinema OS is a (potentially unlimited) collection of short movies in different styles. Some are in the tradition of "film essays," some are fictional narratives, and some are non-narrative ambient music videos. Both the sound track and the visual track of each movie are constructed by software. The software decides what appears on the screen, where, and in which sequence. The decisions are based partly on a system of rules, and are partly random. In short, Soft Cinema can be thought of as a semi-automatic VJ—or more precisely, a FJ (Film Jockey).

The source material for the visual track comes from a large database of audio tracks, video clips, animations, and other media elements. Users can add their own media materials to the database.

The project explores 4 concepts:
1. "Algorithmic Cinema." Using systems of rules, software controls both the layout of the screen (number and positions of frames) and the sequences of media elements that appear in these frames.
2. "Database Cinema." The media elements are automatically selected from a large database to construct a potentially unlimited number of different narrative films.
3. "Macro-cinema." Soft Cinema imagines how moving images may look when the Net will mature, and when unlimited bandwidth and very high-resolution displays would become the norm.
4. "Multimedia cinema." In Soft Cinema video is used as only one type of representation among others: 2D animation, motion graphics, 3D scenes, diagrams, etc.

Soft Cinema OS is an interactive and Open Source version of the already completed project Soft Cinema. We have developed custom software that I use as an authoring tool to generate movies presented in an installation format. I propose to further develop software, document it, and make it available as Open Source; and also to develop an interactive version of software that will allow installation visitors to manipulate the rules controlling movies' generation.
The key differences between Soft Cinema (a sample is submitted with this application) and Soft Cinema OS are as follows:

(1) Soft Cinema uses my own database of media elements; in Soft Cinema OS users will be able to add to the database by uploading their own media elements to the Web site.

(2) Currently Soft Cinema software automatically assembles the visual track but the audio track had to be manually assembled. Soft Cinema OS software will be able to automatically construct both video and audio.

(3) Soft Cinema OS will allow the users to change the values controlling movie construction. This will require development of a suitable metaphor and an easy to use interface accessible to exhibition visitors without technical knowledge of new media.

(4) Soft Cinema OS will give the user more control over movie construction. For example, the user will be able to specify the type of montage to be used, how the values should change over time, how sound and image should be related, and so on. (I am including a screen shot of Soft Cinema software authoring tool we have developed so far.)

Feasibility

Working with a programmer from ZKM for 2 months, we have already completed a fully functional version of Soft Cinema Software. This version drives an installation presentation of Soft Cinema shown at four different exhibitions (ICA London, Video Biennale in Israel, new media festival in Greece, and Cinema Future exhibition at ZKM), all opening in November.

Additional resources will allow me to further work with the programmer and designers to add more functionality to software, document it, and prepare it for distribution. Software runs on a regular PC or MAC and therefore it suitable for wide use.

Use of Work

Soft Cinema OS will be shown as an interactive installation. Software, documentation, and
examples will be available on the Web. I plan to promote the site to encourage other new media artists and filmmakers to use this software in their own projects.

I am attaching installation plans for the presentation of Soft Cinema as a part of Cinema Future exhibition at ZKM (November 2002-2003). I plan to show Soft Cinema OS in a similar format (because of current limitations of the Net, the project cannot run online). Referencing "brandscaping" (the three-dimensional design of brand settings), early algorithmic computer art, and the logic of modernist art movements (in which painting, graphic design, architecture, and industrial design were typically driven by a single aesthetic system), we used the same algorithm to generate the screen layouts, the layout of the Soft Cinema book, and the 3D layouts of the Soft Cinema installation. If Le Courbusier’s system of proportions was based on the dimensions of a human body, our system takes as its origin the dimensions of a DV NTSC image: 720 x 480 pixels. In addition, the contrast between various types of images (video, 2D animation, etc.) used in Soft Cinema movies is translated into the contrasting materials used in the installation.

Fellowship Use

We have already completed working software that is used to generate movies in real time in the installation version of the project (title: Soft Cinema).

I am applying for the fellowship in order to:
- Further develop software, document it, and make it available as Open Source (title: Soft Cinema OS).
- Develop an interactive version of software that will allow installation visitors to manipulate the rules controlling movies’ generation.
- Expand media database and redo the sound and voice over using professional talent and facilities.
LEV MANOVICH – BUDGET

<table>
<thead>
<tr>
<th>Description</th>
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</thead>
<tbody>
<tr>
<td>Software development: adding more functionality to Soft Cinema Software,</td>
<td>$7000</td>
</tr>
<tr>
<td>documentation, development of an interactive interface accessible to general audience</td>
<td></td>
</tr>
<tr>
<td>Interface design for interactive version</td>
<td>$1500</td>
</tr>
<tr>
<td>Web design for Soft Cinema OS website where software, documentation, and samples will be available</td>
<td>$2500</td>
</tr>
<tr>
<td>Living expenses which will allow me to take a leave of absence for one quarter from my teaching job at USCD to focus on project development</td>
<td>$24000</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>$35000</strong></td>
</tr>
</tbody>
</table>

Total project budget: $41000

I will need additional $6000 for re-recording of sound for Soft Cinema sample movies using professional talent and facilities, and to work with a professional sound engineer to edit the sound recordings. I should be able to get this amount by applying for USCD faculty senate grant.
NEW MEDIA PROJECTS AND EXHIBITIONS [1996-2002]

Israel Video Biennale, Holon, Israel, November 2002.
e-magic v.0.1, Thessaloniki, Greece, November 2003.

911 Media Arts Center, Seattle, July 1999;
"Third Reality," St. Petersburg, October 1995;
"Digital Dialectics," Los Angeles, August 1995;

"Little Movies." CD-ROM version. 1996. Exhibitions:
e-magic v.0.1, Thessaloniki, Greece, November 2003.
Israel Video Biennale, Holon, Israel, November 2002.


"Data Beautiful" (www.manovich/db). Web project. 2001. Exhibitions:
(www.newlangtonarts.org/netart/informe)
Included in www.cybergeography.org.

"Anna and Andy" (www.manovich.net/aa). Web project. 2000. Exhibitions:
Israel Video Biennale, Holon, Israel, November 2002.
e-magic v.0.1, Thessaloniki, Greece, November 2003.

"Freud-Lissitzky Navigator" (www.manovich.net/FLN). Web project. 1999. Exhibitions:
Short project description published in Leonardo, forthcoming.
SHIFT-CTRL, University Art Gallery, University of California, Riverside.
"Let's Entertain," Walker Art Center, 2000. Travelling to:
    Portland Art Museum, Oregon, 2000;
    Le Centre Georges Pompidou, Paris, 2000;
    Museo Rufino Tamayo, Mexico City, 2001;
Cinema and Architecture Biennial, Graz, Austria, 1999.
Cybermedia Arts Festival, Lisbon, 1999.
Viadarte, Festival de Video y Artes Electronicas, Centro Nacional de las Artes, Mexico City, 1999.
ARCHIVING AS ART, the French National Science Research Center (CNRS), Paris, 1999
(http://www.univ-paris1.fr/CERAPLA/ArtC)
    Included in ARTBASE, an archive of net.art by RHIZOME, 1999.

    Cybermedia Arts Festival, Lisbon, 1999.
    Centro de la Imagen in Mexico City, Mexico City, 1999
    Virginia Film Festival, 1999.
    "Dissection: A New Epoch in Inter-action: an International Multimedia Art Exhibition, Museum of Macau, China, 2000 (http://www.macaumuseum.gov.mo/);
    MTN Digital/Electronic Art Exhibition, 2000, GERTRUDE POSEL GALLERY,
    JOHANNESBURG, SOUTH AFRICA (http://connect.to/digitalectronicart)
    OFFLINE@ONLINE, French-Baltic-Nordic Video and New Media Festival, Talinn, November 1998 (http://www.online.ee/~e/festivaV).
    Included in ARTBASE, an archive of net.art by RHIZOME, 1999.

GROUP EXHIBITIONS [until 1996]

Traveling in 1996-1998 to:
    Kunst.Halle.Krems (Austria),
    Stadtische Galerie Erlangen (Germany),
    Brandenburgische Kunstsammlungen Cottbus (Germany),
    Musset for Fotokunst Odense (Denmark),
    Fotomuseum Winterthur (Switzerland),
    Finland fotografiska museum (Helsinki, Finland),
    Institute of Contemporary Art (Philadelphia, USA),
    Adelaide Festival 1988 (Australia).

"Bridge – Checkpoint '95," telecommunication project between Linz, New York and Moscow, Ars Electronica,
Linz, Austria, June 1995. (Participant in a group project)

ISEA 94 (5th International Symposium on Electronic Art) Media Lounge, Helsinki, 1994

Art Faculty Show, Department of Visual Art, University of Maryland Baltimore County, Baltimore, 1994

Art Faculty Show, School of Art, Syracuse University, Syracuse, 1993

"Terra Sovietica," Rush Rhee Gallery, University of Rochester, Rochester, 1990
(One-person show)

"The End of Perspective," Pyramid Arts Center, Rochester, 1990

"The Artist and the Computer" Louisville Visual Art Association, Louisville, 1989

Electronic Imaging Show, Florissant Valley Gallery, St. Louis, 1989


Computer Graphics Show, McGovern's Bar, New York City, 1987

SIGGRAPH '85 Video Show, San Francisco, 1985
(Part of Digital Effects Demo Reel)

Computer Art Show, ADP Corporation, New Jersey, 1985

Electronic Art Show, New York City Art Expo, 1985

"International Printmaking," Drew University, 1984

Apartment show, Moscow, 1980

COLLABORATIVE ART PROJECTS

Text and voice over for “Zuse's Filmstrip,” an installation by Caspar Stracke, 2002.

Videography for a CD-ROM "Databank of the Everyday" by Natalie Bookchin, 1996.

Computer animation for "Traces of a Presence to Come" (39:00), directed by Irit Batsry, 1993.

Computer animation for "WAX or the discovery of television among the bees" (85:00), directed by David Blair, 1991.

SELECTED PRESS

Wired 10.08 (August 2002), p. 54.


Steve Beard, "Lev Manovich," Cre@te Online 15 (August 2001), 42-45.


Mathieu Copeland, "Le multimédia & l'art contemporain", "*Le Studio Multimedia* 28 (France), November 2000.


Barbara Enzig, "Hacking the Culture at UC San Diego," *ARTBYTE* 2, no. 2 (Summer 1999), 70.


**PROFFESIONAL SERVICE [selection 2000-2002]**

Curator, New York Digital Salon, 2002

Member, The Host Committee for NewFangle, GenArtSF, an annual exhibition of technology-based work by Bay Area Artists, 2002.


Nominator, Rockfeller New Media Art Fellowship, Rockfeller Foundation, 2002.


Member, an editorial advisory board for a series in culture and technology 'Digital Futures' at University of Toronto Press (http://www.utppublishing.com/series/digitalfutures.html), 2002-

Member, advisory board, New York Digital Salon, 2001 -

Member, advisory board, The Bit Screen and Streaming Cinema, 2001 -

Member, advisory board, NMEDIAC: The Journal of New Media & Culture, 2001 -

Nominator, New Media Art Fellowship, Rockefeller Foundation, 2001.

Participant, a planning workshop to establish a fellowship in new media, Social Science Research Council 2001.

Contributing Editor, Artbyte journal, 2001

EDUCATION

UNIVERSITY OF ROCHESTER, 1989-1993
Ph.D. in Visual and Cultural Studies, 1993
Coursework in art history, literary theory, film theory and cultural studies.
Dissertation title: "The Engineering of Vision from Constructivism to Virtual Reality"

NEW YORK UNIVERSITY
M.A., Department of Psychology, 1988
Coursework in image processing, computer vision, visual perception, cognition.
Thesis: a software package for simulation of mathematical models of human vision

B.A., 1985
Gallatin Division 1983-1984
Department of Film and Television, Tisch School of the Arts, 1982-1983

ADDITIONAL STUDIES

Cornell University, Graduate Student Exchange Scholar, 1991-1992
International Summer Institute for Semiotic Studies, University of Toronto, 1990
NEH Summer Institute "Theory and Interpretation in the Visual Arts," University of Rochester, 1989
Art Students League, New York, 1983
Moscow Institute of Architecture, 1977-79
Classical Drawing Workshop, Moscow, 1975-1977
School of Fine Arts, Moscow, 1974-1975

GRANTS AND FELLOWSHIPS

Guggenheim Fellowship, 2002-2003
Digital Culture Fellow 2002, The Digital Cultures Project, University of California, Santa Barbara
2002 Fellow, The Zentrum für Literaturforschung, Berlin
Academic Senate Research Fellowship, UCSD, 2000-2001
Humanities Center Fellowship, UCSD, 2000
Chancellor's Associates Faculty Grant, 1999-2000
Hellman Faculty Fellowship, UCSD, 1997-1998
Summer Faculty Fellowship, UCSD, 1997
Faculty Career Fund Fellowship, UCSD, 1997-1998
Academic Senate Research Fellowship, UCSD, 1996-1997
Critic in residence, Medialabor Munich, Munich, May 1996
Villa Waldberta residency, Cultural Department, Munich, May 1996
Mellon Fellowship in Art Criticism, California Institute of the Arts, 1995-1996
Special Research Initiative Support award, University of Maryland, 1994-1995
Faculty Development Grant, University of Maryland, 1994
Summer Faculty Fellowship, University of Maryland, 1994
Research Grant, Center in Russian and East European Studies, University of Illinois, 1991
University of Rochester Graduate Fellowship, 1990-1992
National Institute of Health Fellow, 1987-1988
New York University Graduate Fellowship, 1986-1988
Dean's Fellowship, Graduate School of Arts and Sciences, New York University, 1987-1988
Founder's Day Award, New York University, 1984
Dean's Fellowship, New York University, 1984

TEACHING POSITIONS

UNIVERSITY OF CALIFORNIA, SAN DIEGO, USA
Associate Professor of New Media Art, Visual Arts Department, 2000 -
Assistant Professor of New Media Art, Visual Arts Department, 1996 - 2000

UNIVERSITY OF MARYLAND BALTIMORE COUNTY, USA
Assistant Professor of Imaging and Digital Arts, Visual Arts Department, 1993 - 1996

VISITING POSITIONS

VEVEY SCHOOL OF PHOTOGRAPHY, Vevey, Switzerland
Workshop “Post-photographic Representation,” June 2002

UNIVERSITY OF ART AND DESIGN, HELSINKI
Visiting Professor, Media Lab, Fall 2000
MA workshop “Info-Aesthetics: Representing Information Society”

AMSTERDAM UNIVERSITY, AMSTERDAM
Visiting Professor, Department of Film and Television, Fall 1999
Co-teaching MA course “Film History as Archeology of New Media” with Thomas Elsessauer;
MA course “The Language of New Media”

STOCKHOLM UNIVERSITY, STOCKHOLM
Visiting Professor, Department of Cinema Studies, September 1999
Ph.D. seminar “The Language of New Media” for students in Film Studies Department, Stockholm
University and Centre for User Oriented IT Design, Royal Institute of Technology, Sweden

CALIFORNIA INSTITUTE OF THE ARTS, USA
Mellon Fellow in Art Criticism, Division of Critical Studies, 1995-1996
Undergraduate course, "Art, Digital Media and Cyberculture," 1995
UCLA, School of Film and Television, Laboratory for New Media, USA  
Visiting instructor, winter 1996  
"Digital Movie Making" course for MFA students in film and Ph.D. students in Critical Studies

ART CENTER COLLEGE OF DESIGN, USA  
Graduate Advisor, 1995

UNIVERSITY OF SYRACUSE, USA  
Visiting Assistant Professor, Department of Art Media Studies, 1992-1993  
Courses in computer graphics, computer animation, computer graphics programing

UNIVERSITY OF ROCHESTER, USA  
Department of Art and Art History  
Instructor, "Vision Machines from Renaissance to Computer Age," 1992

FILM/VIDEO ARTS, New York  
Instructor, workshop on computer graphics and animation, 1990

PUBLICATIONS

BOOKS

Metamediji [Macromedia]. Belgrade: Centre for Contemporary Arts, 2001  
(This book published in Serbian consists from five previously published articles and an introduction.)

Selected as the book of the month (8/01) in Resource Center for Cyberculture Studies

Book reviews - US:
Artbyte, review by Steven Shapiro, May 2001.  
Rhizome, review by Marisa S. Olson, July 2001.  
Resource Center for Cyberculture Studies, review by Katie Mondloch, August 2001.  
CAA Reviews, review by by Katie Mondloch, summer 2001.  
Afterimage, review by Are Flagan, July/August 2001.  
Forecast (Bridgewater, NJ), short review, Nov. 2000.  
RES, review, Spring 2001.  
Artmargins, review by Inke Arns, 2002.  
Wired 10.08, short review, August 2002, p. 54.

Book reviews – Other Countries:
DPiCT, review, April/May 2001.
Financieel Economische Tijd (Brussels), review by Pieter van Bogaert, August 2001.  
Visio (Helsinki), review by Erkki Huhtamo, April 2001.  
Mute 20, review by Josephine Berry, June 2001.  
Cre@te Online (London), review, August 1, 2001.  
rai.it (Web portal of Italian TV), review by Marco Deseriis, July 2001.  
Frankfurter Allgemeine Zeitung, review by Bernhard Dotzler, March 8, 2002. Germany.  
Texte zur Kunst, review by Martin Conrads, 2001 Germany.  
The Art Book (UK), review, March 2002.  
Telepolis, review by Tilman Baumgaertel, 2002. Germany.  
Dichtung Digital, review by Heiko Idensen (http://www.dichtung-digital.com/2002/03-22-ldensen.htm) (Germany)  
Sueddeutsche Zeitung, review by Cornelia Vismann (www.sueddeutsche.de), Munich, 2002.<http://szonnet.diz-muenchen.de/REGIS_A14132993>  
Xi (Amsterdam), review, 2002.  
De Witte Raaf 97 (May-June 2002), review by Paul de Vylder www.dewitteraaf.be  
Zurcher Kultur (Switzerland), review by Stefan Zucker, May 17 2002.  
Dichtung Digital, review by Inke Arns (Germany), 2002.  
Film-Philosophy, London, review, forthcoming.

BOOKS IN PROGRESS


BOOKS, EDITED

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